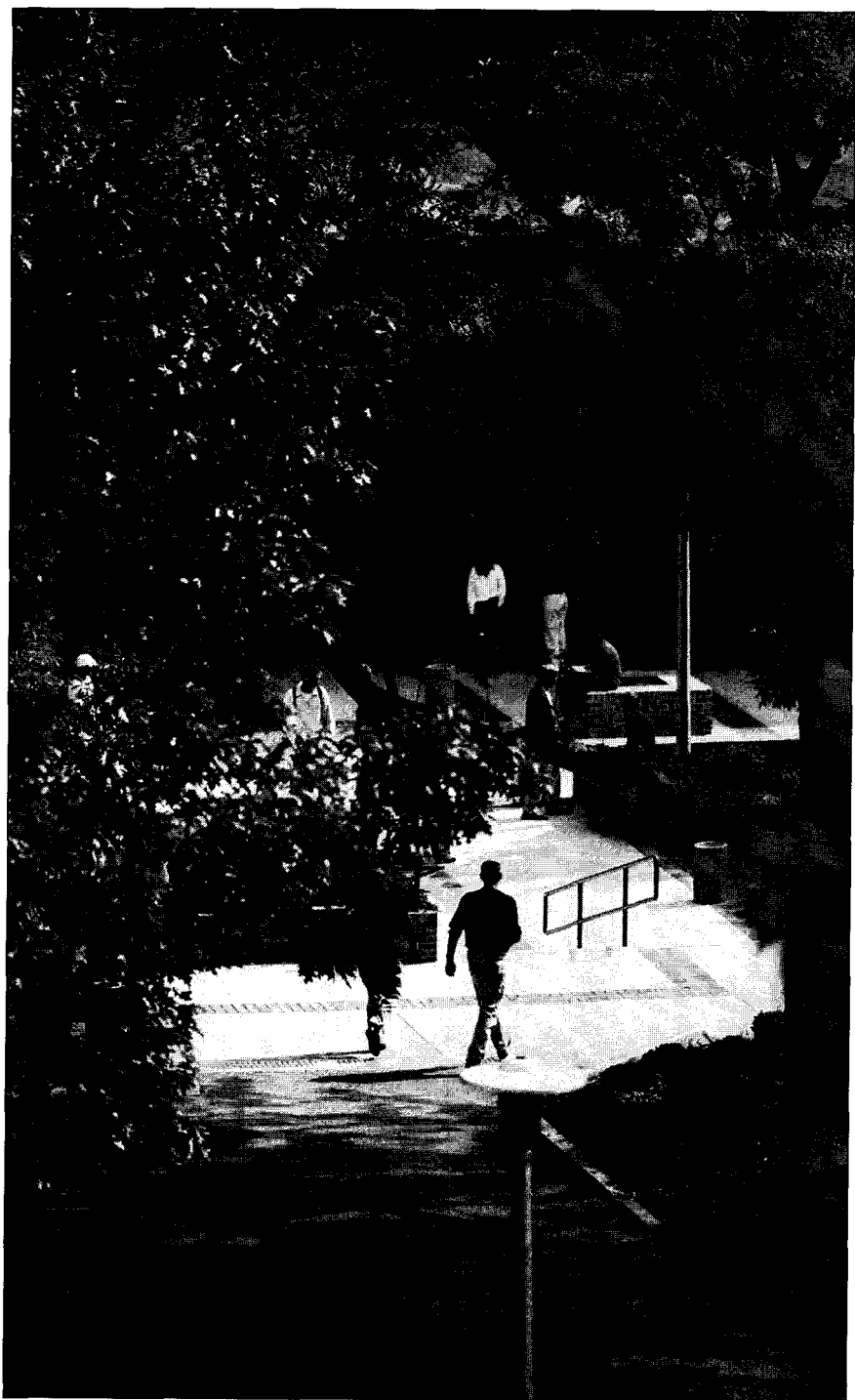


CALVIN

College



Catalog 1998/99



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1998-1999

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Important Deadlines for Students

- Final day to add classes
- Final day to file requests to take exemption or credit exams
- Final day to change from credit to audit or audit to credit
- Final day to drop course
- Final day to remove incompletes from the previous semester

Fall Semester

- September 14
- October 2
- Nov 6
October 2
- November 6
- December 1

Spring Semester

- February 5
- February 26
- APR 9
February 26
- April 9
- May 1

Academic Calendar

The Fall Semester 1998

September	1	Tuesday	Faculty conference
	2	Wednesday	Residence halls open
	2-5	Wednesday-Saturday	Orientation and registration
	8	Tuesday	First semester classes begin 8:00 a.m. Convocation 9:45-10:40 a.m.
October	27-28	Tuesday-Wednesday	Reading recess and spring/interim advising
	29- Nov. 6	Thursday-Friday	Registration for interim and spring semester for all currently enrolled students
November	25	Wednesday	Thanksgiving recess begins 10:00 p.m.
	30	Monday	Classes resume 8:00 a.m.
December	11	Friday	Classes end 5:00 p.m.
	12	Saturday	Reading recess
	14	Monday	Examinations begin 9:00 a.m.
	18	Friday	Examinations end and Christmas vacation begins 10:00 p.m.

The Interim 1999

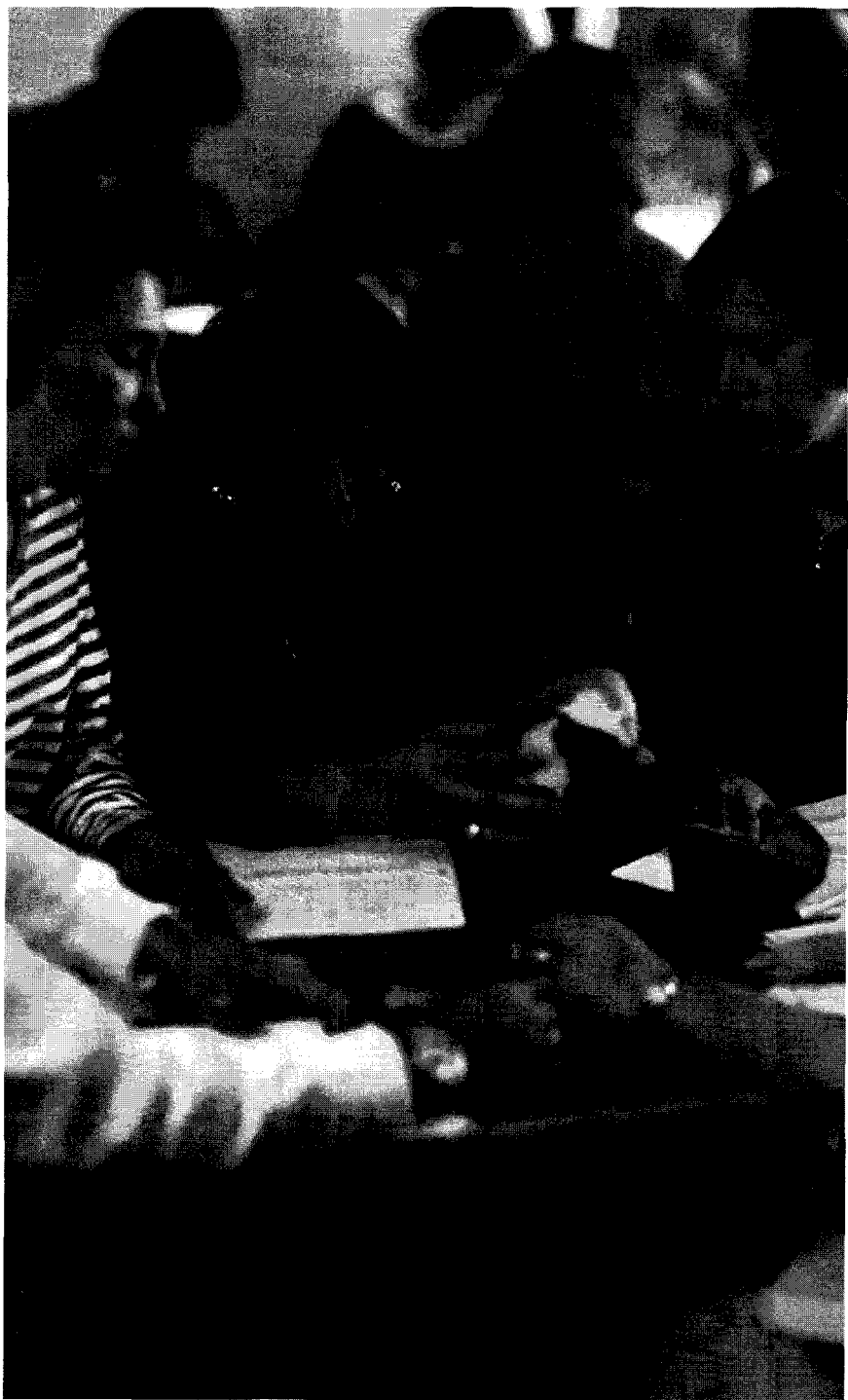
January	7	Thursday	Interim term begins 8:00 a.m.
	27	Wednesday	Interim term ends 5:00 p.m.

The Spring Semester 1999

February	1	Monday	Spring semester classes begin 8:00 a.m.
March	19	Friday	Spring vacation begins 5:00 p.m.
	30	Tuesday	Spring vacation ends; classes begin 8:00 a.m.
April	2	Friday	Modified class schedule; classes end 12:30 p.m.; Good Friday service begins 1:00 p.m.
	13-14	Tuesday-Wednesday	Reading recess/academic advising
	16-23	Friday-Thursday	Registration for fall semester Registration ends
	22	Thursday	Honors Convocation
May	12	Wednesday	Classes end 10:00 p.m.
	13	Thursday	Reading recess
	14	Friday	Examinations begin 9:00 a.m.
	19	Wednesday	Examinations end 10:00 p.m.
	21-22	Friday-Saturday	Commencement activities Commencement 3:00 p.m.

The Summer Sessions 1999

May 25 - June 15 or 22	Summer Session I Three week session ends June 15 Four week session ends June 22
June 24 - July 15 or 22	Summer Session II Three week session ends July 15 Four week session ends July 22 No classes Monday, July 5
July 26 - August 13	Summer Session III Three week session ends August 13



Mission of the College

Vision

Calvin College is a comprehensive liberal arts college in the Reformed tradition of historic Christianity. Through our learning, we seek to be agents of renewal in the academy, church, and society. We pledge fidelity to Jesus Christ, offering our hearts and lives to do God's work in God's world.

Purpose

Our primary purpose is to engage in vigorous liberal arts education that promotes lifelong Christian service. We offer education that is shaped by Christian faith, thought, and practice. We study and address a world made good by God, distorted by sin, redeemed in Christ, and awaiting the fullness of God's reign. We aim to develop knowledge, understanding, and critical inquiry; encourage insightful and creative participation in society; and foster thoughtful, passionate Christian commitments. Our curriculum emphasizes the natural, cultural, societal, and spiritual contexts in which we live; our teaching respects diverse levels, gifts, and styles of learning; and our learning proceeds as a shared intellectual task.

Another purpose is to produce substantial and challenging art and scholarship. We pursue intellectual efforts to explore our world's beauty, speak to its pain, uncover our own faithlessness, and proclaim the healing that God offers in Jesus Christ. We strive to embrace the best insights of Christian life and reflection; engage issues in the intellectual and public spheres; and enrich faith by the heritage of the past and the discoveries of today. Our faculty and staff are committed to keen and lively work in their chosen fields and to sharing its fruits with others.

We are also called to perform all our tasks as a caring and diverse educational community. We undertake our tasks in response to a divine calling. Together we challenge ourselves to excellence as we acquire knowledge, cultivate aspirations, and practice lives of service. We seek to gather diverse people and gifts around a common pledge and purpose; pursue justice, compassion, and discipline; and provide a training ground for the life of Christian virtue. Our classrooms embody a community of faith and learning extending across campus and beyond.

Commitment

We profess the authority of scripture and the witness of the ecumenical creeds. We affirm the confessions and respect the rich traditions of Reformed believers worldwide and, in particular, those of the Christian Reformed Church. We aim to enhance the cultural life about us and to address local needs. In all we say and do, wherever we may be, we hope to follow and further the ways of God on earth.

Christian Community

Calvin College is a Christian academic community of faculty, students, and staff who come together for the purpose of pursuing liberal arts education in the Reformed Christian tradition. Members of the community experience the common bond of lives committed to Jesus Christ, of relationships guided by biblical principles of love, justice, and righteousness, and of gifts used for God's glory and the furtherance of His kingdom.

A commitment of the community is to seek, nurture, and celebrate cultural and ethnic diversity, in obedience to the biblical vision of the kingdom of God formed "from every tribe and language and people and nation." Its members are part of the family of Christ that

transcends ethnic, cultural, racial, gender, and class boundaries; a community in which each member earnestly desires to use his or her gifts for the service and support of the other members. The Calvin community has come together from wide-ranging backgrounds and places. Personal and spiritual maturity is uneven; expectations and goals, diverse. Obviously unanimous agreement by every member on the community's shared commitments is quite impossible. While no one is forced to acknowledge Jesus Christ as Lord, each one who has chosen to join the Calvin community thereby declares he or she is willing not to violate the community's values and commitments. While each member is chiefly accountable to God for his or her own life's pattern, all members also bear responsibility to and for one another in this community. God's infallible Scripture provides a trustworthy guide for our faith and life together. In addition to the explicit teachings of Scripture which members strive to uphold, the college community also chooses to maintain certain standards of behavior for prudence and good order in our life together.

The History of the College and its Objectives

Calvin College is a college of the Christian Reformed Church, a century-old denomination with a five-century-old heritage. It bases its whole faith and life on the sacred Scriptures, God's holy, inspired, infallible Word, and thus takes its stand with the churches which have their roots in the Protestant Reformation.

In America the Christian Reformed Church traces its origin to a band of immigrants who sought freedom in the nineteenth century from the established church of the Netherlands. They settled in western Michigan and, after an early period of religious unrest among the thousands of Dutch settlers who soon joined the earlier immigrants, organized the Christian Reformed Church in 1857.

The Christian Reformed Church subscribes to three statements of faith (in addition to the early Christian Apostles Creed) which stem from the Reformation period: the Heidelberg Catechism, which is the most famous and widely translated of all Reformation creeds; the Confession of Faith written by the Belgian theologian, Guido de Brés, in 1561; and the Canons of Dort.

The Christian Reformed Church stresses the sovereignty of God in every part of life — in the family, the church, the state; in world affairs; in economic, social, and political life; in business; and in learning and the arts.

The founding date of Calvin College and Seminary is 1876. In that year the Christian Reformed Church adopted a six-year curriculum for ministerial training. The first four of these years were spent in the Literary Department and the last two in the Theological Department. In 1894 students who were not pre-theological students were admitted to an expanded curriculum, and thus the school became a type of preparatory school or academy. In 1900 the curriculum was further broadened and made more attractive to students interested in teaching or in preparing for preprofessional courses in the universities. By 1906 the Literary Department, which provided the four years of preparatory and two years of college work, became known officially as the John Calvin Junior College. The two-year college in time became a four-year college, and the preparatory department was discontinued. In 1921 Calvin College awarded its first Bachelor of Arts degree.

The school, which had started with seven students, grew slowly during the early years, but by 1930 it had reached its pre-World War II size of 350–450 students. By 1950 the enrollment had climbed to 1,270 and now is approximately 4,100.

The curriculum has expanded to include professional training in a variety of fields, but the college maintains a strong commitment to its liberal arts curriculum as a means to develop students' understanding of God's world and their place in it.

Government

The corporate name of the college is Calvin College. It is governed by a single board of trustees which represents the ecclesiastical geographical districts of the church. The mem-

bership of the board is constituted of representatives elected by the various classes, nominations from the alumni association and by the board of trustees. These are approved by synod. The Board of Trustees meets in October, February, and May. An executive committee functions for the board throughout the academic year.

Compliance with Legal Requirements

Calvin College, in accordance with Title VI of the Civil Rights Act of 1964, operates in a non-discriminatory manner with regard to race, color, age, or national origin. Furthermore, as required by Title IX of the 1972 Education Amendments, Calvin College does not discriminate on the basis of sex in its educational programs, activities, or employment policies. Calvin College also provides equal opportunity for qualified handicapped persons in accordance with the requirements of Section 504 of the Rehabilitation Act of 1973, and the Americans with Disabilities Act of 1990. Instructional and other physical facilities are readily accessible to handicapped students and special rooms in the residence halls are designed for barrier-free living. The Director of Student Academic Services provides advice and support to students with disabilities. Inquiries and appeals regarding compliance with these federal requirements should be directed to the Vice President for Administration and Finance, Calvin College Financial Services Office, as Civil Rights, Title IX, and Section 504 coordinator. Student appeals will be heard by the Academic Standards Committee.

Accreditation and Affiliation

Calvin College is accredited by the Commission on Institutions of Higher Education of the North Central Association of Colleges and Schools. It is also accredited by the American Chemical Society, National Association of Schools of Music, and the National Council for Accreditation of Teacher Education. The Hope-Calvin Nursing Program is accredited by the National League for Nursing and the Michigan Board of Nursing; the Engineering Program is accredited by the Accreditation Board for Engineering and Technology; and the Social Work Program is accredited by the Council on Social Work Education. The accreditation documents from these agencies are on file in the Office of the Provost and are available for review in that office upon request.

The College also has membership in a number of professional associations and organizations. It is on the American Association of University Women list of institutions qualified for membership in the association. It maintains membership in the American Council on Education, the Association of Independent Colleges and Universities of Michigan, the National Association of Independent Colleges and Universities, the American Association of Colleges for Teacher Education, the Mathematical Association of America, the Michigan Academy of Sciences, Arts, and Letters, and the American Mathematical Society. It is a member of the Christian College Coalition, Michigan Campus Compact and is an affiliate member of the American Society of Engineering Education.

Calendar, Summer School

The academic calendar at Calvin College forms the typical 4-1-4 plan consisting of two semesters, each approximately four months in length, plus a one-month interim term in January. Students normally take 12-17 semester hours during each of the two semesters and 3 semester hours during the interim. A reading recess during the first semester and the spring vacation during the second provide an opportunity for students to do research and to complete major projects.

The summer school consists of three sessions; a student is permitted to register for one regular course during each session.

Student Life and Services

Student life on campus and its regulation

The aim of Calvin College is to prepare students to live productive lives of faith to the glory of God in contemporary society — not merely lives that have a place for religion, or lives which formally relate religious commitment to the academic disciplines, but lives which in every part, in every manifestation, in their very essence, are Christian. Accordingly, the college attempts, through its rules, its organizations, and the counsel of its personnel, to show students how a life of commitment can be lived in their rooms, on the athletic field, in their academic work, and in daily religious practices. This matter of being totally Christian cannot be deferred until graduation. Confrontation with the secular world, cooperation with Christians in common cause, and the development of personal expressions of faith must be part of current college life. This being in the world while not of it, this testing of the spirits, whether they be of God or not, this searching, seeking, learning, trying — this is the business of Christian education at Calvin.

Worship and Christian Service

To grow in loving devotion to God is the goal our Lord places before everyone who belongs to Him. All members of our community, students and staff alike, are encouraged to make personal devotional time part of the rhythm of their daily schedules. In addition, Calvin College wants its members to participate in the other opportunities on campus that will nurture this devoted love for God.

Public worship is a means of acknowledging God's presence in our lives and maturing in our faith. All students, therefore, are expected to attend one of the many churches located throughout the area and/or The LOFT (Living Our Faith Together) held in the chapel on Sunday evenings at 7:30 p.m.

Chapel services are held weekdays at 10:00 a.m. in the chapel. The college keeps this interlude in its daily schedule so that students and staff may affirm their dependence upon God and grow toward one another in Christian community. In addition to the main service held in the chapel sanctuary, a series of foreign-language worship services and group devotions are held regularly in the smaller meditation chapel located in the lower level of the chapel. The college encourages students to make communal worship part of their routines.

Numerous opportunities exist for other voluntary religious activities, including Bible study groups, faculty-student mentoring groups, prayer groups, Christian service and evangelistic outreach projects, and group fellowships such as InterVarsity Christian Fellowship and Campus Crusade.

If a student desires pastoral counseling, he or she is encouraged to contact a local pastor or the college chaplain, Dale Cooper (x6244; coop@calvin.edu).

The Fine Arts

Many sorts of fine arts activities thrive at Calvin both as part of the academic life and as the result of spontaneous student interest. Bands, orchestras, choral groups, and chamber ensembles are part of the program of the Department of Music for the participation of all qualified students. Theatrical productions, including Calvin Theatre Company activities, are sponsored by the Department of Communication Arts and Sciences. Students from all departments participate. The long Calvin tradition of creative writing for publication and for private reading is encouraged by the members of the Department of English. *Dialogue*, a student literary magazine, and *Chimes*, the campus newspaper, provide opportunities for student publication.

The Department of Art seeks to arouse interest in the various visual arts. It sponsors workshops, visiting artists, and speakers. Regular educational exhibitions in the Center Art Gallery and a visible permanent art collection provide visual stimulation, aesthetic quality, and an enhancement of the total Calvin environment through the celebration of a rich cultural heritage and support of the art activities of students, faculty, alumni, and other Christians. The student-organized Fine Arts Guild and its subguilds in Dance, Visual Arts, Music, and Writing provide independent expression and dialogue regarding the arts among all the students.

Intercollegiate and Intramural Athletics and Recreation

Intercollegiate athletics play an important role in student life at Calvin. Calvin is a member of the Michigan Intercollegiate Athletic Association (MIAA) and the National Collegiate Athletic Association (NCAA). Calvin men compete in cross-country, golf, basketball, soccer, swimming, baseball, track, and tennis. Calvin women compete in cross-country, golf, volleyball, basketball, swimming, track, softball, tennis, and soccer. We also have club teams in men's hockey, volleyball and men's and women's lacrosse. To be eligible to participate in intercollegiate athletics, a student-athlete must be enrolled in a minimum of 12 semester hours each semester, be in academic and disciplinary good standing, and be making normal progress toward graduation. Academic good standing is defined in the table and notes found on page 26 of this catalog and the disciplinary standards are listed in the Student Handbook. Students on disciplinary probation are ineligible to participate in intercollegiate athletics. For the purposes of athletic eligibility, normal progress toward a degree is defined as accumulating at least 12 semester hours of credit each semester **plus** the completion of 3 interim courses in a 4-year program.

Intramurals are also an important phase of the physical education program and provide all students with the opportunity to participate throughout the year in a variety of programs.

Both indoor and outdoor facilities are available for recreation whenever classes or scheduled contests are not being conducted. The Physical Education Building and Natatorium are usually open for student recreation daily except Sunday.

Student Senate and Other Organizations

The Student Senate serves as an advocate for student issues. It also allocates the budgets of student organizations and concerns itself with student publications, homecoming, film arts, the campus radio station, and similar groups.

Nearly forty student organizations exist on campus, some of which are related to particular academic departments. All organized clubs have a faculty advisor and receive formal approval through the Student Life Committee.

Service-Learning Center

The Service-Learning Center is the hub for student and faculty involvement in the community. The mission of the S-LC is "Serving to Learn . . . Learning to Serve." At Calvin College, Service-Learning refers to activities that are designed to contribute to the meeting of community or individual needs and to aid in the development of the knowledge and understanding of the service-giver. Although students learn in a variety of areas through service-learning, the S-LC encourages four broad learning goals for all participants:

1. *To learn to relate to others — even the poor, the sick, the outcast, the old — as bearers of God's image.*
2. *To bridge social and economic barriers between people.*
3. *To understand the broader context and causes of the needs that exist.*
4. *To discover and develop a personal vision and capacity for service in a broken world.*

Students participate in the Service-Learning Center primarily through weekly service

activities with emphasis on building relationships with the most disadvantaged people in the community: children in inner-city public schools and low-income neighborhoods, people with physical and mental handicaps, isolated and lonely elderly people, people with very limited economic opportunities. The Service-Learning Center keeps updated information on opportunities in the community — both short- and long-term — for involvement.

Most students are involved in service-learning in the community through academically-based service-learning. This is service performed within the context of a course in the curriculum. The faculty has defined academically-based service-learning as “service activities that are related to and integrated with the conceptual content of a college course, and which serve as a pedagogical resource to meet the academic goals of the course as well as to meet community or individual needs.” Courses in which students could be involved in service activities as either requirements or options have been offered in at least sixteen disciplines from Computer Science to Philosophy — representing a broad spectrum within the curriculum. The Service-Learning Center can provide more specific information to students about courses that include academically-based service-learning.

The Service-Learning Center also has a leadership development program that supports students planning a variety of co-curricular projects. Examples include residence hall community partnerships, spring break service projects, Big Brothers and Sisters projects, and blood drives. The Service-Learning Center offers numerous opportunities for students to become involved in leading or participating in co-curricular projects.

Student Conduct

Admission to Calvin College is a privilege that may be withdrawn from any student who does not meet the academic standards of the college. In addition, the college not only expects students to conduct themselves both on and off campus in accord with the Christian goals and standards of the college but also may refuse admission to, may discipline, or may expel any student who in its judgment displays conduct or attitudes unworthy of the standards of the college. The *Student Handbook* and *Residence Hall Living* booklets describe the regulations and their implementation.

The *Discipline Code*, approved by the Faculty, the Student Senate, and the Board of Trustees, is the official document which spells out college regulations and judicial processes. A copy of this code, included in the *Student Handbook*, is also available at the Student Life Office.

While the Code does not seek to develop a detailed and exhaustive summary of what a student may or may not do, it does contain, in addition to Christian principles of behavior, a list of proscribed conduct. Among those actions are all kinds of dishonesty, acts of violence, disruption of institutional activities, theft, unauthorized entry, sexual misconduct or harassment, use of alcoholic beverages on campus and at extended campus events, drunkenness, profane and obscene language and use of illegal drugs. Sanctions for misconduct range from verbal warning to expulsion.

The judicial processes require a hearing before the designated college administrators or before the Student Discipline Committee, guarantee student rights to testify, to examine evidence, and to have a student or faculty member advise them at the hearings, and provide for appeal to higher judicial bodies.

Student Protest and Appeals Procedure

At Calvin College the goal to become a model Christian academic community should direct the attempts to resolve conflicts which may occur between students and faculty members. We would expect that members will all “accept one another — ” (Romans 15:7) and that student protest and appeal will occur infrequently and only over matters of significance to the calling as Christian faculty members. Moreover the process of protest should be one which should lead to restoration of Christian community in which the members are affirmed and express love for one another.

1. On occasion (rarely, we trust) a student may have criticism of a professor for which he or she requests some action. Criticisms may regard the requirements of a course, the nature of a test, a grade received, teaching effectiveness, personal life-style, general performance, or sanctions given for academic dishonesty. The student should present such criticism directly to the faculty member. The student criticism should be heard and given serious attention by the faculty member.
2. If the faculty member's response does not satisfy the student, or if the student, for good reason, does not feel free to approach the faculty member, the student should bring the criticism to the department chairman or the academic dean. The chairman or the academic dean should work for resolution.
3. If the student or faculty member does not accept the advice of the chairman or academic dean, the academic dean will suggest one of the following procedures:
 - a. If the complaint regards a sanction given by a faculty member for academic dishonesty, the student must follow the procedure outlined in "The Student Conduct Code and Disciplinary Procedures" found in Appendix GG of the Expanded Handbook for Teaching Faculty.
 - b. If the protest is on matters other than sanctions given by a faculty member for academic dishonesty, the academic dean will refer the issue to an ad hoc committee of two faculty members, a student, and the academic dean.

The ad hoc committee should hear the student protest and hear the professor's response, as well as collect appropriate material evidence. The student, if he or she so chooses, may ask a student, faculty member, or a Student Life Division Dean to give counsel at this hearing. The committee should work for resolution of the differences and prepare a written recommendation to the Provost, a copy of which will be sent to the student and faculty member.

4. The decision of the ad hoc committee may be appealed to the Provost by either the student or the faculty member. In cases where the student protest involves the academic standards, i.e., course requirements or grades, the decision may be appealed to the Academic Standards Committee. Cases where the protest involves teaching effectiveness, professional standards, religious commitment, or personal life-style may be appealed to the Professional Status Committee.
5. The report of either of these committees will be advisory to the Provost, who will prepare a recommendation for the President.
6. Further appeals by the student or faculty member would be to the President and by way of the President to the Board of Trustees. Correspondence addressed to a member of the Board of Trustees should be sent to the Board of Trustees office, Spoelhof Center. Such correspondence is routinely opened by a member of the Board staff and forwarded to the person to whom it is addressed and to the President. If the correspondence is marked "confidential", it will be forwarded unopened to the trustee to whom it is addressed.
7. Students who wish to appeal a decision of another nature should contact the registrar or Vice President for Student Life to determine the appropriate process.

Housing Regulations

First-year and sophomore students under 21 years of age not living at home are required to stay in the Calvin College residence halls. Juniors and seniors (students who have successfully completed 58 semester hours or more), married students, and students who graduated from high school at least two years prior to the fall semester may choose their own type of housing and are permitted to reside off campus.

The college requires all students to register their place of residence with the Housing Office and to notify that office of all changes in residence during the period of their enroll-

ment. Information on available housing and further interpretation of these rules is available from the college Housing Office.

Use of Motor Vehicles

Motor vehicles owned or operated by Calvin students must be properly registered with the Campus Safety Department and must carry an official college vehicle permit. Motor vehicles may be parked only in approved student parking areas, and the drivers will be fined if they park elsewhere. Because parking areas are limited, parking regulations are strictly enforced. The driving regulations and requirements of the Michigan Motor Vehicle Code apply to all driving on the campus.

Health Services

The college provides limited outpatient medical care for all registered students. Charges for services provided are kept as low as possible. Health Services, located in the lower level of Heyns Hall, is staffed on weekdays during the college academic year by registered nurses and consulting physicians. Serious health problems are referred to the student's family physician or to the local physician of choice after discussion with Health Services personnel.

In addition to caring for health problems the Health Services staff encourages health teaching and preventive medicine. For the protection of everyone in the Calvin community, current health care provider-documented immunization status for polio, diphtheria, pertussis, tetanus, measles, mumps, rubella, and tuberculin skin testing is expected from undergraduate students entering Calvin. The Hepatitis B vaccine is strongly recommended. A late fee is applied to those not in compliance at the end of the first month of classes.

A Group Accident and Sickness Insurance Plan is available to all students on a relatively low-cost, voluntary basis. This plan provides limited basic benefits for accident, illness, and hospitalization. International students are required to carry such insurance and will automatically be enrolled in Calvin's Group plan if they are not comparably insured. All students are strongly urged to be certain they have adequate broad-range coverage. Family plans for married students are also available. Information is available during summer orientation and in the Financial Services Office.

The college is not normally liable for injuries sustained by students in their activities as students, even though such injuries occur on college premises, in laboratory work, or in physical education classes. The college does not undertake to be the insurer of its students, and its liability under the law must be based on fault. It is necessary, in order to establish the liability of the college for such injuries, not only to prove negligence or carelessness on the part of the college, but also to show that the student was free from any negligence or carelessness which might have contributed to the injuries. Accordingly, students are advised to be certain that they are covered by personal health and accident insurance.

Orientation and Advising

All first-year students are required to participate in Passport, a program of orientation held during the summer or just prior to fall orientation. Guided by upperclass students serving as orientation leaders, they will meet key faculty members and administrators, receive information about college academics, activities and facilities, obtain registration materials, and meet with a faculty advisor to plan for the fall semester. Transfer student orientation takes place during a special Passport session or just prior to the beginning of the fall semester. All students are assigned individual advisors from the faculty. These faculty members keep office hours during which they are available to assist students in making decisions about courses and programs.

Students are expected to assume responsibility for obtaining academic advising. They must keep themselves informed about curriculum requirements, both in the core curriculum and in their programs of interest; they are expected to initiate conferences with

their advisors and to come prepared with up-to-date information about the courses they have completed; and they must be aware of academic deadlines and regulations.

By the end of the sophomore year, each student must work out with a faculty advisor the appropriate counseling forms defining a program which will lead to graduation. This usually requires declaring a major in a given department or group of departments. The Associate Registrar for Advising and other staff in the Registrar's Office are available to help students with advising problems.

Additional specialized advising is offered through Student Academic Services. The Broene Counseling Center offers career testing and counseling for helping students to select a major and/or career.

Hekman Library

The completely automated Hekman Library, at the center of the campus, serves students of both the college and the seminary. Its 700,000-volume equivalent collection of books, bound periodicals, and government documents is distributed over four floors of open stacks which are arranged according to the Library of Congress classification. The Digital Research Center, a prototype of the Twenty-First Century library, provides electronic access to the Internet, World Wide Web, and thousands of digital resources. Approximately 2,700 current periodicals are available for use in the library. Three major microfiche collections, The Library of American Civilization, The Library of English Literature, and ERIC are part of the 680,000-item collection of microfilm, microfiche, and microcards. The library contains approximately 1,000 study spaces, mainly in individual study carrels and at tables. There are also seminar rooms and a spacious lounge.

Several special collections are housed in the library. The H. H. Meeter Calvinism Research Collection, located on the fourth floor of the library, is one of the most extensive collections of books and articles on John Calvin and Calvinism available anywhere. The Colonial Origins Collection, which consists of manuscripts, archives, and other records of the Christian Reformed Church, its leaders, its Dutch origins, and closely related institutions, is located on the second floor of the library. The Calvin Library is a partial depository of government documents, holding approximately 125,000 items. Cayvan Services with its many recordings and tapes is available for both the study and enjoyment of music.

Information Technology

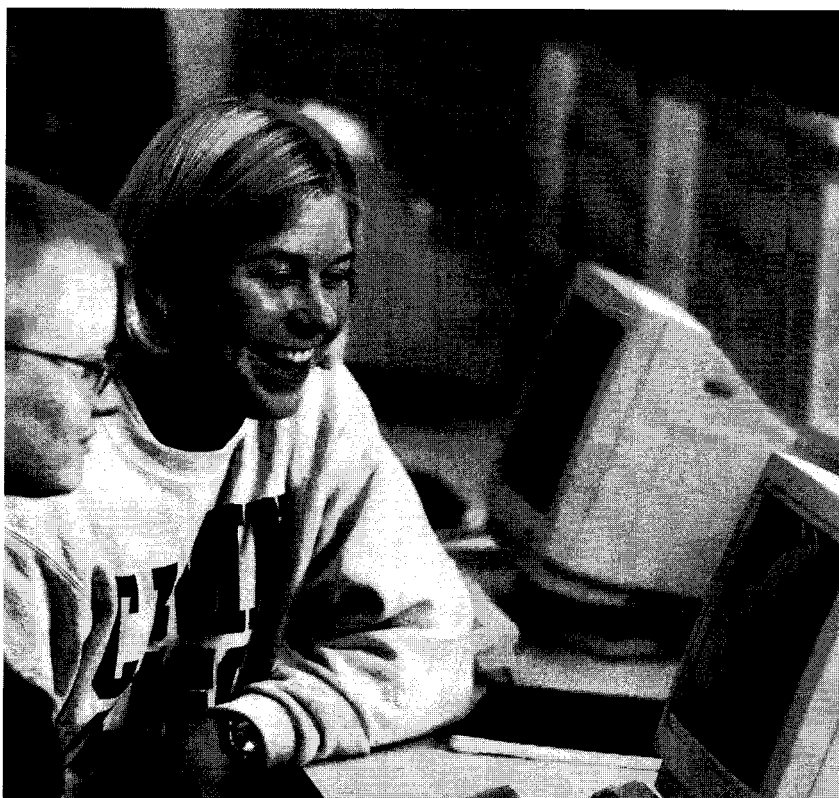
The Calvin Information Technology Department (CIT) provides computing services to students, faculty, and administrative offices of the college. Our vision is to promote information technologies at Calvin College which are appropriate to the academic and administrative needs of the college and which support all members of the community.

CIT, along with the main student computer lab, forms the Information Technology Center (ITC) and is located on the first floor of the library. The ITC lab is available to all students, faculty, and staff showing a current Calvin ID. This lab offers PC and Macintosh computers attached to the college network, several computer classrooms, multi-media and multi-user stations, jazz and zip drives, scanners, and laser and color printing. Other computer labs on campus include PCs attached to the network in residence halls, and many department specific labs.

As part of the ITC, the Instructional Technology Exploration Center (ITEC) is available to faculty. ITEC provides faculty a place where they can make use of high-end hardware, software, reference materials, and consulting services as they develop computer applications to support their teaching or research.

There is a multitude of software available to students from the labs. The basic programs include the Microsoft Suite of products, SPSS for statistics and a variety of discipline-specific educational software. Access to the Internet is available from most lab computers.

Students have access to email through their account on the Sun computer. Students may pick up their Sun login-id from the ITC during the first week of each semester. Access



to email is available from most lab computers and many stand-up *infoXpress* stations throughout campus.

CIT is in the process of renovating Calvin dorms with network connections that will provide students, who own their own computers, with Internet and email access from their dorm room. Students residing in networked dorms may purchase their network interface card, ethernet cable, security cable, and connection instructions from the Calvin College Bookstore. Each networked dorm has trained personnel available to answer any connection questions.

Questions regarding computers on campus may be directed to the CIT Helpdesk at 957-8555. Additional information about computer services may be found by visiting the CIT web site at <http://www.calvin.edu/it/>.

Instructional Resources Center

The IRC is comprised of the following group of departments and services:

The Audio-Visual Department

The A-V Department primarily serves the college's instructional programs, but supports campus-wide needs as well by providing equipment and services for college use. These include: tv, vcr, video & computer projector, digital camera, video camcorder, PA system, audio cassette and CD player, slide projector, laser pointer, audio & video duplication, poster lamination, passport photos, and more. It also includes a "paper & paint" workroom equipped with materials for self-serve creation of bulletin boards, posters, signs, banners, folders, etc.

A-V Graphics

A-V Graphics provides presentation design and production services to faculty and students for classroom or conference needs. These include: layout and design assistance; printing to 35mm slides, overhead transparencies, computer files, or large-format color posters; scanning prints & slides, shooting & duplicating slides, and overnight color photocopies.

Calvin Media Productions

The college's in-house media production department, CMP develops documentary and instructional video, TV, and radio programs, WWW sites, and other forms of multimedia. CMP operates a professional video production facility as well as the video studio and student video editing lab.

Publishing Services

The Publishing Services Department supports administrative departments, academic departments, and student organizations by providing design services, consultation and pre-press production for a variety of print-related material. These include the college catalog, campus directory, newsletters, ads, brochures, posters and books.

The Curriculum Center

The Curriculum Center is a multimedia educational materials library designed to support the Teacher Education Program. It is also available for use by other departments and programs. Hours are Mon.–Thurs., 8:00 AM–10:30 PM; Fri. and Sat., 8:00 AM–8:00 PM.

The Distance Learning Classroom

The Distance Learning Classroom is equipped to provide live, two-way video-and-audio conferencing connections to sites throughout the world.

Office of Student Academic Services

The Office of Student Academic Services in Hiemenga Hall 446 provides many forms of student learning assistance. Peer tutors for most core courses and some upper level courses are available to students whose professors agree that tutoring would be helpful. Also, academic counseling and testing are available for students with difficult learning problems. Students with disabilities, international students, and students for whom English is a second language receive services from the office as well. Certain students are required, as a condition of admission or as a requirement of probation, to participate in specified aspects of these services. Please see additional information under *The Access Program* on page 36 and *Academic Services* on page 73.

Rhetoric Center

The Rhetoric Center, located in Hiemenga Hall (Room 322) offers free tutoring in writing. Instructors will often require or encourage their students to seek help at the Rhetoric Center, or students may at any time request an appointment with a tutor (appointments should normally be made ahead of time). Students from all disciplines and at all levels of experience are welcome. The Rhetoric Center is open Monday through Friday from 9:00 a.m. to 4:30 p.m. and from 7:00 p.m. to 9:00 p.m. Monday through Thursday during fall and spring semesters.

Broene Center for Counseling and Career Services

The Broene Center offers assistance in the areas of personal counseling, career counseling, and career services.

Counseling. The staff provides individual and group counseling involving a wide variety of personal and interpersonal problems. Group opportunities include Support for Survivors, Eating Disorders, Stress Management, and Grief. Student concerns are confidential.

Career Counseling and Career Services. The staff also provides assistance for students searching for careers by helping them recognize their own resources and talents and by exploring with them the variety of careers available to and appropriate for them. Two group

career planning workshops sorting through each student's personality preferences and interests are offered during the academic year. A potpourri of options are available to graduating students and alumni to assist them in securing career placement. For a nominal fee, all clients are encouraged to register and complete the Resume Expert® program. Personal guidance is given in job search techniques such as resume writing and interviewing skills. Monthly job opportunities are posted and information of interest to those seeking employment, such as employers scheduled to conduct interviews on campus, is publicized. Seniors who will be seeking job search assistance are asked to register for services early in their final year at Calvin.

In a new location on the second floor of the library, Career Services now offers an expanded variety of print and computerized resources which includes updated information on occupations, employers, and employment opportunities throughout the world. This state-of-the-art facility is indispensable for anyone needing help during any stage of their career planning journey. The library career resource area also houses general materials for students interested in graduate school programs.

Hours. Counselors are available by appointment or during "walk-in" times, which are posted daily time slots when a counselor is available to meet with students without an appointment. Center hours are 8:00 A.M. to 5:00 P.M. weekdays and also include two evenings, Wednesday until 9:00 P.M. and Thursday until 8:00 P.M. Career services, including the library career resource area, are available year-round; counseling services are available from September 1 to June 30 each academic year.

The Calvin Alumni Association

The purpose of the association is to support Christ-centered education through service to Calvin and to its alumni and friends.

The Calvin Alumni Association, founded in 1907, is composed of all persons who have attended Calvin College for at least one year or who have completed eight courses. Persons who have graduated from Calvin Theological Seminary are also considered members of the Association. There are currently more than 47,000 Calvin alumni around the world, many of whom are part of over 30 local alumni chapters.

The Calvin Alumni Association is governed by a board of 23 alumni, each serving three-year terms. The board meets three times each year — during Parents Weekend (October), Homecoming (February), and Commencement (May). The work of the Association is facilitated by the Executive Director of Alumni and Public Relations.

The Association sponsors *Spark*, the alumni magazine; services to alumni chapters; career networking systems; numerous educational and social programs, including Summerfest (Calvin's vacation college) and alumni class reunions; and contributes to faculty research projects. The alumni-financed program of grants and scholarships is of special interest to students. Information concerning all of these may be obtained from the Alumni and Public Relations Office, (616) 957-6142.

The January Series

The January Series of Calvin College is a month-long lecture series given each year during Interim. The Series takes place for fifteen consecutive weekdays during the month of January in the Fine Art Center Auditorium from 12:30–1:30 p.m., and has twice received the Silver Bowl Award for "The Best Lecture Series in the USA." C-Span chose 5 of the 1998 Series presentations to broadcast nationwide on the program "American Perspectives." Speakers represent a variety of viewpoints, and each is widely recognized as credible and articulate authorities in his or her field of expertise. Scheduled to date for the 1999 Series are: Robert D. Kaplan, Gary Schmidt, Stuart Kingma, Francis S. Collins, Lisitsa and Kuznetsoff, Peter Kreeft, Barbara Defoe-Whitehead, Garrison Keillor and Steven Landsburg.

Admission and Standards

Procedures for Admission

In selecting students for admission, Calvin College looks for evidence of Christian commitment and for the capacity and desire to learn. Students who are interested in the Christian perspective and curriculum of Calvin and who show an interest in its aims are eligible for consideration. Although the prospect of academic success is of primary consideration, the aspirations of the applicant, the recommendation of a high school counselor, teacher, or principal, and the ability of Calvin to be of service will also be considered in admission decisions. The college admits students of any race, color, and national or ethnic origin.

Applicants will be notified concerning admission shortly after the Office of Admissions receives the following:

1. A Completed Application Form
2. \$35 non-refundable application fee (fee waivers will be considered upon request.)
3. Completed Essays
4. High School Transcript
5. Academic/Educational Recommendation
6. Test results of the American College Test (ACT) or Scholastic Aptitude Test (SAT I)
7. Transcript(s) from any college(s) previously attended.

Calvin College does not have an application deadline. Completed applications are considered on a "rolling" basis. Applicants will be notified of an admission decision soon after their files are complete.

Admission Standards

College Preparatory Requirements for Regular Admission

Applicants with a high school average of B-/C+ (2.5) or higher in the following college preparatory courses are normally given regular admission if their college entrance test scores meet the guidelines in the table that follows.

Minimum Test Scores Needed for Regular Admission

ACT	ACT	ACT	ACT		SAT I	SAT I
English	Math	Reading	Comp.	or	Verbal	Math
19	20	16	20		470	470

Applicants with lower grades and scores or with fewer college preparatory courses in their high school program are reviewed individually by the Committee on Admissions. Some of these applicants may be admitted under special conditions. Others may be required to take placement tests and non-credit courses designed to enhance their success. (See "Admission Under Special Conditions" on page 22.)

Applicants must be graduates from an accredited high school. The following components must be included in the applicant's college preparatory work:

1. A **minimum** of 3 years of college preparatory courses in English.
2. One year-long course in Algebra and one year-long course in Geometry. (Three years of college preparatory mathematics are strongly recommended.)

3. A minimum of 2 years of college preparatory courses in **two** of the following fields:
 - Social Sciences
 - Languages
 - Natural Sciences
4. Students must also complete 3 years of study from **one** of the following fields:
 - Mathematics
 - Social Sciences
 - Languages
 - Natural Sciences

Model High School Program

High school students should recognize that the quality of their high school education will determine the ease with which they will do college work and their ability to follow certain courses of study. The model high school program given below indicates the recommended course work to be taken in high school.

English	4 years	
Mathematics	3 years	One year each of algebra and geometry. An additional course in algebra is recommended. Four units are desirable for students entering mathematics-related majors.
Foreign language	2 years	Preferably four; ideally the last unit in grade 12.
Science	2 years	Biology, chemistry, or physics; one with a laboratory. Chemistry and biology are recommended to prospective nurses. Three units are desirable for students considering programs in the sciences or health fields.
History/Social Sciences	3 years	
Electives	3 years	Keyboarding and college preparatory courses.

Admission of Transfer Students

Students transferring from other colleges or universities must follow the same application procedures as first-year students. Transcripts from all previous colleges attended must be received prior to consideration for admission. ACT or SAT I test results are also required for transfer applicants with less than two years of previous college experience. The minimum cumulative grade point average for students transferring from a 4-year institution is 2.0 and from a 2-year college, 2.5. Applicants with averages below the standard, or with lower scores, or with fewer college preparatory courses in their high school program are reviewed individually by the Committee on Admissions. Some of these applicants may be admitted under special conditions. Others may be required to take placement tests and non-credit courses designed to enhance their success. (See "Admission Under Special Conditions" on page 22.)

Transfer credit will normally be awarded for work done in accredited institutions. The courses must be academic and similar in nature to courses offered at Calvin College. A minimum grade of C- is required in each course to receive credit. No more than seventy semester hours of advanced credit will be allowed for work completed at an accredited community college. Furthermore, no matter how much work done at other institutions may be accepted, all students must complete their last year in residence and at least three upper-level courses in their major to graduate from Calvin.

A maximum of nine semester hours will be allowed for courses taken by correspondence from accredited colleges and universities. Courses taken in residence at other accred-

ited institutions are normally accepted, provided they have been approved by the registrar in advance. In no case, however, will work in a community college be accepted after a student has accumulated more than 70 semester hours of credit at Calvin.

To meet requirements for a Calvin degree transfer students must complete one Interim course for each year in residence. Students may not take more than two Interim courses in a single department. Courses which meet off campus normally require special application in advance of registration.

Veterans will receive credit, as recommended by the American Council on Education, for liberal arts courses taken through the USAFI and for a maximum of nine semester hours taken by correspondence courses from accredited universities in the program.

Admission of International Students

Calvin College welcomes international students who can demonstrate their ability to meet the academic standards of the college, who are prepared to do college-level work in English, whose application is supported by the results of the American College Test (ACT) or the Scholastic Aptitude Test (SAT I), and who can show evidence of their ability to pay most of the cost of their education. Students should be certain that Calvin College offers the programs they need. The college is authorized under federal law to enroll non-immigrant alien students.

To begin the application process, international students are requested to complete a pre-application form, available from the Office of Admissions. Upon approval of the pre-application, international students are required to submit the following:

1. Completed Application Form
2. \$35 non-refundable application fee (fee waivers will be considered upon request.)
3. Completed Essays
4. Transcripts from High School and/or College(s) attended
5. Academic/Educational Recommendation
6. Test results of the American College Test (ACT) or the Scholastic Aptitude Test (SAT I)
7. Test results of the Test of English as a Foreign Language (TOEFL)
8. Declaration of Finances.
9. Profile of Educational Background Form

The ACT or SAT I is not required of students transferring from another college or university where they have earned at least one year of credit. Applicants for whom English is a second language must have an adequate command of English as demonstrated by their performance on the Test of English as a Foreign Language (TOEFL). The minimum TOEFL score for regular admission is 550. In certain situations, a student with a lower score may be admitted with a provision for further intensive language training. The TOEFL is administered throughout the world by the Educational Testing Service. (The TOEFL code number for Calvin College is 1095.)

When international applicants are accepted for admission, they will be sent a formal letter of admission by the Director of Admissions. Applicants must show sufficient evidence of financial support for college costs. If this support level is demonstrated, an enrollment deposit of \$2500 toward first year costs is required. Upon receipt of the specified deposit, the Certificate of Eligibility (I-20) will be forwarded to the student, who should then make application for a student visa immediately with the nearest United States Consul.

Upon enrollment, international students for whom English is a second language must take English courses each semester until they have successfully completed English 101, a course required of all students for graduation. However, the college may require a locally-administered placement test and a subsequent review course in English as a Second Language prior to English 101 if the need is indicated by placement testing results. Interna-

tional students for whom English is a second language can satisfy the graduation requirement of additional language study with their native language.

Admission Under Special Conditions

Applicants with high school or college records or with ACT/SAT I test scores that do not meet regular admission standards may be admitted on condition if there is other evidence of academic promise. Conditionally admitted students are required to participate in the Access Program and to take assigned placement tests. They will receive special advising and may register for no more than 15 semester hours including any Access Program courses. They also are encouraged to limit their involvement in extra-curricular activities. Conditions attached to admission must be completed during the student's first year.

Applicants who are at least nineteen years of age but have not completed high school or its equivalent may be granted admission, provided they have successfully completed the General Educational Development Test (GED) and submit satisfactory scores on one of the entrance examinations.

Applicants who meet all the requirements for admission but who do not desire to become candidates for an academic degree may be enrolled as special students.

Academic Forgiveness Policy

All students must meet the 2.0 grade point average standard for graduation. However, students who have completed course work at Calvin prior to their readmission can invoke an academic forgiveness option. To do so, students must specifically request this option at the time of readmission, and at least five years must have elapsed since their last Calvin attendance date. Under the academic forgiveness policy, (1) all students' grades in their prior academic period at Calvin are excluded from the G.P.A. calculation required for graduation. (2) All course and grade information, even when not included in the G.P.A. calculation, remain on a student's official transcript. The semesters for which academic forgiveness has been granted will be so noted. (3) Only those courses in which a student received a "C-" or better can be used as semester hour credit toward graduation requirements. Other prior course work must be repeated or replaced in an approved manner.

Enrollment Deposit

An enrollment deposit of \$200 is required of all enrolling first-year, transfer and readmitted students. This deposit serves as a confirmation of the student's plans to enroll and is applied toward the orientation fee and \$75 housing deposit (for students living on campus). The remainder is applied to the student's tuition charges. First-year students must pay this deposit by May 1. The due date for transfer students is June 1. The enrollment deposit is not refundable after the due date. Former students who have been readmitted to the college must pay their enrollment deposit by August 1.

Entrance Examination Information

Prospective first-year students are advised to take the ACT or SAT I entrance examination during the spring semester of their junior year or in the fall of their senior year. Candidates for entrance examinations must register for them at least one month prior to the testing dates.

The American College Test (ACT) is normally given five times per year. Registration forms are generally available from high school principals and counselors but may be requested from the American College Testing Program, Box 168, Iowa City, Iowa 52240. This test is also required by the State of Michigan for its competitive scholarship program.

Applicants not able to take the ACT may submit Scholastic Aptitude Test (SAT I) results. Registration forms for the SAT I are generally available from high school principals and counselors but may be secured by students living east of the Rocky Mountains from the

College Entrance Examination Board, Box 592, Princeton, New Jersey 08540. Those who live in the Rocky Mountain states or farther west, including those from Western Canada and foreign countries of the Pacific area, should apply to the College Entrance Examination Board, Box 1025, Berkeley, California 94701.

Profile of Calvin First-Year Students

The middle 50% of the first year students who enrolled at Calvin College in the fall of 1997 have the following academic profile:

High school grade point average: Between 3.2 and 3.9 (on a 4-point scale)

ACT Composite Score: Between 23 and 29

For those who submitted the SAT I:

SAT I verbal plus math: between 1070 and 1340

The five-year graduation rate for entering first-year students is 66.4%; most finish a degree in four years carrying a normal course load. The first to second year retention rate is 86.1%.

Policies for Course Credits and Exemption Examinations

Some students are able to earn advanced college credit in certain subjects. This may be secured in any of five ways:

1. **Advanced Placement**— At the time of admission, first-year students may submit scores from an Advanced Placement (AP) Examination conducted by the College Board. While the minimum acceptable score is 3, the amount of credit awarded for higher scores varies. Detailed information is available from the Office of Admissions. Students may not receive both AP credit and a high school exemption for the same core requirement.
2. **CLEP examinations**—Enrolled students may receive course credit by securing a satisfactory score on any of the Subject Examinations of the College-Level Examination Program (CLEP) of the College Board. Credit is awarded for most CLEP subject examinations; no credit is granted for CLEP general examinations. For more detailed information, please contact the Admissions Office for a listing of credit given for CLEP subject examinations. Students may not receive both CLEP credit and a high school requirement for the same core requirement.
3. **International Baccalaureate (IB)**—IB credit will be given to students who receive a grade of 5 or higher on Higher-level classes. No credit will be given to Subsidiary-level classes.
4. **Departmental Examinations**— Regularly enrolled students may meet any core requirement by departmental examination and may, except when the department deems this inappropriate, receive regular academic credit for any course by examination. Only one exam per department may be taken unless prior approval is given by the Registrar. Such tests must be taken in lieu of registration for the course and may not be used as repeated courses. The student's performance on the examinations will be recorded on the student's record, and the student will be charged a \$15 fee for an exemption examination and \$45 for a credit examination. Students wishing to take departmental examinations should obtain forms from the Registrar's Office and submit them to the departments by October 1 if they wish to take the examinations during the fall semester and by February 15 for the spring semester.
5. **OAC**— A mark of 75 or higher in an Ontario Academic Course approved by the Calvin faculty will be given credit. Please contact the Admissions Office for a listing of credit given for OACs.

Furthermore, students who have completed appropriate courses in high school may be exempted from certain college course requirements. This is possible in foreign language, mathematics, the fine arts, and the natural sciences. Consult the Registrar's Office for a description of the ways high school courses satisfy college requirements.

Nondiscriminatory Policy

Calvin College admits students of any race, color, national and ethnic origin to all the rights, privileges, programs, and activities generally accorded or made available to students at the school. In the administration of its educational policies, admissions policies, scholarship and loan programs, or athletic or other college-administered programs, the college does not discriminate on the basis of race, color, gender, national and ethnic origin, or disability.

Visitors and Auditors

Members of the community who are not enrolled as students in any college are invited to register as visitors in most lecture classes. Formal admission to the college is not required, but each visitor must register with the Registrar's Office before attending class. The fee for each course visited is \$15, which includes campus parking privileges.

Most courses other than graduate workshops are open to auditors. Auditors must be formally admitted to the college and must pay the tuition for auditing, which is half the regular per-hour rate. The audited course is listed on the student's academic transcript, but no credit or grade is recorded. For financial purposes, currently enrolled students who audit a course will have half the semester hours of the audited course added to the total of registered hours (i.e. 12 total hours + 4 audit hours = 14 hours). Auditors are expected to attend all classes and participate in the assigned activities of the class. They may take all tests and submit assigned papers for evaluation, but they are not required to do so. Auditors may change their registration from audit to credit only during the first four weeks of the semester; students enrolled in a course for credit may change to audit only during the first four weeks.

A student may not visit or audit a course or course component which is by its nature practical or applied, such as applied music or a lab.

Enrollment in Seminary Classes

Full-time college students may, as a part of a program worked out with their departmental advisors, carry up to two courses in Calvin Seminary in any one semester. Approval by the registrar of the seminary and the registrar of the college is required, and under no circumstances may credit for a single course be counted toward degree programs in both college and seminary. Full-time seminary students may enroll for not more than two courses in the college, provided the registrar of the seminary and the college registrar approve.

Student Load and Classification

The typical student load is 12 to 17 semester hours per semester. The normal course load permits students to register for courses in applied music, basic physical education, and drama in addition to a typical academic load. Non-credit review courses are counted as part of a normal load, and students on probation or condition may be required to limit their load to 12 to 15 semester hours. In exceptional cases a student may apply for permission from the registrar to carry more than 17 semester hours. Such an application requires the recommendation of the student's academic advisor or department chair and the approval of the registrar. To be eligible for consideration the student must have a cumulative grade point average of 3.0, must have received no grades of incomplete during the previous two semesters, and is expected to limit outside employment.

Normal progress toward the degree for full-time students requires that a minimum of 12 semester hours be earned each semester. Normal progress also requires the completion of 3 interim courses. A more typical load is 31 semester hours per year, which enables most students to complete degree requirements in four academic years.

Undergraduate students are classified as first-year students until they have earned 27 semester hours of credit. Students with a minimum of 27 semester hours of credit com-

pleted will be classified as sophomores; those with 58, as juniors; and those with 89, as seniors. Classification for the purpose of college records will be revised at the beginning of each academic year.

Grading Systems

Grades given during the regular semester are designated by letters A, excellent; B, good; C, average; D, just passing; F, failure; I, incomplete; W, authorized withdrawal; and N, unauthorized withdrawal.

For purposes of averaging grades, the following numerical values or grade points are assigned to each of the above grades: A, four points per course; B, three; C, two; D, one. A plus-grade is computed at three-tenths of a point above these figures and a minus-grade at three-tenths below. Grades for courses completed as transfer credit or in cooperative programs at other colleges and universities are recorded on students' records but are not included in the compilation of their average at Calvin.

Ordinary grades for the interim are H, honors; S, satisfactory; and U, unsatisfactory. These do not carry honor point values and are not averaged in the student's total record, but the student normally receives 3 semester hours toward the 124 required for graduation for each interim course satisfactorily completed. Interim courses carrying core credit are normally graded according to the traditional letter system and will be included in the student's average.

Graduate workshops are graded with S and U grades only.

Auditors are given grades of AU. However, if they fail to attend classes, the instructor will report a grade of W.

Students may alter their schedules during the first week of classes without grades of W being recorded on their records. After that time, grades of W, authorized withdrawal, will be recorded if they leave courses with the written approval of their instructors by the end of the ninth week of the semester. Students who discontinue classes without permission or notification are not entitled to a grade of W but will be given an N, unauthorized withdrawal. This grade is computed as an F in determining a student's grade point average. However, students who withdraw from school at any time with the approval of the registrar and of one of the student deans may be given grades of W in all courses.

Students may repeat any courses by properly registering for them but must inform the instructor when they are repeating a course. Only the latest grade, whether higher or lower, shall be included in the compilation of a student's cumulative grade point average. The original grade is not expunged from the record, but is noted as a repeated course. A student will not receive additional course credit for repeated courses.

If students fail to complete all the required work or to sit for the final examination, instructors may, if they consider a student's reason valid, give a grade of I, incomplete, rather than a grade of F. The grade of I shall be computed as an F in determining a student's grade point average. Students given an I in the fall semester or in the interim must make up the deficiency by May 1 of the following spring semester; if given an I during the spring semester or summer session, they must make up the deficiency by December 1 of the following fall semester. If they fail to do so, grades of IN will be entered on their records. A grade of F will be altered only if a student reregisters and retakes the course in which it was given. Grades of I are never expunged from the records. When a final grade is received or the deadline is passed a new grade preceded by an "I" will be rewarded.

The Dean's List

Full-time students, including graduate students, with an average grade of A- (3.5) or higher for the semester of compilation and a cumulative grade of 3.3 or higher will be placed on the Dean's List. Part-time students who meet the grade point requirements above and have earned 3 semester hours within the last year and at least 12 semester hours within the last 2 years will be placed on the Dean's List. The Dean's List is compiled at the end of

each semester when grade reports are printed. Interim grades and subsequent grade changes normally do not alter the list.

Academic Probation and Dismissal

Each student admitted to Calvin College is assumed to have the preparation, the desire, and the ability to make satisfactory progress toward a degree. In practice, however, some students do not make the progress expected of them. Such students are notified, offered special assistance and academic counseling, and given an opportunity to improve their records. Failing in that, however, they will be dismissed.

The records of all undergraduate students are reviewed after each semester, and the academic status of full-time students is determined according to the following schedule.

<i>Cumulative total of semester hours attempted</i>	<i>Minimum cumulative grade point average needed for continuation</i>	<i>Minimum cumulative grade point average needed for good standing</i>	<i>Minimum percent of attempted hours which must be credited for good standing</i>
16 or fewer	1.0	1.5	66%
17 - 31	1.30	1.65	66%
32 - 49	1.45	1.75	68%
50 - 67	1.60	1.85	70%
68 - 85	1.75	1.95	72%
86 - 104	1.90	2.00	74%
105 - 123	2.00	2.00	77%
124 or more	2.00	2.00	80%

The number of semester hours attempted is the number of hours for which a student is registered at the beginning of the second week of classes. Credited hours are those for which the student has earned credit that applies toward a degree.

While Academic Support courses are counted toward the 12 semester hours needed for full-time status, they are not counted in the number of semester hours attempted or credited, or in the cumulative grade point average.

Courses that are repeated are counted in the number of courses attempted but not in the number of semester hours credited. For the purposes of calculating GPA, incompletes are calculated as a grade of "F."

Students receiving benefits from the Department of Veterans Affairs are placed on academic probation if their GPA falls below 2.00 and must within the next two semesters raise it to 2.00 in order to continue to be certified for such benefits. Such students must, prior to enrolling for the final 12 semester hours, have earned a cumulative grade point average of 2.00. If any student receiving veteran's benefits fails to come off probation within the prescribed probation period, the school will inform the Veterans Administration. The student will be informed in writing that the Veterans Administration has been notified.

Any student whose average falls below the minimum required for continuation is subject to dismissal. Those permitted to continue but not meeting the requirements for good standing are placed on probation. Students placed on probation must in the semester following earn a current grade point average equal to or better than the cumulative average required for good standing in that semester: e.g., a student who has attempted 14 semester hours and is placed on probation in the next semester's courses must average 1.65 or above. Students who fail to meet the standards for good standing during the semesters they are on probation are subject to dismissal. First-year students placed on probation may register for no more than 15 semester hours and may be required to complete successfully an Academic Support Program review course or to complete in good faith a program of academic counseling with an advisor. All students on probation are expected to limit extracurricular

activities. First-year or transfer students admitted with conditions must meet these conditions during their first year of enrollment. Failure to meet the terms of probation or other specified conditions will constitute grounds for immediate dismissal.

Students not permitted to continue may appeal their academic dismissal to the Academic Review Committee, whose decision is final. One year must elapse before students dismissed for poor academic performance are eligible to petition for readmission. A request for readmission will be reviewed by the Academic Review Committee and the Admissions Committee; readmission following academic dismissal will be based upon evidence that the difficulties previously encountered can be overcome and that eventual completion of degree requirements can reasonably be expected.

The Family Educational Rights and Privacy Act (FERPA)

The Family Educational Rights and Privacy Act of 1974 helps protect the privacy of student records. The act provides for the right to inspect and review education records, the right to seek to amend those records, and to limit disclosure of information from the records.

Students who are currently enrolled at Calvin College or formerly enrolled students regardless of their age or status in regard to parental dependency are protected under FERPA. Parents of students termed "dependent" for income tax purposes may have access to the student's educational records.

With certain exceptions, a student has rights of access to those records which are directly related to him/her and which are maintained by Calvin College. "Educational Records" include any records in the possession of an employee which are shared with or accessible to another individual. The records may be handwritten or in the form of print, magnetic tape, film, or some other medium. This would include transcripts or other records obtained from a school in which a student was previously enrolled.

Official Calvin College transcripts are released only when requested in writing by the students. The fee is \$2. Transcripts will not be released for students who have failed to meet their financial obligations to the college.

Calvin may disclose information on a student without violating FERPA through what is known as "directory information." This generally includes a student's name, address, telephone number, date and place of birth, major field of study, participation in officially recognized sports and activities, weight and height of athletes, dates of attendance, degrees and awards received, and other similar information. A student may restrict the release of his/her directory information by making a request in writing to the registrar.

In certain other situations, a student's consent is not required to disclose educational information.

Thirteen Exceptions are:

- 1) to school officials who have "legitimate educational interests"
- 2) to schools in which a student seeks to enroll
- 3) to Federal, State, and local authorities involving an audit or evaluation of compliance with education programs
- 4) in connection with financial aid
- 5) to State and local authorities pursuant to a State law adopted before November 1974 requiring the disclosure
- 6) to organizations conducting studies for or on behalf of educational institutions
- 7) to accrediting organizations
- 8) to parents of a dependent student
- 9) to comply with judicial order of subpoena
- 10) health or safety emergency
- 11) directory information

- 12) to the student
- 13) results of disciplinary hearing to an alleged victim of a crime of violence

Requests to disclose educational information will always be handled with caution and approached on a case-by-case basis.

Students who believe that their education records contain information that is inaccurate or misleading, or is otherwise in violation of their privacy should discuss their problems informally with the person in charge of the records involved. If the problems cannot be resolved, the student may request a formal hearing by the registrar. The request must be made in writing to the registrar who, within seven days after receiving the request, will inform the student of the date, place, and time of the hearing. Students may present evidence relevant to the issues raised. The hearing officer who will adjudicate such challenges will be the registrar, or a person designated by the registrar who does not have a direct interest in the outcome of the hearing. The educational records will be corrected or amended in accordance with the decisions of the hearing officer, if the decisions are in favor of the student. If the decisions are unsatisfactory to the student, the student may place with the educational records statements commenting on the information in the records or statements setting forth any reasons for disagreeing with the decisions of the hearing officer. The statements will be placed in the educational records, maintained as part of the student's records, and released whenever the records in question are disclosed.

Application for Degrees and Certificates

In addition to the formal requirements for degrees described in the section on "Undergraduate Programs" beginning on page 31, students must satisfy certain technical requirements. Normally, they must complete their last year in residence at Calvin. They must also complete a Major Concentration Counseling Sheet and have it signed by their departmental advisor and must meet all of the conditions specified in that sheet. (These sheets normally are completed during the sophomore or junior year.) Finally, they must file a formal application for a degree at the Office of the Registrar not later than the beginning of the semester in which they expect to graduate. If they are completing teacher education programs, they must also file an application for Michigan certification at the same time they apply for a degree or not later than a semester before they complete the certification requirements.

Students desiring to graduate with an honors designation must apply for admission to a departmental honors program and meet those requirements and the general honors program requirements. Consult page 38 for details.





Undergraduate Programs

Christian liberal arts education

The primary focus of a Christian liberal arts education at Calvin College is on teachers and students together engaging in the various scholarly disciplines, directed and enlightened in their inquiries by the Word of God. The faculty believes that in a complete liberal arts education students should be introduced to the disciplines on two different levels.

In the first place, students should acquire a general or extensive education by following a rationally determined pattern of required and optional courses in the various major disciplines, the fundamental unifying element in this pattern being the Christian perspective within which all courses are presented. From this extensive study it is hoped that students will acquire a knowledge of the more significant results or products of the various disciplines; an understanding of the methodologies of the disciplines, which will enable them to judge the products of the disciplines; and an acquaintance with alternative approaches to the same subject matter.

Secondly, the faculty believes that, in addition to such a general or extensive education, each student should also be required to concentrate in a particular discipline and thus to supplement the extensive study of the disciplines with an intensive study of some one discipline. This intensive study will have fundamentally the same aims as those for the extensive study. In this field of concentration, however, the student can achieve the same aims more fully, more intensively, in more detail.

The Christian liberal arts philosophy permeates all of the degree programs of the college. Traditionally, most students complete the Bachelor of Arts or the Bachelor of Science degree programs, either of which may include a teacher certification component. Other degrees offered by the college include the Bachelor of Fine Arts in Art, the Bachelor of Science in Recreation, the Bachelor of Science in Nursing, the Bachelor of Science in Accountancy, the Bachelor of Science in Engineering, the Bachelor of Social Work, the Bachelor of Science in Communication Disorders, Bachelor of Computer Science and the Master of Education. Cooperative bachelor of science degrees are offered with a number of other institutions in medical technology, occupational therapy, and special education.

Bachelor of Arts, Bachelor of Science Degrees

Because of the complexity of the Calvin curriculum and the many alternative ways of meeting the formal requirements, students must confer with their advisors regularly in planning their academic programs.

The formal requirements for the Bachelor of Arts degree are the successful completion of 124 semester hours, including three interims, of the designated liberal arts core, and of an approved concentration, typically with a minimum average grade of C (2.0) both overall and in the program of concentration. Not more than 5 semester hours of basic physical education or 8 semester hours in applied music, drama, and speech may be applied to graduation requirements except when such courses are a designated part of a required major or minor program. No more than 8 semester hours of internship credit may be applied to graduation requirements, except when such courses are a designated part of a professional program.

Students who have completed at least 58 semester hours in biology, chemistry, computer science, the earth sciences, engineering, mathematics, and physics may elect instead to receive a Bachelor of Science degree.

Students desiring to earn a second baccalaureate degree from Calvin College must meet all of the requirements of the second degree and complete a minimum of 145 semester hours.

Liberal Arts Core Requirements

The liberal arts core is planned to provide a broad and significant educational foundation in a Christian setting. Strong high school preparation reduces the number of required courses in the core, and the number may be further reduced by examinations in any subject.

Six of the liberal arts courses provide the context for a Calvin education (history, philosophy, religion); eight provide an introduction to the major systematic disciplines (the sciences, the social sciences, the fine arts); three assure a skill in the basic competencies (written and spoken rhetoric and physical education); and two, when preceded by language foundation in high school, provide minimal command of a foreign language. These core courses are described in the various departmental sections. The specific requirements are as follows:

CONTEXTUAL DISCIPLINES	6 courses	
<input type="checkbox"/> History	one course from:	101, 102
<input type="checkbox"/> Philosophy		Philosophy 153
<input type="checkbox"/> Religion—Biblical Studies	one course from:	normally REL 103; this is the only Religion core course open to first-year students. Also 211, 212, 213, 214, or 221–224.
<input type="checkbox"/> Religion—History/Theological/Cultural Studies	one course from:	normally REL 201; also 230–235, 241, 242, 251, 301, or 332
<input type="checkbox"/> Contextual Discipline Electives	two courses from:	any courses in two of the three above departments; also IDIS 100, 234, and W10. Must be from 2 different departments. Education students should take Philosophy 153 plus either Education 304 or Philosophy 209.
MATH AND NATURAL SCIENCES	3 courses	
<input type="checkbox"/> Mathematics	one course from:	Math 100, 132, 143, 160, 161 Math 221 and 222 are required for elementary education.
<input type="checkbox"/> Physical Science	one course from:	ASTR 110, 201; CHEM 101, 103–105; GEOL 103, 151–152; IDIS 210; PHYS 110, 111, 123&181, 124&182, 126, 221–223, 225 (CHEM 101; PHYS 111, 112, or 212; and IDIS 213 required for elementary education.)

Students who have completed, with minimum grades of C, four years of high school English (excluding speech) or those who have completed in grades 11 and 12 either three semesters of literature (excluding composition, creative writing, journalism, film, and mythology) or one year of art history or music appreciation are excused from this third requirement. Every student must take at least one college core course in literature; advanced placement credit earned prior to the high school diploma may not be used for more than one course in this core category. Courses in applied music, drama, and speech do not meet the fine arts requirement.

COMPETENCIES 8 or 9 courses

<input type="checkbox"/> Written Rhetoric	English 101	with a grade of "C" or better
<input type="checkbox"/> Spoken Rhetoric	one course from:	CAS 100, 101, 200, (214 is core for education); CAS majors may not use 100 to fulfill core.
<input type="checkbox"/> Physical Education		
<input type="checkbox"/> Health Fitness	one course from:	PE 101–129
<input type="checkbox"/> Skill Enhancement	one course from:	PE 130–159
<input type="checkbox"/> Performance/Leisure	one course from:	PE 160–189
<input type="checkbox"/> Foreign Language	one of the following	101, 102, 201 and 202; OR course sequences: 121, 122, and 123

PE 221 may substitute for a Skill Enhancement course, and 222 for a Health Fitness course. Students in the elementary and special education (MI) programs are to take 221, 222, and one additional activity course. Two additional semester hour courses may be taken to count toward the graduation requirement.

Students must demonstrate a competency in a foreign language that is equivalent to two years study in college or to four years in high school with a minimum grade of C. Normally this is demonstrated by completing 123- or 202-level courses or by examination.

Students are advised to continue in languages they have studied previously and will be placed in classes at their level of ability as determined by placement examinations. Special three-course sequences (121-122-123), involving two semesters and an interim, are available in French, German, and Spanish for students who need review as part of their second year of language study. Languages other than those taught at Calvin may be accepted. Students for whom English is a second language are exempt from this requirement but are required to take English core courses each semester until they have completed the requirements in written rhetoric and in English or American literature.

A student usually should complete the core requirements in mathematics, history, and written rhetoric by the end of the first year and should complete the requirements in physical science, biological science, social sciences, spoken rhetoric, and foreign language by the end of the sophomore year. At least one course in religion and theology should be taken in each of the student's first two years at Calvin.

Students in elementary education programs, whose choice of core courses is very limited, should confer with a program advisor in selecting core courses. The advisors are listed on page 40.

Certain professional-degree programs have a modified core curriculum approved by the faculty. These include accountancy (B.S.A.), communication disorders (B.S.C.D.) engineering (B.S.E.), fine arts (B.F.A.), nursing (B.S.N.), recreation (B.S.R.), and social work (B.S.W.). Model programs are described on pages 49–59.

II. Interim Courses

A student must normally complete a minimum of three interim courses for graduation. (Transfer students must complete one interim course for each year in residence.) Interim courses are graded honors (H), satisfactory (S), or unsatisfactory (U), except those courses that satisfy core requirements, which are graded in the conventional A–F system. See page 25 for an explanation of these grading systems. Students may not take more than two interim courses in a single department.

Calvin College is associated with a number of similar colleges with January interim programs, making possible the exchange of students during the interim. Information is available from the Director of Off-Campus Programs.

III. Programs of Concentration (*majors and minors*)

Majors. Every degree-seeking student must fulfill the requirements of a faculty-approved departmental or group major. Although such major concentrations are not normally chosen until the second semester of the sophomore year, most programs do presuppose the completion of specific freshman and sophomore courses. Official admission to a major program requires the formal approval of a department or program advisor and the completion of a counseling form which details the student's remaining academic requirements. Whenever students change their major, they must again submit a counseling form for the new major. Teacher education group majors and some departmental majors for teachers may be applied only to teacher certification programs.

To be admitted to a department's major program a student must have earned at least a C (2.0) in each course designated as a prerequisite for admission, unless that department stipulates a C (2.0) average in two or more prerequisite courses. To be admitted to a group concentration a student must have met the grade point average required for admission by the primary department within that group. A student not maintaining a minimum average of C (2.0) in the program of concentration may be permitted to remain in that program for a single semester of probation.

The various programs of concentration are specified in the section of the catalog which describes departmental programs and course offerings, beginning on page 71. Group majors designed for teacher certification programs are described in the section on Teacher Education Programs, on page 38 and following.

Students may also initiate interdisciplinary programs of concentration other than those formally approved by the faculty. Such group majors require a minimum of twelve courses, ten of which must be from two disciplines with no fewer than four from either. The remaining two must be chosen from a third discipline. No more than two courses which are part of any major, including a group major, may overlap with courses taken to meet core requirements. Students must provide a written rationale for such programs, which require the approval of the registrar and of the chairs of the departments from which the ten courses are selected. See "Group Majors" in the Academic Writing Program on page 36 for further information.

Minors. Optional six-course departmental minors and group minors are possible in certain fields. A C (2.0) average in the minor program courses is required for graduation in them. Most of the minors are described in the departmental sections of the catalog. The group minor in environmental studies is included under the Department of Geology, Geography, and Environmental Studies; that in journalism, under the Department of English; that in German studies, under the Department of German; and that in missions, under the Department of Religion and Theology; the interdisciplinary minor in Third World Development Studies is described on page 223. Only those minors described in the Teacher Education Programs section are approved for teacher certification. No more than one course which is part of a minor may overlap with courses taken to meet core requirements. Group minors require the written approval of the designated advisor.

Overlap between core and major or minor concentrations. No more than two courses which are part of any major, including a group major, may overlap with courses taken to meet core requirements. No more than one course which is part of a minor may overlap with courses taken to meet core requirements.

Overlap between major and minor (or supplementary) concentrations. A student's major concentration and minor (or supplementary) concentration shall consist of at least fourteen distinct courses; moreover, when some courses may apply toward both concentrations, no more than two courses shall be counted as satisfying the requirements of both the major and minor (or supplementary) concentrations. This policy has the following implications:

Courses required in the major	Maximum overlap permitted	Minimum # of distinct courses required
8	0	14
9	1	14
10	2	14
11 or more	2	15 or more

Overlap between two majors. A double major, i.e. two college recognized major concentrations, shall consist of a minimum of sixteen distinct courses. When some courses may apply toward both concentrations, no more than three courses shall be counted as satisfying the requirements of both major concentrations. This policy has the following implications:

Total courses in two majors	Maximum overlap permitted	Minimum # of distinct courses required
16	0	16
17	1	16
18	2	16
19	3	16
20 or more	3	17 or more

Special Academic Programs

The Academic Writing Program

Minimum Grade in English 101. As the first step in developing competence in writing, a minimum grade of C is required of all students receiving credit for English 101.

Departmental Writing Programs. All students will meet Writing Program requirements through a departmental writing program.

Group Majors. Departments that established departmental writings programs will include provisions for their group majors. When students initiate a group major other than those formally approved by the faculty, they must include plans for meeting the Writing Program requirements. Students should obtain approval for such plans from their major advisors and the director of the Writing Program.

Transfer Students. Students who transfer into a major program should work with their major advisor to determine what they must do to satisfy Writing Program requirements.

The Access Program

The Access Program is an alternative entry into Calvin College for those students who do not meet admission standards but whose records indicate that they could develop into successful college students. Admission into this program is determined by the Committee on Admissions and is based on high school grades, high school course work, ACT/SAT I

scores, and recommendations. Enrollment by means of this program is limited each year to a specific number of first-year students.

After a student has been selected to be part of the Access Program, placement tests in English and mathematics are given to determine whether review course work is necessary in either or both areas. All Access students are required to take ASC 006: College Thinking and Learning. This course, a 2 semester hour, non-credit course, is taken concurrently with a reading-lecture course in which the student learns to apply what is taught in ASC 006.

Students in the Access Program are assigned to special academic advisors who are familiar with the program requirements and the methods by which academic progress can be attained. Typically, Access students are very involved in the program during their first semester; additional follow-up may occur during the second semester. Please see more information under Office of Student Academic Services on page 17 and Academic Services on page 73.

The Adult and Continuing Education Program

Adults who wish to begin a college program or return to college courses may enroll under the classification of "Adult Learner." This classification includes:

1. Adults with no prior college experience and at least a four year interruption in education since high school.
2. Adults transferring into Calvin College who have a combination of course work and work experiences equivalent to four years of activity since high school.
3. Post baccalaureate students returning for a second degree or a set of course work related to their emerging interests and commitments.

Adult learners registered for less than 6 semester hours per term will receive a discounted tuition rate. Those registering for 6 or more hours will pay regular tuition rates but can also be considered for federal, state, and college financial assistance through Calvin College's Financial Aid Office.

Adult learners seeking to complete a degree from Calvin College must fulfill requirements for a major and for liberal arts core courses. At least 25% of the semester hours required for graduation and a minimum of three courses in the designated major must be completed at Calvin College.

Adult learners must complete the following liberal arts core requirements at Calvin College or through transfer credit. These requirements include one core course each in history, philosophy, and religion and theology, plus an additional course from any of these departments or Interdisciplinary W10, Christian Perspectives on Learning; a math course; a course in the natural sciences; two courses from economics, political science, psychology, or sociology (with no more than one course from one department); a literature course taught in English; a course from art, communication arts, foreign literature and culture, or music; a fine arts core course; a course in written rhetoric; and a course in spoken rhetoric. If a student has not completed a foreign language through the second year college level, then a foreign culture course must be taken to fulfill the fine arts core course requirement.

Adult learners may obtain transfer credit from credit-by-exam programs such as CLEP, PEP, and DANTES exams that have been previously approved by Calvin College. A maximum of 25% of the total semester hours required for graduation may be obtained through the transfer of non-classroom-based credit.

Adult learners may also obtain credit through the development of a prior learning portfolio. The portfolio provides a means for adult learners to petition for college credit based on prior learning through work or volunteer activities. Students must write essays and supply documentation when petitioning for prior learning credit. Normally, one to four semester hours may be granted for each essay and appropriate documentation. A total of 16 semester hours may be obtained through the prior learning portfolio.

Students seeking classification as an adult learner, with its related academic and financial options, should contact the Office of Academic Administration.

The Honors Program

Calvin College offers special opportunities for students of outstanding academic ability throughout their undergraduate education. The Honors Program is intended to provide for the discovery, nurturing, and rewarding of academic excellence, and to prepare the outstanding student for leadership in service to the immediate community and the world at large.

Incoming students are automatically invited to participate in the Honors Program if they have an ACT composite score of 28 or higher. Current students whose cumulative GPA at Calvin is 3.3 or higher are also eligible to participate. Other students may apply to the Director with a personal statement of interest, a current transcript, and ACT test scores.

Students in the Honors Program may register for special honors sections of large courses, contract with a professor to take a regular course for honors credit (for which extra work is required), seek exemptions from core requirements by examination, propose cross-disciplinary programs of concentration, and participate in various extracurricular events for honors students. Honors classes generally assume a high level of motivation and initiative on the part of the student, and aim at greater depth of learning than a regular class.

To graduate with honors, students must complete at least six honors courses (a minimum of eighteen semester hours with at least two of these courses in their major), maintain a GPA of at least 3.3, and fulfill any other conditions established by the department in which they major. Regular interim courses with honors grades are not considered honors courses. Students must apply for admission to the departmental honors program in their major after completing at least two honors courses in the general curriculum and earning a cumulative GPA of 3.3 or higher. They must also notify the Honors Program Director prior to their final semester of study of their intent to earn an honors degree.

For further information, contact the Director of the Honors Program, Professor Ken Bratt (Classics Department), or see the web page at www.calvin.edu/academic/honors/

Teacher Education Programs

Undergraduate Teacher Education Programs

Students wishing to become teachers must make formal application and be admitted to the teacher education program. Specified standards must be maintained to remain in the program and be recommended for certification. Because of the complexity of the various requirements to be met, and depending on the program followed in high school, it is very likely that the program will take more than four years (124 semester hours) to complete.

Before taking any 300-level courses in the Education Department, students must be accepted into the teacher education program. (Forms for application are available at the Department of Education.) To be eligible, students must have completed at least 27 semester hours with a minimum cumulative grade point average of 2.5; must have completed Education 191 and 192; must have passing scores on the State of Michigan Basic Skills Test; and must complete with a program advisor a Secondary, Elementary, or Special Education Program Sheet and have this on file with the registrar. Students in cooperative programs in special education with Grand Valley State University must complete Education 301-303 and Psychology 204 with a minimum grade of B- (2.7). Students should apply for admission in their freshman year. Transfer students may use course work and grade point averages from other institutions to meet these requirements for admission until a Calvin grade point average is established, provided the student must take an education course during the first semester at Calvin.

To be admitted to directed teaching, students must receive the positive recommendations of the instructors of Education 301, 303, and 322 (elementary), and if in special education, also 216. Students must have a cumulative grade point average of 2.5; must have completed at least 75 semester hours, including at least 18 semester hours in the departmental or group major concentrations and at least 15 semester hours in departmental or group minor concentrations; and must have the approval of each major and minor depart-

ment and of the Education Department. The college must have proof of passing scores on the Michigan Basic Skills Test before students will be allowed to take directed teaching.

In many cases, departmental approval involves passing a proficiency test in the discipline as well as demonstrating personal qualities important to effective teaching. Some departments also have minimum GPA requirements. Students should carefully read the departmental sections of this catalog and the Teacher Education Program Guidebook for specific information concerning the specific requirements of the departments of their majors and minors.

The State of Michigan requires the passing of a competency test in each area of certification and in the basic skills as a condition for certification. Students in the elementary and Special Education (MI) programs must also pass an elementary test. A registration booklet is available in the Education Department.

Students normally should apply for their directed teaching assignment by March 1 prior to the academic year in which they expect to student teach, but no applications will be accepted later than fifteen weeks before the start of the semester in which the student intends to enroll in directed teaching. In addition, students must have completed certain required education courses. All of the above qualifications are specified in the Teacher Education Program Guidebook, available from the Education Department.

To be recommended to the State of Michigan for teacher certification, a student must have maintained the standards above, must have completed the degree requirements as listed on the counseling sheet, must have completed directed teaching with a minimum grade of 2.0, must be recommended by his or her college supervisor, must have a cumulative grade point average of 2.5 and passing scores on all State of Michigan tests. Students are also required to pay a certification fee directly to the State of Michigan before receiving their certificates.

Transfer students, those entering teacher education tardy, and post-baccalaureate students must be admitted to the program if they seek teacher certification. They, too, must secure the appropriate forms from the Department of Education.

Students either not admitted or dropped from the program have the right to appeal in writing and in person to a committee normally consisting of the chair of the Teacher Education Committee, a member of the Teacher Education Committee, and the chair of the Education Department Screening and Certification Committee. Information concerning the appeals process is available in the Department of Education.

Canadian students can meet all or most of the teacher licensing requirements for any province while attending Calvin College. In addition to completing one of the four-year teacher education programs at Calvin such students must have met the standards required for admission to their provincial universities and must have completed 30 semester hours in education. Because other provinces consider an Ontario Academic Credit to be equivalent to their Grade 12 work, advanced credit given for Ontario Academic Credits is discounted by the ministries of education in the other provinces when evaluating teaching credentials.

Students from Ontario wishing to meet its requirements must complete five years beyond Grade 12. One year of that preparation (30 semester hours) must be in professional education courses, including practice teaching. In addition, students intending to teach in another province must also earn the teacher credentials of that province.

The Ontario Christian Teacher Certificate requires that the teacher has met the requirements for provincial certification and has completed 18 semester hours in courses taught from a Christian perspective. All except course in the history or philosophy of Canadian education or in Canadian school law can be completed at Calvin. In addition, such certification requires that the teacher has taught for two years in a Christian Schools International member school. For current information or any further clarification, consult Ms. Jo Stuive, coordinator of teacher certification.

Graduates who have earned a Michigan Provisional Certificate since July 1970, must complete an 18 semester hour planned program or enroll in a master's degree program to

qualify for a Professional Certificate. The Master of Education program at Calvin can be used not only to satisfy the requirements for continuing certification but also to develop additional areas for certification. Graduates seeking such certification should consult the coordinator of teacher certification.

The departmental advisors for education programs are as follows:

Art. Ms. Helen Bonzelaar, Ms. Anna Greidanus-Probes, Department of Art

Bilingual Education. Ms. Edna Greenway, Department of Spanish

Biology. Mr. Steven Stegink, Department of Biology

Chemistry. Mr. Ken Piers, Department of Chemistry

Communication Arts and Sciences. Mr. Randall Buursma, Department of Communication Arts and Sciences

Computer Science. Mr. Keith Vander Linden, Department of Computer Science

Economics. Mr. Evert Vander Heide, Department of Economics

English. Secondary: Mr. Dale Brown, Ms. Karen Saupe, Mr. William Vande Kopple, Mr. James Vanden Bosch; Elementary: Mr. Don Hettinga, Mr. Gary Schmidt, Department of English

Fine Arts. Ms. Helen Bonzelaar, Department of Art, Mr. Randall Buursma, Department of Communication Arts and Sciences, Mr. Dale Topp, Department of Music

French. Mr. Glenn Fetzer, Department of French

German. Ms. Barbara Carvill, Department of Germanic Languages

General Science Studies. Elementary: Mr. Stan Haan and Mr. James Jadrich, Department of Physics; Secondary: Mr. Steve Stegink, Department of Biology

Geography. Mr. Henk Aay, Department of Geology, Geography, and Environmental Studies

Geology (earth science). Mr. James A. Clark, Department of Geology, Geography, and Environmental Studies

Health Education. Ms. Debra Bakker, Department of Physical Education.

History. Mr. Daniel Miller and Mr. Doug Howard, Department of History

Language Arts. Mr. Donald Hettinga, Mr. Gary Schmidt, Department of English

Mathematics. Ms. Jan Koop, Mr. Gary Talsma, Department of Mathematics

Music. Mr. Dale Topp, Department of Music

Physical Education. Mr. Marvin Zuidema, Ms. Debra Bakker, Department of Physical Education

Physics. Mr. Roger Griffioen, Department of Physics

Political Science. Mr. Robert De Vries, Department of Political Science

Psychology. Mr. Wayne Joosse, Department of Psychology

Religion, academic study of, Mr. Tom Thompson, Department of Religion and Theology

Social Studies. Mr. Daniel Miller and Mr. Doug Howard, Department of History

Sociology. Mr. Gordon De Blaey, Department of Sociology

Special Education. (Mental Impairment), Mr. Thomas Hoeksema, Department of Education

Spanish. Elementary: Ms. Edna Greenway, Department of Spanish; Secondary: Ms. Marilyn Bierling (fall semester), Ms. Edna Greenway (spring semester)

Bilingual education. Because bilingual teachers must be prepared to teach all subjects in both English and Spanish, Calvin's elementary bilingual program requires the completion of a typical elementary education program with some modifications. Students major in Spanish and minor in Bilingual education. Students should request a bilingual assignment in Education 303 and will do half of their directed teaching in a bilingual classroom. Furthermore, they must be prepared to demonstrate competency in reading, writing, speaking, and listening in both English and Spanish.

Students who are in the secondary program and desire a bilingual endorsement should major in Spanish, minor in Bilingual education, and follow the secondary education program. Students should request a bilingual assignment in Education 303 and will do half of their directed teaching in a bilingual classroom. Furthermore, they must be prepared to demonstrate competency in reading, writing, speaking, and listening in both English and Spanish.

The additional course requirements for the group minor, which leads to an elementary endorsement in bilingual education, are as follows: English 329 or Communication Arts and Sciences/Education 311; History 207 or 208; History 211; Interdisciplinary 301; Spanish 310; Spanish 304; Spanish 356; and one advisor-approved elective. The additional course requirements for the minor leading to a secondary endorsement in bilingual education are as follows: English 329; History 207; History 208 or 211; Interdisciplinary 301; Sociology 250; Spanish 304; Spanish 310 and one advisor-approved elective.

The advisor for this program is Ms. Edna Greenway of the Department of Spanish.

Elementary education. Students interested in elementary education must secure copies of the Teacher Education Program Guidebook from the Department of Education. Programs should be worked out with the appropriate departmental advisor (see list above for the appropriate advisor) and have the approval of Mr. LeRoy Stegink, director of teacher education. The minimum elementary education program requires the completion of the general education requirements (see pages 32–34 for the courses recommended for studies in teacher education), and the completion of one of the following options for a concentration.

1. Three minors, consisting of a group minor of at least 24 semester hours, and a single departmental minor of at least 20 semester hours in a department other than those included in the group minor, and a planned minor consisting of at least 20 semester hours in subjects relevant to the curriculum of elementary schools. It is recommended that students who intend to teach in middle school or junior high complete two departmental minors and a planned minor (except prospective science teachers, who should take a group science minor, a departmental minor, and a planned minor). Those intending to teach on a lower elementary level should complete a group minor, a departmental minor, and a planned minor.
2. A major of at least 30 semester hours, and a planned minor of at least 20 semester hours in subjects relevant to the curriculum of elementary schools.
3. A group major of at least 36 semester hours, and a planned minor of at least 20 semester hours in subjects relevant to the curriculum of elementary schools.

In addition, prospective elementary teachers are required to take one course from each of the following groups. Students whose major or minors include none of these courses must complete a total of only two courses from the following three groups:

1. English 325 or 326
2. Geography 101 or 110
3. Psychology 201, 204, 207, or Education 216*

*A course on exceptional children is required for certification in at least 32 states, including Illinois. Because of this, students are strongly urged to take Education 216.

All prospective elementary teachers are required to take two courses in mathematics and the teaching of mathematics (Math 221-222). In addition, all prospective elementary teachers who have no science exemptions are required to take three courses in science. Each student must take a Biology core course, Physics 111 or 212, and a third course to be chosen from Chemistry, Geology, or Physics. Physics 112 is recommended for the third course.

Students who have earned a natural science exemption are only required to take two science courses. Students who have completed two years of high school biology are exempted from the biology core course requirement. All others must take a biology core course.

Every elementary education student must complete at least one of Physics 111, 112, or 212. Transfer students may use only laboratory oriented science content courses designed specifically for elementary education as substitutes for Physics 111, 112 or 212.

To meet the core physical education requirement in the elementary and special education (MI) programs, students must take Physical Education 221, 222, and one activities course.

Students must complete the required education courses.

A departmental concentration of at least 30 semester hours may be selected from the following subjects: communication arts and sciences, English, foreign language (French, German, Latin, Spanish), history, mathematics, physical education, political science; and a concentration from art and music of at least 36 semester hours.

Most students in elementary education programs, however, complete either the three minors program or group concentrations. Group concentrations are listed below, but students may consult the appropriate departmental advisor or the Teacher Education Program Guidebook for further advice.

Early Childhood Minor. The six required courses for this minor are: Education 336; 337; 339; Psychology 204; Education 311; and Sociology 304. Education 344 is also required for those students desiring a Michigan Early Childhood Education endorsement on their teaching certificates. This minor must take the place of the planned minor, and may only be used in the three-minor concentration. Students taking this minor will need more than four years to complete their programs.

The appropriate departmental minors are listed under each department in this catalog.

The appropriate education courses for students in elementary education are Mathematics 221, 222, Interdisciplinary 213, Physical Education 221 and 222; Education 301, 303, 304, 305, 309, 322, 326, 327, and 345. The planned program minor required for Michigan certification typically is met automatically by students meeting the general graduation requirements. Courses recommended for this dual function include: Art 215, Biology 111, 115, 116, or 114, English 101 and any literature course in English or in a foreign language; Geography 101 or 110, Geology 100 or 103, History 101 or 102 and any other history course, Mathematics 100, 221, 222, 131, or 161, Music 238 or 339, Physics 111, 112, or Physics 212, and Interdisciplinary 213, Psychology 204, Political Science 151, 201, or 210, and Communication Arts and Sciences 214. Courses counted in this minor cannot count in another concentration.

Fine Arts Studies Group Minor. The required courses for this minor are: Art 215; Communication Arts and Sciences 214; Music 238; a course sequence from one of the following: Art 205, 209, 231 or 232 or an approved art interim course; Communication Arts and Sciences 203, 217, or an approved Communication Arts and Sciences interim course; Music 105, 234, or an approved music interim course; and two electives chosen from a sequence not chosen in the previous two course sequence, for a total of at least 24 semester hours.

Fine Arts Studies Major. Required are Art 215, Communication Arts and Sciences 214, and Music 238. Students majoring in this group must complete a departmental sequence

from Art 205, 209, 231, 232 and one introductory media course; Music 105, 205, 234, an approved interim, and two semesters of 110, 120, 130, 140, 150, 160, 170, 131, 141, 161, or 171; Communication Arts and Sciences 203, 217, and two additional courses from 218, 316, 320 or 321, and an approved interim course. In addition, a student must complete a departmental sequence from an area not chosen above: Art 205, 209, 231 or 232, and one approved elective; Music 105, 205, or 234, and 238, and two approved electives, one of which may be an interim course. Communication Arts and Sciences 203, 217, and two approved electives, one of which may be an interim course. The major must total at least 36 semester hours and courses must be chosen with the approval of the advisor.

General Science Studies Group Major. This major consists of at least 36 semester hours of approved natural-science courses including at least 4 hours in each of biology, chemistry, geology/earth science, and physics. The major must include at least one pre-approved course that discusses the relationships among science, technology, society, and human values. Courses that satisfy this requirement include Biology 111, Biology 115, Chemistry 101, Environmental Studies 201, and pre-approved interim or AuSable courses. This major must contain an approved sequence of at least 15 semester hours in one of biological science, health science, physical science, geology/earth science, or environmental studies. Because one course has already been required, the additional semester hours for this sequence will be at least 12. All sequences must be chosen in consultation with the elementary education science-studies advisor. Appropriate sequences of at least 15 semester hours include the following: in biology, Biology 111 or 141; 114 or 243; 115 or 242; 116 or 311 S; in health science, Biology 141; 205; 206; and 207; in physical science, Physics 111; 212; Chemistry 113 and 114; or Chemistry 101 and an approved chemistry interim; or higher-level substitutes in physics or chemistry; in earth science, an approved sequence of courses from Geology 100; 103 or 151; Interdisciplinary 250; Astronomy 110 or 210; Environmental Studies 201; 202; and higher-level geology courses; and in environmental studies, Environmental Studies 201, 202, and 395; Geology 100 or 103; and one course from Biology 116, Chemistry 101, 103, 105, and 113. In addition, students are required to take an approved sequence of at least 12 semester hours from another of the same categories as for the 15 hour sequence. Students may not choose sequences in both biological and health sciences, and no course may be used in both sequences. Because one course has been included in the common requirements for this major, the additional semester hours for this sequence will be at least 8. Each major must include at least one course from Biology 141; Chemistry 103 or 113; Geology 151; or Physics 212. Students interested in middle or junior high school should structure the major to include at least 8 semester hours of biology and 8 semester hours of geology/earth science. Students should not take both Astronomy 110 and Physics 111. Courses lacking a Biology, Chemistry, Geology, or Physics label, but available for the major include Astronomy 110 and 201, Environmental Studies 201 and 202, Interdisciplinary 250, and approved interdisciplinary interim courses. The major may also include environmental courses in biology, geology, and natural resources which are offered at the AuSable Institute of Environmental Studies in Mancelona, Michigan, and which are described in the Off-Campus Programs section of this catalog.

General Science Studies Group Minor. This minor consists of at least 24 semester hours of approved natural science courses, including at least four hours in each of biology, chemistry, geology/earth science and physics. All minors should be approved by the elementary education science-studies advisor before any science course is taken. The recommended minor for covering national and state objectives through middle school consist of the following: Biology 111 or 141; one course from Biology 114, 115, 116; Physics 212; Chemistry 101; Geology 100 or 151; and Physics 111, 112, or Astronomy 110. Each minor must include at least one course from Biology 141; Chemistry 103 or 113; Geology 151; and Physics 212. Each minor must include at least one of Physics 111, 112, or 212, and students should not take both Astronomy 110 and Physics 111. Courses lacking a Biology, Chemistry, Geology, or Physics label but available for the minor include Astronomy 110

and 201, Environmental Studies 201 and 202, IDIS 250, and approved interdisciplinary interim courses. The minor may also include approved environmental courses in biology, geology, and natural resources which are offered at the AuSable Institute of Environmental Studies in Mancelona, Michigan, and are described in the Off-Campus Programs section of this catalog. At least one pre-approved course that discusses the relationships among science, technology, society, and human values must be included in the minor. Courses that satisfy this requirement include Chemistry 101, Environmental Studies 201, and pre-approved interim or AuSable courses.

Language Arts Studies Group Major. The required courses for this major are Communication Arts and Science 203, 214, 230; English 210 or 211; 215 or 216; 217 or 218; 283, 307, 312, 320, or 322; 325; 326 or 328; 356; and two English/Communication Arts and Science electives for a total of at least 36 semester hours.

Language Arts Studies Group Minor. The required courses for this minor are Communication Arts and Science 203 or 215; 214; English 210 or 211; 215, 216, or 346; 217 or 218; 325 or 326; 356; and one Communication Arts and Science/English elective for a total of at least 24 semester hours.

Social Studies Group Major. Students must take the specified courses from each of the following four disciplines: Economics 221 and 222; Geography 101 or 110 and one course from 100, 201, 210, and 310; History 101 or 102 and 211; and Political Science 201 and 202. In addition, students must complete the courses listed in one of the following sequences: three courses chosen from Economics 323 through 339; three courses chosen from Geography 100, 201, 210, 220, 310, 311, and an approved elective; three courses from History chosen in the following manner - one course from 355 through 357, one course from 301 through 303 for those who took 102 or one course from 303 through 305 for those who took 101, and one course from 203 through 208 and 231 through 236; three courses chosen from Political Science 203, 207, and an approved elective for a total of at least 36 semester hours.

Social Studies Group Minor. Students must take the specified courses from each of the following four disciplines: Economics 221 and 222; Geography 101 or 110 and one course from 100, 201, 210, and 310; History 101 or 102 and 211; and Political Science 201 and 202 for a total of at least 24 semester hours.

Middle school education. Michigan has only elementary and secondary certification. Students who wish to focus on teaching middle school students are advised to follow the elementary teacher education core requirements, choose two minors representing subjects taught in middle school (for example history, English, mathematics, and group science), and those education courses designated as dealing with the teaching of middle school students (for example, the middle school section of Education 301, and Education 327).

Secondary education. The minimum secondary program requires the completion of the general graduation requirements (see pages 32–34 for the courses recommended for students in teacher education); a departmental concentration of at least 30 semester hours or a group concentration of at least 36 semester hours; a minor of at least 20 semester hours in another department or a group minor of at least 24 semester hours; and at least 28 semester hours of professional education courses. Students interested in secondary education should obtain copies of the Teacher Education Program Guidebook from the Department of Education. Programs should be worked out with the appropriate departmental advisor (listed on page 40) and have the approval of Mr. LeRoy Stegink, director of teacher education.

The programs of concentration should be selected from the following subject areas: art, biology, chemistry, English, French, geology (earth science), German, history, Latin, mathematics, music, physical education, physics, religion and theology (coupled with another major), and Spanish. Majors in art and music require at least 36 semester hours. The minor should be selected from these subject areas or from communication arts and science,

economics, geography, political science, psychology, religion and theology (the academic study of religions), and sociology. Students with an interest in economics, geography, political science or social sciences are encouraged to major in history and minor in one of these areas.

Students in the secondary program who major in art, foreign languages (French, German, Spanish), music, or physical education are eligible for a K–12 endorsement on their secondary certificates which allows them to teach their major in grades K–12. Students should check the appropriate departmental sections of this catalog for more information.

Major group concentrations are available only in the sciences and must be planned with the science-education advisor in order to meet the standards of the North Central Association, the State of Michigan, and the National Science Teachers Association. The secondary group-science major requires at least 36 semester hours of natural science, plus 12 semester hours of natural science cognates. Each program must include at least 16 semester hours appropriate for a secondary minor in one of biology, chemistry, geology/earth science, and physics, and at least one course relevant for science, technology, and society, such as Chemistry 271 or 396; Physics 196; and Environmental Studies 201 or 202, and at least one course specifically relevant for teachers, such as Biology 357. Mathematics 110 or 161 is also required as a cognate (students who qualify for 161 may substitute 143 for 161).

Group minors are available in science and social studies. The social science group minor consists of the specified course from each of the following four disciplines: Economics 221 and 222; Geography 101 or 110 and one course from 100, 201, 210, and 310; History 101 or 102 and 211; and Political Science 201 and 202. The secondary group-science minor requires at least 24 semester hours of natural science, including a sequence of at least 12 semester hours in one of biology, chemistry, geology/earth science, or physics. The sequence must consist of approved courses appropriate for a secondary minor in the particular discipline, and each program must also include at least 4 semester hours in each of the other three disciplines. Each program must also include at least one course that considers the relationships among science, technology and society, such as Chemistry 101, 271, or 396; Physics 196; and Environmental Studies 201 or 202. A cognate of Mathematics 110 143, or 161 is also required.

North Central Association has requirements that differ from state and college requirements. It requires that teachers in the schools they accredit have the following minimum preparation in each of their teaching fields: art, 24 semester hours in art; English, 24 semester hours in English, distributed appropriately among courses in literature or composition. Five semester hours in speech and/or journalism may be counted toward meeting this requirement; foreign language, 20 semester hours in each language taught; mathematics, 20 semester hours in mathematics; music, 24 semester hours in music; physical education, 20 semester hours in physical education; science, 24 semester hours in science, distributed appropriately in the subjects to which the teacher is assigned; social science, 24 semester hours in social studies, distributed appropriately in the subjects to which the teacher is assigned; speech, 24 semester hours in speech and dramatic arts or a minimum of 8 semester hours in speech plus sufficient additional work in English to total at least 24 semester hours.

The appropriate education courses for students in secondary programs are: 301, 303, 304, 307, 346, and a departmental 359.

Special education. Calvin College offers a program in special education, which leads to teacher certification at the elementary level as well as to K–12 endorsement as a teacher of students who are mentally impaired. Students in the program must complete the liberal arts core, the professional education requirements for elementary education, a concentration in special education, and a planned minor of at least 20 semester hours, and two ten-week directed teaching experiences.

Calvin College also offers a Bachelor of Science in Special Education degree in cooperation with Grand Valley State University. This program usually requires five years to com-

plete. Admission is limited to students who wish to teach hearing impaired or emotionally impaired children. Students in cooperative programs with Grand Valley must complete a designated core of liberal arts courses, a group concentration, a planned minor, professional education courses, and the additional requirements for endorsement in special education. Students interested in either the mentally impaired program or in the consortium programs with Grand Valley should consult Mr. Thomas Hoeksema.

In addition, Calvin College offers a degree of Master of Education (M.Ed.) in learning disabilities. Part of the program leads to an endorsement required for teaching students with learning disabilities. Applicants must possess an elementary or secondary teaching certificate and must have completed course work in the education or psychology of exceptional children and in child or adolescent psychology. Two years of regular teaching experience are recommended. Students in the Master of Education program complete six semester hours in the context of education, 13 semester hours in the learning disability concentration, 7 semester hours of electives, a research course, and a project requiring two seminars. Practicum experience is included. A degree program in learning disabilities without an endorsement is also possible. Both programs satisfy the course requirement for continuing certification. Students interested in the master's degree program in learning disabilities should consult Ms. Myra Kraker.

Post-Baccalaureate Non-Degree Teacher Education Programs

Post-Baccalaureate Non-Degree Program Leading to a Michigan Provisional Teacher Certificate. This program is for those who have graduated with a bachelor's degree from an accredited institution without having obtained a teacher certificate. All persons interested in certification will require an evaluation of their undergraduate programs for certification and eligibility requirements.

Required professional courses in this program include Education 301, 303, 304, and twelve semester hours of a teaching internship. Prospective elementary teachers must also complete Education 305, 309, 322, Interdisciplinary 213, Mathematics 221, 222, and either Education 326 or 327; the elementary education science and physical education requirements; and the additional core requirements concerning children's literature, geography, and special education. Prospective secondary teachers must also complete Education 307-308 and a departmental 359. Certification requirements for teaching majors and minors must also be met. Only courses in which a grade of C- or higher is earned may be applied to the program.

Requests for admission to this program should be addressed to the Coordinator of Certification. To be eligible students must have a bachelor's degree from an accredited college or university, a minimum cumulative grade point average of B- (2.5), two letters of recommendation, and must complete Education 191 and 192. Information regarding teacher certification should be obtained from the Coordinator of Certification, Ms. Jo Stuiwe.

Students in this program must pass the State of Michigan tests (basic skills test, major and minor subject tests, and an elementary education test for those in the elementary program) before certification will be granted. The basic skills test must be completed and the college must have the passing scores before students will be allowed to take directed teaching. Students should take the basic skills competency tests before taking 300-level education courses or, if transfer students, immediately upon arrival at Calvin College. Information regarding test dates can be obtained from the Education Department.

Post-Baccalaureate Non-Degree Program Leading to a Michigan Professional Teacher Certificate. This program is for those who have a bachelor's degree and a provisional teacher certificate. It is intended for teachers who would like to take graduate courses but not enroll in a master's degree program. Courses taken under this program may be transferable to a master's degree program at a later time, if applicable to a particular concentration.

A minimum of 18 semester hours beyond initial certification is required for recommendation for a professional teacher certificate. A few special endorsements may require

more course work. Courses in the major and minor(s) should be chosen in consultation with an appropriate departmental advisor (as listed on page 40) at the time the program of study is initiated. Previous course work and planned selections must be evaluated by the director of teacher certification. Only courses in which a grade of 2.0 or higher is received may be applied to the program. Students who graduated from and were recommended for this provisional certificate by Calvin College must take at least 6 semester hours at Calvin. All others must take at least 9 semester hours at Calvin. Students adding endorsements must pass the State of Michigan test in those areas.

Post-Baccalaureate Non-Degree Special Education Program Leading to a Michigan Endorsement in Emotional Impairment. This program is for those who have a bachelor's degree and a teacher certificate and who wish to obtain an endorsement in Emotional Impairment at the elementary or secondary level.

This program requires courses in education or psychology of exceptional children; introductory or advanced educational psychology; and child or adolescent psychology. In addition, the following courses must be taken at Calvin: Psychology 312, Principles of Psychological Measurement, Psychology 510, Educational Measurement, or Education 594, Educational Research and the Classroom; Psychology 511, Introduction to Guidance and Counseling; Education 551, Assessment and Diagnosis: Learning Disabilities; Education 582, Curriculum and Instruction: Learning Disabilities—Elementary or Education 583, Curriculum and Instruction: Learning Disabilities—Secondary; Education 571, Assessment and Diagnosis: Emotional Impairment; Education 572, Curriculum, Management, and Instruction: Emotional Impairment; Education 578, Directed Teaching: Emotional Impairment; and Education 576, Seminar: Emotional Impairment. Students must also pass the State of Michigan test for this area. Application to Calvin College and to this program should be made to the Graduate Office. The advisor for this program is Mr. Steve Timmermans.

Post-Baccalaureate Non-Degree Special Education Program Leading to a Michigan Endorsement in Learning Disabilities. This program is for those who have a bachelor's degree and a teacher certificate and who wish to obtain an endorsement in learning disabilities at the elementary or secondary level.

This program requires courses in education or psychology of exceptional children, introductory or advanced educational psychology, child or adolescent psychology, and one elective. In addition, the following courses must be taken at Calvin: Education 550, Theories of Learning Disabilities, Education 551, Assessment and Diagnosis: Learning Disabilities, Education 582, Curriculum and Instruction: Learning Disabilities—Elementary or Education 583, Curriculum and Instruction: Learning Disabilities—Secondary; Education 548, Practicum: Learning Disabilities—Elementary or Education 549, Practicum: Learning Disabilities—Secondary, Psychology 511, Introduction to Guidance and Counseling (for those seeking a secondary endorsement). Students must also pass the State of Michigan test for this area.

Application to Calvin College and to this program should be made to the Graduate Office. The advisor for this program is Ms. Myra Kraker.

Post-Baccalaureate Non-Degree Special Education Program Leading to a Michigan Endorsement in Mental Impairment. This program is for those who have a bachelor's degree and a teacher's certificate and who wish to obtain an endorsement in mental impairment.

The program includes the following courses: Art 215, Art for the Elementary Classroom Teacher; Psychology 151, Introductory Psychology; Psychology 201, Developmental Psychology: Lifespan; Psychology 313, Mental Health in the Classroom; Education 216, Education of Exceptional Children; Education 306, Mental Retardation; Education 310, Diagnosis and Prescription: Mentally Impaired; Education 330, Curriculum and Instruction: Mentally Impaired; and Education 347, Directed Teaching: Mentally Impaired. Students must also pass the State of Michigan test for this area.

Application to Calvin College and to this program should be made to the Graduate Office. The advisor for this program is Mr. Thomas Hoeksema.

Post-Baccalaureate Non-Degree Education Program Leading to a Michigan Endorsement in Early Childhood Education. This program is for those who have a bachelor's degree and a valid teacher certificate, and who wish to obtain an endorsement in Early Childhood Education.

The program includes the following courses: Psychology 204, Developmental Psychology: Child; Education 311, Child Language Development, English 329, Linguistics; or English 335, Language, Grammar, and Writing for the Elementary Classroom; Sociology 304, The Family; Education 336, The Young Child in an Educational Setting; Education 337, Early Childhood Curriculum Theory and Development; Education 339, Current Issues in Early Childhood Education; Education 344, Field Experience. Students must also pass the State of Michigan test for this area.

Application to Calvin College and to this program should be made to the Graduate Office. The advisor for this program is Ms. Yvonne Van Ee.

Preprofessional Programs

The programs in this section prepare students for admission to professional and graduate schools while also meeting the requirements for a Bachelor of Arts or Bachelor of Science degree from Calvin.

Law

There is no prescribed program specifically designed for the student planning to enter a law school after graduation. Law school applicants must have a college degree and must take the Law School Admission Test, but law schools do not require that applicants have taken specific courses or have a particular major concentration. Prospective law school applicants should complete the requirements for a Bachelor of Arts degree as they are listed on pages 31–34. The prelaw advisor, Mr. Charles Strikwerda of the Department of Political Science, can advise students on suitable electives and can help them plan programs which provide good preparation for law school. Prelaw students should declare their interest in law at registration time and may wish to consult the prelaw advisor before or during each semester's registration.

Medicine and Dentistry

All students planning to enter the premedical or pre dental programs should consult Mr. Peter Tigchelaar of the Department of Biology, faculty advisor for the premedical and pre dental programs. Students should also note the general college core requirements on pages 31–34.

A student may select any major concentration and still meet the entrance requirements for all medical and dental schools. However, nationwide the majority of the applicants to medical and dental schools are science majors.

For those students not majoring in biology, the minimum science requirements for entrance into nearly all medical or dental schools are met by the following: three courses in biology (which should be selected in consultation with the pre-medical advisor.); Chemistry 103-104, 261-262 (Chem 323 is required by some schools); and Physics 221-222 or the equivalent. Mathematics 132 and 143 are recommended, but Mathematics 161-162 is required by some medical schools.

Because a few schools have unique requirements, students should consult with Mr. Tigchelaar to determine specific requirements of the schools to which they intend to apply.

Premedical and pre dental students normally should take their Medical College Admissions Test (MCAT) or Dental Admissions Test (DAT) in the spring of their junior year and should apply for admission to the medical or dental school during the summer prior to their senior year.

Ministry

The Association of Theological Schools (A.T.S.) recommends that pre-seminary students develop to a satisfactory degree the ability to think independently, to communicate effectively, to do research, and possess a basic general knowledge of past and present culture through studies in the humanities and the natural and social sciences. The A.T.S. also states that Biblical languages may be acquired in the pre-seminary period, that Latin is important, and that modern languages are valuable. Pre-seminary students are advised to consult the catalogs of the seminaries which they intend to enter for their specific admission requirements. Catalogs are available in the library.

The advisor for all preministry programs is Mr. Arie Griffioen of the Religion and Theology Department.

In order to qualify for admission to Calvin Theological Seminary in any of its programs the student should meet all of the regular college requirements for a bachelor's degree as well as the admissions requirements of the seminary for the specific programs. A grade point average of 2.67 or higher is required for admission. College concentrations of particular relevance for subsequent seminary studies are classical civilization, English, Greek, history, philosophy, psychology, sociology, and theology.

To enter the Master of Divinity (M.Div.) program, Calvin Seminary requires the following courses for admission:

1. Language: at least two years of Greek.
2. Humanities: a total of at least 24 semester hours (8 courses) in English, history, and philosophy, with at least two semester-length courses each in literature, history, and philosophy (preferably history of philosophy).
3. Natural science, social science, and speech: at least two courses in each.

The seminary encourages Calvin College students who plan to enter the Master of Divinity program to satisfy the above requirements by including the following courses in their programs: Greek 205-206; Philosophy 251 and 252; and Communication Arts and Sciences 100 or 101 and 200. Communication Arts and Sciences 203 and 240 are recommended and, in exceptional cases, either of these courses may be substituted for Communication Arts and Sciences 100 or 101.

Calvin Seminary's Master of Arts in Educational Ministry program is for persons who, though not seeking ordination, wish to prepare themselves for other positions of leadership in the church, particularly in its educational ministry. The courses required for admission are generally met by the college graduation requirements, with the addition of two courses from education and psychology, including a course in educational psychology.

Calvin Seminary's Master of Arts in Missions and Church Growth program prepares persons for leadership in professional settings such as missions and para-church organizations. Admission requirements are generally met by Calvin College graduation requirements, but must include at least three courses in the social sciences, one of which must be in Social or Cultural Anthropology.

Calvin Seminary's Master of Theological Studies program is designed for those who do not seek ordination but desire a theological education with a view toward various vocational objectives. Specific requirements beyond those required for graduation from the college include four courses in Greek; competence in a modern foreign language through the second-year college level is recommended.

Professional-degree Programs

Accountancy (B.S.A.)

The Bachelor of Science in Accountancy degree is intended for students who want to prepare for a career in accounting in the context of a Christian liberal arts education. The program requires 59 semester hours in the Department of Economics and Business and at

least 62 semester hours in other departments.

The program can be used to prepare graduates for the Certified Public Accounting (C.P.A.) examinations and meets the Michigan requirements. Students preparing for the examinations in any other state should consult the department.

Students qualifying in accounting through the Bachelor of Science in Accountancy may also combine their accounting course work with the Cooperative Education Program sponsored by the Department of Economics and Business. This program combines five years of course work and applied experience. Such programs should be worked out with a faculty advisor.

The Bachelor of Science in Accountancy program requires thirty-three hours in accounting including the following courses: Business 203, 204, 215, 301, 302, 305; three from 306, 310, 311, and 315; eight courses providing a general background in business and economics (Business 350, 260, 370, 380, Economics 221, 222, plus two Economics courses from a designated group); and three courses in mathematics and computer science.

In addition to the specified courses from the Department of Economics and Business, the student must complete at least 62 semester hours in other departments. This requirement differs slightly from the liberal arts core described on pages 31-34. It must include one core course each in history, philosophy, and religion and theology, plus an additional course from these departments or Interdisciplinary W10, Christian Perspectives on Learning; a course in the natural sciences; a course in political science, psychology, or sociology; a course in English or American literature; a second course in the fine arts; English 101, Communication 100 or 101, and three semester hours in basic physical education. If a student has not completed a foreign language through the second year college level, then a foreign culture course must be taken to fulfill a third fine arts requirement. No more than one high school exemption will be accepted in the fine arts.

A model program for the Bachelor of Science in Accountancy is:

<i>First year</i>	<i>Semester hours</i>
English 101	4
History 101 or 102	4
Mathematics 143-132 or alternative mathematics cognate	8
Philosophy 153	3
Psychology, sociology or political science core	3
Religion and theology core	3
Fine arts core	3
Interim elective	3
Physical education	1
<i>Second year</i>	<i>Semester hours</i>
Business 203, 204, 215, 260	12
Economics 221, 222	7
Communication 100 or 101	2
Computer science	3
Literature core	3
Interim elective	3
Physical education	1
<i>Third year</i>	<i>Semester hours</i>
Business 301, 302, 305, 315, 370	19
Economics 323, 324, 325, or 326	4
Foreign culture core	3
History, philosophy, or religion and theology core	3
Interim elective	3
Physical education	1

<i>Fourth year</i>	<i>Semester hours</i>
Business 306, 310, 311, 350, 380	18
Economics 331-339, or a second course from 323-326	3
*Electives (may include 307 for CPA candidates)	6
Natural science core	4

Communication Disorders (B.S.C.D.)

Students who wish to enter professions dealing with communication disorders may qualify for the degree of Bachelor of Science in Communication Disorders. The program prepares students for graduate work in speech pathology or in audiology. Students should apply to accredited graduate programs during the fall semester of their senior year. Admission into a graduate program in speech pathology is very competitive. Students must have a minimum of a 3.0 grade point average to be considered. The advisor for the program is Ms. Judith Vander Woude of the Department of Communication Arts and Sciences.

The liberal arts requirements include one core course each in history, philosophy and religion with an additional course from one of these departments: Biology 115; Computer Science; Mathematics 143; Psychology 151 and 204; a course in either economics or political science; a core course in literature plus an additional course in literature, fine arts, or foreign culture; English 101 and 334; CAS 200 and 3 semester hours credit in basic physical education.

The required courses in the Department of Communication Arts and Sciences are: 140, 210, 212, 215, 216, 311, 384, 385, 386, 399, two distance education courses from Michigan State University, and two electives from 203, 214, 253, 260, 346, 352, or a CAS interim.

Students interested in becoming a teacher of the speech-language impaired in the schools will also need to seek appropriate teacher certification and should consult with Mr. Stegink of the Education Department.

Criminal Justice

The major in criminal justice provides the foundation, context, and general criminology and delinquency content for students interested in involvement in law enforcement, the courts, probation, juvenile corrections, adult corrections, and alternative community corrections. The program is founded on a Christian mission which is committed to analyzing criminal justice structures and to probing the social, political, and psychological implications that lie behind them. This mission finds expression in a course of study which integrates theoretical, ethical, and practical criminal justice concerns.

The major is composed of fourteen courses, ten foundational criminal justice courses and a four course cognate composed of an ethics course and 3 specialization electives. All of the general core requirements must be met; however, some core courses may overlap with the cognate. Therefore, careful advance planning is helpful and recommended. To this end interested students should consult the Criminal Justice Program Director for personal curriculum planning. Freshman consultations are welcome. The following four year program sequence is the model for the criminal justice major:

<i>First year</i>	<i>Semester Hours</i>
English 101 (core)	4
History (core)	4
Biology (core)	4
Phil. 153 (core)	3
Foreign Language 101 and 102 (core)	8
Physical education (core)	1
Religion-Biblical studies (core)	3
Sociology or Psych. 151 (core)	3
Interim	3

<i>Second Year</i>	<i>Semester Hours</i>
For. Language 201 and 202 (core)	8
Literature (core)	3
Soc. 210, 211 (CJ major)	6
Pols 151 or Econ 151 (core)	3
Mathematics (core)	3
Physical science (core)	4
Interim	3
Physical education (core)	1
Ethics course (Phil 205 or Rel 332-core elective & CJ major)	3
<i>Third Year</i>	<i>Semester Hours</i>
Communications 100 (core)	2
Elective (contextual core)	3
Religion-Historical Studies	3
Fine Arts (core)	3
Third Fine arts elective (core)	3
Physical Education (core)	1
General elective	3
Soc 250 or 306 (CJ major)	3
Soc 317 & 319 (CJ major)	6
1st CJ Specialization Elective	3
Soc W (CJ approved interim)	3
<i>Fourth Year</i>	<i>Semester Hours</i>
Soc 380 (CJ internship)	6
2nd & 3rd CJ Specialization Electives	6
Soc 320 (CJ major)	3
Soc 395 (CJ capstone course)	3
General electives	6
 Degree Total:	 124

Note: Courses designated as “core requirements” may be replaced with general electives if an exemption for the core requirement is awarded by the registrar.

Engineering (B.S.E.)

Engineering is a design-oriented profession applying the principles of mathematics, science, economics, ethics, social sciences, and humanities with judgment to the utilization of energy and materials for the benefit of humanity.

Students at Calvin College prepare to be engineers by following a program leading to a Bachelor of Science in Engineering (B.S.E.) degree. This degree is attained by completing courses in one of four concentrations—chemical engineering, civil engineering, electrical and computer engineering, or mechanical engineering. The Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (A.B.E.T.) accredits this curriculum. Students interested in engineering should consult with the department chair, Mr. Richard DeJong.

The goal of the department is to educate Christians to serve the Lord and others through technology. The educational objectives of the engineering program are that its graduates will be:

- individuals who are firmly grounded in the basic principles and skills in engineering, mathematics, science, and the humanities, for correct, perceptive, and sensitive problem assessment at a level appropriate for entry level work both in industry and graduate school;

- designers who are able to creatively bring a project from problem statement to final design and prototype while realizing the interdisciplinary and interdependent character of the engineering profession; and
- servants whose Christian faith leads them to an engineering career of action and involvement, to personal piety, integrity, and social responsibility.

The engineering program has a strong emphasis on design. Here the student meets the challenging value and technical issues that arise when societal problems are dealt with through technology. The design experience starts with several projects in the first year which focus on societal problems and issues, and which emphasize conceptual design, creativity, and teamwork. Design experiences are then integrated into each concentration by way of specific courses or projects. Finally, the design experience is completed by means of a capstone design project course sequence during the senior year. Within this design perspective, students are aided in the development of a thorough Christian understanding of technology and its applications.

Each of the four concentrations in the engineering program has two major themes or emphases. The Chemical Engineering concentration has emphases of chemistry and chemical processing. The Civil Engineering concentration has emphases of hydraulics and structures. The Electrical and Computer Engineering concentration has emphases of digital systems and analog circuits. Finally, the Mechanical Engineering concentration has emphases of thermal systems and machine design.

The courses required of the B.S.E. degree are listed on pages 124–125 of this catalog. Advising forms that show the normal sequence of these courses are available in the Engineering Department office or from the Engineering Department advising web page (<http://engr.calvin.edu/advising.htm>). The B.S.E. degree requires completion of 28 hours of engineering courses common to all concentrations, 34 hours of technical cognates (mathematics, science, and business), 36 hours of liberal arts courses, and 38 to 42 hours of courses specific to each concentration. In addition, students may elect to complete the requirement for engineering seminar credit (294 and 394) and an engineering internship credit (385).

Admission Students follow a common program for the first two years, at the end of which they apply for admission to the Department of Engineering. The minimum requirements for admission to the program are:

- Completion of Chemistry 103, Computer Science 150 or 155, Mathematics 161, 162, and Physics 126, 186, and 225 with a minimum grade of C-
- Completion of Mathematics 261 and 231, and Engineering 101, 102, 205, and 202 with a minimum grade of C.
- Completion of either Engineering 204/284 or Engineering 206 with a minimum grade of C.
- Completion of 18 hours of the required liberal arts courses.
- Have a minimum cumulative grade point average of 2.30.

Students must apply for admission to the Department of Engineering during the semester in which they are completing the required courses listed above. At the time of admission they must also specify their desired concentration. After a student is accepted, the chair completes a major counseling form for the student, indicating the remaining requirements. Admission to the department allows the student entry into 300-level engineering courses.

Probationary Admission. Probationary admission is available to assist certain students. Students who wish to take 300-level courses but who have not completed the required courses with the stipulated minimum grade or who have not achieved the minimum required cumulative grade point average may be given probationary admission to the program. Such students may not have more than three course deficiencies nor may their cumulative grade point average be lower than 2.2 and, furthermore, all deficiencies must be removed within a designated period of time, not to exceed one year. Students who fail to meet these conditions are not eligible to reapply for admission to the program at a later

date. Students should request probationary admission when applying for admission to the Engineering program. (As an alternative to probationary admission, students may delay taking 300-level courses until they have met all requirements for regular admission to the program.)

Transfer Student Admission. Students wishing to transfer from another school should apply to the Office of Admissions. In general, transfer students must meet the same course requirements as students who begin their programs at Calvin. No course completed with a grade below C (2.0) will receive transfer credit.

Transfer students must arrange for an analysis of transcripts by the department chair well in advance of course advising. In addition, those who wish to take 300-level courses in their first semester at Calvin must:

1. *have a 2.5 grade point average at their previous school*
2. *if requested, provide a letter from that school indicating that the student was in good academic and personal standing*
3. *receive either probationary admission or regular admission or possibly special permission from the chair*

Calvin's engineering program emphasizes the integration of Christian faith and a professional engineering education. This integration takes place in many ways. For this reason a student seeking a B.S.E. degree from Calvin should be part of the program for the equivalent of no less than four semesters as a full-time student at Calvin. It is also stipulated that at least one non-technical course be taken for each semester at Calvin.

Notes Regarding Admission and Graduation. All students must display a high degree of personal integrity to be recommended for admission. After admission to the engineering program, the student must continue to make adequate progress toward fulfilling graduation requirements (a grade below C- in a 300-level course is an example of inadequate progress; see the chair of the department for further details). In addition to an overall, college-wide grade point average of 2.0, the student must obtain a grade point average of 2.0 in all engineering courses completed at Calvin to be eligible to graduate.

Advisory Council. The Engineering Department is served by an advisory council. Current members are: Mr. Bruce W. Bradshaw of Pandrol Jackson, Mr. Leonard DeRooy of URS Greiner, Mr. Paul Newhof of Newhof and Winer, Mr. Thomas Newhof of Prein and Newhof, Mr. Gary Post of Muskegon Construction, Mr. Charles Spoelhof formerly of Eastman Kodak, Mr. Garry VanderPloeg of the Telecommunications Department at Western Michigan University, Mr. Nick Hendriksma of Delphi Systems, Mr. Tom VandenBerg and Mr. Brian Honeck of Prince Corporation, Mr. Albert Posthuma of CCJM, and Mr. Fred Kamper of Air Engineering and Conditioning. Calvin College is an affiliate member of the American Society for Engineering Education (ASEE) and the Junior Engineering Technical Society (JETS). Calvin College has student chapters of ASCE, ASME, and IEEE.

Nursing (B.S.N.)

Calvin College, in cooperation with Hope College of Holland, Michigan, offers a Bachelor of Science in Nursing (B.S.N.) degree which affirms the distinctive mission of both colleges. The program seeks to provide broad educational and professional nursing experience within the context of a Christian liberal arts education. It is designed to prepare beginning practitioners of nursing who are capable of integrating their knowledge, skills and attitudes to provide quality nursing care for people of all ages and in a variety of settings. Upon the completion of the degree, students are eligible to take state licensing examinations. Satisfactory scores on that exam enable a student to become a Registered Nurse (R.N.). Students should contact the Nursing Department for further information.

The two-year pre-nursing program requires nine courses in the sciences and social sciences closely related to nursing (Biology 141, 205, 206, 207, Chemistry 113, 114, Psy-

chology 151, 201, and Sociology 151) and nine additional liberal arts courses (history, philosophy, religion and theology, plus an additional course from these departments or Interdisciplinary W10; a course in literature taught in English; a course in the fine arts; another course in fine arts, literature or foreign culture; a course in written rhetoric; two semester hours in speech; and three one-semester hour courses in basic physical education). Those interested in nursing are asked to indicate their interest at the time they begin their studies at Calvin, so they will be counseled by advisors for the nursing program

By January 22 of the sophomore year, students must apply for admission to the Hope-Calvin Department of Nursing. Application forms are available in the Nursing department. To be eligible to begin the nursing program, a student must have completed the eighteen courses in the pre-nursing program, nine of which must be the required courses in the natural and social sciences. These science courses must have been completed within the past seven years. In order to be considered for admission to the program, a minimum cumulative grade point average of C+ (2.3) is required, as well as a minimum grade of C- (1.7) in each of the natural and social sciences courses. Since enrollment in the final two years—the clinical nursing years—is limited, admission is selective, and completion of the pre-nursing program does not assure acceptance. Students pay the same tuition rate for the two years of nursing instruction regardless of whether they are enrolled at Calvin or Hope: see the section of the catalog on “tuition and fees” for details.

Students who have transferred to Hope or Calvin from some other college or university will be considered Hope or Calvin students (rather than transfer students) if they will have completed two semesters of full time academic work at Calvin by the end of the semester in which they apply for admission. Students desiring to transfer to Hope or Calvin for their junior and senior years, who have completed acceptable pre-nursing course requirements, will be considered for admission to the nursing program after qualified students from Hope and Calvin have been accepted into the program. Applicants for admission who are graduates of Hope College or Calvin College will be given equal consideration with current Hope or Calvin students. Hope or Calvin students and graduates will be given preference for admission over transfer students. Transfer students will be considered only on a space available basis. Applicants who submit applications after the due date will be considered last if space becomes available.

The third and fourth years require fourteen professional courses and four liberal arts electives, one of which must be a course in mathematics unless the student has completed four years of college preparatory mathematics in high school.

Butterworth Hospital, Holland Community Hospital, and St. Mary's Hospital provide clinical opportunities for students to care for people who need the knowledge and skills of the nursing profession. Pine Rest Christian Hospital provides learning experiences in mental health nursing and other community agencies offer opportunities for students to care for clients outside of a hospital setting. Transportation to these agencies is the student's responsibility.

The typical nursing program is as follows:

<i>First year</i>	<i>Semester hours</i>
Biology 141, 205	8
Chemistry 113, 114	8
Psychology 151	3
Sociology 151	3
English 101	4
Fine arts core	3-4
Religion, history, philosophy or Interdisciplinary W10, core	3-4
Physical education	2

<i>Second year</i>	<i>Semester hours</i>
Biology 206, 207	8
Psychology 201	3
Religion core	3
History core	3
Literature core	3
Philosophy core	3
Fine arts, literature or foreign culture	3-4
Communication 100	2
Physical education	1
<i>Third year</i>	<i>Semester hours</i>
Nursing 315, 323, 331, 354, 372, 362/366 and 364/368 or 435/437	24-25
Mathematics 100 or 143 (or elective for students with high school math exemption)	3
Elective	3
<i>Fourth year</i>	<i>Semester hours</i>
Nursing 362/ 366 and 364/ 368 or 435/ 437, 429, 459, 476, 478, 484	24
Electives	6-8

The nursing courses are described on pages 173-175 under the Department of Nursing. Other courses are described under the department indicated.

Recreation (B.S.R.)

Students who wish to enter the field of recreation services, which includes such specialty areas as therapeutic recreation (recreation therapy), recreation management, youth leadership, and commercial and outdoor recreation, youth ministries and student development should complete the degree requirements for the Bachelor of Science in Recreation. The program requires nine courses in recreation (met by 201, 215, 303, 304, 305, 310, 346, and Physical Education 301) and five cognate courses: (Social Work 350 or Psychology 201; Psychology or Sociology 310; Physical Education 220; Physical Education 380 and either 221 or 222) plus the core requirements designated for professional programs. Those interested in careers in Therapeutic Recreation should also take Recreation 314 and 324. Students are advised to consult with Mr. Glen Van Andel or Mr. Don DeGraaf of the Physical Education and Recreation Department for more information about this program. A model program is as follows:

<i>First year</i>	<i>Semester hours</i>
History core	4
Religion core	3
Mathematics core	3 or 4
Physical science core	4
Biology 115	4
Sociology 151	3
Psychology 151	3
English 101	4
Religion, history, philosophy, or Interdisciplinary W10, core	3
Physical education core	1

	<i>Semester hours</i>
<i>Second year</i>	
English core	3
Fine arts core	3
Communication 240	3
Recreation 201	3
Recreation 215	3
Option/Emphasis elective	3 or 4
Psychology 201 or Social Work 350	3
Physical Education 380 (sign up with advisor)	2
Physical Education 221 or 222	2
Interim elective	3
Physical education core	1
<i>Third year</i>	
Philosophy 153	3
One fine arts elective or 2 foreign language core (language core is not required of this major)	3-4 or 8-12
Recreation 303	2
Recreation 304	3
Recreation 305	4
Physical Education 220	4
Psychology/Sociology 310	3
Option/Emphasis elective	3 or 4
Physical education core	1
Interim elective	3
Physical Education/Rec 301	2
<i>Fourth year</i>	
Recreation 310	3
Theology 301	3
Option/Emphasis electives	6-8
Interim elective	3
Recreation 346 (to be taken after all major course work is completed)	12

Social Work (B.S.W.)

The Bachelor of Social Work degree is designed for students who want to prepare for a career of Christian service as a professional generalist social worker. The program is carried out in the context of the mission of Calvin College which is to offer a Christian education enriched by the insights of the Reformed heritage. Upon completion of the program, students are prepared for entry-level professional social work positions. The B.S.W. program is accredited by the Council on Social Work Education.

Students who wish to pursue a B.S.W. will normally make application to the Director of Social Work by February 15 of their sophomore year. Decisions about admission to the program are made by the Social Work Program Committee and are based on the following criteria: 1) Students must have earned at least 35 semester hours of credit, and either have completed or currently be enrolled in Biology 115, Economics 151 or 241, Psychology 151, Sociology 151, and Social Work 240 and 250. 2) Students must have a minimum grade point average of 2.5 and a minimum grade of C- in each of the courses just specified. 3) Students must have completed or be completing at least 50 hours of social work volunteer or paid service and must submit a letter of reference from an appropriate supervisor. 4) Students must submit a written personal statement which includes information about their commitment to social work as a vocation and their relative strengths and areas for develop-

ment as potential professional social workers. Since enrollment in the community-based practicum is limited, admission to the program is also limited and, therefore, fulfillment of the admission requirements cannot guarantee admission.

The B.S.W. is composed of a social work major of eleven courses (45 semester hours) and several core requirements. The social work major includes theory courses, social work practice courses, and practicum courses in community agencies (Social Work 240, 250, 255, 320, 350, 360, 370, 371, 372, 373, and 380). Once admitted to the program, B.S.W. students must make separate application to the practicum. The core requirements include courses from the contextual disciplines, mathematics and natural sciences, social sciences plus a 2-course social science cognate, arts and literature, competencies, and foreign language. Some core requirements are specified as can be seen from the following model program:

<i>First year</i>	<i>Semester hours</i>
English 101	4
History core	4
Religion core	3
Mathematics core	3-4
Biology 115	4
Psychology 151	3
Language 101 and 102	8
Physical education 104	1
Interim elective	3
 <i>Second year</i>	 <i>Semester hours</i>
Economics 151 or 241	3
Political Science 201	3
Philosophy core	3
Social Work 240, 250	6
Sociology 151	3
Language 201 and 202	8
Physical education	1
Interim elective	3
 <i>Third year</i>	 <i>Semester hours</i>
Fine arts core	6-8
Literature core	3
Religion core	3
Communications core	2
Social Work 255, 320, 350, 360, 370	17
Physical education	1
 <i>Fourth year</i>	 <i>Semester hours</i>
Social Work 371, 372, 373, 380	19
Electives	7-9
Interim: Social Work 380	3

The social work courses are described on pages 212-218 under the Department of Sociology and Social Work. Other specified courses are described under appropriate departments.

Visual arts (B.F.A.)

Students who are interested in the Bachelor of Fine Arts degree (B.F.A.) program at Calvin should consult with Mr. Carl Huisman of the Department of Art, faculty advisor for the B.F.A. program.

Before applying for admission to the program a student must have completed three studio art courses in college. Application forms and information on requirements for admission are available in the Art Department. Submit applications the first Wednesday in October or the first Wednesday in March.

A student wishing to obtain a Bachelor of Fine Arts degree in art must successfully complete 124 semester hours, including three interim courses, the liberal arts core courses designated below, and a prescribed program of concentration.

The required eighteen-course program consists of three foundation art courses (205, 209, 210), four from introductory courses to the various media (310, 311, 320, 325, 350, 360), one of which must be 310 or 311; four intermediate and advanced studio courses from 309, 312, 313, 314, 315, 321, 322, 326, 327, 351, 352, 361, and 362; four courses in history of art including 231 and 232 with two others from 233, 234, 235, 237, 238, 240, 241, 243, 245, and Classics 221; two advanced art interims; and 395. No more than 62 semester hours in art may be applied to the degree.

The liberal arts core must include:

1. Five courses in history, philosophy, and religion

One course in history from 101 and 102.

Two courses in philosophy: 153 and 208.

Two courses in religion: one course in biblical studies (Interdisciplinary W-10, CPOL, does not satisfy a core requirement in this group.) and 301.

2. Two courses in mathematics and the sciences

One course in mathematics.

One course in natural science from astronomy, biology, chemistry, geology, and physics.

3. Two courses in the social sciences.

One course in economics or political science.

One course in psychology or sociology.

4. Competency is required in written rhetoric, spoken rhetoric, and physical education

One course in written rhetoric, English 101, or the passing of a competency examination.

One course from Communication Arts and Sciences 100, 101, 200, 240, or the passing of a competency examination. Three one-semester hour basic physical education activity courses.

5. Three or four courses from literature, the other fine arts, and foreign language

One course in English, American, or world literature.

One course from art, music, or communication arts and sciences.

One course from literature, music, communication arts and sciences, or a high school exemption (but not in art). Foreign language through the 202 or 123 level also satisfies this third requirement

Professional Combined Curriculum Programs

Medical Technology

To qualify for the degree of Bachelor of Science in Letters and Medical Technology on the combined curriculum plan a student must complete twenty-seven courses plus twelve months of successful work in an accredited school of medical technology. Students wishing to enter the medical technology program should consult Ms. Bev Klooster of the Department of Biology. The following courses are prescribed: Biology 141, 205, 206, 207, 307, and 333; Chemistry 103, 104, and either 253, 323/383, and one other chemistry course; or 261,

262, 323/383; one mathematics course from 161, 132, or 143; English 101; Physics 223; History 101 or 102; one course in philosophy; one course in religion and theology; one additional course from history, philosophy, religion and theology, or Interdisciplinary W10; two courses in different departments from economics, political science, psychology, and sociology; three courses from art, literature, music, speech, and foreign culture including one from English, American, or world literature (one of these requirements may be fulfilled by two years of high school foreign language); the total of two semester hours from the core courses in speech and three semester hours in basic physical education.

Students should apply to accredited schools of medical technology during the fall semester of their junior year. Calvin College is affiliated with the schools of Medical Technology at Butterworth Hospital in Grand Rapids and William Beaumont Hospital in Royal Oak, Michigan. Students may do their clinical internship at these or other approved institutions to which they are admitted.

One possible student program is as follows:

<i>First year</i>	<i>Semester hours</i>
Biology 141, 205	8
Chemistry 103, 104	8
English 101	4
History 101 or 102	4
Interim	3
Physical education	2
Other required courses and electives	6-8
 <i>Second year</i>	
Biology 206, 207	8
Chemistry 253 or 261 and 262	5 or 10
Other required courses	9-16
Interim	3
Physical education	1
Physics 223	4
 <i>Third year</i>	
Biology 307, 333	8
Chemistry 323, 383	5
Chemistry 201, 304, or other chemistry course	4
Other required courses and electives	10-14
Interim	3
 <i>Fourth year</i>	
Internship in an accredited school of medical technology.	

Occupational Therapy

Preparation for entrance into the field of Occupational Therapy (OT) requires earning a B.S. or M.S. degree in Occupational Therapy, completing a six-month internship, and passing a national board examination. Admission into a B.S.O.T. program requires a minimum of two years of undergraduate college credits including certain specified courses determined by the school offering the degree. Admission into a M.S.O.T. requires a college degree with any major so long as certain specified courses are taken. Admission to either type of program also requires work experience in O.T. which can be arranged through the Service-Learning Center at Calvin.

Because the specific courses required for admission to occupational therapy are designated by the school offering the degree, the student should obtain a list of these required courses from each school to which they intend to apply. This step can be completed after arriving at Calvin and learning which schools offer O.T. programs. Before registering for

classes, a schedule for each student is arranged in consultation with the pre-occupational therapy advisor, Mr. Richard Nyhof of the Biology Department.

Calvin College offers a 3-2 combined curriculum program with the Program in Occupational Therapy, Washington University School of Medicine in St. Louis, Missouri. A student participating in this program would spend three years at Calvin College taking the specific courses listed below, apply for acceptance into the program at Washington University, and if accepted, transfer to Washington University for the two clinical years. Upon successful completion of the first year, the student would receive a Bachelor of Science in Letters and Occupational Therapy from Calvin College and a M.S.O.T. from Washington University upon successful completion of the program. Although this program requires five years to complete, the student would receive a Masters degree from Washington University. A student applying from Calvin will receive preferential status in his/her application.

The three-year program at Calvin includes the following requirements:

Art 215 or 151

Biology 141, 205, and 206

Chemistry 113 and 114

Communication Arts and Sciences 100

Contextual disciplines: four courses

1 course each in History, Philosophy, and Religion and Theology; plus one additional course from this group.

Economics 151 or Political Science 151 or 201

English 101 and one course in literature

Foreign language, through the second year college competency (0-4 semesters) or one foreign culture course

Mathematics 143

Music: one course from 103, 236, 238, or 241

Physical Education: 3 activity courses

Physics 223

Psychology 151, 201 or 204, and 212

Sociology 151 and 153

Preprofessional transfer programs

Architecture

Various courses of study may be pursued as preparation for a professional degree in architecture, because of the broad nature of a profession concerned with design, history and culture, and the social and technical sciences. Although Calvin College offers no degree in architecture, a student can focus individual gifts and abilities within the architectural field by taking a liberal arts undergraduate program in art, art history, business, communications, engineering, geography, history, environmental science, sociology, political science, or other related fields. Any one of these programs, with carefully chosen electives, can prepare the student for entry into a graduate program for the master of architecture as a first professional degree. Four years of high school math is recommended, since at least one course in Calculus and Physics 221 and 222 are required. A student may also choose to take a two-year program and transfer into a school of architecture. In either case, the student should plan on six to eight years of formal education followed by an internship. Students interested in such a program should consult with Mr. Charles Young of the Department of Art. The first two years typically include:

<i>First year</i>	<i>Semester hours</i>
Art 205	3
English 101	4
Engineering 103	4
History, political science or sociology core	3
Mathematics 161, [162]	4
Interdisciplinary W10, Christian Perspectives (interim)	3
Economics 151 or 221	3
Religion and theology core	3
Physical education	1
<i>Second year</i>	
Art 201, 202, 209	11
Chemistry, if none in high school; biology; or psychology	3-4
Physics 221, 222	8
Literature core	3
Philosophy 153	3
Communications 100	2

Natural Resource Programs

Natural Resource programs sort out into three main areas: Resource Ecology, Policy and Management, and Resource Institutions and Human Behavior. Because of the great variety of programs and differences in requirements, students interested in any of these areas should contact Mr. David Warners of the Biology Department early in their college careers. Because employment opportunities are limited with a Bachelor's degree, graduate work is strongly recommended.

Resource ecology is an area which requires intensive scientific training. A strong background in biology, physical sciences, mathematics, and computer science is required. Persons interested in research careers in fisheries, wildlife, and forestry should plan to complete a biology concentration at Calvin with special attention on the requirements of the graduate school selected.

Resource policy and management is an area which requires less intensive training in the sciences and more emphasis on economic theory, management skills, social sciences, communication skills, and political institutions. Careers in this area include management of resources (forestry, fisheries and wildlife management), planning (landscape architecture), or policy (resource economics, policy, advocacy, education, and communication). Landscape architecture requires courses in design, graphics, engineering, and planning.

Resource institutions and human behavior is an area of study for which preparation in the social and behavioral sciences is appropriate with minimal training in the sciences required. Competence in research methods is required. How individual, group, and institutional behavior affects use and allocation of natural resources is the focus of this area.

There are two paths a student may follow to gain professional competence in these areas:

1. Completion of a Bachelor's degree at Calvin followed by graduate study. This is most appropriate in the area of resource ecology. A major at Calvin should be followed by graduate study.
2. Transfer after two years at Calvin to a professional program elsewhere. This is appropriate in the areas of resource policy and resource management. Normally students should complete the first two years of the Biology major, a year of mathematics, a year of chemistry, and courses in computer science and economics. The remaining courses should be selected with the requirements of the transfer school in mind.

Optometry

Students wishing to become optometrists may complete three years at Calvin before transferring to a school of optometry for their final four years, culminating in a Doctor of Optometry (O.D.) degree. A pre-optometry program which satisfies admission requirements of the School of Optometry at Ferris State University in Big Rapids, Michigan, includes the courses specified below. Students wishing to transfer to other schools should correspond with those schools and consult the optometry advisor, Ms. Bev Klooster of the Department of Biology, to determine appropriate courses. Applications for admission to the Ferris State College of Optometry are accepted between October 1 and February 1.

<i>First year</i>	<i>Semester hours</i>
Biology 141, 242	8
Chemistry 103, 104	8
English 101, 201 or 205	7
Mathematics 161	4
Psychology 151	3
Humanities core	3-4
Interim	3
Physical education	1
<i>Second year</i>	<i>Semester hours</i>
Biology 206; 207 or 336	8
Chemistry 261, 262	10
Physics 221, 222	8
Psychology or Sociology	3
Humanities core	3-4
Interim	3
Physical education	1
<i>Third year</i>	<i>Semester hours</i>
Chemistry 323	4
Mathematics 143 or 243	4
Business 203, 204, or 260	3-4
Electives	12-16
Interim	3
Physical education	1

Pharmacy

Students wishing to become pharmacists may complete two years at Calvin before transferring to a school of pharmacy for their final three years, culminating in a B.S. degree in pharmacy, or to a graduate school of pharmacy for four years, culminating in a Pharm.D. degree (Doctor of Pharmacy). A pre-pharmacy program which satisfies admission requirements of the School of Pharmacy at Ferris State University in Big Rapids, Michigan, is given below. Students applying to Ferris State University are required to take the Pharmacy College Admission Test (PCAT). Students wishing to transfer to other schools should correspond with those schools and consult the pharmacy advisor, Ms. Bev Klooster of the Department of Biology, to determine appropriate courses. Students following normal programs should apply for admission to a school of pharmacy midway through their second year.

<i>First year</i>	<i>Semester hours</i>
Biology 141, 242	8
Chemistry 103, 104	8
Mathematics 143 and 132	8
English 101 and either 205 or 201	7
Physical education	1

<i>Second year</i>	<i>Semester hours</i>
Biology 205, 206	8
Chemistry 261, 262	10
Communication Arts and Sciences 101	3
Economics 151	3
Art, Music, History	3-4
Psychology 151	3
Physical education	1

Physical Therapy

The education and training for entrance into the field of Physical Therapy (PT) requires completion of a master's degree professional program. The preparation for entry into and completion of a graduate program in PT varies from school to school. The following examples will serve to illustrate the various types of programs. A student may complete a minimum of two years of prerequisite courses and be accepted into a professional school program. Following completion of two years in the professional program, the student is awarded a B.S. degree, and after a fifth year receives a M.S.P.T. (Master's Degree in Physical Therapy). A second type of program accepts students after three years of prerequisite courses. Upon completion of one additional year (the first year of the professional program and fourth year overall), the student is awarded a B.S. degree, and after an additional two years in the professional program is awarded the M.S.P.T. A third approach is for a student to complete a degree program at Calvin College with a major in any discipline so long as they have included the specific courses prerequisite to acceptance into a graduate program in Physical Therapy. Following admission to the graduate program, the M.S.P.T. degree will be awarded upon the completion of the three-year professional program.

Admission to a graduate program in physical therapy is very competitive. Students must have a minimum of a 3.0 GPA (grade point average) and substantial work experience in the field of physical therapy. This experience can be obtained through work opportunities arranged through the Service-Learning Center office at Calvin. Students are placed in hospitals or clinics for work experience under the supervision of a registered Physical Therapist. Because the admission to a graduate program is competitive, students are frequently advised to pursue a series of courses which will lead to a degree from Calvin in addition to satisfying admission requirements of the PT graduate program.

Each graduate school and program has its own unique set of prerequisite courses (though there are many similarities); therefore a student should obtain a list of requirements for each of the schools to which they plan to apply. This step can be completed after arriving at Calvin and learning which schools offer PT programs. A schedule of classes can then be worked out which will include all of the required courses. Students are encouraged to contact the advisor of the pre-physical therapy program, Ms. Bev Klooster of the Biology department, before they register for classes.

Physician Assistant

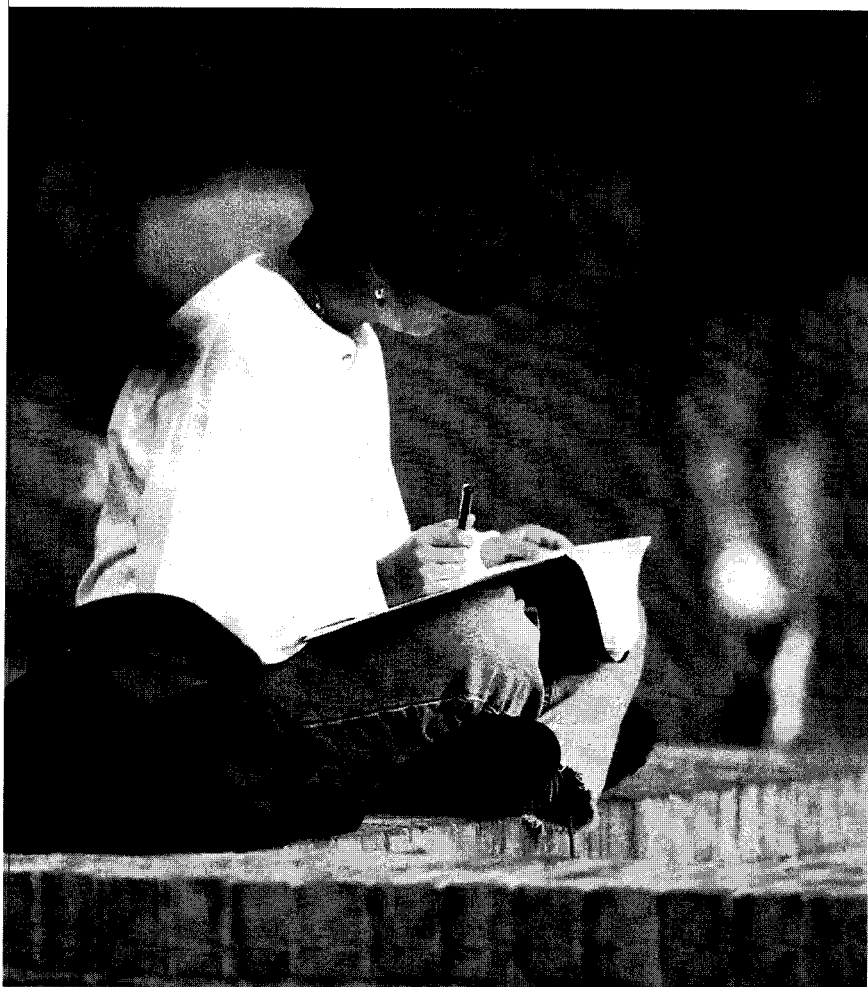
A Physician Assistant (PA) is trained and licensed to practice medicine under the supervision of a licensed physician. The practice may be located in a hospital, clinic, physician's office, nursing home, or related area. The PA can record medical histories, perform physical examinations, perform diagnoses, counsel patients, order and administer laboratory tests, assist in surgery, set fractures, and in 39 states, write orders for prescription drugs. Because of the nature of the work, the PA interacts with patients on a personal level and can meaningfully demonstrate Christian caring and commitment. Employment opportunities are excellent, and the demand for PA services is expected to increase.

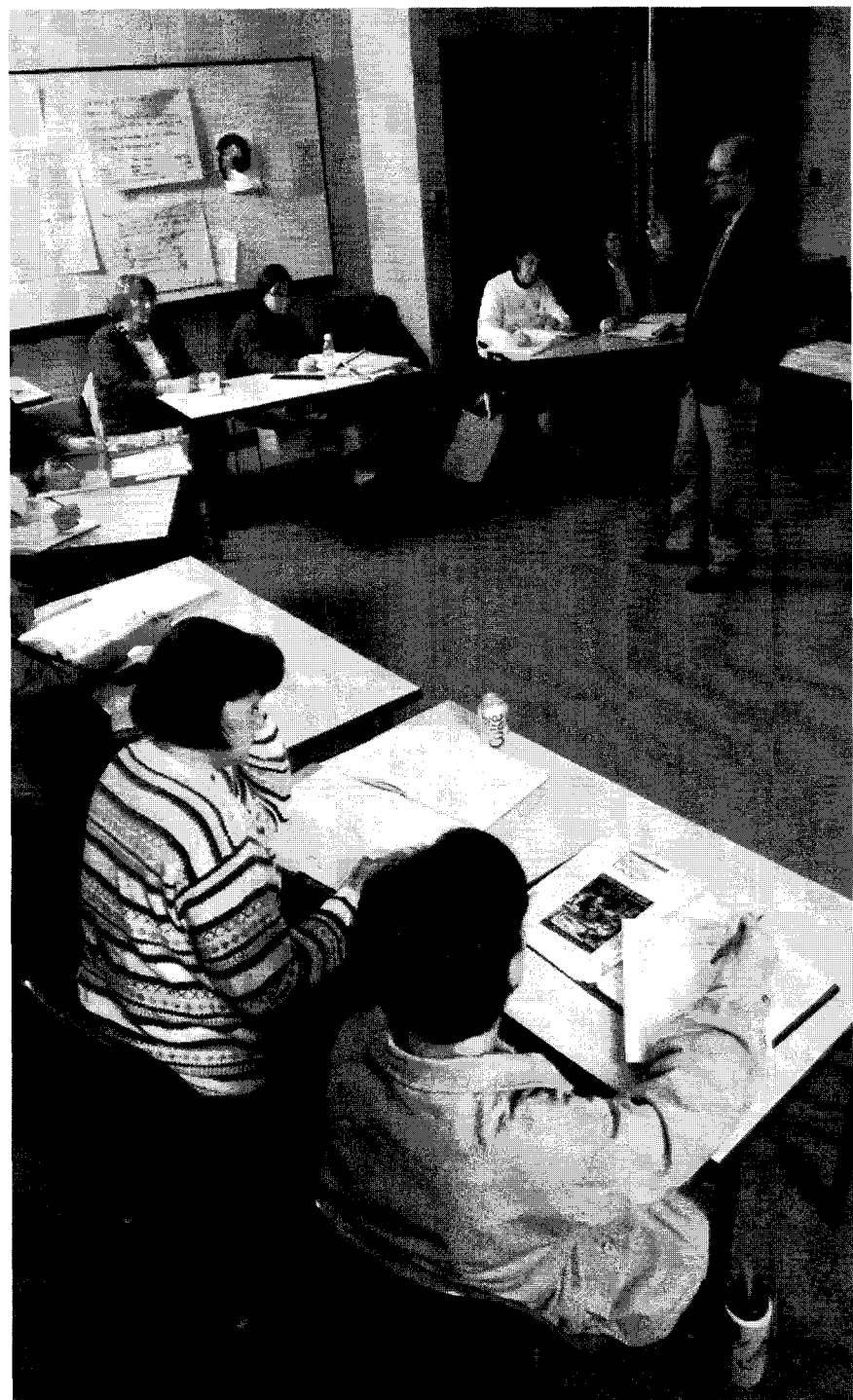
The clinical training programs are typically two years in duration and are accredited by the Commission on Accreditation of Allied Health Education Programs. Many programs offer Baccalaureate Degrees, but the trend is toward offering a Master of Science degree. Graduates from either are qualified to sit for the National Commission on Certification of

Physician Assistants (NCCPA) national examination. Almost all states require NCCPA certification and regulate PA practice through state medical boards.

In order to apply for acceptance into a particular clinical training program, an applicant must complete the prerequisite course work required for the program. For Bachelor of Science programs, this requires a minimum of two years of college preparation. For Master of Science programs, a B.S. or B.A. degree must be received in addition to the completion of the prerequisite courses. Each program has its own unique set of prerequisite courses, although there are many similarities. A student should contact either Dr. Peter Tigchelaar or Dr. Richard Nyhof (Department of Biology) soon to ensure that the appropriate courses are taken to allow qualified application for the programs of interest to the student.

In addition to completion of specific academic courses, admission requirements include considerable health care experience, frequently requiring a minimum of 1,000 hours of direct patient care. This experience can be achieved either through volunteer activity or through employment in such areas as hospital orderly, hospital aide, nurses aide, nursing home aide, or emergency medical technician. Volunteer experience can be arranged through the Service-Learning Center at Calvin.





Graduate Programs

Christian Graduate Education

The graduate programs, as well as the undergraduate programs, at Calvin College are based on the foundation of the Christian faith as reflected in the Reformed standards. This finds expression at the graduate level in the study of professional fields where students are encouraged to develop value judgments which are grounded in the knowledge of their relationship to God, to themselves, to fellow human beings, and to the world; and which acknowledge the Lordship of Christ over all.

Calvin College offers Master of Education Degree (M.Ed.) programs in Curriculum and Instruction and Learning Disabilities. In addition, post-baccalaureate non-degree programs are available for teacher certification.

Courses in this catalog numbered 500 and above and other courses marked with an asterisk (*) may be applied to graduate degree programs.

A Graduate Bulletin with more detailed information is available from the Office of Graduate Studies.

Master of Education Degree

The Master of Education (M.Ed.) programs serve elementary and secondary teachers and administrators who wish advanced professional training and who need to satisfy the requirements for continuing certification or additional endorsements.

Calvin's M.Ed. is designed especially for teachers who are already provisionally certified and experienced in classroom teaching or administration, and who wish to attend a Christian college where academic excellence is pursued in the light of Christian commitment. The M.Ed. provides college graduates with an opportunity to integrate an authentic Christian perspective with a broader or deeper range of knowledge and insight into the professional role of the teacher or administrator.

Admission

The requirements for admission are the following: (1) an appropriate bachelor's degree from an accredited college or university with a grade point average of 2.8 or above on a 4.0 scale; (2) satisfactory Graduate Record Examination general test scores; (3) teacher certification, or eligibility for it; (4) normally, one to two years of teaching experience; (5) two letters of recommendation, at least one attesting to teaching ability; (6) official transcripts of all academic work taken since high school graduation, and (7) a completed application form, including an autobiographical essay of about five hundred words describing previous experience and future professional goals.

Inquiries and applications for admission should be sent to the Director of Graduate Studies. Deadlines for submitting applications and supporting materials are the following: June 1 for summer session, August 1 for fall semester, and January 1 for spring semester.

Requirements for the Degree

After admission to the program, each student is responsible for completing an appropriate program under the supervision of an academic advisor in the relevant area. All programs must include a minimum of 32 semester hours, 18 of which must be taken in courses numbered 500 or above. The program must be completed within six years from the date of admission with a cumulative average of at least B (3.0 on a scale of 4.0), and only courses with grades of C+(2.3) or higher will be applied to the fulfillment of degree requirements.

The minimum requirements for the M.Ed. in Curriculum and Instruction or in the specialty area of Learning Disabilities are as follows:

1. **Context of Education:** Two courses are required. One must be an approved course in psychology or sociology of education (Psychology 501 or Sociology 501), the other an approved course in history or philosophy of education (Education 510 or Philosophy 501).
2. **Program area and subject matter concentration:** Twenty semester hours must be completed in the specialty area (learning disabilities) or in curriculum and instruction. The program in curriculum and instruction includes six semester hours of required courses in educational theory (Education 512 and 580) and a subject matter concentration of fourteen semester hours in a major curricular area (art, English, music, religion and theology, science studies, or another area approved by the student's M.Ed. advisor and the Director of Graduate Studies).
3. **Research course, project, and seminar:** Registration for three courses is required, a course on research methods (Education 594), a master's project (Education 595), and a required non-credit seminar (Education 596). Both the project proposal and the completed project must be approved by the project advisor, a second reader (for the project only), the student's M.Ed. advisor, and the Director of Graduate Studies.

Academic Probation and Dismissal

Graduate students will be placed on academic probation if their cumulative grade point average falls below 3.0. They will be advised in writing of their probationary status. They will be removed from probation if they raise their cumulative grade point average to 3.0 or higher. The Department of Veterans Affairs will be notified of any student receiving veteran's benefits who remains on probation after taking five course units.

Graduate students are subject to dismissal if after completing 12 semester hours their cumulative grade point average falls below 2.7. Such students will be informed in writing of their dismissal. The Department of Veterans Affairs will be notified of any student receiving veteran's benefits who is subject to dismissal. Graduate students who have been dismissed and who wish to be readmitted to one of the graduate programs must submit an application to the Graduate Studies Committee.

Transfer of Credit

Eight semester hours may be transferred to a graduate program from accredited institutions, provided the courses are appropriate to the degree program and the grades are B- (2.67 on a scale of 4.0) or higher.

Students seeking a second Calvin College master's degree may apply up to 12 semester hours (as approved by the second advisor) from the first master's degree program in the second program. A master's project for each degree is required.

Post-baccalaureate credit earned more than seven years prior to enrollment in a graduate program may not be credited toward a graduate degree.

Registration

Students must be officially registered for all courses in which they receive credit. Admitted students may register anytime on campus or by mail upon request. Those students who expect to sign up for independent study or for a regular course on a tutorial basis must secure formal approval before registration. Request forms are available in the Registrar's Office and the Office of Graduate Studies.

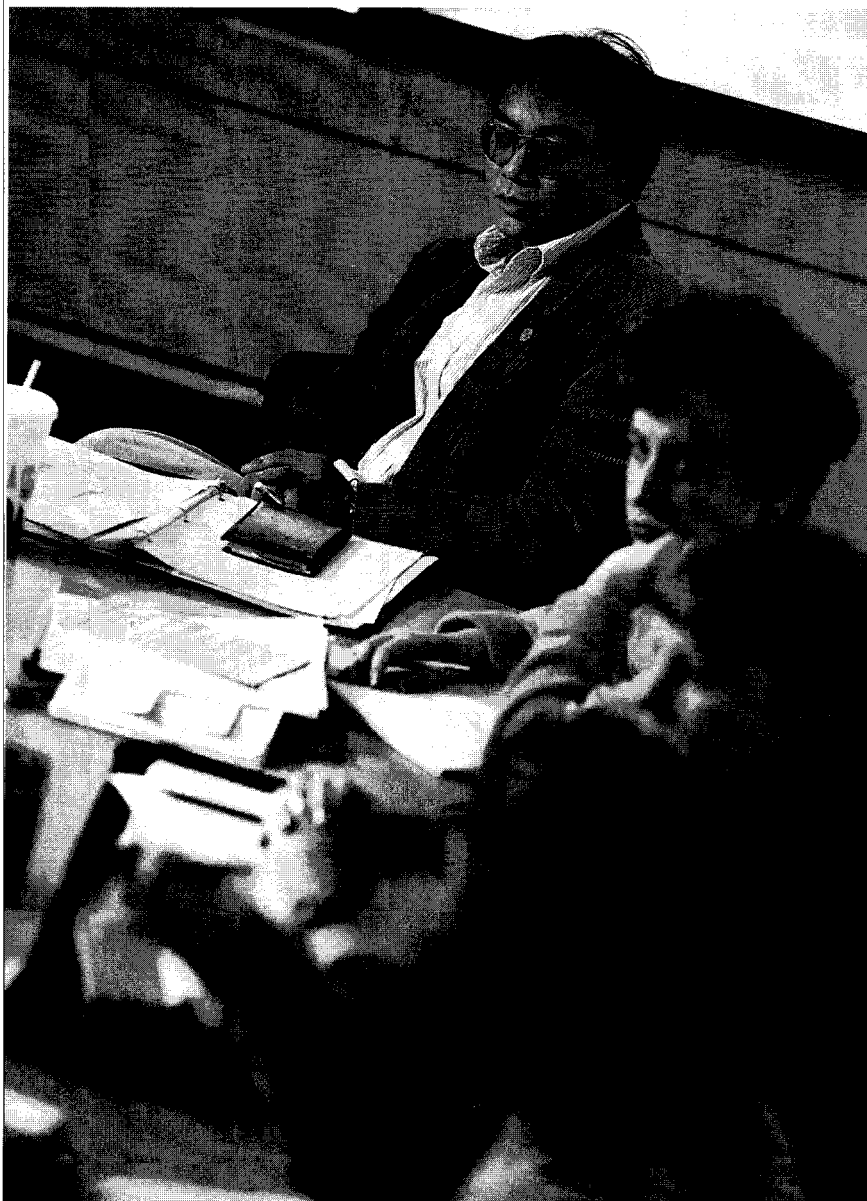
Application for Degrees

In addition to the formal requirements for graduate degrees described above, students must complete an M.Ed. Counseling Agreement with their graduate advisor, subject to approval by the Director of Graduate Studies. The Counseling Agreement is normally completed before students begin taking courses. Graduate students must meet all of the conditions specified in that agreement within six years to be eligible for a degree. They must file

a formal application for a degree at the Office of the Registrar at least six months before the expected date of graduation. If students are also fulfilling requirements for a continuing teacher certificate or an additional teaching endorsement, they must make formal application to the director of teacher certification not later than six months before they complete the certification requirements.

Post-Baccalaureate Non-Degree Teacher Education Program.

See programs for Teacher Education, pages 46–48.





Courses

Description of courses offered by the various departments

The symbols F (Fall), I (Interim), and S (Spring) indicate when each course is offered. The term core designates those courses in each department that meet the general graduation or core requirements of the discipline. The credit (semester hours) for each course is indicated in parentheses after the course name. Interim courses numbered W10 through W49 have no prerequisites; those numbered W50 through W99 have either prerequisites or other conditions. (A catalog of interim courses is published separately.) Courses numbered 500 and above and those marked with an asterisk (*) may be applied to graduate degree programs.

Faculty members on leave of absence for the academic year are indicated by a (†), those on leave for the first semester by an asterisk (*), and those on leave the second semester by double asterisks (**).

Interdisciplinary¹

Professor G. Van Harn

Assistant Professor I. Konyndyk

100 Christian Perspectives on Learning (3). core. This introductory study of the relationship between learning and the Christian faith begins with a consideration of some contemporary alternatives and challenges to Christianity and proceeds to an examination of current statements about the nature of Christian faith and discipleship. The course culminates in a study of how different worldviews relate to selected contemporary issues, e.g., higher education, environmentalism, multiculturalism, and gender relations. This course prepares students for academic work at Calvin College. *Staff.*

210 History of Science (3). S, natural science core. IDIS 210 may not be the only college science course taken for core. An examination of the emergence of modern science in the sixteenth and seventeenth centuries and of the major developments in the natural sciences since then. The focus is on physics, chemistry, natural history, and selected topics in biology. Particular attention is given to the philosophical and religious background of scientific ideas, to the concept of scientific revolution, and to the problems of periodization. Prerequisites: History 101 or 102 (preferred), one year of high

school chemistry or physics, and one college science course, or consent of the instructor. *Mr. A. Leegwater.*

213 Teaching Science in the Elementary School (2). F and S. The consideration of methods, materials, and strategies for teaching science effectively in elementary school. Discussions of the relationship of Christian faith to the teaching of science in the classroom. Examination of various materials for teaching science, with consideration of criteria for evaluation of those curricular materials and with consideration of relationships among science, technology and society and their implications for science teaching. Includes laboratory activities. Prerequisites: At least one science content course and completion of or concurrent enrollment in Education 301. *Staff.*

234 The Contemporary American Religious Situation (3). *S. A description and analysis of current American religious developments in historical, sociological, and theological perspective. Institutional and non-institutional developments, within and outside the Judeo-Christian tradition, will be examined. Satisfies an elective requirement in contextual disciplines. *Mr. P. Kemeny.*

¹This section includes not only courses that are interdisciplinary but others as well that do not fit logically into any single department or which are in disciplines not otherwise offered at Calvin College.

240 **Introduction to Archaeology.** See Archaeology for course description.

250 **Meteorology (3).** I, even-numbered years. Meteorology is the science that deals with the atmosphere, weather, climate, and weather forecasting. This course deals with the first three of these aspects of meteorology. Major components include: 1) consideration of the weather conditions that make up climate: temperature, solar radiation, clouds, precipitation, air pressure, and winds; 2) study of natural factors that influence weather conditions: altitude, latitude, and proximity to bodies of water and to mountains; and 3) description of climate with respect to the Earth as a whole, North America, and the Great Lakes Region. Some time is devoted to consideration of the impact of atmospheric pollution on climate, and to the impact of climate on human civilization. Lecture, discussion, activities in observation and in weather map reading. Prerequisite: Geography 100 or high school chemistry or equivalent. (Also cross-listed with Geography 250). *Mr. R. Blankespoor, Mr. L. Louters.*

301 **Introduction to Bilingual Education (3).** *I. This course will prepare teachers to be qualified to teach in classrooms where English is the second language. Students will be concerned with both the theory and the skills necessary to teach speaking, reading, writing, and comprehension in a bilingual situation. The course includes such matters as linguistics, language interference, vocabulary, sentence structure, idioms, teaching English as a second language, placement of the newly-arrived student, choice of learning materials, and the use of specialized audio-visual aids. Prerequisite: Spanish 202. *Ms. E. Greenway.*

340 **Field Work in Archaeology.** See Archaeology for course description.

374 **Portfolio Development (1).** Development of a professional portfolio is a value in and of itself and may be instrumental in seeking placement in business and industry. However, since adults often learn through life experience, some of the same subject matter taught in formal college courses, a portfolio can also be used to attain additional college credit. The portfolio permits possible

receipt of additional semester hours by providing documented evidence of learning (1) through participation in professional schools and informal courses; and (2) through participation in employment or volunteer activities. This course assists the student in preparing the portfolio for which the one semester hour is granted upon completion. Completing the course does not guarantee additional credit for prior learning; but following the completion of the course, the Adult Learner may petition for prior learning credit from the appropriate college department. Prerequisite: classification as Adult Learner.

590 **Independent Study.** (F, I, S, and SS) Students normally register for this course in conjunction with a course in one of the disciplines. Prerequisite: admission to a Master's degree program.

Graduate Courses

6XX **Graduate Workshops and Institutes.** Intensive courses for inservice teachers involving philosophy, theory, curriculum, and practice as they are brought to bear on an identified problem area of education. Although such courses may touch topics considered in regular courses, the primary focus of each workshop is on retraining teachers in newly recognized areas of need, in new materials, and in new approaches. Workshops may be offered by any department involved in teacher education. *Staff.*

JANUARY 1999 INTERIM

A catalog with the descriptions of all interim courses is available after October 1998.

W10 **Christian Perspectives on Learning (core) (3)** *Staff.*

W11 **Interim in Greece (3)** *K. Bratt, M. Williams.*

W12 **A Study in Hope: Overcoming Hunger and Poverty in the Third World (3)** *R. Hoksbergen, G. Monsma.*

W13 **A Partnership with Haiti: Service Learning via Micro-enterprises (3)** *B. Porter, K. Schutte.*

W14 **Business and Engineering for the International Market (3)** *N. Nielsen, E. Van Der Heide.*

- W15 **Dutch Landscapes: Society, Technology, and Environment** (3) *H. Aay, R. Hoeksema.*
- W16 **Chinese Interim Abroad** (3) *L. Herzberg.*
- W17 **Photography in China: Documenting Social Change** (3) *P. Szto.*
- W18 **Fish: A Natural Resource** (3) *C. Huisman, R. Terborg.*
- W19 **AIDS Prevention: Issues and Trends** (3) *D. Holquist.*
- W20 **Science and Religion: Continuities and Contrasts** (3) *A. Leegwater.*
- W21 **Can We Save the Planet? A Focus on Climate Change** (3) *J. Clark, M. Muyskens.*
- W22 **Welcome to the U.S.! Speaking with Confidence in American Classrooms** (3) *L. Bosch.*
- W23 **The Urban Child: Home, School, and Community** (3) *Y. Van Ee.*
- W24 **Introduction to Sign Language** (3) *S. Bytwerk.*
- W25 **Presenting...Ethics in Business** (3) *K. Clark.*
- W26 **The Monkey Trials** (3) *D. Ratzsch.*
- W27 **Aging: A Whole-Person Approach to Care** (3) *E. Kemeny.*
- W28 **Visions and Prophecies in the Native American West** (3) *J. Schneider.*
- W29 **Is There a Duty to Die?** (3) *C. Brandsen.*
- W30 **Witchcraft** (3) *C. Gunnoe, T. Vanden Berg.*
- W31 **The Nature of Sex** (3) *C. Beversluis, C. Blankespoor.*
- W50 **From Paris to Barcelona: The Art and Architecture of France and Northern Spain** (3) *H. Luttkhuizen, L. Mathews.*
- W51 **An Adventure in Photography and Meteorology** (3) *R. Blankespoor, R. Jensen.*
- W52 **Science Fact and Fiction: The Human Genome Project** (3) *H. Bouma, A. Koop, L. Louters.*
- W53 **Elementary Science Teaching and Activities** (3) *S. Stegink.*
- W54 **The Dynamic Environment** (3) *R. DeKock.*
- W55 **Science Fiction and Technology** (3) *R. Keeley, D. Rienstra, S. Vander Leest.*
- W56 **Integrated Science for Elementary Education Students (core)** (3) *J. Jadrich.*
- W57 **Religions and Cultures of the Pacific** (3) *W. Stob.*

Academic Services

J. MacKenzie (director), L. Bosch (international student advisor), R. Buursma, J. Heerspink (tutor coordinator), B. Morrison, J. Rhodes (academic counselor), D. Sammons, M. Vriend (coordinator of services to students with disabilities), L. Zwart (counselor for students with disabilities)

Student Academic Services courses (ASC) provide supplementary training and assistance in English, mathematics, and college-level thinking and learning skills. Class size and schedules are designed to give ample opportunity for individual instruction and personal conferences with instructors. All courses include training in study methods appropriate to the subject being studied.

Courses designed to review pre-college work, designated with numbers below 010, do not carry credit for graduation. They are, however, recognized by the registrar and the Office of Financial Aid as registered units, which count toward full-time status and toward financial aid eligibility. Non-credit courses appear on student transcripts with grades which do not carry honor points. Failure to complete a prescribed Academic Services course (ASC)

with the required grade may make a conditional or probational student subject to dismissal. Students normally register for a total of twelve to fourteen semester hours including any required non-credit courses. Please see additional information under Office of Student Academic Services on page 17 and The Access Program on page 36.

003 Review of Written English as Second Language (3). F and S, no credit. This course provides instruction and extensive practice in written English for students whose native language is other than English. It includes grammar study, vocabulary development, and reading practice. Students are assigned to this course on the basis of scores on the locally administered placement test of English Language Proficiency, which is administered again at the end of the course. Enrollment in English 101 the following semester will require a minimum score of 85 on the locally administered placement test and the recommendation of the ASC 003 instructor and the English Department. *Ms. L. Bosch.*

004 Precollege Mathematics for the Liberal Arts Student (3) F and S, no credit. This course is a review of high school mathematics, from fractions and decimals to basic algebra and geometry, with intensive practice in mechanics. Materials are taught with particular emphasis on development of mathematical thinking and problem solving. The course is designed to bring students to the level of competence needed for ASC 005, Mathematics 100, Mathematics 143, Mathematics 221, Economics 151, Astronomy 110, Biology 111, Chemistry 110, Physical Science 110, and other core courses. *Mr. J. MacKenzie, Mr. D. Sammons.*

005 Precollege Mathematics for the Business and Science Student (3). F and S, no credit. This course is an intensive study in the mechanics of algebra, manipulation of algebraic expressions, and graphing. Materials are presented with an emphasis on de-

velopment of problem solving skills and mathematical reasoning. The course is intended as preparation for Mathematics 143/132 or 110 for students in mathematics-oriented majors whose preparation in mathematics is inadequate. *Mr. D. Sammons.*

006 College Thinking and Learning (2). F and S, no credit. Serving in God's kingdom requires knowledge, understanding, and critical inquiry. ASC 006 assists students in developing strategic approaches to course work and encourages attitudes and habits integral to this learning process. Students will particularly apply the learning strategies to a course in which they are concurrently enrolled, such as history, political science, psychology, or religion. A final grade of C or higher in ASC 006 is required for successful completion of this course. *Mr. R. Buursma, Ms. J. Heerspink, Ms. J. Rhodes.*

007 Precollege Grammar and Composition (2). F and S, no credit. This course provides instruction in grammar and writing and is intended as preparation for English 101, which must be taken the subsequent semester. Students who are required to take this course in order to be admitted to English 101 must pass it with a grade of C or higher. *Ms. B. Morrison.*

INTERIM 1999

IDIS W22 Welcome to the U.S.! Speaking with Confidence in American Classrooms (3) *L. Bosch.*

Archaeology

The minor in archaeology may be taken in conjunction with any major. It is designed to serve both those students who wish to study archaeology out of extra-vocational interest and those who wish qualification for graduate programs in archaeology. Students interested should seek faculty advice as specified below.

Group Minor in Archaeology

IDIS 240

IDIS 340

Twelve semester hours from the following:

Art 201—Architectural History I

Art 209/Art 210—Introduction to Drawing or Intermediate Drawing

Art 231—Art History I

Art 241, Asian; Art 243, American; Art 245, African/Oceanic

Art/History 393—Museum Studies

Biology 323—Comparative Vertebrate Anatomy

Biology 346—Plant Taxonomy

Computer Science 152/363—Database Management

Classics 221—Greco-Roman Art and Architecture

Engineering 101—Introduction to Engineering Design

Engineering 103—Architectural Communication and Concept Design

Geography 220—Cartography and Geographic Information Systems

Geography 320—Introduction to Cultural Geography

Geology 151/216S—Introduction to Geology

Geology 152—Historical Geology

Geology 311—Geomorphology

Geology 313/Biology 313—Paleontology

Geology 314—Stratigraphy

Geology 321 — Glacial Geography and Climate Change

Greek 101-102—Elementary Greek

Hebrew, Ugartitic, Aramaic, Coptic (at Calvin Theological Seminary)

History 203/205/207/208/231/232/235—Ancient Area Studies

History 301—Classical History

Latin 101-102—Elementary Latin

Religion 311—History and Archaeology of Ancient Israel

Religion 321—The Intertestamental Period

Sociology 153—Cultural Anthropology

Sociology 253—Intercultural Communication

Sociology 308—Demography and World Population Problems

One Interim course with archaeological focus, such as Interim to Greece

Students may select a coherent sequence of four elective courses appropriate to their major and to their plans for further study with the approval of an advisor in the minor program. Sample programs in Old World Archaeology, New World Archaeology, and specialized fields such as Architectural Drawing in Archaeology are available. Language requirements for advanced work in archaeology vary. There are no language requirements for the archaeology minor, but students should consider plans for future

work and study in completing college language requirements. For Old World archaeology, the best modern language choice is either French or German, while Spanish is useful for New World archaeology.

Supervising and Advising

The group minor in archaeology is administered by an interdepartmental committee, the Archaeology Minor Committee. The members of the committee in 1998–1999 are B. de Vries (History), program coordinator;

K. Bratt (Classics), R. Stearley (Geology), K. Pomykala (Religion and Theology), C. Young (Art), and Todd VandenBerg (Sociology).

Interested students should consult a member of the Archaeology Minor Committee for selection of the specific courses for the minor.

COURSES

IDIS 240 Introduction to Archaeology (3). S. A classroom introduction to archaeology with emphasis on archaeological theory, field work methods, artifact processing and data interpretation. The course is designed to introduce students to the theoretical concepts of archaeology, participation in field work and the critical reading of archaeological re-

ports in both the Old World and New World archaeology. It serves as a prerequisite for IDIS 340, Field Work in Archaeology. *Mr. B. de Vries*

IDIS 340 Field Work in Archaeology (3-6). Summer. See also History 380. Offered in conjunction with field work done by Calvin faculty. An on-site introduction to archaeological field work designed to expose the student to the methodologies involved in stratigraphic excavation, typological and comparative analysis of artifacts and the use of non-literary sources in the written analysis of human cultural history. Prerequisites: IDIS 240 and permission of the instructor. Next offered Summer 1998 (June-July), during the field season at Umm el-Jimal, Jordan. For information contact *Mr. B. de Vries*.

Art

Professors H. Bonzelaar, C. J. Huisman, G. Van Harn (acting chair), C. Young
Associate Professors F. Speyers, A. Greidanus-Probes, H. Luttkhuizen**
Assistant Professor C. Bakker, L. De Boer, J. Steensma*

Calvin's art department offers both Bachelor of Arts and Bachelors of Fine Arts degrees. Students opting for a Bachelor of Arts degree may choose from the major concentrations of studio art, art history, and art education. The department also offers minors in the above concentrations.

The Bachelor of Fine Arts (B.F.A.) program, which has a greater professional emphasis and which is not a preparation for teacher certification, is described in greater detail on pages 58-59. The program advisor is Mr. Carl Huisman. Both the B.A. and the B.F.A. programs can be planned to provide a communication design or photography emphasis.

Studio Art Major

Art 205
Art 209
Art 210
Art 231 or 201
Art 232 or 202
Art 310 or 311
Art 320, 325, 350, or 360
Three art intermediate/advanced 309, 312, 313, 314, 315, 321, 322, 326, 327, 351, 352, 361, 362, 380 or 390

All studio art majors are required to participate in a senior exhibition during the spring semester of their senior year.

STUDIO ART MINOR

Art 205
Art 209
Art 210
Art 231 or 201
Art 232 or 202
One studio art elective

ART HISTORY MAJOR

Art 231 or 201
Art 232 or 202
Art 233, 234, or Classics 221
Art 235 or 237
Art 238 or 240
Art 241, 243, or 245

Art 393, 397, or an interim
Two electives from 233, 235, 237, 238, 240,
241, 243, 245, 393, 397, Classics 221, or an
interim

Art History

Recommended Cognate:

Second language
Philosophy 208
Philosophy 378

ART HISTORY MINOR

Art 231 or 201
Art 232 or 202
Art 233, 234, or Classics 221
Art 235 or 237
Art 238 or 240
Art 241, 243, or 245

SECONDARY ART EDUCATION GROUP MAJOR (K-12)

Art 205
Art 209
Art 215
Art 216
Art 231
Art 232
Art 240
Art 310 or 311
Art 320 or 325
Art 210, 350, 360
Two electives
Philosophy 208

SECONDARY EDUCATION ART MINOR

Art 205
Art 209
Art 216
Art 231
Art 232
Art 310 or 311
Art 320 or 325
One elective

ELEMENTARY EDUCATION GROUP ART MINOR

Art 205
Art 209
Art 231
Art 232
Art 310 or 311
Art 320 or 325
Art 215
One elective

SECONDARY GROUP MINOR

*This is a visual studies minor. It may only be
taken by secondary K-12 art majors.*

Art 350 (if not taken in major), elective
Art 360 (if not taken in major), elective
Art 210 (if not taken in major), elective
Art 241, 243, or 245
Three art electives (except 151)

All art education majors are required to participate in the senior exhibition during the spring semester. Prior to the teaching internship, students must have the approval of the department. Criteria for approval are found in the Teacher Education Program Guidebook, available in the Education Department. The advisors for the program are Ms. Helen Bonzelaar and Ms. Anna Greidanus-Probes.

Students must have earned a grade of C (2.0) or better in Art 205 before applying for admission to the studio art and art education programs. The core requirements in the fine arts may be met by Art 151, any art history course, and Art 215 for students in elementary education programs.

COURSES

151 **Introduction to Art (3).** F and S, core. A survey of art, artists, and art criticism. Introductory studio activities are planned to acquaint the student with composition in art. Tests, papers, and audio-visual presentations, lectures, and readings related to the purpose and nature of art and art criticism. Not part of an art major program. *Staff.*

Art Education Courses

215 **Principles of Elementary Art Education (4).** F and S, core for students in elementary education and recreation majors. The course introduces the nature of art and philosophy of art in education and includes methods and techniques for organizing and motivating art introduction on the elementary school level. The introduction to the art which man has produced illustrates the role of art over the ages. The course includes lectures, demonstrations, and art teaching experiences in the school. Research paper required. Open to first-year students only by permission of the instructor. *Ms. H. Bonzelaar.*

216 Principles of Secondary Art Education (3). F The course focuses on the philosophy and curriculum of art in education and on methods of teaching art in the secondary school. An exploration of media selected from enameling, jewelry-making, weaving, and batik. Prerequisites: 205, 209, and Education 301 and 303. Ms. H. Bonzelaar.

359 Seminar in Principles and Practices in Art Teaching (3). S A course in perspectives on, principles of, and practices in the teaching of art on the elementary and secondary levels. This course should be taken concurrently with Education 349: Directed Teaching. Before taking Art 359, students must be admitted into Directed Teaching by the Art and Education departments. Prerequisites: art education major. Ms. H. Bonzelaar.

Studio Courses

205 Design (4). F and S. A course that teaches two- and three-dimensional design through the use of basic art elements and principles. Materials fee. Mr. F. Speyers, Mr. C. Huisman, Mr. C. Bakker.

209 Introduction to Drawing (3). F and S. Students are taught composition while being introduced to drawing media and to the basic proportions of the human figure. The course includes the historical development and terminology of drawing. Prerequisite: 205 or permission of the instructor. Materials fee. Mr. C. Bakker, Mr. F. Speyers.

210 Intermediate Drawing (3). F and S. A continuation of 209 further developing skills in the drawing media and the understanding of the proportion and volume of the human figure. Materials fee. Prerequisite: 209 or permission of the instructor. Ms. A. Greidanus-Probes.

309 Advanced Drawing (3).* F and S, tutorial. A more advanced course in drawing providing an opportunity for students to search and experiment with new ideas and forms and to develop personal ideas and themes. Materials fee. Prerequisite: 210. Staff.

310 Introduction to Sculpture (3).* F and S. Students are introduced to the basic sculptural techniques of modeling, carving, mold-making, constructing, casting, and assembling through slide lectures and demonstrations. Projects and assigned readings. Mate-

rials fee. Prerequisite: 209 or permission of the instructor. Mr. C. J. Huisman.

311 Introduction to Ceramics (3).* F and S. An introduction to clay and glazes and their use. Emphasis is on hand-building techniques as a means of discovering the expressive and functional possibilities of the medium. Readings on the history of ceramics are required. Materials fee. Prerequisite: 209 or permission of the instructor. Mr. C.J. Huisman, Ms. A. Greidanus-Probes..

312 Intermediate Sculpture (3).* F and S. A continuation of 310 involving further study of sculptural techniques. Students execute a series of sculptures which are related in material or concept. They also study twentieth-century sculpture as it relates to their own productions. Materials fee. Prerequisite: 310 or permission of the instructor. Mr. C.J. Huisman.

313 Intermediate Ceramics (3).* F and S. A continued exploration of the medium, including the use of the potter's wheel, emphasizing personal expression. Technical readings and batch formula testing of one or more glazes is required. Materials fee. Prerequisite: 311. Mr. C.J. Huisman, Ms. A. Greidanus-Probes.

314 Advanced Sculpture (3).* F and S. A continuation of 312 with a primary concern for developing each student's skills and individual expressive direction. Materials fee. Prerequisite: 312. Mr. C.J. Huisman.

315 Advanced Ceramics (3).* F and S. A continuing study of the historical and technical aspects of ceramics and glazes allowing students to develop competency and personal expression through the study and use of stoneware and porcelain clay bodies. An historical or technical paper is required. Materials fee. Prerequisite: 313. Mr. C. J. Huisman, Ms. A. Greidanus-Probes.

320 Introduction to Printmaking (3).* S. An introduction to the four basic printmaking media—relief, intaglio, serigraphy, and lithography—through slide presentations, lectures, readings, and demonstrations. Each student chooses one basic medium to explore during the semester. Materials fee. Prerequisite: 210 or permission of the instructor. Not offered 1998–99.

321 Intermediate Printmaking (3).* S. Continued exploration of the printmaking media with an emphasis on the development of visual ideas. The student may continue with the medium chosen during the first semester or experiment with another. Materials fee. Prerequisite: 320. Not offered 1998–99.

322 Advanced Printmaking (3).* S. A further investigation of the printmaking media allowing students to develop the unique qualities of a particular medium or combination of media in relation to their own visual ideas. Materials fee. Prerequisite: 321. Not offered 1998–99.

325 Introduction to Painting (3).* F and S. An introduction to the use of the paint medium, emphasizing techniques, materials, and visual communication. The course includes a history of the media and of its technical development. Materials fee. Prerequisite: 210 or permission of the instructor. *Mr. C. Bakker.*

326 Intermediate Painting (3).* F and S. A further study of painting technique and its practice placing an emphasis on the relationship between concept and process. Students will study twentieth-century art in relation to their own production. Prerequisite: 325. *Mr. C. Bakker.*

327 Advanced Painting (3).* F and S. A continuation of 326 with a primary concern for developing each student's skills and individual approach to painting. Prerequisite: 326. *Mr. C. Bakker.*

350 Communication Design I (3).* F and S. Introduction to the synthetic relationship of Macintosh-based software and graphic design as a problem-solving approach to visual communication. Emphasis on learning to integrate visual literacy with software dexterity in order to present information with meaning and purpose. Typography, illustration and photography are utilized to develop visual problem-solving methodologies which stimulate creativity and innovation. Sequentially selected projects are designed to develop visual vocabulary and to encourage innate creative potential. Materials fee. Prerequisite: permission of the instructor; art majors must have completed Art 209. *Mr. F. Speyers.*

351 Communication Design II (3).* S. Investigate late 20th century practices in publishing: How to translate effectively linear print information for an increasingly visually-oriented society. Applicable Macintosh software is utilized to demonstrate and formulate the synergistic integration of art and typography. Experimentation and personal style are encouraged. Studio projects include magazine formula and format, direct mail, 3-Dimensional point of purchase, book jackets, corporate identity, space advertisements and pro bono projects. Materials fee. Prerequisite: 350 or permission of the instructor. *Mr. F. Speyers.*

352 Communication Design III (3).* S. Interweaves time-honored principles of visual communication with advanced Macintosh software applications. Essential elements of Gestalt perception, sequential storyboarding and visual resonance are integrated to reach specific audiences. Emphasis will be on personal development of technical and creative skills utilizing script writing, still photography, video, and electronic animation. This course meets the writing program requirement. Materials fee. Prerequisite: 351 or permission of the instructor. *Mr. F. Speyers.*

360 Introduction to Photography (3).* F and S. An introduction to the basic techniques and processes of photography such as camera operation, black and white film processing, and printing. The history of photography and the various critical approaches to the medium form the context for the study of these techniques and processes. The medium is studied to discover individual development of expression and communication. Materials fee. Prerequisite: permission of the instructor; art majors must have completed 209. *Ms. J. Steensma.*

361 Intermediate Photography (3).* S. Continued exploration of the medium of photography in black and white with an emphasis on the development of an individual approach to photography. Basic color processes are introduced. Materials fee. Prerequisite: 360. *Ms. J. Steensma.*

362 Advanced Photography (3).* S. A continuation of 361 with a primary concern for developing each student's technical skills and individual approach in creative photography.

Materials fee. Prerequisite: 361. Ms. J. Steensma.

390 **Independent Study.*** F, I, S. A student wishing to register for this course must have an introductory course in the medium and submit a written proposal to the chair for approval. *Staff.*

395 **Seminar and Exhibition** F (2) and S (2). *An opportunity from a Christian perspective to integrate the study of art history, aesthetics, and the other liberal arts as well as the work in studio art. The seminar will include regular meetings with the faculty, writing a scholarly statement of the candidate's philosophy of art, a study of exhibitions in art galleries and museums, and the presentation of a solo show. One course taken over both semesters. Prerequisite: senior status and a concentration in art. Ms. A. Greidanus-Probes.

The following art courses may be part of supplementary concentrations in journalism:

350 **Communication Design I.**

351 **Communication Design II.**

352 **Communication Design III.**

360 **Introduction to Photography.**

361 **Intermediate Photography.**

362 **Advanced Photography.**

Art History

201 **Architectural History I** (4). F, core. A survey of the history of architecture in Ancient to early Renaissance cultures. A study of the interrelations of design, building technology, and cultural patterns of development and expectation from pre-history, small scale, Egyptian, Greco-Roman, Islamic, Christian Byzantine and Gothic, and early Renaissance cultures. Prerequisite: sophomore standing or above. Mr. C. Young. Not offered 1998-99.

202 **Architectural History II** (4). S, core. A survey of the history of architecture in Renaissance to Contemporary International cultures. A study of the interrelations of design, building technology, and cultural patterns of development and expectation of Renaissance Italy, Neo-Classical and Roman-

tic Europe, Japanese, Modern Organic and International Style, and Contemporary Modern and Postmodern International Architecture. Prerequisite: sophomore standing or above. Mr. C. Young.

231 **An Introduction to the History of Art** (4). F, core. A survey of the history of the visual arts in Ancient, Medieval, and early Renaissance times. A study of the character of Ancient art from cave art through Rome is followed by a study of Medieval art from its beginning in the early days of the Christian era to its climax in the Gothic period of the thirteenth century and non-western art. Ms. L. De Boer.

232 **An Introduction to the History of Art** (4). S, core. The study of the visual arts from the Italian Renaissance through international post-modernism. Ms. L. De Boer.

233 **Medieval Art** (3). * F, core. A study of the mosaics, frescoes, illuminated manuscripts, sculpture, and architecture of the Christian era from the Byzantine, Early Christian, Romanesque, and Gothic periods. Slide lectures and discussions; a research paper is required. Prerequisite: sophomore standing or above. *Staff.* Not offered 1998-99.

234 **Northern Renaissance Art** (3). * S, core. A study of painting, sculpture, and printmaking from 1350-1600 in Netherlandish and German culture. Special attention will be given to the rise of naturalism, to the relationship between art and religious devotion, and to the emergence of an art market. Jan van Eyck, Hieronymus Bosch, Pieter Bruegel, and Albrecht Dürer will be some of the major figures studied. Slide lectures and discussions; a research paper is required. Prerequisite: sophomore standing or above. *Staff.* Not offered 1998-99.

235 **Italian Renaissance Art** (3). * F, core. A study of the visual arts of the fifteenth and sixteenth centuries, with a focus on the Renaissance in Italy. The course presents an historical survey of the art produced in the centers at Florence, Rome, and Venice from the late Gothic period to the High Renaissance, followed by a study of the Mannerism of the sixteenth century. Prerequisite: sophomore standing or above. Ms. L. De Boer.

237 **Baroque and Rococo Art History** (3). *

S, core. A study of the stylistic variations of seventeenth- and eighteenth-century painting, sculpture, and architecture in Western Europe. The influence on the visual arts of cultural changes in national politics, philosophy, and art training following the Reformation and Counter-Reformation is addressed. Bernini, Caravaggio, Rubens, Velasquez, Rembrandt, Poussin, Watteau, Chardin, Hogarth, and Wren are among the major figures studied. A research paper is required. Prerequisite: sophomore standing or above. *Staff. Ms. L. De Boer.*

238 Origins of Modern Art: Nineteenth Century (3).* S, core. A study of the sculpture, painting, and architecture of nineteenth-century Europe with an emphasis on the artistic developments of Northern Europe. The course traces the successive stylistic movements of Neo-Classicism, Romanticism, Realism, Impressionism, Symbolism, and Expressionism as they emerge against the background of the official Academy of Art. A research paper is required. Prerequisite: sophomore standing or above. *Mr. C. Young.* Not offered 1998–99.

240 Twentieth Century Art and Architecture (3).* S, core. A study of the visual arts from Post-Impressionism to Post-Modernism and Deconstructivism. Prerequisite: sophomore standing or above. *Mr. C. Young.*

241 Asian Art (3).* S, core. A study of the sculpture, painting, and architecture of Asia Minor, India, Indo-China, China, and Japan. Major Buddhist and Islamic periods and styles are covered. Slide lectures and discussions; a research paper is required. Art history majors must complete 231 and 232 before taking this course. Prerequisite: sophomore standing or above. *Mr. C. Young.* Not offered 1998–99.

243 Art of the Americas (3).* S, core. An interdisciplinary study of art works from Pre-Columbian and Native American and Canadian cultures such as the Mayan, Aztec, Inca, Navaho, Inuit, and Kwakiutl. The course will concentrate on cultural development before western contact, but issues of cultural interaction between native and immigrant European cultures will be addressed with regard to surviving styles and newly developed styles for western markets.

Slide lectures and discussions; a research project is required. Prerequisite: sophomore standing or above. *Mr. C. Young.* Not offered 1998–99.

245 African and Oceanic Art (3).* S, core. An interdisciplinary study of art works from Africa and Oceania (Polynesia, Melanesia, Australia). Special attention will be given to the relationship between religious commitments and artistic practices within these cultures. Slide lectures and discussions; a research paper is required. Prerequisite: sophomore standing or above. *Mr. C. Young.* Not offered 1998–99.

380 Internship in Visual Communications (3). F, I, S. A practicum in which students work ten hours per week for one semester under an employer supervisor and participate in a series of internship seminars. Students apply theoretical, ethical, and technical aspects of their college education to specific visual communication situations normally in graphic design or photography. Personal journals, assigned art projects, and seminar participation are required. Prerequisite: permission of the department. *Staff.*

393 Museum Studies (3).* F and S, tutorial. An advanced course providing opportunities for studying the theory and practice of museum education and/or exhibition curatorial development and installation. Prerequisites: five courses in art history and permission of the instructor. *Staff.*

397 Methods in Art Historiography (3).* S. An advanced course in which students will study the history and interpretative strategies of art and architectural historiography. Prerequisites: junior or senior status and the permission of the instructor. *Mr. C. Young.*

The following classics course may be included in art concentrations:

CLAS 221 Graeco-Roman Art and Architecture. *Mr. K. Bratt.*

See page 75 for the Archeology minor program. See pages 61–62 for the Pre-Architecture program.

Graduate Courses

580 Workshop in Methods, Materials, and Research in the Fine Arts (3). The course

will attempt to show the interrelationships of the fine arts — art, music, speech — and to establish a curricular basis for the teaching of the fine arts from a Christian perspective. *Staff*.

590 **Independent Study** (graduate). F, I, S. *Staff*.

JANUARY INTERIM 1999

W10 **Drawing Out the Imagination** (3) C. *Young*.

W50 **Sculpture to Wear** (3) H. *Bonzelaar*.

W51 **The Trojan Iguana: From Visual Literacy to Cognitive Interactivity** (3) E. *Speyers*.

W52 **Building a Profession in Art** (3) J. *Steenma*.

W53 **Installation Art: Sculpture, Space, and Context** (3) C. *Bakker*.

IDIS W18 **Fish: A Natural Resource** (3) C. *Huisman, R. Terborg*.

IDIS W50 **From Paris to Barcelona: The Art and Architecture of France and Northern Spain** (3) H. *Luttikhuizen*.

IDIS W51 **An Adventure in Photography and Meteorology** (3) R. *Blankespoor, R. Jensen*.

Astronomy

Professors S. Haan (chair, Department of Physics), S. Steenwyk, L. Molnar

Students interested in graduate work in astronomy or astrophysics should major in physics and should plan their program with the chair of the Physics Department. The sixteen-inch telescope in the observatory and portable telescopes are available for student use through the director of the observatory, Mr. Steven Steenwyk.

The physical science core requirement may be met by 110 or 201.

110 **Planets, Stars, and Galaxies** (4). F and S, core. A survey of the major astronomical objects, such as planets, stars, and galaxies; a study of their characteristics and their organization into a dynamic, structured universe; an investigation of the processes now occurring in the universe and the methods used to study them. The course includes a presentation of the evidence of the history and development of the universe, a description of cosmological models, and a discussion of possible Christian responses to them. *Laboratory. Mr. S. Steenwyk, Mr. L. Molnar*.

201 **Contemporary Astronomy** (4). F, alternate years, core. An introduction to modern astronomy and astrophysics for students

concentrating in the area of science and mathematics. Major topics include the nature of stars and galaxies, the physical processes occurring in various celestial objects, and the current cosmological theories. Lectures, laboratory exercises, and observing projects. Prerequisites: Mathematics 161 and one course in college physics other than 110 or 111. Not offered 1998–99.

390 **Independent Study**. F, I, S. Independent readings and research in astronomy. Prerequisite: permission of the chair. *Staff*.

JANUARY 1999 INTERIM

A catalog with the descriptions of all interim courses is available after October 1998.

Biochemistry

See the Department of Chemistry and Biochemistry, pages 91–95 for a description of the biochemistry major and specific biochemistry courses.

Biology

Professors J. Beebe, H. Bouma*, D. DeHeer, B. Klooster, A. Koop,
R. Nyhof, S. Stegink, P. Tigchelaar, J. Ubels, R. Van Dragt,
U. Zylstra (chair)

Associate Professor E. Howell

Assistant Professors C. Blankespoor, J. Bonnema, D. Warners

The department serves a variety of students for several different purposes: it provides several courses which meet the college core requirement in natural science; it provides courses in several preprofessional programs; and it provides programs of concentration in areas of cell and molecular biology, organism biology, ecology, and environmental biology. A seminar program acquaints students with professionals working in a variety of areas in biology.

Students interested in a biology program of concentration with a particular emphasis should consult with appropriate advisors. A partial listing of staff interest areas includes:

- Mr. Beebe — plant molecular biology, plant development, and plant physiology
- Mr. Blankespoor — invertebrate zoology, animal behavior, parasitology
- Ms. Bonnema — immunology, cell biology, cell signal transduction
- Mr. Bouma — animal cell and molecular biology, human genetics, and medical ethics;
- Mr. De Heer — animal cell and molecular biology, and immunology
- Ms. Howell — eukaryotic genetics, cell and molecular biology of budding yeast, the cell cycle
- Ms. Klooster — microbiology, microbial genetics, and animal nutrition
- Mr. Koop — genetics, molecular genetics, and development
- Mr. Nyhof — animal physiology and pharmacology
- Mr. Stegink — plant physiology and science education
- Mr. Tigchelaar — animal anatomy and neuro-anatomy and physiology
- Mr. Ubels — animal physiology, cell and molecular biology
- Mr. Van Dragt — animal ecology, animal behavior, and evolutionary biology
- Mr. Warners — plant ecology, plant taxonomy, wetlands ecology, environmental biology
- Mr. Zylstra — cell biology and electron microscopy, environmental ethics, and philosophy of biology.

BIOLOGY MAJOR

Biology 141, 242 (or 205 and 206), and 243
Four from Biology 3XX (may include one approved interim)
Biology 35X (or 390)
Biology 395 or 396
Biology 295 (taken twice)

Cognate

Chemistry 103-104 and 261-262 or Chemistry 103-104 and Geology 151 and 152, 311, or 313
Math 143-132 or Math 161-162 or Physics 221-222

SECONDARY EDUCATION

BIOLOGY MAJOR

Biology 141, 242 (or 205 and 206), and 243

Four from Biology 3XX (may include one approved interim)
Biology 357
Biology 395
Biology 295 (taken twice)

Cognate

Chemistry 103-104 and 261-262 (or 253, 323, 383) or Chemistry 103-104 and Geology 151 and 152 or 313
Math 143-132 or Math 161-162 or Physics 221-222

SECONDARY EDUCATION

BIOLOGY MINOR

Biology 141, 242, and 243
Two from Biology 3XX
Biology 357

Prospective secondary teachers should complete Biology 357 (Investigations in Biology for Teachers) as part of the normal program of concentration. Programs of concentration should be prepared on the basis of current guidelines established by the National Science Teachers Association. The NSTA guidelines recommend study in zoology, botany, physiology, genetics, ecology, microbiology, cell biology/biochemistry and evolution. A minor in physical science is recommended, and this minor may be constituted of the cognates plus Geology 313. Directed teaching in biology is available only during the spring semester. Prior to the teaching internship, students must have the approval of the department. Criteria for approval are found in the Teacher Education Program Guidebook, available in the Education Department. The advisor for biology teaching major and minor programs is Mr. Steven Stegink.

ELEMENTARY EDUCATION BIOLOGY MINOR

Biology 141, 242, 243

Biology 3XX

Three electives including one interim

Cognate

Physics 111 or 212

Elective from Geology, Chemistry, or Physics

RECOMMENDED COGNATES

Chemistry courses should be completed by the end of the second year of the program. Computer science is also recommended. These cognates are minimum requirements. Students planning to do graduate work in cell and molecular biology are advised to complete both the physics and mathematics cognates and organic chemistry. Those planning careers in environmental biology should consider the Environmental Science major, pages 139–140. Other environmental courses in biology, geology, and natural resources which are offered at the AuSable Institute of Environmental Studies in Marcellona, Michigan, are described in the Off-Campus Programs section, pages 177–178.

HONORS

The Biology Department Honors Program requires that in satisfying the college honors program the student must complete

three courses in biology with honors and submit an honors thesis. One of these courses will normally be the honors section of Biology 141 or 242. The second honors course will be taken from those courses numbered 300–349, the details of which will be worked out by the student and instructor at the time the student registers for the course. The third course requirement is the completion of an independent research project Biology 390 with honors, or 354 with honors. Normally this will be an investigative research project written in the form of a scientific research paper and which will constitute the honors thesis.

GROUP MAJORS

A group major in science and mathematics meets the needs of some students, particularly those in professional programs, such as medical technology and physical therapy. These majors, however, are not appropriate for students planning to attend medical school or graduate school in biology. Group majors require a minimum of twelve courses in natural science and mathematics, ten of which must be from two disciplines with a minimum of four courses from each. The remaining two cognates must be chosen from a third discipline. At least two 300-level courses in one discipline must be included in the ten-course component of this group. Biology 395/396 or equivalent is recommended. The chairs of the departments involved must approve each program.

Prerequisite to a program of concentration in biology is a minimum average of "C" (2.0) in 141, 242, and 243 or approved equivalent courses. The core requirement in biology is met normally by 111, 114, 115, or 116. In some cases 141 may be appropriate.

General College Courses

111 Biological Science (4). F and S, core. An introduction to the principles and concepts of biology, and the history and philosophy of biological thought for the general college student. Ecology, evolution, gene, and cell concepts are emphasized. Lectures and laboratories. Prerequisites: none, but Mathematics 100 and Physics 110 or equivalents are recommended. *Staff.*

114 **Plant Science** (4). S, core. An introduction to the principles and concepts of plant science for the general college student. Topics include crop plant structure and function, the effects of environmental factors on growth development and reproduction, crop production, and plant propagation. Representatives of the major crop groups in world agriculture are surveyed. Lectures and laboratories. Prerequisites: none, but Mathematics 100 and Physics 110 or equivalents are recommended. *Staff*.

115 **Human Biology** (4). F and S, core. A study of topics selected from human physiology, anatomy, development, genetics, and evolution. The topics are presented so the student learns the current concepts and parts of their historical development, develops an understanding of the nature of biological science, and relates the information to health and other disciplines. The laboratory emphasizes human anatomy, but also includes some physiology exercises. Lectures and one two-hour laboratory each week. Prerequisites: none, but Mathematics 100 and Physical Science 110 or equivalents are recommended. *Staff*.

116 **Field Biology** (4). S, core. The study of organisms in their natural environment. Emphasis is on concepts of ecology relevant to field biology, field and laboratory examination and identification of organisms, and the study of major ecosystems. Lectures and laboratory. Prerequisites: none, but Mathematics 100 and Physics 110 or equivalents are recommended. *Staff*.

The following interdisciplinary course may be included in concentrations in this department:

IDIS 210 **History of Science** (3). *Mr. A. Leegwater*.

Pre-Professional Courses

205 **Mammalian Anatomy** (4). S. A study of the structure of mammalian organ systems, including some developmental anatomy and histology. The laboratory will include a dissection of a cat as a representative mammal and some study of histology. There will be special emphasis on human anatomy. Prerequisite: 141 or equivalent. *Mr. P. Tigchelaar*.

206 **Mammalian Physiology** (4). F. An introduction to the physiology of mammalian organisms. The function of the major systems is studied including circulation, respiration, excretion, muscle, nervous, and endocrine systems. The laboratory introduces basic physiological techniques. Prerequisites: 205 or 242, Chemistry 114, 253, or 261. *Mr. R. Nyhof, Mr. J. Ubels*.

207 **Introductory Microbiology** (4). S. A study of the structure and function of microorganisms with emphasis on the bacteria. Three hours of lecture and two laboratory periods per week. Prerequisite: 141 and Chemistry 114 or 253 or equivalent. *Ms. B. Klooster*.

307 **Microbiology of Infectious Diseases** (4). F. A study of infectious diseases of human beings, including the biology of the microorganisms and methods of isolation and identification. This course consists of two three-hour lecture-laboratory periods per week. Only one microbiology course, either 307 or 336, can be included as part of a biology program of concentration. Prerequisites: One course in microbiology with lab. Offered infrequently; check with instructor. *Ms. B. Klooster*.

Program of Concentration Courses

Basic Courses

141 **Introductory Cell Biology and Genetics** (4). F and S, core. The structures, functions, and evolution of prokaryotic and eukaryotic cells are examined at the molecular, subcellular, and cellular levels. Fundamental concepts of genetics are studied including Mendelian genetics and molecular genetics. The laboratory consists of investigations in molecular biology, cell biology and genetics. *Staff*.

242 **Animal Biology** (4). S. An introduction to the biology and diversity of select groups of animals and protists. Topics include taxonomic diversity, structure and function at the organ and tissue level, and population growth and evolution. Emphasis is placed on considering these topics in an environmental context. Lecture and laboratory. Prerequisite: 141. *Mr. C. Blankespoor, Mr. U. Zylstra*.

243 **Plant Biology** (4). F An introduction to plant biology that includes a consideration of the structure, function and development of plants as organisms, a consideration of the relationships of plants to each other and the other organisms in a study of selected communities within biomes, and consideration of basic ecosystem approaches, and topics in the diversity of algae, fungi, and plants. Lecture and laboratory. Prerequisites: 141. *Mr. J. Beebe, Mr. D. Warners.*

290 **Directed Research** (2). F, I, S. The student enrolling in this course will be involved in laboratory or library research on a project currently being studied by one or more staff members. Application forms are available from the department chair and admission will be determined by the chair and the staff member directing the project. *Staff.*

295 **Biology Seminar**. F and S. No credit. Various topics in biology and related disciplines are presented by visiting speakers, faculty, and students. During the junior and senior year, majors must attend two of the four semesters; freshman and sophomore students are encouraged to attend. *Ms. B. Klooster.*

311S **Field Botany** (4). Summer only. Taxonomy and ecology of vascular plants as components of natural communities. On site examination of plants in bogs, dunes, marshes, meadows, forests, and swamps. Assigned readings, field trips, and laboratory. Offered as a summer course at Au Sable Trails Institute of Environmental Studies located near Mancelona, Michigan. Prerequisite: 114, 243, or an introductory botany course. *Staff.*

Advanced Courses

313 **Paleontology** (4). * S. A study of the organisms that once lived on the Earth. Includes an examination of the processes of fossilization and methods of discovering the structure, habitat, and relationship of those organisms, and a review of their distribution and life history. A broad spectrum of organisms is studied with emphasis on invertebrate animals. Laboratory, field trip. (Also listed as Geology 313). Prerequisite: Geology 152 or Biology 242 and 243. *Mr. R. Stearley.*

321 **Genetics and Development** (4). * F. A study of modern concepts of the gene and the analysis of progressive acquisition of specialized structures and functions by organisms and their components. The laboratory includes study of genetic and developmental phenomena of selected organisms. Lectures and laboratory. Prerequisites: 242 and Chemistry 114, 253, or 261. *Mr. A. Koop.*

323 **Comparative Vertebrate Anatomy** (4). * F. A comparative study of vertebrate structure and of the functional significance of these structural variations. Credit cannot be applied toward a biology major for both 205 and 323. Lectures and laboratory. Prerequisite: 242. *Mr. P. Tigchelaar.*

324 **Molecular Biology** (4). * S. A study of photosynthesis, biosynthesis of macromolecular precursors, the chemistry of the storage, transmission and expression of genetic information, biochemical dimensions of selected physiological processes, and philosophical and ethical issues related to biochemistry and molecular biology. (Also listed as Chemistry 324, Biochemistry.) Lectures and laboratory (Biology 383). Prerequisite: Chemistry 323. *Mr. L. Louters.*

331 **Comparative Animal Physiology** (4). * S. A study of animal physiology using a cellular and comparative approach. Topics include membrane transport, nerve function, sensory mechanisms, muscle contraction, hormone action, ion and osmotic regulation, temperature relations, metabolism and circulation. Lectures and laboratory. Prerequisite: 242 or 205; Chemistry 114, 253, or 261. *Mr. R. Nyhof.*

332 **Plant Physiology** (4). * S. A study of form and function in plants as whole organisms. Course topics include photosynthesis and productivity, physiological and developmental responses to environmental cues, mineral nutrition, and water and solute transport. Lectures and laboratory. Prerequisite: 243 (or 114); Chemistry 114, 253, or 261. *Mr. J. Beebe.*

333 **Immunology and Hematology** (4). * S. A study of immunology and hematology including innate, cellular, and humoral immunity, blood composition, hemostasis, coagulation, complement, immunogenetics, the major histocompatibility complex,

immunoregulation, and abnormalities of the immune and hematologic systems. Lectures and laboratory. Prerequisites: 206 or 242, and Chemistry 114, 253, or 261. Ms. J. Bonnema, Mr. D. DeHeer.

335 **Cell Biology (4).*** S. A study of the structure, function and development of eukaryotic cells from the molecular to the tissue level with emphasis on the cellular and organelle levels of organization. The laboratory will engage students in investigations of cells and tissues including microscopy, tissue culture, histology, image analysis. Lectures and laboratory. Prerequisites: 242 and 243; and Chemistry 114, 253, or 261. Mr. J. Uebels.

336 **General Microbiology (4).*** F A study of the structure and function of microorganisms, including a consideration of their role in food production and spoilage, biogeochemical cycles and environmental quality, and as tools in genetic engineering. Lectures and laboratory. Prerequisites: 242, 243, or 206; Chemistry 114, 253, or 261. Ms. B. Klooster.

338 **Animal Behavior (4).*** S. A study of the mechanisms and adaptive significance underlying the behavior of animals. Topics include natural and sexual selection, behavioral ecology, social behavior, orientation and navigation, animal communication, and chemical ecology. Lectures and laboratory. Prerequisites: 242 and 243. Offered alternate years 1998-99. Mr. C. Blankespoor.

341 **Entomology (4).*** F Study of the biology of insects with emphasis on systematics. Lectures, laboratory, and field trips. Prerequisite: 242 and 243. Staff. Offered alternate years 1999-2000.

344 **Vertebrate Biology (4).*** S. Study of the ecology and evolution of amphibians, reptiles, birds, and mammals. Lectures and laboratory. Prerequisites: 242. Mr. R. Van Dragt. Offered alternate years 1999-2000.

345 **Ecosystem Ecology and Management (4).*** F Detailed study of ecosystem structure and function, with special emphasis on local ecosystems, population dynamics, and the scientific basis for managing and restoring ecosystems. Lectures and laboratory. Prerequisites: 242 and 243. Mr. R. Van Dragt.

346 **Plant Taxonomy (4).*** F Identification, nomenclature, and classification of vascular plants. Lectures, laboratories, and field trips. Prerequisite: 243. D. Warners. Offered alternate years 1998-99.

Investigative Courses

Prerequisites for all investigative courses include the three basic courses in the program of concentration. Because of enrollment limits, instructor permission must be received before registration.

352 **Investigations in Physiological Ecology (4).*** S. Laboratory, greenhouse, and field studies in physiological ecology of plants and animals. Experiment design as well as the collection, analysis, and presentation of data is emphasized. Topics include temperature regulation, energy exchange, water balance, and circadian rhythms. Prerequisites: 242 and 243 and Chemistry 113 or 104. Mr. R. VanDragt.

354 **Investigations in Signal Transduction (4).*** F 1998-99. You have seen diagrams and schematics of biochemical pathways within cells. Perhaps you have heard references made to cells "getting activated." But what does this really mean? How does one study these biochemical processes? In this course you will discover the answers to these questions through hands-on experience. Cells of the immune system have specific receptors on their surface that interact with foreign and invading pathogens. This interaction generates a cascade of biochemical events that ultimately enables the cell to do its function (for example, to kill the pathogen). This course is designed to investigate the types of intracellular signals that are sent from specific receptors on cells of the immune system. Students will initially learn techniques involved in analyzing signalling events and then will be expected to develop an individual research project in which they will be responsible for designing experiments, collecting and analyzing data, and presenting and discussing data. Prerequisites: Biology 242 and Chemistry 253 or 261 and permission of the instructor. Ms. J. Bonnema.

354 **Investigations in Recombinant DNA Technology (4).*** S. Laboratory studies in-

volving the cloning and characterizing of DNA fragments from various sources. Everyone will do an initial project requiring the transfer of a DNA fragment from one plasmid cloning vehicle into a different plasmid cloning vehicle. The individual final project will involve manipulating a DNA segment using some of the following techniques: mutagenesis, restriction endonuclease digestion, gel electrophoresis, transformations, modern molecular genetic screening procedures, and computer analysis. Prerequisites: Biology 242 and Chemistry 114 or 104-105 and permission of the instructor. *Staff*.

354 Investigations in Immunology and Hematology (4). * F 1998-99. Laboratory studies and discussions of the tissues, cells, and functional mechanisms of the immune and hematologic systems. Topics include immunoassays, identification and quantitation of cells and cellular products, affinity techniques for molecules and cells, and in vitro manipulation of the immune system. Students will conduct individual research projects, write a report, and make oral and poster presentations. Prerequisites: Biology 242 and Chemistry 114, 253, or 261 and permission of the instructor. *Mr. D. DeHeer*.

354 Investigations in Plant Water Relations
Mr. J. Beebe. Not offered 1998-99.

354 Investigations in Invertebrate Biology and Parasitology *Mr. C. Blankespoor*. Not offered 1998-99.

354 Investigation in Genetics. *Ms. E. Howell*. Not offered 1998-99.

354 Investigations in the Physiology of Vascular Smooth Muscle. *Mr. R. Nyhof*. Not offered 1998-99.

354 Biology of Selected Cell Organelles.
Mr. S. Stegink. Not offered 1998-99.

354 Investigations in Behavioral Ecology
Mr. R. VanDragt. Not offered 1998-99.

354 Investigations in Plant Ecology. *Mr. D. Warners*. Not offered 1998-99.

354 Investigations in Cell and Electron Microscopy. *Mr. U. Zylstra*. Not offered 1998-99.

357 Investigations in Biology for Teachers (4).* F This course, intended for biology majors and minors in the education program, is designed to train students in the use of the laboratory for investigating and understanding the content of biology. Typically, all students study topics in plant and animal genetics, physiology, behavior, anatomy, and ecology. Individually, students select a content area for further exploration. Students instruct each other through investigations designed to guide their discovery and understanding of biological concepts. In doing so, students model the investigative process that builds and critiques the content base of biology. Students use computers for data collection, analysis, and presentation. A final presentation of independent research in a selected content area is required. Prerequisites: 242 and 243 and permission of the instructor. *Mr. S. Stegink*.

359 Seminar in Secondary Teaching of Biology (3). S. A course in perspectives on, principles of, and practices in the teaching of biology on the secondary level. This course should be taken concurrently with Education 346. The seminar provides a forum for the discussion of concerns that develop during directed teaching. This course is part of the professional education program and may not be included in the major or minor in biology. *Mr. S. Stegink*.

Seminar and Research Courses

390 Independent Study. F, I, S. Prerequisite: approval of chair.

395 Biological Perspectives (2).* F This course examines ways in which biological concepts have developed through innovations in technology and paradigm shifts in the various subdisciplines, the inherent limitations of the scientific enterprise, philosophical viewpoints held by contemporary biologists, alternative approaches to societal issues, and various types of biological literature. Lectures and discussions. Prerequisite: senior status in the biology program of concentration. *Mr. U. Zylstra*.

396 Perspectives in Medical Science (2).* S. A critical study of the historical and philosophical perspectives pertaining to the science and practice of medicine with particu-

lar emphasis on the methodology and results of medical research. Included is a study of the medical literature; and a critical analysis of selected representative societal and ethical issues in medicine. Prerequisite: senior status in biology program of concentration or permission of the instructor. *Mr. H. Bouma.*

Graduate Courses

590 Independent Study (graduate). F, I, S. Staff.

JANUARY 1999 INTERIM

W10 Tropical Ecosystems: Diversity and Conservation in Central America (3) *R. Van Dragt, D. Warners.*

W11 Caring for House Plants and Gardens (3) *J. Beebe.*

W12 Microbes: The Utterly Amazing Life Forms (3) *B. Klooster.*

W50 Exploring Medical Missions: Ecuador (3) *P. Tigchelaar.*

W51 How Common Drugs Work (3) *R. Nyhof.*

W52 Electron Microscopy Techniques (3) *U. Zylstra.*

W90 Interim Term Internship in Biology

IDIS W31 The Nature of Sex (3) *C. Beversluis, C. Blankespoor.*

IDIS W52 Science Fact and Fiction: The Human Genome Project (3) *H. Bouma, A. Koop.*

IDIS W53 Elementary Science Teaching and Activities (3) *S. Stegink.*

Business

The business administration program at Calvin College is intended to prepare students for careers in business by balancing its business courses with the college's strong liberal arts core curriculum. Preparation for a business career is provided by meeting the general degree requirements and the business concentration in the Department of Economics and Business. This program requires a minimum of fourteen courses—the equivalent of forty-nine semester hours in business, economics, and related mathematics and computer science courses. Students may choose the general business program or may select an emphasis area from among several business functions such as marketing, management or finance. A full description of business major and cognate requirements is found on pages 111–117. Any of these concentrations, along with the general graduation requirements acquaints students with the functions of the business firm and provides an understanding of the environment of business and human behavior, as well as an opportunity to develop one's personal Christian commitment and ethical sensitivity. After completion of the program students are prepared for entry-level positions in a variety of business occupations as well as for graduate study in business.

See the Department of Economics and Business for descriptions of course offerings.

Chemistry and Biochemistry

Professors R. Blankespoor, R. DeKock (chair), A. Leegwater, L. Louters, K. Carlson Muyskens, M. Muyskens, K. Piers, W. VanDoorne

Associate Professor K. Sinniah

Visiting Assistant Professor D. Lawson

The department offers programs of concentration for students interested in continuing their studies in graduate school, for those interested in a career as a chemist or biochemist in government or private industry, and for those interested in teaching chemistry at the secondary school level. A concentration in chemical engineering is offered with the Engineering Department, see page 124. Students who are majoring in Environmental Science with a Chemistry focus should consult the entry under Environmental Science, page 139 for a description of this program.

CHEMISTRY MAJOR

Chemistry 103-104

Chemistry 201

Chemistry 261

Chemistry 262

Chemistry 304 or 317

Two from Chemistry 318, 323/383, 327/328, 329, 330

Chemistry 396

Chemistry 295 (four times)

Cognate

Math 161

Math 162

Physics 221 and 222 or Physics 126 and 225

For students preparing for graduate study in chemistry, the certification requirements of the American Chemical Society for professional training in chemistry may be met by completing the following courses:

Chemistry 103-104

Chemistry 201

Chemistry 261

Chemistry 262

Chemistry 317

Chemistry 318

Chemistry 329

Chemistry 330

Chemistry 395 (3 semester hours)

Chemistry 396

Two from Chemistry 323/383, 325, or 327/328

Cognate

Mathematics 161

Mathematics 162

Mathematics 261

Mathematics 231 or 255

Physics 126/186 and 225 or Physics 123, 124, and 225

Chemistry 295 (four times)

Computer Science 150 (recommended) or 155 (recommended)

CHEMISTRY MINOR

Chemistry 103 and 104

Chemistry 201

Chemistry 253 or 261

Chemistry 304 or 317

Chemistry 396

One from Chemistry 323/383, 262, 318, 329, or an approved interim

SECONDARY EDUCATION

CHEMISTRY MAJOR

Chemistry 103 and 104

Chemistry 201

Chemistry 253 and a four semester-hour elective (Chemistry 261-262 may be a substitute)

Chemistry 323/383

Chemistry 304 or Chemistry 317

Chemistry 396

Chemistry 295 (four times)

Cognate

Biology 115 or Biology 141

Geology 151, Astronomy 201, Interdisciplinary 250, or an earth science

One sequence in Physics from 126/186-225 (recommended), or Physics 123-124-225 (recommended), or Physics 221-222

Math 161

SECONDARY EDUCATION

CHEMISTRY MINOR

Chemistry 103-104

Chemistry 253 or Chemistry 261
Chemistry 304 or 317
One from Chemistry 201, 262, 271/281, or
323/383
Chemistry 396

Students planning secondary majors or minors in chemistry should consult Mr. Ken Piers of the Chemistry Department. Directed teaching in chemistry is available only during the spring semester. Prior to the teaching internship, students must have the approval of the department. Criteria for approval are found in the Teacher Education Program Guidebook, available in the Education Department.

BIOCHEMISTRY MAJOR

Chemistry 103 and 104
Chemistry 201
Chemistry 261-262
Chemistry 304 or 317
Chemistry 323-324
Chemistry 383
Chemistry 396
Chemistry 295 (four times)

Cognate

Math 161-162
Physics 221-222 or 126/186-225
Biology 141
Two from Biology 242, 243, 321, 333, 335,
or 336 (one of which must be a 300-level
course)

For students preparing for graduate study in biochemistry, the certification requirements of the American Chemical Society for professional training in chemistry may be met by completing the following courses:

Chemistry 103-104
Chemistry 201
Chemistry 261-262
Chemistry 317-318
Chemistry 323-324
Chemistry 329
Chemistry 330
Chemistry 383
Chemistry 395 (3 semester hours)
Chemistry 396

Cognate

Mathematics 161-162
Physics 126/186 and 225 or 123-124-225
Biology 141

Biology 321
One course from Biology 242, 243, 333, 335,
and 336
Chemistry 295 (four times)
Computer Science 150 (recommended) or
155 (recommended)

BIOCHEMISTRY MINOR

Chemistry 103 and 104
Chemistry 253 or 261
Chemistry 323-324
Chemistry 383
Chemistry 396
One from Chemistry 201, 262, 304, 317 or
an approved interim

GROUP SCIENCE MAJORS

A group major in science and mathematics meets the needs of some students, particularly those in professional programs. These majors are not normally appropriate for students who anticipate attending graduate school or who are in teacher education programs. Such group majors require twelve courses in the sciences and mathematics, ten of which must be from two departments with no fewer than four from either, with the remaining two courses chosen from a third department. At least two 300-level courses in one discipline must be included in the ten-course component of this group. The chairs of the three departments involved must approve each program of this type.

HONORS PROGRAM

The Department of Chemistry sponsors an honors program to supplement the formal course offerings in the department's degree programs, increase both the breadth and depth of the student's knowledge of modern chemistry, and lead to an honors degree in chemistry upon graduation. The program offers guided study in chemistry through tutorials, independent research, and seminars.

The requirements for graduation with honors in chemistry or biochemistry are: (1) at least a 3.3 cumulative grade point average; (2) at least a 3.0 cumulative grade point average in courses in the major; (3) a major in chemistry or biochemistry; (4) completion of at least 4 semester hours of 395H (395

taken as an honors course); (5) completion of at least two other required chemistry or biochemistry courses for honors credit, one of which must be at the 200-level or higher; (6) completion of at least three additional honors courses, two of which must be outside the Department of Chemistry and Biochemistry.

Prerequisite to a concentration in chemistry is a minimum average of C (2.0) in 104 and in one course from 201, 253, or 261. The physical science core requirement may be met by 101, 103, or 104.

COURSES

101 Environmental and Consumer Chemistry (4). S, physical science core. A general course designed for the non-science major and the elementary education student. The course explores the role of chemistry and its resulting technologies in the environment and contemporary society. It emphasizes the nature of scientific investigation, some historical developments in chemical theory, chemical periodicity and reactivity, and our daily interaction with synthetic materials and chemicals. Laboratory. Prerequisite: Mathematics 100 or 221 or the equivalent, or passing the mathematics competency test. *Staff.*

103 General Chemistry (4). F, core. A study of the basic principles of chemistry, with emphasis on the laws of chemical combination, descriptive inorganic chemistry, thermochemistry, the gas, liquid, and solid states of matter, the periodic law, atomic structure and chemical bonding, and the physical properties of aqueous solutions. Laboratory. Prerequisite: one year of high school chemistry or permission of the department. *Mr. R. Blankespoor, Mr. D. Lawson, Ms. K. Muyskens, Mr. K. Piers, Mr. W. Van Doorne.*

103R General Chemistry Recitation (1). F. A special course in the introductory concepts of chemistry that is open only to students who have not studied chemistry previously or who have a weak high school background in mathematics and chemistry. The course emphasizes problem solving and the understanding of basic chemistry concepts. Prerequisite: concurrent registration in Chemistry 103. *Mr. D. Lawson, Mr. W. Van Doorne.*

104 General Chemistry (4). S, core. A continuation of 103 with emphasis on kinetics, chemical equilibria involving gases, weak acids and bases, and slightly soluble solids, free energy changes, electrochemistry, transition metal chemistry, descriptive chemistry, and nuclear chemistry. Laboratory. Prerequisite: 103 or the equivalent. *Mr. R. Blankespoor, Ms. K. Muyskens, Mr. K. Piers.*

113 Fundamentals of Chemistry (4). F. This course is the first of two required for the B.S.N. program. It also serves students in elementary education and certain paramedical programs needing a course in general chemistry. The fundamental concepts of chemical science are presented together with selected topics in descriptive chemistry. Emphasis is placed on the language of chemistry, the mole concept, chemical bonding, stoichiometry, equilibrium processes, acid/base theory, and periodicity. Laboratory. Prerequisite: one year of high school chemistry or permission of the department. *Mr. L. Louters, Mr. R. Blankespoor.*

114 Introduction to Organic and Biochemistry (4). S. A study of the fundamental classes of organic compounds, their syntheses and reactions, followed by an introduction to several biochemical topics including carbohydrates, lipids, proteins, enzymes, and nucleic acids. Laboratory. Prerequisite: 113. *Mr. L. Louters, Staff.*

201 Quantitative Analysis (4). F. A problem-solving approach that incorporates sampling, sample preparation, separation of the analyte from interfering substances, measurement, data analysis and interpretation. Quantitative analysis is presented in the context of analytical methods that primarily include separation science (gas, liquid, and ion chromatography, and electrophoresis), optical spectroscopy (uv-visible, fluorescence, and atomic absorption spectroscopy), and electrochemistry (electrode potentials, ion-selective electrodes, and sensors). The laboratory includes chemical analysis of water in the athletic field and nature preserve ponds, and the measurement of air quality across Calvin's campus using modern analytical techniques and wet chemical methods. These methods illustrate the principles of complex equilibria, theory of acids and bases, and titrations.

Laboratory. Prerequisite: 104. Not open to seniors except by permission. *Mr. K. Sinniah.*

253 Fundamentals of Organic Chemistry (5). F A study of organic compounds, reactions, and reaction mechanisms, emphasizing their biochemical significance. Laboratory. Offered alternate years. Prerequisite: 104 *Mr. A. Leegwater.*

261 Organic Chemistry (5). F A detailed study of organic compounds, their synthesis and reactions, presented within the framework of modern physico-chemical theory, together with an introduction to modern methods of analysis and identification. Laboratory. Prerequisite: 104. *Mr. R. Blankespoor, Mr. A. Leegwater.*

262 Organic Chemistry (5). S. A continuation of 261. Laboratory. Prerequisite: 261. *Mr. R. Blankespoor, Mr. A. Leegwater.*

271 Environmental Chemistry (3). I. A study of the chemistry of the atmosphere, natural water, and soils, with a special focus on environmental problems arising from the activities of humans, including a study of acid precipitation, greenhouse gases, ozone depletion, urban and indoor air pollution, water and soil pollution, solid and hazardous waste disposal, and risk assessment all presented within the context of a Christian view of humans and nature. Prerequisite: 253 or 261. Offered during interim, 1999. *Mr. K. Piers.*

281 Laboratory in Environmental Chemistry (1). S. Alternate years. Experiments and investigations devoted to chemical analysis of samples obtained from the atmosphere, hydrosphere and lithosphere using EPA approved protocols involving both instrumental and wet chemical methods. Prerequisite: Chemistry 271. *Mr. K. Piers.*

295 Chemistry Seminar. F and S, no credit. A seminar devoted to an exploration of topics in current chemical research in both academic and industrial laboratories. Junior and senior chemistry majors must attend each semester; freshmen and sophomores intending to major in chemistry are encouraged to attend. *Mr. M. Muyskens.*

304 Physical Chemistry for the Biological Sciences (4). S. A survey of physical chemistry with emphasis on the laws of thermodynamics, physical equilibria, transport phe-

nomena, and enzyme kinetics. Topics are treated with life science applications. A one-semester college level calculus course is recommended but not required. *Laboratory.* Prerequisite: 104. Offered alternate years. Not offered 1998–99.

317 Physical Chemistry (4). F. A study of macroscopic properties of matter as described by chemical thermodynamics and kinetics. Major topics include: the laws of thermodynamics and their application to pure substances, chemical reactions, solutions, and physical and chemical equilibria, and reaction kinetics. Laboratory. Prerequisites: 104, Mathematics 162, and a college physics course. *Mr. R. DeKock.*

318 Physical Chemistry (4). S. A study of the microscopic description of matter in terms of quantum mechanics and statistical mechanics. Major topics include: the structure, energy, and spectroscopy of atoms and molecules given by quantum theory, and the relationship between microscopic and macroscopic properties of matter (statistical mechanics). Laboratory includes a six-week project on a topic proposed by the instructor. Prerequisite: 317. *Mr. D. Lawson.*

323 Biochemistry (4). * F. A study of proteins, enzymes, carbohydrates, lipids, membranes with an emphasis on the relationship of structure and function. Also included is the study of catabolism with primary focus on glycolysis, gluconeogenesis, glycogen metabolism, Krebs cycle, and oxidative phosphorylation. Prerequisite: 253 or 262. *Mr. L. Louters.*

324 Biochemistry (4). * S. A continuation of 323. Topics covered are lipid metabolism, photosynthesis, biosynthesis of macromolecular precursors, the chemistry of the storage, transmission and expression of genetic information, biochemical dimensions of selected physiological processes, and philosophical and ethical issues related to biochemistry. Also listed as Biology 324. Prerequisites: 323, 383. *Mr. L. Louters.*

325 Advanced Organic Chemistry (4). * S. A study of selected topics in organic synthesis or physical organic chemistry. In the laboratory individual projects involving multi-step syntheses are carried out based upon procedures found in the literature.

All compounds prepared are characterized using spectroscopic methods and other instrumental techniques. Prerequisites: 262 and 317. Offered alternate years. Not offered 1998-99.

327 Topics in Physical Chemistry (2).* S, (First half). An introduction to special topics in physical chemistry. The topics will be drawn from chemical reaction dynamics, group theory, and/or physical chemistry of the solid state. Laboratory. Prerequisites: 318 (or concurrent), one semester of college physics, and Math 162. Offered alternate years. *Mr. M. Muyskens.*

328 Computational Chemistry (2).* S, (Second half). An introduction to computational chemistry with an emphasis on molecular modeling, quantum chemistry calculations, and dynamics simulations. Laboratory. Prerequisites: 318 (or concurrent) or 304, one semester of college physics, and Math 162. Offered alternate years. *Mr. R. DeKock.*

329 Spectroscopy and Instrumental Methods of Analysis (4).* S. A study of modern experimental methods with particular emphasis on spectroscopic techniques. Methods covered include understanding modern instruments (sources, detectors, signal, noise, etc.), vibrational spectroscopy (infrared and Raman), NMR (1-D, 2-D, broadband), mass spectrometry, thermal methods (TGA and DSC), and surface analytical techniques (STM, AFM, Auger, LEED, X-Ray, and neutron diffraction). The course emphasizes both the theoretical aspects and their application to fundamental physical measurements and to analytical procedures. Prerequisite: 201, and 318 (or concurrent). Laboratory involves the understanding of the function and operation of Calvin's analytical instruments culminating with a four week project involving more than one instrument. A field trip is organized to visit a local chemical industry (Dow Chemical or Upjohn). *Mr. K. Sinniah.*

330 Advanced Inorganic Chemistry (4).* S. A study in the chemistry of metals and non-metals with emphasis on symmetry, structure-property correlations, and periodicity. Types of compounds discussed are ionic solids, cluster and cage compounds, and

organometallics. For coordination compounds the stereochemistry, reaction mechanisms, spectra, and magnetism are treated in detail. Laboratory. Prerequisite: 317 or 304. *Mr. W. Van Doorne.*

359 Seminar in Secondary Teaching of Chemistry (3). S. A course in perspectives on, principles of, and practices in the teaching of Chemistry on the secondary level. This course should be taken concurrently with Education 346. The seminar provides a forum for the discussion of concerns that develop during directed teaching. This course is part of the professional education program and may not be included in the major or minor in Chemistry. *Staff.*

383 Laboratory in Biochemistry (1).* F and S. A laboratory course designed to teach students modern biochemical separation and analytical techniques. Included in this course are the following topics: exclusion, ion-exchange, affinity, and high performance liquid chromatography, agarose gel and polyacrylamide gel electrophoresis, ultracentrifugation, ultraviolet/visible spectroscopy, enzyme kinetics, and recombinant DNA techniques. Students will be required to carry out individual projects involving the purification and analysis of a biological macromolecule from cells or tissue. Pre- or co-requisite: 323. *Mr. L. Louters.*

385 Internship in Chemistry (3 or 4). F and S. Internships in industrial or commercial chemistry laboratories or in non-profit chemistry laboratories will be arranged for qualified students. Students work in off-campus laboratories or offices for 10-12 (3 semester hours) or 13-15 (4 semester hours) hours per week throughout the semester. They will work under the supervision of an off-campus employer-supervisor and a faculty internship coordinator. Interns will meet with their faculty coordinator bi-weekly, will be required to keep a reflective journal, and must submit a final written paper summarizing their internship experience. The off-campus supervisor will send in an evaluation report on the work of the intern. To be enrolled in an internship, the student must have junior or senior standing, must have a cumulative GPA of 2.0 or better and an average GPA of 2.0 or better in all credited science and mathematics courses, must have

completed the second semester of Organic Chemistry (Chem 262) or equivalent, must complete an Internship Application Form, and must be approved by both the department and the off-campus employer. *Mr. A. Leegwater.*

390 Independent Study. F, I, S. Directed readings or projects. Admission by permission of the chair and instructor under whom the work will be done. *Staff.*

395 Research-Seminar (2-4).* F, I, S. Library and laboratory research on a project selected in consultation with a faculty member. In addition, each student will be required to present a seminar in the departmental seminar series. Normally open to juniors and seniors by permission of the chair and instructor under whom the work will be done. *Mr. R. De Kock.*

396 Perspectives in Chemistry (1).* F and S. Reflections on the discipline of chemistry: its history, methodology, philosophy, curricular structure, key ideas, and concepts; its role as a central science in technology and society; the responsibilities of its practitioners in industry and in academic and research institutions. Prerequisite: junior or senior status in a chemistry program of concentration. *Mr. A. Leegwater.*

Off-campus Offering

332 Environmental Chemistry. Principles and analysis of chemical movement and dis-

tribution in natural environments. Sampling and analytical methods are included for water, soil, and air. Work conducted both in natural habitats and the laboratory. Prerequisites: one year of general chemistry and one semester of either biochemistry or organic chemistry. Offered in conjunction with the Au Sable Institute. See pages 177-178.

Graduate Courses

590 Independent Study.* F, I, S. *Staff.*

January 1999 Interim

A catalog with the descriptions of all interim courses is available after October 1998.

W50 Environmental Chemistry (3) *K. Piers.*

CHEM 271 Environmental Chemistry (4) *K. Piers.*

IDIS W20 Science and Religion: Continuities and Contrasts (3) *A. Leegwater.*

IDIS W21 Can We Save the Planet? A Focus on Climate Change (3) *J. Clark, M. Muyskens.*

IDIS W51 An Adventure in Photography and Meteorology (3) *R. Blankespoor, R. Jensen.*

IDIS W52 Science Fact and Fiction: The Human Genome Project (3) *H. Bouma, A. Koop, L. Louters.*

IDIS W54 The Dynamic Environment (3) *R. DeKock.*

Chinese

Associate Professor L. Herzberg

Students can fulfill the two-year language requirement by taking the following four courses in Chinese:

COURSES

101 Elementary Chinese (4). F. An introduction to Chinese culture and language, stressing both spoken and written Chinese. After one semester students will be able to carry on simple conversations in (Mandarin) Chinese, read dialogues written in Chinese, and understand some fundamentals of Chinese social values and ways of thinking.

Approximately 300 Chinese "characters" will be introduced. Prerequisite: None.

102 Elementary Chinese (4). S. A continuation of Chinese 101. Continued study of Chinese grammar, with equal emphasis on improving conversational proficiency and on reading and writing Chinese. Another 300 Chinese "characters" will be introduced for reading and writing and as a medium for

gaining insight into Chinese culture.

201 Intermediate Chinese (4). F. A continuation of Chinese 102. Further study of basic Chinese grammar and continued study of the Chinese writing system, with equal emphasis on speaking and reading the language. An additional 300 Chinese "characters" are introduced.

202 Intermediate Chinese (4). S. A continuation of Chinese 201. Completion of the

study of basic Chinese grammar and further study of the Chinese writing system, with continued emphasis on both speaking and reading. Two hundred more "characters" are taught, for reading comprehension and cultural understanding.

JANURARY 1999 INTERIM

IDIS W16 Chinese Interim Abroad (3)
L. Herzberg.

Classical Languages

Professors K. Bratt, M. Williams (chair)

Associate Professor M. Gustafson

Assistant Professor K. Harding

The department offers four programs of concentration: in Classical Civilization, in Classical Languages, in the Greek language, and in the Latin Language. The program in Classical Civilization combines some study of one of the languages with a broad study of Graeco-Roman civilization and its later influence. The Classical Languages program is designed for graduate studies, the Greek language program is for preseminarians and for any others wishing to concentrate in Greek language and literature, and the Latin language program is for those intending to teach the language at the secondary school level and for any others wishing to concentrate in Latin language and literature.

Courses not normally scheduled may be offered to qualified students on an individual basis so that specific concentrations may be completed.

CLASSICAL CIVILIZATION MAJOR

Two 200-level Greek or Latin courses

Classics 211

Classics 221

Classics 231

Philosophy 251

Two from History 232, 301, 302

Two from Art 231, 233, 235, Greek 101, 102,

History 201, 302, 303, Latin 101, 102,

Philosophy 312, Political Science 305,

Religion 241, 341, CAS 325, 320, or ad-

dditional courses in the selected languages

One interim or Classics 241 or 242

CLASSICAL LANGUAGES MAJOR

Six from Latin 101, 102, 201, 202, Greek 101, 102, 201, 202, 203, 204

Six from Latin 205, 206, 301, 302, 303, 304, Greek 201, 202, 203, 204, 205, 206, 301, 302 (at least one 300-level course must be taken in each language)

Two from Classics 211, 221, 231, or History 301

One interim or Classics 241 or 242

GREEK MAJOR

Six from Greek 101, 102, 201-206, 301, 302

Two from Greek 101, 102, 201-206, 301, 302, Classics 211, 221, 231, History 301 (at least one 300-level Greek course)

GREEK MINOR

Five from Greek 101, 102, 201-206, 301, 302

One Classics course

LATIN MAJOR

Six from Latin 101, 102, 201, 202, 205, 206, 301-304

Three from Latin 101, 102, 201, 202, 205, 206, 301-304, Classics 211, 221, 231, History 301 (at least one 300-level Latin course)

LATIN MINOR

Five from Latin 101, 102, 201, 202, 205, 206, 301-304

One Classics course

Students who have completed one year of high school Latin should enroll in Latin 101; two years in 201 (except that the unusually well-qualified student, even with only two years of high school Latin, may with department approval enroll directly in Latin 205 and so meet the core requirement for language with one college course); those with three years, in either 202 or 205; more than three years, in 205 or 206. Students whose qualifications permit them to omit Latin 201 or 202 should consult the department chair regarding special major or minor programs. Those who have completed one year of college Latin should enroll in 201.

The core requirements in the fine arts may be met by Classics 221, 231, Greek 202, 204, 301, 302, any Latin course numbered 202 through 304, and designated interims. The "foreign culture" requirement of certain designated professional degree programs may be met by Classics 211. Classics 231 may be part of the teaching minor in the academic study of religions. Completion of Latin 202 or Greek 202 (or their equivalents) satisfies the college language requirement. Classics 211 also meets the core literature requirement.

COURSES

211 **Classical Literature** (3). S, core. A survey of Greek and Roman culture as reflected in works of literature which express distinctive features of the classical mind. Slides, films, and other illustrative materials will be used, and students will be expected to read extensively in anthologies of Greek and Roman literature. No knowledge of Greek or Latin will be required. This course satisfies the "foreign culture" option of certain preprofessional programs. *Mr. K. Bratt.*

221 **Classical Art and Architecture** (3). S, core. A study of the major monuments and sites of ancient Greek and Roman civilization from the Bronze Age to the late Empire. Primary attention is devoted to the origins and development of Greek sculpture, painting, and architecture, and to their transformation in the arts of Rome. Ancient literary sources supplement the study of physical

remains in this investigation of Greek and Roman culture. Slide lectures, written reports. *Mr. K. Bratt.*

231 **Classical Mythology** (3). F, S, core. A study of the major themes in Classical mythology via the literature and art of Greece and Rome. Major literary sources are read in translation and supplemented by slides of Greek and Roman mythological art. Attention is given to various interpretations of the myths and their influence on Western culture. Lectures, discussions, and written reports. *Mr. M. Williams.*

241 **Vocabulary Development Through Latin and Greek Roots** (2). F, A study of the Latin and Greek origins of English vocabulary. Students will learn to identify the Latin and Greek bases of English words and so be able to enlarge their vocabulary and to give it etymological precision. Students with a special interest in scientific vocabulary may prefer Classics 242, Biological and Medical Vocabulary from Greek and Latin. Not offered 1998-99.

242 **Biological and Medical Vocabulary from Greek and Latin** (2). F, S. A study of the basic Greek and Latin components of scientific terminology, especially intended for students in biology and the health sciences. Non-science students may prefer the course in general vocabulary, Classics 241. *Staff.*

Greek

101 **Elementary Greek** (5). F, core. A beginning study of classical Greek with emphasis on the essentials of grammar and basic vocabulary. *Mr. M. Gustafson, Mr. K. Bratt.*

102 **Elementary Greek** (5). S, core. Continuation of 101. Completion of the text and the reading of selected prose passages. Completion of this course allows the student to read works like the New Testament with the help of a grammar and dictionary. *Mr. M. Gustafson, Mr. K. Harding.*

201 **Intermediate Greek A** (3). F, core. Readings in the early dialogues of Plato. Special emphasis is put on gaining reading proficiency in Greek prose. Prerequisite: 102. *Ms. K. Harding.*

202 **Intermediate Greek A** (3). S, core. Readings in Homer's Odyssey. Special atten-

tion is given to gaining reading proficiency in Greek poetry and to exploring some major themes of Greek religion and mythology. Prerequisite: three semesters of Greek. Ms. K. Harding.

203 **Intermediate Greek B (3)**. F, core. Readings in Herodotus. Special emphasis is placed on gaining reading proficiency in Greek prose, with some attention to the characteristics of Herodotus as historian in relation to Thucydides. Prerequisite: 102. Mr. M. Gustafson. Not offered 1998–99.

204 **Intermediate Greek B (3)**. S, core. Readings in the Attic orators and Plato's *Apology*. Attention is given to certain matters of style. The readings are viewed in relation to, and as documentation for, the history of fourth-century Athens. Prerequisite: three semesters of Greek. Staff. Not offered 1998–99.

205 **New Testament Greek: The Gospels (3)**. F, core. The Gospel according to St. Mark is read with some notice of the parallel passages in the other Gospels. A study is made of the special features of Hellenistic Greek. The significance of lexical and syntactical detail for the interpretation of the text is emphasized. Prerequisite: 102. Mr. M. Gustafson.

206 **New Testament Greek: The Epistles (3)**. S, core. A study is made of some of the Pauline Epistles. Prerequisite: 205. Mr. M. Gustafson.

301 **Plato's Major Dialogues (3)**.* F, core. The Greek text of a major dialogue such as the *Republic* or the *Gorgias* is studied with a view to an understanding and evaluation of Plato's social and political views. Prerequisite: four courses in Greek or permission of instructor. Mr. M. Williams.

302 **Greek Drama (3)**.* S, core. A reading of selected Greek tragedies with attention given to their poetic and dramatic qualities. Those matters of Greek culture, literary tradition, and history which help to understand the plays are noted. Assigned outside reading in other Greek plays. Prerequisite: 301. Staff..

Latin

101 **Elementary Latin (4)**. F, core. For students who had only one unit of high school

Latin or who have had no Latin. Emphasis is placed on the essentials of grammar and a basic vocabulary with constant comparison to English. Sententiae from the principal Latin authors will be read. Ms. K. Harding.

102 **Elementary Latin (4)**. S, core. A continuation of 101. Emphasis is placed on grammar and the early reading of longer selections of authentic Latin dealing with Roman history and culture. Prerequisite: 101 or its equivalent. Ms. K. Harding.

201 **Intermediate Latin (4)**. F, core. A thorough review of the essentials of grammar will accompany the reading of selected Latin prose. Prerequisite: two years of high school Latin or two courses of college Latin. Mr. K. Bratt.

202 **Intermediate Latin (3)**. S, core. A study of the *Aeneid* and of selected poetry and prose in Latin. Prerequisite: three years of high school Latin or LT 201. Mr. M. Williams.

205 **Latin of the Late Republic and Early Empire (3)**. F, core. Readings in the prose and poetry of the major writers, selected to survey the development of classical Latin literature and to serve as an introduction to the advanced genre courses. Prerequisite: 202, three years of high school Latin, or permission of the instructor. Mr. M. Williams.

206 **Late Latin Literature (3)**. S, core. Readings in the prose and poetry of Latin literature from the Late Empire to the early Medieval period in both Christian and non-Christian authors. Prerequisite: 202, 205, or permission of the instructor. Mr. M. Williams.

301 **Latin Epistolary Literature (3)**.* F, core. Readings from the letters of Cicero and Pliny. The letters are read as social and political documentation for issues, movements, and conditions of the Late Republic and Early Empire and as commentaries on the careers and personalities of their authors. Prerequisite: 205 or 206. Not offered 1998–99.

302 **Latin Philosophical Literature (3)**.* S, core. Texts selected from such authors as Lucretius, Cicero, Seneca, Lactantius, and St. Augustine to illustrate the Latin contribution to Western culture, particularly in ethical and social thought. Prerequisite: 205 or 206. Mr. M. Williams. Not offered 1998–99.

303 **Latin Epic and Lyric Poetry (3).*** F, core. Selected readings from such authors as Vergil, Catullus, Horace, and from the elegiac poets, with some attention to metrics and the Greek heritage in epic and lyric. Prerequisite: 205 or 206.

304 **Latin Historical Literature (3).*** S, core. Intensive reading in the major Roman historians of the Late Republic and Early Empire. Emphasis is placed upon the proper interpretation of these writers as sources for our understanding of the political move-

ments of the period. Collateral reading and reports. Prerequisite: 205 or 206. Mr. M. Gustafson.

JANUARY 1999 INTERIM

A catalog with the descriptions of all interim courses is available after October 1998.

GREE 101RA **Review Greek (3)** K. Harding.

GREE 101RB **Review Greek (3)** K. Harding.

IDIS W11 **Interim in Greece (3)** K. Bratt, M. Williams.

Communication Arts and Sciences

Professors R. Bytwerk (chair), M. Fackler, R. Fortner, J. Korf, T. Ozinga, W. Romanowski, Q. Schultze, H. Sterk

Associate Professors D. Freeberg

Assistant Professors R. Hubbard, G. Pauley, K. Pauley, S. Sandberg, J. VanderWoude

Adjunct Professor R. Buursma

The department serves students intending careers in communication-related professions and those who wish to understand the society in which they live and who wish to improve their ability to communicate. The department offers specializations in communication disorders, film studies, rhetoric and communication, telecommunications, and theatre. The department also offers a group major in business communication. Students with a GPA of 2.5 and above are encouraged to do an internship, either locally or with the Chicago Metropolitan Program, the American Studies Program in Washington, D. C., or the Los Angeles Film Studies Center. The department's internship advisor is Thomas Ozinga.

The group minor in journalism, a program involving the department, is described under the Department of English, page 132.

FILM STUDIES SPECIALIZATION

CAS 140

CAS 230

CAS 251

CAS 281

CAS 324

CAS 352

CAS 381

CAS 399

2 film-related electives

Recommended cognates are Art 350-352, 360-362, and Philosophy 208.

RHETORIC AND COMMUNICATIONS SPECIALIZATION

CAS 140

CAS 200

CAS 305

CAS 325

CAS 352

CAS 399

CAS 203 or 218

CAS 240, 260, or 280

CAS electives (6 semester hours) one of which may be an interim

Recommended cognates are English 334 and Philosophy 378.

TELECOMMUNICATIONS SPECIALIZATION

CAS 140

CAS 230

CAS 248 or 249

CAS 250

CAS 324

CAS 352

CAS 399

Courses

CAS electives (9 semester hours) one of which may be an interim
Recommended cognates are Art 350-352 and English 245 and 265.

COMMUNICATION DISORDERS SPECIALIZATION

CAS 140
CAS 200
CAS 210
CAS 212
CAS 215
CAS 216
CAS 311
CAS 344
CAS 345
CAS 384
CAS 385
CAS 386
CAS 399

Two electives from CAS 214, 240, 253, 260, 346, 352

Cognates

English 334
Psychology 204
Math 143
Biology 115

THEATRE SPECIALIZATION

CAS 140
CAS 203
CAS 217
CAS 218
CAS 316 or 319
CAS 320
CAS 321
CAS 399

CAS electives (6 semester hours) one of which may be an interim

Recommended cognates include art history, Philosophy 208, and English 322 and 346

BUSINESS/CAS GROUP MAJOR

CAS 200 or 240
CAS 305
CAS 352

2 CAS electives from 140, 200, 230, 240, 253, 280, 285, or 330

Business 203
Business 260
Business 380
Business 365 or 381
Economics 221
Economics 222

One Business or Economics elective (3 semester hours)

Students who take Economics 151 instead of 221-222 must take one additional economics course from Economics 323-326.

Cognate

Math 143

CAS MINOR

CAS 140
CAS 200
CAS 203 or 217
CAS 230 or 254
CAS electives (6 semester hours)

ELEMENTARY EDUCATION CAS MAJOR

CAS 203
CAS 214
CAS 215
CAS 217
CAS 254
CAS 316
Three CAS electives

ELEMENTARY EDUCATION CAS MINOR

CAS 203
CAS 214
CAS 215
CAS 217
CAS 254
Two CAS electives

SECONDARY EDUCATION CAS MINOR

CAS 140
CAS 200
CAS 203 or 217
CAS 248 or 250
CAS 254 or 281
CAS 218 or 316
One elective

Prerequisite to admission to any of the department's specializations is 140 and one other CAS course, and a minimum average of C (2.0) for all department courses completed. CAS majors may not use 100 to meet the core requirements in oral rhetoric, nor may they count 100 or 101 toward their major requirements. The core requirement in oral rhetoric may be met by CAS 100 (except for CAS majors), 101, 200, or

214 (for education only) or 240 (Recreation only). The department also offers an exemption examination for CAS 100. Fine arts core requirements may be met by 140, 203, 217, 254, 320, and 321.

COURSES

100 **Fundamentals of Oral Rhetoric** (2). F and S, core. The primary aim of this course is to increase competence in oral communication. The emphasis is on the composition and delivery of speeches. Does not meet core for CAS majors. Students in elementary teacher education programs should take 214. *Staff.*

101 **Oral Rhetoric** (3). F and S, core. Guided practice in developing effective public speaking, with emphasis on sound content, clear organization, appropriate word choice, and pleasing delivery, as well as evaluating the speeches of others. Not open to students who have taken 100. *Mr. G. Pauley, Ms. K. Pauley.*

140 **Communication and Culture** (3). F and S, core. The ways in which communication is used to create, maintain, and change culture. Topics include the concept of culture, the relations between culture and society, the role of ritual and drama in public life, the importance of rhetoric and conversation, the uses of myths and symbols, and the significance of narrative. The course also introduces students to the mass media as vehicles of artistic expression, entertainment and enlightenment. *Mr. W. Romanowski, Ms. S. Sandberg, Ms. H. Sterk, Mr. R. Hubbard.*

200 **Advanced Oral Rhetoric** (4). F and S, core. Composition and presentation of types of speeches, participation in various types of discussion, readings in rhetorical theory, and criticism of selected contemporary speeches. Prerequisite: 100 or equivalent. *Ms. H. Sterk, Mr. R. Bytwerk.*

203 **Introduction to Performance Studies** (3). F and S, core. (Formerly Oral Reading). An introduction to performance as a means of analyzing, appreciating, and celebrating literature. By providing training in the principles and techniques of performing literature before an audience, this course expands students' understanding of the relationships between text and performance, literature and human action, and written and oral forms

of discourse. Genres of literature examined include poetry, prose, and oral history. This course is designed for students considering careers in theatre, rhetoric, radio, television, or education. *Mr. R. Hubbard.*

210 **Anatomy and Physiology of the Speech, Hearing and Language Mechanisms** (4). S, alternate years. A study of the anatomic and physiologic bases for the development and use of speech, language and hearing. The course focuses on the central and peripheral auditory mechanisms of the human body, and on the respiratory, phonatory and articulatory mechanisms required for speech production. Prerequisites: Biology 115, CAS 215. *Ms. J. Vander Woude.*

211 **Debate** (2). F The forms and procedures of academic debate. Knowledge and competence in debating, judging, and coaching are course goals. Designed for prospective coaches. Not offered 1998-99.

212 **Speech and Hearing Science** (4) F, alternate years. Application of the scientific method to the studies of hearing, speech perception, and production. Topics include the introduction to basic acoustics, acoustic theory of speech perception and production, psychophysical methods of measuring hearing thresholds, acoustic phonetics, and synthesized speech. *Ms. J. Vander Woude.*

214 **Creating Communication Arts in the Classroom** (3). F and S, core. Designed to familiarize the prospective teacher with the communication arts used in the elementary classroom and to increase competence in oral communication. Student presentations. *Mr. R. Buursma.*

215 **Introduction to Communication Disorders** (3). F and S. A study of the child's speech development and the types of speech defects that may occur. The course is designed to help the classroom teacher understand and correct minor defects and to handle speech improvement in the classroom. The course also introduces the students to the profession of speech pathology and audiology. *Ms. J. Vander Woude.*

216 **Phonetics** (3). F A study of phonetic theories and the use of International Phonetic Alphabet symbols in analyzing, categorizing, and transcribing the sounds of Ameri-

can English. The course emphasizes understanding of the processes involved in the production of specific phonemes. *Ms. J. Vander Woude.*

217 An Introduction to the Theatre (3). F and S, core. An introduction to the study of theatre. Lectures focus on forms, genres, performance space, and the artistic principles of production. Selected readings, discussions, attendance at plays, and critiques of performances are required. *Mr. R. Hubbard.*

218 Principles of Acting (4). F and S. An introduction to the art of acting. Through readings, discussions, and numerous in-class exercises the students will become acquainted with major acting theories. The course is for students interested in theatre-related professions as well as for students wishing to deepen their understanding of theatre and dramatic literature. Prerequisite: 217, or permission of the instructor. *Ms. S. Sandberg, Ms. D. Freeberg.*

220 Calvin Theatre Company (1). F and S. Membership in the class is limited and is determined annually by audition/interview. The members will be given training in the various practical aspects of the production of drama. Students may participate more than one year but not more than two course credits may be applied to the minimum requirements for graduation, and no more than one to the major. *Ms. D. Freeberg.*

230 The Media and the Public (3). F and S. The roles of the mass media in society and culture. The course emphasizes the changes occurring in the means of communication, the control of media systems, the audiences for media products, and the changes introduced into American life by the press, telegraph, telephone, photograph, cinema, wireless, radio, television, satellites, and computers. *Mr. R. Fortner.*

240 Group Communication (3). F Small group communication theory and practice. Students participate in group projects leading to class presentations. Topics include leadership, discussion, roles, consensus, organization, decision-making, leadership, and persuasion. Standards for ethical conduct are considered throughout the course. *Ms. K. Pauley.*

248 Writing for the Media (3). F An introduction to the content, styles, and formats of media scripts. The course emphasizes the differences in media writing compared with more familiar forms of writing, the role of the script as text in producing media programs, the styles of writing used (journalistic, dramatic, polemical, emotive), and the technical requirements for scripts used to focus the work of directors, actors, camera and sound technicians, editors and mixers in creating a media product. For Fall 1998, the topic is situation comedy. (Also cross-listed with English 248.) Prerequisite: English 101. *Mr. R. Fortner.*

249 Media Aesthetics (3). S. An introduction to the aesthetic principles that govern the production of media programs, focusing on sound. Students produce a variety of short audio programs in lab situations. The course also introduces students to the process by which media programs are produced, the aesthetic and ethical challenges that this process demands, and how Christians working in the media should respond to such demands.

250 Technical Aspects of Video (4). S. An introduction to the theory and practice of video program composition and production. Various program formats are discussed and evaluated in light of particular communication principles and needs. Students gain extensive experience with portable and stationary video cameras, recorders, switchers, and related technologies. Lighting, audio recording, and mixing principles are analyzed and demonstrated. *Mr. J. Korf.*

251 Introduction to Cinema (3). F A study of the development and structure of cinema as an art form and as a cultural medium. The course aims to develop the students' understanding of cinematic language and to guide them in assessing films and film values. Course work includes readings in film history and criticism as well as the viewing and analysis of movies. Cross-listed with English 251. *Mr. R. Anker.*

253 Intercultural Communication (3). F and S. An examination of the anthropological principles relating to cross-cultural communication. This examination requires an extensive comparison of the components of

cultural systems and the nature of cultural dynamics. The areas of application include government, business, Peace Corps, development, and mission work, with special emphasis on the last two. Special topics include developing an appropriate attitude regarding indigenous cultures and the management of culture shock. Cross-listed with Sociology 253. *Mr. T. Vanden Berg.*

254 Television Criticism (3).* S, core. The study of various important cultural and artistic forms in television drama. One section of the course is a critical study of selected examples of the finest drama produced for public and commercial television in Britain and the United States. Students use traditional and contemporary criteria to interpret, examine, and evaluate programs. The other section of the course is an examination from a Christian perspective of the dominant myths and themes in popular drama, including soap operas, detective shows, westerns, situation comedies, and adventure series. Topics include: the relationship between program content and social values, the impact of television on children and the family, and television's treatment of God and religion. *Mr. Q. Schultze.*

260 Interpersonal Communication (3). S. The interpersonal communication opportunities and problems faced by Christians as they seek to live the life of faith in contemporary society. The course focuses on the theories and the practice of interpersonal communication. Topics include the elements of dyadic communication, shyness, gender, conflict management and relational enrichment. *Mr. T. Ozinga.*

280 Organizational Communication (3). F. The theory and practice of effective communication within organizations, including historical perspectives, presentational skills in the interpersonal, group and organization-wide areas, and applications for management, including such topics as power, persuasion and negotiation. *Staff.* Not offered 1998-99.

281 American Film (4). F. A historical study of American film as an art form, technology, industry, and cultural medium from the silent era to the present. The films considered represent major expressions of the classical

Hollywood style and diversions from the style. Topics include film technique, narrative conventions and genres, the Hollywood studio and star systems, directors, and ideologies. *Mr. W. Romanowski.*

285 Advertising and Public Relations (3). F. How and why organizations use advertising and public relations to influence various publics. The course emphasizes the historical development of advertising and public relations as well as current issues in these industries. *Mr. T. Ozinga.*

305 Persuasion and Propaganda (3).* F and S. The theory and practice of persuasive communication. Topics include theory and research of persuasion, improving personal persuasive abilities, recognizing and resisting persuasive strategies, and the role of propaganda in modern society. Examples for analysis are taken from advertising, religion, sales, political campaigns, and democratic and totalitarian propaganda. *Mr. R. Bytwerk.*

311 Child Language Development (3). F. An examination of early language development research in phonology, morphology, syntax, semantics, and pragmatics. Theories of language acquisition and implications for practice are examined. Particular attention is given to the role of adults in language development and to the relationship between language development and cognitive development. Prerequisites: an introductory course in Psychology or Education or permission of the instructor. Cross-listed with Education 311. *Ms. M. Kraker.*

316 Principles of Directing (4). F, alternate years. An introduction to the theory of directing. Through readings, play attendance, discussions and exercises, the students will develop a basic understanding of the directing process and an appreciation for the art of directing. This course is for students interested in theatre-related professions as well as for students wishing to deepen their understanding of theatre and dramatic structure. Prerequisites: 217 and 218, or permission of the instructor. *Mr. J. Korf.* Not offered 1998-99.

318 American Politics and Mass Media (3). F. A survey of the relationship between American politics and the mass communi-

cations media. The course covers the way the federal government through its regulations and its dissemination of information affects the operations of the media, and how the media influence the social and political values of Americans and the functioning of the political system. Cross-listed with Political Science 318. *Mr. C. Smidt*. Not Offered 1998–99

319 **Design for Theatre** (4). F; alternate years. A study of the theories and principles of theatre design. This course builds on the principles taught in 217 and includes lectures, demonstrations, reading of plays, and the development of competence in set, light, costumes, make-up, property, and publicity design. Prerequisites: 217 and permission of the instructor. *Mr. D. Leugs*.

320 **History of Theatre and Drama I** (3). * S, alternate years, core. A historical and analytical study of theatre and drama from its origins to the nineteenth century. Not offered 1998–99.

321 **History of Theatre and Drama II** (3). * S, alternate years, core. A continuation of 320. A historical and analytical study of theatre and drama from the nineteenth century to the present. *S. Sandberg*.

324 **Mass Communication Theory** (3). * S. An examination of attempts to explain the role of mass communication in modern society, emphasizing European, Latin American and North American theoretical perspectives.

325 **Rhetorical and Communication Theory** (3). * S. Ways of understanding human communication from antiquity to the present, including classical and modern theories of rhetoric, interpersonal communication, language, and the role of communication in establishing social reality. *Ms. H. Sterk*. Not offered 1998–99.

330 **International Communication** (3). * S, alternate years. The course examines communication across international borders. Topics include the history, use, and regulation of international communication technologies, world information flow (including the debates over the New World Information Order and cultural imperialism), international communication law, and interna-

tional communication by non-governmental bodies, including religious broadcasters. Not offered 1998–99. *Mr. R. Fortner*.

344 **Evaluation Procedures in Audiology** (4). F The study of the classification of hearing disorders, and the behavioral and electrophysiological measurement of hearing, including subjective and objective testing procedures. This is a distance education course transmitted to Calvin from Michigan State University. Students attend a laboratory session at MSU one day a week. *J. Elfenbein, Ms. J. Vander Woude*.

345 **Aural Rehabilitation** (3). S. The study of the fundamental aspects of auditory rehabilitation, including individual and group amplification systems, auditory training, speechreading, and counseling with children and adults. This is a distance education course transmitted to Calvin from Michigan State University. *J. Elfenbein, J. Vander Woude*. Not offered 1998–99.

346 **Internship in Communication** (4). F and S. Students work in profit or non-profit communication under the supervision of a professional. Typical placements include public relations or advertising agencies, broadcast or cable stations, video production companies and the like. A journal and seminar participation are required. Grading is based on the professional's evaluation, the student's daily journal, and seminar participation. Prerequisites: junior or senior status and permission of the department. *Mr. T. Ozinga*.

352 **Communication Ethics** (3). * F and S. The moral and ethical dimensions of human communication with special reference to mass communication. Comparisons are made of the major standards of conduct used to make judgments about appropriate communication behavior. Public vs. private communication dilemmas are discussed. Various kinds of lies and rationalizations are analyzed. Responsibilities in interpersonal and mass communication practice are discussed in the context of case studies. *Mr. M. Fackler*.

381 **Critical Approaches to Film** (4). * S. An examination of the diverse ways in which films are studied and criticized. This course is designed to acquaint students with the

major theoretical, ethical, and critical issues surrounding the study of film by examining traditional film theories, contemporary theories based on Marxism, semiotics, structuralism and feminism, and the various schools of film criticism (e.g., auteur, genre, humanist, religious). Not offered 1998–99. Prerequisite: 251, 281, or permission of the instructor. *Mr. W. Romanowski.*

384 Special Topics: Speech Disorders (3). F A study of the nature and prevention of specific speech disorders. Depending on the year, this course introduces students to theories associated with the assessment and intervention of fluency, voice, or articulation disorders. In each case, the course acquaints students with the developmental, psycholinguistic, social, and physical factors of a particular speech disorder. Students also explore Christian responses to individuals with specific speech disorders — responses that shape assessment and intervention practices. Prerequisite: CAS 215 or permission of instructor. *Staff.*

385 Seminar in Language Disorders (3). S A study of the assessment and intervention in childhood language disorders in phonology, syntax, semantics, pragmatics, and morphology. The course introduces students to psychometric and descriptive assessment. Students also examine the integration of Christian faith and practice in intervention strategies that concentrate on improving communication between the child and the communication partners in the home and school settings. Prerequisite: CAS 215 or permission of instructor. *Ms. J. Vander Woude.*

386 Clinical Practicum (2). F, S An introduction to the clinical practice of speech-language pathology within a Christian perspective. Specifically, students will become acquainted with applied clinical procedures in speech-language pathology. This course includes observation and/or direct contact with clients under close professional supervision. Students may repeat this course up to four times. Prerequisite: CAS 215 and departmental approval prior to registration. *Ms. J. Bates.*

390 Independent Study. F, I, S. Independent study of topics of interest to particular students, under the supervision of a member of the department. Prerequisite: permission of the instructor. *Staff.*

395 Special Topics in Communication (3). *Staff.*

399 Senior Seminar (3). F and S. The application of a Reformed world view to understanding communication and culture. This capstone course concentrates on the symbolic nature of communication and on the ways in which symbols and symbolic understandings become legitimate within a society. It examines how the creation, distribution, and consumption of communication and symbols — from public speaking to drama and media productions — influence how people make sense of their lives, and act within the context of their societies. *Mr. Q. Schultze.*

JANUARY 1999 INTERIM

A catalog with the descriptions of all interim courses is available after October 1998.

W10 Styles of Production (3) *J. Korf.*

W11 Totalitarian Propaganda (3) *R. Bytwerk.*

W12 Self-Advancement and Celebrity in American Society (3) *R. Fortner.*

W13 My Dearest Sister: Producing Theater for Children (3) *D. Freeberg.*

W14 Performance Art (3) *R. Hubbard.*

W15 The Theater of Bertolt Brecht (3) *S. Sandberg.*

W16 Communication, Nature, and the Environment (3) *K. Pauley.*

W17 Communicating Faithfully for Shalom (3) *Q. Schultze.*

W50 Hands-on Advertising and Public Relations (3) *T. Ozinga.*

IDIS W19 AIDS Prevention: Issues and Trends (3) *D. Holquist.*

IDIS W24 Introduction to Sign Language (3) *S. Bytwerk.*

Computer Science

Professors J. Adams†, J. Bradley, E. Fife, D. Laverell, S. Leestma (chair), L. Nyhoff
Associate Professor H. Plantinga
Assistant Professor K. Vander Linden

BACHELOR OF COMPUTER SCIENCE (B.C.S.)

Computer Science 185
Computer Science 186
Computer Science 230
Computer Science 270
Computer Science 280
Computer Science 392
Computer Science 380, or 385 and 386

Five Computer Science electives including an approved sequence. These electives must be chosen from Computer Science 210, 247, 260, 305, 320, 330, 350, 360, 370; Engineering 304, 325; or an approved interim. At least three of these electives must be 300-level.

Cognate

Mathematics 156
Mathematics 161 and 162
Mathematics 243 or 255
Engineering 220

Three college laboratory science electives, including two (but no more than two) courses from one department. These electives must be chosen from Biology 141, 205, 206, 242, 243 (or higher); Chemistry 103, 104, 201, 253, 261, 262 (or higher); Geology 151, 152, 201, 212 (or higher); Physics 123/181, 124/182, 126/186, 225, 226 (or higher); Psychology 308, 331, 333, 334.

BACHELOR OF ARTS IN COMPUTER SCIENCE (B.A.)

Computer Science 185
Computer Science 186
Computer Science 230
Computer Science 270
Computer Science 280
Computer Science 392
Computer Science 380, or 385 and 386

Four Computer Science electives including an approved sequence. These electives must be chosen from Computer Science 210, 247, 260, 305, 320, 330, 350, 360, 370; Engineering 304, 325; or an ap-

proved interim. At least two of these electives must be 300-level.

Cognate

Mathematics 156
Mathematics 161 and 162, or 132 (with permission of the advisor)
Mathematics 243, 143 (with permission of the advisor) or 255

Preapproved Sequences

Software Engineering: Computer Science 247, 330
Computer Science: Computer Science 260, 320

Students with a software engineering emphasis are encouraged to take 240 and complete a Business minor. The suggested minor program is Economics 221 and 222, Business 203, 260, and two from Business 204, 315, 359, 363, or Economics 325.

COMPUTER SCIENCE MINOR

Computer Science 185
Computer Science 186
Computer Science 230
Computer Science 270
Computer Science 280
Computer Science 392

One 200 or 300-level Computer Science course (of at least 3 credit hours), or Engineering 304 or 325

A minor in computer science meets the requirements of a secondary education minor. Prior to the secondary education teaching internship, students must have the approval of the department. Criteria for approval are found in the Teacher Education Program Guidebook, available in the Education Department. Group concentrations involving mathematics, physics, business, and other disciplines are available.

HONORS

The departmental honors program leads to graduation with honors in computer science. Beyond the requirements of the general hon-

ors program, this program requires further course work and a senior honors project. Details are available from the department web site. This program requires careful planning to complete, and students should normally apply for admission to the departmental honors program in the sophomore year.

A minimum grade of C (2.0) in a 200-level course in the computer science kernel is required for admission to a major concentration.

COURSES

101 Computing Concepts (1). F, S. An introduction to basic computer literacy which assumes no previous computer experience. The course explores computer hardware, including processors, I/O devices, storage media and networks, and computer software including operating systems and application software. Basic competence with word processing and Internet navigation will be acquired. *Staff.*

105 Computing Presentation (1). F, S. An introduction to the use of presentation software and desktop publishing software. Students will use current software packages to create presentation materials and newsletters and brochures of publication quality. In addition to the mechanics of using the packages, layout and composition issues will be addressed. Prerequisite: 101, which may be taken concurrently. *Staff.*

110 Using the Internet (1). F, S. An introduction to the Internet — its origins, current nature, and prospects for the future; a study of resources and tools for using, managing and creating materials for the Internet and the World Wide Web. Topics include information search and retrieval, communication, hypermedia, scripting, and cultural and ethical issues. Prerequisite: 101, which may be taken concurrently. *Staff.*

120 Personal Computer Administration (1). S. An introduction to the concepts and practice of configuring and administering a personal computer system. Topics include: initial configuration, system administration, hardware expansion and networking. Students will learn to set up and maintain a computer system for a home or office. Prerequisite: 101. *Mr. D. Laverell.*

130 Computing with Spreadsheets (1). F,

S. An introduction to numerical computation using spreadsheets, including basic operations, graphs and charts, decision making, data management and macros. Prerequisite: 101. *Staff.*

135 Computing with Databases (1). S. An introduction to information processing with databases. This course introduces table structure, keys, queries, reports and the relational database model. Prerequisite: 101. *Staff.*

140 Visual Computing (1). F. An introduction to building window-based applications using “visual” programming tools such as Visual Basic, HyperCard or Prograph. One emphasis is the design and implementation of graphical user interfaces. Another emphasis is to introduce the basics of programming, including algorithm development, input and output of values, selective and repetitive control, subprograms and parameter passing. Prerequisite: 130 or higher, or permission of the instructor. *Staff.*

150 Applied FORTRAN (2). S. An introduction to computer programming using FORTRAN-77. Emphasis is on learning the language with consideration of problem-solving methods and algorithm development as time permits. Prerequisite: MATH 132 or 161, which may be taken concurrently. *Staff.*

155 Applied C++ (2). S. An introduction to problem solving and program design for engineers using the language C++. Coverage includes I/O, types and expressions, libraries, functions and parameter passing, control structures, files, array processing and the use of predefined classes (including templates). Laboratory. Prerequisite: MATH 132 or 161, which may be taken concurrently. *Staff.*

Computer Science Major Courses

185 Introduction to Computing with C++ (4). F, S. An introduction to computing as a problem-solving discipline. A primary emphasis is on programming as a methodology for problem solving, including: the precise specification of a problem, the design of its solution, the encoding of that solution, and the testing, debugging and maintenance of programs, which are written in the language C++. A secondary emphasis is the discussion of topics from the breadth of com-

puting to give the introductory student a complete perspective on computing as a discipline. Laboratory. Prerequisite: two years of high school algebra or permission of the instructor. *Mr. S. Leestma.*

186 Introduction to Data Structures with C++ (4). F; S. A continuation of 185, using C++ classes to introduce and implement the elementary data structures including lists, stacks, queues, and trees. Advanced programming techniques such as indirection, inheritance and templates are introduced; along with an emphasis on algorithm analysis, efficiency, and good programming style. Laboratory. Prerequisite: 185 or permission of the instructor. *Mr. L. Nyhoff.*

210 Introduction to Website Administration (3). S. This course prepares the student to administer a site on the World Wide Web. Topics include platform options; server installation; and configuration; creating forms in HTML; Common Gateway Interface (CGI) scripting; an introduction to Java applets; legal and ethical issues. Prerequisite: 110 and a CPSC programming course (185, 155, 150, 140). *Mr. E. Fife.*

230 Data Structures and Algorithms (3). S. A systematic study of algorithms and their application to data structures, including arrays, lists, trees, heaps, hash tables, and graphs. Algorithms and data structures are analyzed in their use of both time and space, and the choice of data structure in problem solving is studied. Theoretical issues, such as optimality, best- and worst-case performance, and limitations of algorithms are studied, as well as implementation issues. Prerequisite: 186. *Mr. L. Nyhoff.*

240 Programming in COBOL (2). F; alternate years. An introduction to the programming language COBOL based on the student's understanding of structured programming from 185. Emphasis will be placed on the use of structured programming principles in COBOL and on applications of COBOL to information processing. Topics covered include subroutines, input-output, logical structure, management of types of data, and file organization and management. Prerequisite: 185. Not offered 1998-99.

247 Software Engineering (3). F. A survey of software engineering principles including software project management, system and

requirements analysis, the design and implementation of software, software quality assurance and testing, software maintenance and the use of CASE tools. Laboratory. Prerequisite: 230.

260 Automata Theory and Formal Languages (3). S. An introduction to formal computational models (automata), including finite state machines, push-down automata, linear bounded automata and Turing machines; plus the languages automata recognize: regular expressions, context-free languages, context-sensitive languages, and unrestricted languages. Universal Turing machines, problem solvability and the P and NP complexity classes are also introduced. Prerequisite: 230, MATH 156. *Mr. E. Fife.*

270 Operating Systems (3). F. An introduction to the major concepts of operating systems. Topics covered include dynamic procedure activation, system structure, memory management, correctness, timing, and process management including concurrent programming constructs. Prerequisite: 186. *Staff.*

280 Programming Language Concepts (3). F. Principles and programming styles that govern the design and implementation of contemporary programming languages. Topics covered include language syntax, processors, representations, and styles. Several different languages will be introduced and examined in the light of the above principles. Laboratory. Prerequisite: 186. *Staff.*

300 Special Topics in Computer Science. Not offered 1998-99.

305 Artificial Intelligence (3). S, alternate years. An introduction to artificial intelligence. Topics include problem solving, knowledge representation, planning, machine learning, natural language processing, and robotics. Students will be introduced to programming techniques from AI such as heuristic search, expert systems, and neural networks, as well as to AI's philosophical, psychological and religious context. Prerequisite: 280 (or 186 and permission of the instructor). *Mr. K. VanderLinden.*

320 Computer Architecture (3).* F; alternate years. A study of the basic principles and issues of computer organization and architecture, including the Von Neumann

(SISD) architecture, and the MISD, SIMD and MIMD architectures. Design issues will be studied, including performance evaluation, CISC vs. RISC, pipelining, scalar vs. vector processors, and uniprocessors vs. multiprocessors vs. multicomputers. Additional topics include bus structures, hardware control and microprogramming, memory hierarchies, and operating system interface issues. Prerequisite: 270. *Mr. D. Laverell.*

330 Database Management Systems (3).* F, alternate years. An introduction to the structures necessary to implement a database management system. Topics include data models (including hierarchical, network, and relational data models), normal forms for data relations, data description languages, query facilities. An introduction to existing data base management systems is given. Prerequisite: 230. *Mr. K. VanderLinden.*

350 Numerical Analysis (4).* F Analysis of errors in numerical methods, real roots of equations, approximations using polynomials, numerical integration, applications to differential equations, Lagrange and spline interpolation, least squares approximations, orthogonal polynomials and applications. (Also listed as Mathematics 335.) Prerequisites: 150, 155, or 185 and Mathematics 255, or permission of the instructor. *Mr. E. Fife.*

360 Theory of Computation (4). S, alternate years. Topics from the theory of computation including finite state concepts, formal languages and grammars, computability, computational complexity. Prerequisite: 260. *Mr. R. Pruum.*

370 Computer Networks (3). F, alternate years. This course introduces the student to the field of computer networking. Students will develop an understanding of the general principles of computer communication as they are worked out in an appropriate protocol suite. Specific attention will be paid to principles of architecture, layering, multiplexing, addressing and address mapping, routing and naming. Problems considered include the writing of network software, the physical construction of networks, the Internet and its future development, and network security. Prerequisite: 270. Not offered in 1998-99.

380 Internship in Computing (3). F, S. Interns will work 10-20 hours per week in a local business of non-profit organization under the supervision of a computing professional. The internship experience will give students the opportunity to apply skills and concepts acquired in the classroom to a real-world setting and to participate in the design and/or implementation of a significant computing application. The intern will be expected to maintain a reflective journal and complete a summary paper. Prerequisite: 247 or 260. *Mr. J. Bradley.*

385 Senior Project in Computing (2). F, S. This is the first course of a two-semester sequence, in which the student will complete a departmentally approved computing project. This capstone experience will give students the opportunity to apply concepts and techniques learned in the classroom by developing a significant computing application. The first semester will typically focus on any necessary library research, design, and prototyping; implementation and writing should normally be done in the second semester. The student will submit regular progress reports to a supervising faculty member and submit a preliminary report on the project's status for evaluation by a departmental committee. Prerequisite: 247 or 260, or permission of the department. *Staff.*

386 Senior Project in Computing II (2). S,F A continuation of 385. The student will submit regular progress reports to a supervising faculty member and submit a final report on the project for evaluation by a departmental committee. Prerequisite: 385. *Staff.*

390 Independent Study. F, I, S. *Staff.*

392 Perspectives on Computing (2). S. A senior-level seminar course. Discussion of special topics in computer science. Special emphasis on computer applications, social implications, ethical and legal issues, future social impact. Prerequisite: senior status in a computer science program of concentration. *Mr. D. Laverell.*

JANUARY 1999 INTERIM

A catalog with the descriptions of all interim courses is available after October 1998.

W50 Cryptography and Computer Security (3) E. *Fife.*

Dutch

Professor J. Lamse (chair, Department of Germanic Languages)

Assistant Professor H. DeVries

Programs for students wishing to minor or major in Dutch are worked out for them individually by the department advisor.

DUTCH MAJOR

Dutch 101

Dutch 102

Dutch 201

Dutch 202

Six 300-level electives, for one of which an approved Dutch-language interim in the Netherlands may be substituted.

DUTCH MINOR

Dutch 101

Dutch 102

Dutch 201

Dutch 202

Two 300-level electives, for one of which an approved Dutch-language interim in the Netherlands may be substituted.

NETHERLANDIC STUDIES MAJOR

Dutch 101

Dutch 102

Dutch 201

Dutch 202

Three 300-level Dutch literature/culture courses, for one of which an approved Dutch-language interim in the Netherlands may be substituted.

Two from Art 234, Art 236, or approved interims in history, religion, Frisian, or Afrikaans

An approved interim

Prerequisite to a concentration in Dutch is a minimum average of C (2.0) in 101, 102, 201, and 202. Completion of 202 meets the foreign language requirement.

COURSES

101 **Elementary Dutch** (4). F. An introductory course in the comprehension and use of spoken and written Dutch. *Mr. H. De Vries.*

102 **Elementary Dutch** (4). S. Continuation of 101. *Mr. H. De Vries.*

201 **Intermediate Dutch** (4). F. Selected readings in modern Dutch prose and poetry. Review of grammar and syntax. *Mr. H. De Vries.*

202 **Intermediate Dutch** (4). S. Continuation of 201. *Mr. H. De Vries.*

305 **Dutch Classics** (3). * F, core. Study and discussion of several Dutch literary texts representative of the classical and modern periods of Dutch literature. Because the literature studied is varied from year to year, the course may be repeated for credit. This course is conducted in Dutch. *Staff.*

306 **Dutch Classics** (3). * S, core. A continuation of 305. *Staff.*

309 **Netherlandic Civilization** (3). * S. A study conducted in the English language of several important aspects of Netherlandic civilization: literature, history, religion, art, architecture, social structure, and education. Not offered 1998-99.

390 **Independent Study**. *Staff.*

JANUARY 1999 INTERIM

A catalog with the descriptions of all interim courses is available after October 1998.

W50 **Dutch Interim Abroad** (3) *H. De Vries.*

Economics and Business

Professors D. Cook, R. Hoksbergen (chair), G. Monsma, K. Schaefer, R. Slager, J. Tiemstra, **
D. Vellenga, S. Vander Linde, E. Van Der Heide, S. Vander Veen

Associate Professors B. Porter

Assistant Professors D. Attebury, B. Boscaljon, R. DeVries, D. Kiekover, K. Schutte

The department has structured its major areas of study so that students may design programs to best prepare themselves for their chosen career fields or to help them make those choices. It offers five majors leading to a Bachelor of Arts degree—business, economics, a group concentration in the social sciences, a group concentration in business and communication, and a group concentration involving mathematics and economics or business—as well as a program leading to a Bachelor of Science in Accountancy. The B.S.A. program is described on pages 49–50. Any of the five majors above can be integrated into the department's five-year Cooperative Education Program combining three terms of work experience with standard course requirements. The department also offers minors in business and in economics, and teacher education minors in economics, and in business in cooperation with Cornerstone College. In addition, the department cosponsors an interdisciplinary minor on international development. (See heading "Third World Development Studies" on page 223.)

BUSINESS MAJOR

Business 203

Business 204

Business 260

Business 370

Business 380

Economics 221

Economics 222

One from Economics 323-326

One from Economics 323-339

Two department electives

Cognate

Math 143, 243, or 343

Math 132 or 161

Three hours of computer science, including
101, 130, and one course from: 105, 110,
120, 135, or 140

BUSINESS MINOR

Business 203

Business 260

Economics 221

Economics 222

Two Business electives

ECONOMICS MAJOR

Economics 221

Economics 222

Economics 323 or 325

Economics 324 or 326

Economics 395

Three from Economics 331-345

Two department electives

Cognate

Math 143, 243, or 343

Math 132 or 161

ECONOMICS MINOR

Economics 221

Economics 222

Economics 323 or 324

Three from Business 203, Economics 331-
345

BUSINESS/MATH GROUP MAJOR

Business 203

Business 204

Economics 221

Economics 222

Two department electives

Math 161

Math 162

Math 255

Math 261

Math 343

Math 344

Cognate

Three hours of computer science

MATH/ECONOMICS GROUP MAJOR

Economics 221

Economics 222

One from Economics 323-326

Three department electives

Math 161

Math 162

Math 255
Math 261
Math 343
Math 344

Cognate

Three hours of computer science

BUSINESS/CAS GROUP MAJOR

CAS 200 or 240
CAS 305
CAS 352
Two CAS electives from 140, 200, 230, 240,
253, 280, 285, or 330
Business 203
Business 260
Business 380
Business 365, 381, or 382
Economics 221
Economics 222
One Business or Economics elective

Cognate

Math 143, 243, or 343

**SOCIAL SCIENCE GROUP MAJOR—
BUSINESS EMPHASIS**

Business 203
Business 260
Business 380
Economics 221
Economics 222
One from Economics 323-343 or an approved
interim
Four courses from one of the social sciences
(sociology, psychology, political science, or
history)
Two department electives

Cognate

Math 143, 243, or 343

**SOCIAL SCIENCE GROUP MAJOR—
ECONOMICS EMPHASIS**

Economics 221
Economics 222
Economics 323 or 324
Two from Economics 323-343
Two department electives
Four courses from one of the social sciences
(sociology, psychology, political science, or
history)

Cognate

Math 143, 243, or 343

**SECONDARY EDUCATION
ECONOMICS MINOR**

Economics 221
Economics 222
Electives from Business 203, Economics 323-
345, and 2 interims (12 semester hours)

Prerequisite to admission to any major con-
centration is a minimum grade of C (2.0)
in Economics 221. The core requirement
in the social sciences is met by Economics
151 or, for students majoring or minoring
in economics or business, 221.

Business

203 **Introduction to Managerial Account-**
ing (4). F After a brief introduction to the
principles of financial accounting and the
purpose of financial statements, the course
provides an introduction to managerial ac-
counting concepts, budgeting, incremental
cost and profit analysis, breakeven analysis,
responsibility reporting, and the use of finan-
cial analysis for managerial decision-making.
Not open to first-year students. *Mr. D. Cook,*
Mr. D. Attebury, Mr. R. Slager.

204 **Financial Accounting** (3). S A continu-
ation of the study of accounting. After con-
sidering the importance of generally accepted
accounting principles and the study of the
accounting cycle, the course emphasizes as-
set valuation, classification and measurement
of liabilities, and income determination. Pre-
requisite: 203. *Mr. D. Attebury, Mr. D. Cook,*
Mr. R. Slager.

215 **Accounting Process and Methods** (2).
S, half course. A study and application of ac-
counting processes and techniques. The op-
erations of accounting are explored in depth
enabling the accounting major to apply gen-
erally accepted accounting principles to the
transactions of the accounting cycle. The
course will include significant exposure to
computerized accounting applications and
will parallel the topics covered in Business
204. Prerequisite: 203 and at least concu-
rent enrollment in 204. *Mr. R. Slager.*

260 **Business Organization and Manage-**
ment (3). F and S. A study of the principles
and problems of organizing and managing
the firm, with emphasis on organization
goals, structure, and the effective use of hu-

man resources. Not open to first-year students. *Mr. B. Boscaljon, Mr. B. Porter, Mr. D. Vellenga.*

269 International Business (3). F A study of the international business environment and institutions, their impact on business operations and the development of international business strategies. Prerequisites: Economics 222 and Business 260. Note: to receive credit for Business 269 as an elective in the business major, this course must be taken concurrently with Business 389. *Mr. D. Vellenga.*

301 Intermediate Accounting I (4).* F A study of financial accounting theory and generally accepted accounting principles as applied to the measurement and valuation of assets and liabilities. Prerequisites: 204 and 215. *Mr. D. Cook.*

302 Intermediate Accounting II (4).* S. Continuation of 301. A study of financial accounting theory and generally accepted accounting principles as applied to the measurement and valuation of stockholders' equity, issues related to income determination, and preparation and analysis of corporate financial statements. Prerequisite: 301. *Mr. D. Cook.*

305 Cost Accounting (4).* F Principles and methods of accounting for manufacturing and operating costs, with emphasis on analysis and reporting to management to facilitate planning, control, and decision-making. Prerequisite: 204. *Mr. D. Attebury.*

306 Income Tax (4).* F A study of Federal income tax law and of tax cases to provide a basis for an understanding and evaluation of that law and of the rate structure. Includes the implications of income taxation for business decisions. Emphasis on taxation of individuals with limited coverage of partnerships and corporations. Prerequisite: 203. *Mr. L. De Lange.*

307 Advanced Taxation (3).* S. A study of Federal tax law and of tax cases as they apply to corporations, partnerships, estates, and trusts. This course will analyze and evaluate the Internal Revenue Code, the IRS Regulations, and appropriate case law as the basis for understanding the law, for utilizing the law in tax planning, and for ethically in-

terpreting the law. Tax research will be emphasized. Prerequisite: 306. *Mr. D. Cook.*

310 Advanced Accounting (4).* F Preparation of consolidated financial statements, accounting for partnerships, and accounting for installment and consignment sales. Introduction to governmental and fund accounting. Prerequisite: 301. *Mr. R. Slager.*

311 Auditing (4).* S. The theory and philosophy of auditing, including an examination of the ethical and other professional standards required of the Certified Public Accountant. Prerequisite: completion of or concurrent registration in 301. *Mr. D. Attebury.*

315 Accounting Systems (4).* S. A study of accounting systems which provides information for decision-making. The course examines business structures, information needed for decision-making, internal controls in manual and computerized systems, systems development, systems controls, and ethical aspects of the computer environment. Computerized accounting applications are incorporated using accounting software and spread sheets. Prerequisites: 204 and one course in computer science. *Mr. R. Slager.*

350 Law in Business (3).* F and S. An introduction to American business law: origins, development, legal institutions, and processes. The legal environment of business; Uniform Commercial Code and case law of business transactions; other topics selected from agency, property, partnership, corporation, regulatory, and administrative law. *Mr. D. Buter, Mr. T. Waalkes.*

357 Business Aspects for Engineers (2). F. An overview of the aspects of business important to engineering. Selected topics from economics, accounting, finance, marketing, management, and business law are included. Prerequisite: 151 and junior or senior standing in the engineering program. *Ms. K. Schutte.*

359 Internship in Business (4). F and S. These internships involve ten to fifteen hours of work a week under an employer-supervisor and a series of internship seminars on campus. Placements may be in businesses or in not-for-profit organizations. Each intern keeps an analytical journal, submits a final summary paper, and participates in a

biweekly seminar. Prerequisites: three courses in business or economics, junior or senior standing, and permission of the internship coordinator. *Mr. D. Vellenga.*

361 Health Care Administration and Economics (3). * S. The course develops an economic framework for understanding health care institutions and emphasizes the response of health care administrators and business professionals to current health system changes and challenges. Discussion issues include health care reimbursement and finance, health provider management and marketing strategies, business strategies for managing health care costs, and health care policy. Prerequisite: Economics 221, and Business 260 or with the permission of the instructor.

363 Production and Operations Management (3). * F A study of the management of production and operations within a business, including planning, control, and evaluation of resources, inventory, schedules, and product or service quality. Techniques for making location decisions, implementing just-in-time purchasing and production, scheduling production, and using statistical process control (SPC) are studied. Computer applications are occasionally integrated for analysis and simulation purposes. Prerequisites: 260 and Mathematics 143 or its equivalent. *Mr. B. Porter.*

365 Human Resource Management (3). * F. A study of the principles and problems involved in personnel management in an organization, including recruitment, selection, training, evaluation, motivation, compensation, human resource planning, career development, and collective bargaining. Prerequisite: 260 or permission of the instructor. *Ms. K. Schutte.*

367 Small Business Management (4). * F. A study of the business management principles applicable to the challenges and opportunities unique to small businesses. The course emphasizes strategic analysis of management, marketing, and financial issues facing small firms. Throughout the semester student teams assist local small businesses in the preparation of business plans. Prerequisites: 203, 260, 380; senior departmental major status or permission

of instructor. *Ms. D. Kiekoever.*

370 Financial Principles (3). * F and S. A study of the principles and problems of the financial management of the firm, including such topics as stock and bond valuation, working capital management, cost of capital and capital budgeting, capital structure, and dividend policy. Prerequisites: 204 and Economics 221. *Mr. B. Boscaljon, Mr. B. Porter.*

371 Financial Instruments and Markets (3). * S. An extension of 370 into topics such as leasing, mergers, and multinational finance; application of the theory of finance to investment instruments, including stocks, bonds, options, futures markets, and commodities, and to financial markets and institutions, including investment companies and the stock exchanges. Prerequisite: 370. *Mr. B. Boscaljon.* Not offered 1998–99.

380 Marketing (3). * F, S, and SS. A study of the process of planning and executing the conception, pricing, promotion, and distribution of ideas, goods, and services that satisfy individual and organizational needs and objectives. Prerequisite: Economics 221. Not open to freshman students. *Ms. D. Kiekoever, Mr. S. VanderVeen.*

381 Advanced Topics in Marketing (3). * S. An advanced study of market research and marketing strategy. Students apply knowledge gained to actual business situations by providing marketing consulting services to local small businesses under the auspices of the Small Business Institute. Advanced computer simulation may also be utilized. Prerequisites: Math 143, Business 380. *Mr. S. Vander Veen.*

382 Consumer Behavior: Theory and Practice (3). * F An in-depth look at the processes involved when consumers purchase and use products, explanations for purchase and use, and implications for marketing research and marketing strategy. Case studies, journal articles, and “real life” marketing problems and solutions will be analyzed. Prerequisites: Sociology 151 or Psychology 151, and Business 380. *Mr. S. Vander Veen.*

389 International Business Seminar (1). F. An in-depth study of international business. Readings and case studies are emphasized.

This course must be taken concurrently with Business 269 to receive credit for Business 269 as an elective in the business major. Prerequisites: Business 203, 260, 380; Economics 221 and 222. *Mr. D. Vellenga.*

390 Independent Study. F, I, S. Prerequisite: permission of the department chair.

396 Strategic Management (3).* S. An integrative study of strategic management, requiring contemporary, comprehensive case applications of concepts from economics, marketing, accounting, finance, management, and international business. Ethical aspects of strategic decision making are emphasized. Student teams study cases and present their analyses. This course is recommended for students wishing to understand the formulation and implementation of ethical strategies in diversified businesses. Prerequisites: 260, 370, 380; Economics 222 or permission of instructor. *Ms. D. Kiekover.*

590 Independent Study. F, I, S. Prerequisite: permission of the department chair. *Staff.*

Economics

151 Principles of Economics (3). F and S, core. A study of the principles of resource allocation, income distribution, prices, production, income and employment levels, and economic growth with an emphasis on the market system. The course is planned to help students understand basic domestic and international economic problems. Not recommended for majors or minors. *Mr. G. Monsma, Mr. R. Hoksbergen, Mr. S. Vander Linde, Mr. J. Tiemstra, Staff.*

221 Principles of Microeconomics (4). F and S, core. A study of the behavior of consumers and firms and their effects on prices, production of goods and services, use of resources, and the distribution of income; including an evaluation of the equity and efficiency of private sector and governmental activity in a market system., *Mr. E. Van Der Heide, Mr. G. Monsma, Staff.*

222 Principles of Macroeconomics (3). F and S. A continuation of 221. A study and evaluation of the determination of national income, including analysis of consumer spending and saving patterns, business in-

vestment, government spending, taxation, monetary policy, unemployment, and inflation. The course includes an introduction to international trade and finance. Prerequisite: 221., *Mr. K. Schaefer, Mr. E. Van Der Heide, Mr. R. De Vries.*

241 The U.S. Health Economy (3). S. An economic study of the institutions that comprise the U.S. health care system, including an examination of the development of U.S. health care institutions, public policies that have shaped them, and the economic interactions between health care providers, consumers, and insurers. Emphasis is placed on issues of resource allocation, health care access, and the changing roles of physicians, nurses, insurers, and the government. This course is recommended for students who are seeking a professional career in a health care discipline. Not open to first-year students. *Mr. S. Vander Linde.*

323 Intermediate Microeconomics (4).* F. An intermediate-level study of the microeconomic theory of a market economy, emphasizing the analysis of the behavior of firms and consumers and an evaluation of the efficiency and equity of the market system of organization of economic activity. Students may not receive credit for both this course and Economics 325. Prerequisite: 221. *Mr. R. DeVries.*

324 Intermediate Macroeconomics (4).* S. An intermediate-level study of macroeconomic theory, including the theory of aggregate demand, the level of employment, the general level of prices, and economic growth. The course provides the tools for monitoring and understanding general economic events. Computer simulations are used to demonstrate macroeconomic dynamics. Students may not receive credit for both this course and Economics 326. Prerequisite: 222. *Mr. E. Van Der Heide.*

325 Managerial Economics (4).* S. An intermediate-level study of microeconomic theory emphasizing applications to managerial decision-making in such areas as market and risk analysis, demand forecasting, production and cost analysis, product pricing, profit planning, and capital budgeting. Goals of firms and the use of economic theory in achieving them are examined and

evaluated. Students may not receive credit for both this course and Economics 323. Prerequisites: 221, Mathematics 143, 243, or 343, and completion of or concurrent registration in Mathematics 132 or 161. *Staff.*

326 Business Cycles and Forecasting (4).* F An intermediate-level study of macroeconomic theory emphasizing analysis of general business activity and the implications of changing business conditions for business and public policy. Basic forecasting techniques are explained and the use of forecast information in firm and individual decision-making are evaluated. Computer simulations are used to demonstrate the application of economic theory to business planning. Students may not receive credit for both this course and Economics 324. Prerequisites: 222, and completion of or concurrent registration in Mathematics 143, 243, or 343. *Mr. S. Vander Linde.*

331 Money and Banking (3).* F A study of the principles of money, banking, and credit with emphasis on monetary theory and policy and their role in domestic and international economics. Prerequisite: 222. *Mr. J. Tiemstra.*

332 Environmental Economics and Public Policy (3).* F, alternate years. An introduction to the theory and practice of environmental policy. The course provides a survey of the problems considered by environmental economics and an evaluation of the policies that have been developed — problems related to pollution and other forms of environmental deterioration, to the use of energy and other resources, and to related issues. Prerequisite: 221 or permission of the instructor. *Mr. J. Tiemstra.* Not offered 1998–99.

334 Industrial Markets and Public Control (3).* S, alternate years. A study and evaluation of business strategies in imperfectly competitive markets, including entry barriers, pricing, product differentiation, vertical integration, and mergers. Examination of relevant public policies, such as antitrust law and utility regulation. Prerequisite: 221. *Mr. J. Tiemstra.* Not offered 1998–99.

335 Labor Economics (3).* F A study of labor markets and their relationship to the economy as a whole, including labor-force participation, human-capital formation, wage

theory, discrimination, unemployment, income distribution, labor unions, and related public policies. Prerequisite: 221. *Mr. G. Monsma.*

336 Comparative Economic Systems (3).* F A comparison of various forms of economic organization, such as capitalist and socialist types, and an evaluation of their performance in theory and practice. Special attention to the transitions under way in Eastern Europe. Prerequisite: 221. *Mr. K. Schaefer.* Not offered 1998–99.

337 World Poverty and Economic Development (3).* S. A study of the causes of widespread poverty in many nations and regions of the world, and a study and evaluation of policies designed for its alleviation. Prerequisite: 221. *Mr. E. Van Der Heide.*

338 International Economics (3).* F A study of international economic relations, stressing the fundamentals of trade theory, the balance of payments, problems of international disequilibrium, trade barriers, and efforts to promote international economic stability and growth. Prerequisite: 222. *Mr. R. Hoksbergen.*

339 Public Finance (3).* S. A study of the economic effects of government spending and taxation on resource allocation and on the distribution of income. Students analyze the economic role of government, and current policy issues and the political process regarding taxation and government spending. Prerequisite: 221. *Mr. G. Monsma.*

343 Quantitative Economics and Econometrics (3).* S. A study of mathematical and statistical tools and applications in economics and business. The course examines such mathematical tools as input-output analysis, linear programming, and econometric models, and involves a significant amount of computer use. This course is recommended for students considering graduate work in either economics or business. Prerequisites: Math 143 and 132 or their equivalents. *Mr. K. Schaefer.*

349 Internship in Economics (4). F and S. These internships which will require the student to use the tools of economic analysis involve ten to fifteen hours of work a week under an employer supervisor, and a series

of internship seminars on campus. Each intern keeps an analytical journal, submits a final summary paper, and participates in a biweekly seminar. Prerequisites: appropriate courses in economics, completion of the mathematics cognate requirements, junior or senior standing, and permission of the internship coordinator. *Mr.D.Vellenga.*

390 **Independent Study.*** F, I, S. Prerequisite: permission of the department chair. *Staff.*

395 **Economics Seminar (3).*** S. A study of the methodology of economics, and of one or more of the significant problems in economics. Emphasis on oral and written reports and on extensive reading in current economics journals. Prerequisites: senior economics major status. *Mr. R. Hoksbergen.*

JANUARY 1999 INTERIM

A catalog with the descriptions of all interim courses is available after October 1998.

W10 **Personal Financial Planning (3)** *D. Attebury, R. de Vries.*

W11 **The Most Mickey Mouse Interim Course Ever (3)** *D. Cook, S. Vander Veen.*

W50 **New York Financial Markets and Institutions (3)** *B. Boscaljon.*

IDIS W12 **A Study in Hope: Overcoming Hunger and Poverty in the Third World (3)** *R. Hoksbergen, G. Monsma.*

IDIS W13 **A Partnership with Haiti: Service Learning via Micro-enterprises (3)** *B. Porter, K. Schutte.*

IDIS W14 **Business and Engineering for the International Market (3)** *N. Nielsen, E. Van Der Heide.*

Education

*Professors S. Hassler, T. Hoeksema, M. Kraker, C. Mulder, A. Post, * L. Stegink (chair), G. Stronks, S. Timmermans, Y. Van Ee*
Associate Professors J. Gormas, C. Joldersma, R. Keeley, R. Sjoerdsma

The various teacher education programs are described in detail on pages 38–48. Prospective elementary and secondary teachers should initially consult the teacher education advisor of the department in which they expect to major. Students intending to enter special education should consult with either Mr. Thomas Hoeksema, coordinator of special education: mentally impaired, or Ms. Myra Kraker, coordinator of special education: learning disabilities. Students in special education: mentally impaired must also complete the elementary education requirements.

ELEMENTARY EDUCATION PROFESSIONAL STUDIES

Education 191
Education 192
Education 301
Education 303
Education 304
Education 305
Education 309
Education 322
Education 326/327
Education 345
Interdisciplinary 213
Math 221
Math 222
PE 221
PE 222

SECONDARY EDUCATION PROFESSIONAL STUDIES

Education 191
Education 192
Education 301
Education 303
Education 304
Education 307
Education 346
Departmental 359

COURSES

191 **Education and Multiculturalism.** No credit. F and S. Students will be assigned to various school service-learning projects for a total of 15 hours of experience in multicultural school settings. Students must

attend an orientation and two discussions on educating students from a number of cultures. This course must be satisfactorily completed during the freshman or sophomore year as a condition of program admission. *Staff.*

192 Education and Exceptional Children. No credit. F and S. Students will be assigned to various school service-learning projects for a total of 15 hours of experience with exceptional children. Students must attend an orientation and two discussions on educating students with a variety of learning needs. This course must be satisfactorily completed during the freshman or sophomore year as a condition of program admission. *Staff.*

216 Educating Exceptional Children (3). F and S. An introduction to the characteristics of students with a variety of learning needs. Includes study of recent laws and court decisions, alternative educational programs, current issues, and new directions in serving exceptional children in public and private schools. Throughout, a Christian view of persons will be developed which recognizes the dignity and value of those who have labeled disabilities. *Mr. T. Hoeksema, Ms. A. Post.*

Students seeking certification must be admitted to the teacher education program and be in good academic standing before beginning any 300-level course in the department.

301 Psychology of Education (3). F and S, core. Orientation to the field of educational psychology. A study of the learner, the learning process, and the kinds of learning. Prerequisite: admission to the teacher education program. *Staff.*

303 Introduction to Teaching (4). F and S. An analysis of the teaching-learning process in the classroom. Includes observation and participation in school activities and a laboratory experience to develop competence in the use of classroom technologies. Prerequisite: concurrent registration in 301. *Staff.*

304 Philosophy of Education (3). F and S, core. An analysis of the history, assumptions, aims and practices of four major philosophies that influenced education—idealism, realism, pragmatism, existentialism—fol-

lowed by a survey of 20th century movements in educational theorizing. These are compared and contrasted with explicitly Christian approaches to the theory and practice of education. Readings include typical writers from all perspectives, assessed in the light of a Biblical perspective of persons, society, and the human calling in the world. Students will work out a Christian approach to the theory and practice of education. Prerequisites: 301, 303, and Philosophy 153, or permission of instructor. *Mr. C. Joldersma.*

305 Teaching Social Studies in the Elementary and Middle School (2). F and S. A study of perspectives, content, methods, and materials in teaching the social studies in the elementary school. Students will analyze perspectives and determine major goals and themes for the teaching of social studies. They will study and analyze the contributions of the various disciplines to the social studies curriculum. Students will examine materials and learn and practice methods for teaching the social studies. Biblical principles which offer direction for human interactions in society will be considered. Prerequisites: 301, 303, or permission of instructor. *Mr. C. Mulder.*

306 Mental Retardation (3). * F A comprehensive study of the characteristics of persons who have an intellectual disability. Historical and contemporary perspectives on mental retardation will be explored as will common causes, definitional issues, and interventions. While special attention is given to the needs of persons with retardation as learners, the course examines the entire lifespan and functioning in a variety of settings besides the school such as the church, work place, and neighborhood. A Christian view of persons, community, and discipleship, along with the concept of normalization/social role valorization, are integrating elements in the course. Prerequisite: 216 or permission of the instructor. *Mr. T. Hoeksema.*

307 Reading in Content Areas: Secondary (3). *F and S. A study of the reading process as it relates to the secondary school curriculum; an analysis of the factors which enhance or impede comprehension of content area reading materials; a presentation of reading and study skills common to all content areas; an analysis of reading and study skills

required in specific content areas; a review of formal and informal tests of pupil reading levels; an introduction to interpretation of test scores for screening and determining pupil reading needs. A study of the types and functions of reading programs in secondary schools; a presentation of the responsibilities and qualifications of secondary teachers for applying principles of reading in daily assignments; demonstration of techniques for meeting the wide range of reading levels found in the average secondary classroom. Prerequisites: 301, 303, or permission of instructor. *Ms. A. Post, Mr. L. Stegink, Ms. G. Stronks.*

309 Teaching Religion Studies in the Elementary School (2). F and S. A study of perspectives, content, methods, and materials in teaching religion studies in the elementary school. This includes pedagogy appropriate for public and non-public schools and evaluation of methods and materials. Prerequisites: 301, 303, or permission of the instructor. *Mr. R. Keeley.*

310 Diagnosis and Prescription: Mental Impairment (3).* S. A study of the foundational concepts and basic terminology needed to assess students with intellectual disability. Skill will be developed in selecting, administering, and interpreting both formal and informal, norm-referenced as well as criterion referenced and curriculum-based assessment instruments, for the purpose of developing individualized educational plans. Prerequisite: concurrent enrollment in 347. *Mr. T. Hoeksema.*

311 Child Language Development (3).* F. An examination of early language development research in phonology, morphology, syntax, semantics, and pragmatics. Theories of language acquisition and implications for practice are examined. Particular attention is given to the role of adults in language development and to the relationship between language development and cognitive development. Prerequisites: An introductory course in Psychology or Education or permission of the instructor. (Also listed as Communication Arts and Science 311.) *Ms. M. Kraker.*

322 Introduction to Methods of Teaching Reading: Elementary (3). F and S. A study

of the nature of the reading process; an introduction to the various approaches to the teaching of reading with an emphasis on the basal approach; a presentation of instructional strategies appropriate to a developmental reading program; an analysis of the organization and management of a classroom reading program. Prerequisites: 301, 303, or permission of instructor. *Ms. A. Post, Ms. G. Stronks.*

326 Reading/Language Arts in the Elementary School (3).* F and S. This course will present reading as a language art and demonstrate the relationship of language arts to the various subjects in the elementary school. Students will learn strategies and techniques for assessing and differentiating instruction to meet the wide range of reading and writing levels found in elementary classrooms. Prerequisites: 322 and concurrent enrollment in 345. *Ms. A. Post.*

327 Reading/Language Arts in the Middle School (3).* F and S. This course will present reading as a language art and demonstrate the relationship of language arts to the various subjects in the middle school. Students will learn strategies and techniques for assessing and differentiating instruction to meet the wide range of reading and writing levels found in middle school classrooms. Prerequisites: 322 and concurrent enrollment in 345. *Ms. G. Stronks.*

330 Curriculum and Instruction: Mental Impairment (3).* F. A study of the various curricula, instructional materials, and teaching methods appropriate for learners who have mental impairments. Research-based general principles of instruction are reviewed as well as specific methods for teaching domestic, vocational, community living, recreation/leisure, and functional academic skills. Strategies are learned for generating curriculum, evaluating published curricula, and for developing individualized education programs. Includes a practicum of two half-days per week in local school programs serving students with retardation. Prerequisites: 216, 301, 303, 306. *Mr. T. Hoeksema.*

336 The Young Child in an Educational Setting (3).* F, 1999. A review and critique of the basic theories of child development. Observation and intensive analysis of the

development of a particular child in a pre-school setting as related to the major theories and to the appropriate facilitation of development. Prerequisite: Psychology 204. Ms. Y. Van Ee.

337 Curriculum Theory and Development: Early Childhood Education (3).* S, 1999. An evaluation of the major approaches to development of a curriculum for early childhood education (up to age eight), the underlying assumptions of each approach, and the effects of each approach on the children. Included is a model for curriculum development and opportunity to implement the model for early education. Prerequisites: one course in education and one in psychology. Ms. Y. Van Ee.

339 Current Issues in Early Childhood Education (3).* S and SS, 1998; S, 2000. An examination of support systems for the young child, including interrelationships among care givers; issues and trends in child advocacy and public law and policy; administration and organization of early childhood programs; and assessment issues. Ms. Y. Van Ee.

344 Early Childhood Education Curriculum and Instruction: Field Experience (12).* A study of teaching methods, materials, and classroom organization as they relate to the various early childhood curricula. A field experience in two or more early childhood settings will meet state requirements. Prerequisites: 336, 337, 339, 345, and PSYC 204. Ms. Y. Van Ee.

345 Directed Teaching: Elementary (12). F and S. Students participate in full-time supervised practice teaching. Prerequisites: good standing in the teacher education program, passing scores on the Michigan Basic Skills Test, and appropriate recommendations. Staff.

346 Directed Teaching: Secondary (12). F and S. Students participate in a full-time supervised practice-teaching experience in their major field. All students except those majoring in history, mathematics, and physical education should expect to do their student teaching during the second semester. Prerequisites: good standing in the teacher education program, passing scores on the

Michigan Basic Skills Test, appropriate recommendations, and concurrent enrollment in a departmental 359. Staff.

347 Directed Teaching: Mentally Impaired (12).* S. Full-time, supervised student teaching in a school program serving students with mild or moderate levels of mental impairment. A minimum of ten weeks, including at least 360 clock hours of observation and participation, is required. Includes a bi-weekly seminar which engages students in critical reflection on their experience in applying theory to practice in the student teaching context. Prerequisites: good standing in the teacher education program, passing scores on the Michigan Basic Skills Test, and appropriate recommendations. Mr. T. Hoeksema.

Graduate Courses

501 Advanced Educational Psychology (3). F; SS, odd years. An examination of psychoeducational theories of development from the perspective of selected theorists. Consideration is given to the application of these theories to the educational environment and the implications of these theories with regard to intellectual development. Aspects of faith and moral development are considered. Ms. M. Kraker, Mr. R. Sjoerdsma, Ms. G. Stronks.

510 History of American Education (3). S; SS-2000. A study of the American school systems in their historical setting from colonial times to the present. Special attention is given to the ways in which social and intellectual movements affect educational theory and practice. Staff.

512 Theories of Instruction (3). S, odd years; SS-2000. This course examines the theoretical foundations of instruction as described by selected researchers. It focuses on the underlying assumptions of various theories and interpretation of these theories from a Reformed perspective. Relationships between development and instruction are considered. The implications of diversity in the classroom, the use of technology in contemporary education, and issues of reform in education are discussed. Prerequisites: One course in psychology or sociology of education and one course in history or philosophy of education. Staff.

513 Cognition, Learning, and Literacy Development (3). F; odd years; SS, 2001. This course examines underlying concepts associated with the acquisition of reading and writing. Social and cultural factors contributing to literacy development are considered from the perspectives of educational psychology, cognitive psychology, and language development. Current issues related to classroom instruction are addressed in lectures, discussion, and classroom applications. Prerequisites: at least one course in reading and one in psychology. *Ms. M. Kraker.*

515 Moral Education (3). The study of a number of theories of moral education, some of which stress the cognitive approach and others the affective. The theories of Kohlberg and of Raths and Simon are studied. Individual projects and construction of teaching units are required. *Staff.* Not offered 1998-99.

530 Education of the Gifted (3). This course focuses on several manifestations of intellectual, social, and artistic giftedness. Several aspects of the educational and guidance process are studied, such as identification of talent and giftedness, curriculum considerations, teaching methods, role models, and guidance procedures. Prerequisites: graduate standing and teaching experience. *Mr. R. Keeley.* Not offered 1998-99.

531 Teaching Children with Learning Problems (3). An orientation to the variety of handicapping conditions which affect school-age children. This course for regular classroom teachers acquaints them with the basic information and specialized vocabulary needed for dealing with handicapping conditions in the typical classroom. It will include consideration of major issues and contemporary practices in the education of exceptional learners. *Mr. T. Hoeksema, Ms. M. Kraker.* Not offered 1998-99.

540 Trends and Issues in Reading and Literacy Instruction (3). This course is designed to acquaint students with the major theoretical orientations to reading and literacy development from emergent and early reading and writing through conventional, accomplished reading and writing. Students will study the interrelated nature of reading

and writing processes and the development of optimal conditions for reading and literacy instruction. Students will develop procedures for evaluating existing reading programs and materials. Classroom case studies will be used to provide experienced teachers with the basis for informed decision-making techniques in order that they will be able to help other classroom teachers become effective practitioners. Prerequisite: 322 or 307-8, or the permission of the instructor. *Ms. G. Stronks.* SS., 2000.

542 Diagnosis and Remediation of Reading Disabilities (3). An advanced course for the training of reading personnel or classroom teachers. A cognitive framework for diagnosing and planning instruction for a severely disabled reader is presented. After a review of reading theory, current approaches to teaching reading, and their relationship to reading disability, formal and informal assessment measures will be examined. Following extensive work with a disabled reader, an assessment portfolio and a case report on the disabled reader will be developed. Prerequisite: 513, 540, or permission of the instructor. *Ms. A. Post.* SS., 1999.

543 Teaching Literacy Through Literature (3). This course investigates literature-based reading as it is used in a variety of ways. It seeks to familiarize teachers, future teachers, administrators, specialized reading personnel, and other interested persons in children's literature and its use in teaching reading. The course examines the relationship between literature-based reading and a language approach to teaching the language arts. Further topics include emergent literacy, word identification, vocabulary, oral reading, and comprehension of narrative and expository text as they relate to literature-based reading. The course includes an emphasis on multicultural literature and its use in developing multicultural sensitivity and appreciation. Special needs students, portfolio assessment, and the parent-student-teacher partnership conclude the course. *Ms. A. Post.* SS., 2000.

548 Practicum: Learning Disabilities — Elementary (5). S; SS. Students who have not had prior supervised teaching experience in special education are required to complete a full-time supervised teaching experience

of ten weeks. Students who are seeking a second endorsement in special education must complete a practicum with a minimum of 180 hours in an appropriate setting. A seminar integrating theory and practice is included in this course. *Staff*.

549 Practicum: Learning Disabilities — Secondary (5). S; SS. Students who have not had prior supervised teaching experience in special education are required to complete a full-time supervised teaching experience of ten weeks. Students who are seeking a second endorsement in special education must complete a practicum with a minimum of 180 hours in an appropriate setting. A seminar integrating theory and practice is included in this course. *Staff*.

550 Theories of Learning Disabilities (3). F; SS 2001. This course acquaints students with the major theoretical models of learning disabilities. Research related to general characteristics, language acquisition, academic, social development, and problem solving performance of the learning disabled is examined. Approaches to the education of the learning disabled based on the theoretical models are also studied. Current issues in the field are discussed. Federal and State special education legislation is examined. Prerequisite: 216. *Ms. M. Kraker*.

551 Assessment and Diagnosis: Learning Disabilities (4). S; SS-2000. A study of the basic terminology and ethical considerations involved in assessing learning disabilities. Skills are developed in the selection, administration, and interpretation of appropriate psychological and educational tests for the purpose of determining educational programs. Supervised clinical experience is an integral part of this course. Prerequisite: 550. *Ms. M. Kraker*.

552 Graduate Seminar: Learning Disabilities (3). This seminar is designed to integrate program components in the M.Ed. Program in Learning Disabilities. Developments in theory, research, and practice in learning disabilities as related to psychology, education, language, and social practice are reviewed. Students submit integrative papers to demonstrate an understanding of principles and current issues in the field of learning disabilities. Emphasis is placed on de-

veloping leadership roles in the field of learning disabilities. Emphasis is placed on developing leadership roles in the field of learning disabilities. Guided supervision of individual assessment and educational programming is required. Upon completion of the seminar a final integrative exam is required.

553 Graduate Seminar: Curriculum and Instruction (3). This seminar is designed to integrate the program components in the M.Ed. program in Curriculum and Instruction. Developments in the theory and practices in the area of curriculum and instruction as related to the context of education, curriculum theory, instructional theory, and disciplinary concentration are reviewed. By means of broad unifying themes, students will be expected to integrate into a coherent unity what they have learned in the program. The board range of knowledge in the field of Curriculum and Instruction will be integrated with an authentic Christian perspective. In the process, students will reflect on how their education and professional experiences can be used for personal growth and to influence society. Upon completion of the seminar a final integrative examination is required.

570 Workshop in Education (2). See Interdisciplinary 570.

571 Assessment and Diagnosis: Emotional Impairment (3). S, even years. This course surveys the various perspectives of child and adolescent psychopathology as they relate to diagnostic approaches. The purpose of this course is to acquaint the teacher with a variety of assessment measures and to have the teacher use diagnostic findings for prescribing interventions appropriate for school-aged children and adolescents. Prerequisite: 594, or Psychology 250 or 510. *Staff*.

572 Curriculum, Management, and Instruction: Emotional Impairment (4). F, odd years. One focus of this course is the teaching, modeling and promotion of appropriate behavior/mental health in the classroom. Affective, social-competency and moral/religious curricula are reviewed. The second focus of this course is the analysis, management and correction of problem behaviors in the classroom. Techniques reviewed include psychodynamic approaches as well as

applied behavioral analysis approaches. The goal throughout the course is to present curriculum and instructional methods so that they are applied and evaluated from a Christian perspective. A practicum experience is included in this course. Prerequisite: 571 or permission of instructor. *Staff.*

576 Seminar: Emotional Impairment (2). S, SS. This seminar is designed to examine issues related to the integration of theory and practice. Students are required to participate in seminar discussion, give presentations that demonstrate the integration of a knowledge of the curriculum, management and instruction of students with emotional impairment. Prerequisite: concurrent enrollment in 578. *Staff.*

578 Directed Teaching: Emotional Impairment (4). S, SS. A ten-week student teaching experience is required. Prerequisite: all other courses in the endorsement program. *Staff.*

580 Curriculum Theory and Development (3). F SS-2001. A study of curriculum development theories and models for preschool through grade 12. This course includes a study of issues relating to organizing curriculum; selecting effective learning resources; implementing curricular change in a school setting; analyzing curriculum and materials for scope and sequence, gender issues, multicultural considerations; and integrating faith and learning. Prerequisite: Teaching experience. Ms. S. Hasseler.

582 Curriculum and Instruction: Learning Disabilities — Elementary (3). F, SS-1999. Curriculum and instructional methods related to oral language, reading, writing, mathematics, problem solving, and uses of computer technology are examined. Meeting IEPC goals in classroom instruction is considered. Prerequisite: 550. Ms. M. Kraker.

583 Curriculum and Instruction: Learning Disabilities — Secondary (3). F; SS-1999. Curriculum and instructional methods for secondary education are considered. Research relative to cognitive and linguistic changes in adolescence is explored. Meeting IEPC goals and management techniques are considered. Particular emphasis is placed upon using community resources as a learning environment. A field experience is an integral part of this course. *Staff.*

590 Independent Study (3). F, I, S. *Staff.*

594 Educational Research and the Classroom (3). F The purposes of this course are (1) to explore a variety of types and methods of educational research and inquiry from a Christian perspective, and (2) to investigate the design of a master's degree project or action research. Emphasis is placed on identifying and designing research that is practically feasible, and provides useful information for the classroom teacher. Students engage in educational inquiry and design educational research in an area appropriate to their subject matter area or grade level interest. Prerequisite: At least two graduate-level courses. *Staff.*

595 Graduate Project (3). F, I, S. The prospectus for each Master of Education project must be developed under the supervision of a faculty member and must be approved by the student's graduate advisor. *Staff.*

JANUARY 1999 INTERIM

EDUC 216 Introduction to Exceptional Children (3) D. Buursma, S. Hasseler, C. Kass.

EDUC 326 Reading/Language in the Elementary School (3) A. Post.

IDIS W23 The Urban Child: Home, School, and Community (3) Y. VanEe.

IDIS W55 Science Fiction and Technology (3) R. Keeley, D. Rienstra, S. Vander Leest.

Engineering

Professors A. Blystra, R. DeJong (chair), R. Hoeksema, L. Van Poolen, W. Wentzheimer
Associate Professor R. Brouwer, E. Nielsen, B. Post, S. VanderLeest
Assistant Professors G. Ermer

Calvin College offers a Bachelor of Science in Engineering degree (B.S.E.) with concentrations in Chemical, Civil, Electrical & Computer, and Mechanical engineering. The Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (A.B.E.T.) accredits the B.S.E. program. The program requires 28 hours of common engineering courses, 34 hours of technical cognates, 36 hours of liberal arts courses, and 38 to 42 hours of courses specific to each concentration. Although not accredited by A.B.E.T., group majors may be appropriate for some students and are described below.

BACHELOR OF SCIENCE IN ENGINEERING

Common engineering courses (28 hours)

Engineering 101
Engineering 102
Engineering 202
Engineering 204
Engineering 205
Engineering 284
Engineering 319
Engineering 339
Engineering 340

Technical Cognates (34 hours)

Business 357
Chemistry 103
Computer Science 150 or 155
Mathematics 161
Mathematics 162
Mathematics 261
Mathematics 231
Physics 126
Physics 186
Physics 225

Liberal Arts Courses (36 hours)

Philosophy 153
Religion core
Philosophy core (200-level)
CPOL, Religion and Theology, or History core
Economics 151
Sociology, Psychology, or Political Science core
Literature core
Fine Arts core

Third Fine Arts core (can be met by Literature taken during Interim)

English 101
CAS 100
Physical Education

Chemical Engineering Concentration— Chemistry and Chemistry Processing Emphasis (42 hours)

Engineering 206
Engineering 312
Engineering 330
Engineering 331
Engineering 335
Engineering 337
Engineering Interim
Chemistry 104
Chemistry 201
Chemistry 261
Chemistry 262
Chemistry 317

Civil Engineering Concentration— Hydraulics and Structures Emphasis (38 hours)

Engineering 305
Engineering 318
Engineering 320
Engineering 321
Engineering 326
Engineering 327
Engineering Interim
Engineering Elective
Basic Science Elective
Mathematics Elective

Electrical and Computer Engineering Concentration—Digital Systems and Analog Circuits Emphasis (38 hours)

Engineering 302
Engineering 304
Engineering 307
Engineering 311
Engineering 325
Engineering 332
Engineering Interim
Engineering Elective
Basic Science Elective
Mathematics Elective

Mechanical Engineering—Thermal Systems and Machine Design Emphasis (38 hours)

Engineering 305
Engineering 322
Engineering 324
Engineering 328
Engineering 333
Engineering 334
Engineering 382
Engineering Interim
Engineering Elective
Basic Science Elective
Mathematics Elective

ENGINEERING AND GEOLOGY GROUP MAJOR

Engineering 101
Engineering 202
Engineering 205
Engineering 305
Geology 151
Geology 152
Geology 201
Geology 212

Four approved electives (two from engineering or geology and two approved cognates from a third department within the Science Division.) At least two of the geology and/or engineering courses must be at the 300-level.

ENGINEERING AND PHYSICS GROUP MAJOR

The group major in engineering and physics consists of twelve courses. Ten of these must be from the engineering and physics departments, with no fewer than four from either. The remaining two cognate courses

must be chosen from a third department within the Science Division.

ENGINEERING AND CHEMISTRY GROUP MAJOR

Engineering 101
Engineering 202
Engineering 204
Engineering 205
Engineering 284
Chemistry 103-104
Chemistry 261
Chemistry 262
Chemistry 317
Chemistry 318
Chemistry 396

Cognate

Math 161
Math 162
Math 261
Math 231
Physics 126
Physics 186
Physics 225

COURSES

101 Introduction to Engineering Design and Graphical Communication (4). F An introduction to the design process by means of lectures, computer work, and projects. Readings are assigned in design related areas of creative thinking and modeling. Readings, lectures, and discussions also examine the areas of technology in society, engineering ethics, engineering liability, and human factors in design. The student is introduced to computer software tools for engineering design. This includes CAD and spreadsheet software. The drawing laboratory introduces graphical techniques for spatial analysis. This includes orthographic projection, free-hand sketching, pictorial representation, sections, basic dimensioning and tolerancing. *Staff.*

102 Engineering Communication, Analysis and Design (2). S. A continuation of 101 which covers graphical communication of technical data as well as fundamentals of engineering problem solving and modeling. The course makes use of spreadsheet and equation solver software. Engineering projects are assigned to further enhance cre-

ative skills in design. Prerequisites: 101 or 105 and at least concurrent registration in Mathematics 161. *Staff.*

103 Architectural Communication and Concept Design (4). F Graphical techniques for spatial analysis; a study of basic topics in architectural drawing to provide facility in the transmission of ideas through accepted graphical means. Areas covered include orthographic projection, free-hand sketching, pictorial representation (including perspective), sections and conventions, basic dimensioning, shade and shadows, and computer graphics. The student is introduced to the design process by means of lectures and assigned architectural projects. Readings are also assigned in design-related areas of creative thinking, aesthetics, economics, and human satisfaction. *Staff.*

105 Introduction to Engineering Design (2). F An introduction to the design process by means of lectures, computer work, and projects. Readings are assigned in design related areas of creative thinking and modeling. Readings, lectures, and discussions also examine the areas of technology in society, engineering ethics, engineering liability, and human factors in design. The student is introduced to computer software tools for engineering design. This includes CAD and spreadsheet software. Students who transfer college level engineering drawing credit may elect to take 105 instead of 101. *Staff.*

202 Statics and Dynamics (4). S. A study of fundamental principles of mechanics and their application to the problems of engineering. Vector algebra, forces, moments, couples, friction, virtual work, kinematics of a particle, kinematics of a rigid body, dynamics of particles and rigid bodies, impulse, momentum, work and energy are presented in two and three dimensions. Prerequisites: Physics 126, 186, and concurrent registration in Mathematics 261. *Mr. N. Nielsen.*

204 Circuit Analysis and Electronics (4). S. An introduction to the theory and application of electronic circuits and devices. The following topics are covered: basic linear circuits (including frequency and transient response), semiconductor devices (diodes, SCRs, op-amps, voltage regulators, compar-

tors, and timers), electric power, and machines. Prerequisites: Physics 225, Mathematics 261, and concurrent registration in Mathematics 231. *Staff.*

205 Principles of Materials Science (3). F. An introductory course in the science of engineering materials. Engineering properties are correlated with internal structures at the atomic, micro, macro, and service environment levels. Mechanical, electrical, and chemical properties are considered in the context of appropriate materials selection for design. Issues of stardship of materials resources and recyclability are also addressed. Prerequisite: Chemistry 103. *Staff.*

206 Chemical Engineering Principles (3). S. Elementary principles of Chemical Engineering with emphasis on material and energy balances and the concept of process. Introduction to process simulation software and its use for material and energy balances. Lectures and computation/computer lab. Prerequisites: Math 231, Chemistry 104. *Mr. W. Wentzheim.*

220 Introduction to Computer Architecture (4) F. A study of computer organization (including memory hierarchy, I/O, bus-based systems, distributed systems, parallel systems) and computer architecture (including CPU control, pipelining, instruction set architecture). Laboratory exercises emphasize principles. Prerequisites: A programming language course, normally Computer Science 185, 150, or 155; or permission of the instructor. *Mr. S. Vander Leest.*

284 Circuit Analysis and Electronics Laboratory (1). S. Laboratory course which uses lecture and laboratory exercises to illustrate the material covered in 204. Measurements of voltage, current, resistance, power, transient response, resonant circuits, voltage regulators, and timer circuits will be made. Operational amplifiers and their applications, digital logic circuits, and ac and dc machines will be examined. Prerequisites: Previous or concurrent registration in 204. *Staff.*

Prerequisite to all courses numbered 300 or higher is formal admission to the department.

302 Engineering Electromagnetics (4). S. A study of the laws and engineering appli-

cations of electric and magnetic fields in various conductive, dielectric, and magnetic materials and under various boundary conditions. Emphasis is on the analysis and design aspects of transmission line circuits. Prerequisites: Mathematics 261, 231, and Physics 225. *Mr. B. Post.*

304 Fundamentals of Digital Systems (4). S. An introduction to the fundamental principles of logic design in digital systems. Topics include: Boolean algebra, analysis and synthesis of combinational and sequential networks, register transfer language, micro-operational description and applications to computer design, computer organization and assembly language programming, and asynchronous logic. The student is introduced to digital logic families (including TTL, CMOS, and ECL logic) and programmable logic devices. Logic synthesis, including VHDL. Laboratory work will include logic design and assembly language programming. Prerequisites: 204, 284, and a programming language course (normally CPSC 155). *Mr. R. Brouwer.*

305 Mechanics of Materials (4). F. Application of principles of mechanics to the solution of problems in stress and strain of engineering materials, including resistance to force, bending, torque, shear, eccentric load, deflection of beams, buckling of columns, compounding of simple stresses, introduction to theory of failure and energy methods. Laboratory experiments are used to emphasize principles. Prerequisite: 202. *Mr. R. Hoeksema.*

306 Principles of Environmental Engineering (4). S. Decision-making in the selection of environmental control measures and equipment. The emphasis is on water supply and wastewater system design. Topics include the following: water treatment systems, water quality management, wastewater treatment, solid waste management, and hazardous waste disposal. Prerequisite: junior or senior standing in the Engineering Department or approval of the instructor. *Staff.*

307 Advanced Network Analysis (4). F. Advanced techniques for the analysis of analog electrical networks. Topics include: sinusoidal steady-state power calculations

(including 3-phase), mutual inductance and transformers, resonance, s-domain analysis, Laplace transforms, Fourier series and Fourier transforms. Frequency response is analyzed using transfer functions, Bode plots, and pole / zero plots. Prerequisites: 204 and Mathematics 231. *Mr. R. Brouwer.*

311 Electronic Devices and Circuits (4). F. A study of the characteristics and qualitative internal action of commonly used micro-electronic devices for discrete and integrated circuits, such as diodes, junction field-effect transistors (JFETs), metal-oxide semiconductors FETs (MOSFETs), and bipolar junction transistors (BJTs). Application of these devices in basic amplifier circuits is explored. Laboratory exercises are used to illustrate concepts. Prerequisite: 204. *Mr. B. Post.*

312 Chemical Engineering Thermodynamics (4). S. Thermodynamic topics important in Chemical Engineering are addressed: the properties of real fluids and equations of state, properties of mixtures, phase equilibrium and chemical equilibrium. Prerequisites: 206, 319, and Chemistry 317. *Staff.*

314 Vibration Analysis (4). S. Analysis of mechanical vibration in both transient and steady state regimes, employing analytical and computer techniques for solution. Linear and non-linear problems are investigated with original inquiry suggested and encouraged. Prerequisites: 202, Mathematics 231 and Physics 126,186. *Mr. R. De Jong.*

315 Control Systems (4). F. An introduction to linear feedback control theory, including transient and frequency response; stability; systems performance; control modes and compensation methods. Hydraulic, electrical, pneumatic, and inertial components and systems are investigated and employed. Prerequisite: 204 and Mathematics 231. *Mr. B. Post.*

318 Soil Mechanics and Foundation Design (4). S. Soils studied as engineering materials whose behavior is dependent upon soil types, index properties, and soil moisture conditions. The scope of the course includes soil structures, index properties, soil identification, permeability, compressibility and consolidation, soil testing, static and dynamic pressures, effective pressures, and

foundation design. Laboratory experiments are used to emphasize principles. Prerequisite: 305. *Mr. R. Hoeksema.*

319 Introduction to the Thermal/Fluid Sciences (4). F An introduction to the Engineering thermal and fluid sciences including elements of thermodynamics, fluid mechanics, and heat transfer. Concepts include the properties of fluids, first and second laws of thermodynamics; external and internal viscous and ideal flows; and conduction, convection, and radiation heat transfer. Laboratory exercises are used to illustrate concepts. Prerequisites: 202 and Mathematics 231. *Mr. W. Wentzheimer.*

320 Hydraulic Engineering (4). S. Application of the basic principles of fluid mechanics to practical problems in hydraulic and hydrologic analysis. Topics include fluid statics, hydrology, groundwater flow, open channel flow, closed conduit flow, and Centrifugal Pumps. Computer techniques and laboratory exercises are used to emphasize principles. Prerequisite: 319. *Mr. R. Hoeksema.*

321 Hydraulic Engineering Design (4). F. Application of principles of hydraulics and hydrology to the design of hydraulic systems and structures. Problems considered in this course will include design of pipe networks for water distribution, design of sewage collection systems, design of pumping facilities, design of groundwater remediation systems, design of flood control structures, and design of dams and reservoirs. Computer techniques will be frequently employed. Prerequisite: 320. *Mr. R. Hoeksema.*

322 Machine Design (4). S. Application of engineering mechanics, materials, and failure theories to the analysis and design of mechanical elements and systems. Computer techniques are used as aids to analysis and design. Prerequisite: 305. *Mr. L. Van Poolen.*

324 Materials and Processes in Manufacturing (4). S. This course introduces students to the various mechanical and management issues involved in the fabrication of manufactured goods. Scientific and engineering principles are applied to fabricating processes such as casting, forming, and machining so as to determine the relation of process to material properties, economics,

dimensional accuracy, and energy requirements. Topics such as computer-aided manufacturing (CAM), numerical control (NC), statistical quality control (SQC), and quality management are also explored. Field trips and laboratories are used to support the lecture material. Prerequisites: 205 and 305. *Ms. G. Ermer.*

325 Digital Circuits and Systems Design (4). F. Design of advanced digital systems using programmable logic, ASICs, and microprocessors. Microprocessor architecture including pipelining, memory hierarchy, cache, instruction set architecture, CPU control, bus standards, I/O, superscalar and VLIW approaches. Interfacing and communication techniques including data error detection and correction codes. Introduction to parallel processing. Laboratory exercises emphasize the design of digital systems. Prerequisites: 304. *Mr. S. Vander Leest.*

326 Structural Analysis (4). S. A study of beams, two-dimensional trusses, and rigid frames. Course work includes calculation of shear forces and bending moments due to fixed and moving loads, calculation of deflection, analysis of moving loads using influence lines, and the analysis of statically indeterminate structures. The course also includes an introduction to matrix methods in structural analysis. Prerequisite: 305. *Mr. A. Blystra.*

327 Structural Design (4). F. Application of principles of mechanics of solids and structural analysis to the design of structural members made of steel or reinforced concrete. Allowable stress and ultimate strength design procedures are studied along with the AISC specification for the design, fabrication, and erection of structural steel for buildings and the ACI building code requirements for reinforced concrete. Computer techniques are used as aids to analysis and design. Prerequisite: 326. *Mr. A. Blystra.*

328 Intermediate Thermal/Fluid Sciences and Design (4). S. An intermediate treatment of heat transfer and thermodynamics including analysis and design related to steady and unsteady conduction with an emphasis on two and three dimensions, free and forced convection, radiation modes of heat transfer, power and refrigeration cycles, air conditioning processes, chemical equilibrium, combus-

tion, and compressible flow of fluids. Laboratory, design, and computer exercises are utilized to emphasize principles. Prerequisite: 319. *Mr. L. Van Poolen.*

330 Unit Operations I (3). S. Applications of fluid flow and heat transfer fundamentals to Chemical Engineering problems including heat exchanger design and designs for the transportation and metering of fluids. Mass transfer fundamentals are presented. Prerequisites: 206 and 319. *Staff.*

331 Kinetics/Reactor Design (3). F. An introduction to chemical kinetics and reactor design. Principles of kinetics of homogeneous and heterogeneous reactions with differential and integral analysis of kinetic data are included. Ideal reactor design concepts, non-isothermal reactor design, and design of catalyzed fluid-solid reactors are presented. Prerequisites: 312, 330, and Chemistry 317. *Staff.*

332 Analog Circuits and Systems Design (4). S. Feedback principles and electronic circuit theory and device theory applied to multistage transistor amplifiers. Detailed study of operational amplifier specs, nonidealities, and compensation. Introduction to filter theory and practical realizations. Power supply design: rectifier circuits, linear and switching regulators. Nonlinear circuits: comparators, multipliers, Schmitt trigger, S/H circuits, multivibrators and oscillators. Introduction to noise analysis and low noise design. Emphasis on realization of designs using commercially available ICs. Design experience emphasized in projects and the laboratory. Prerequisites: 307 and 311. *Mr. S. Vander Leest.*

333 Thermal Systems Design (4). F. Advanced heat transfer, thermodynamic, and fluid flow topics important for the design of thermal systems are presented. Availability (exergy) analysis and methods for the optimization of system components are given. Selection and design of fluid flow and heat transfer equipment used in energy conversion systems is emphasized. Economic evaluation is studied. A co-generation system is studied throughout the semester to emphasize basic principles of analysis and design. A project is required. Prerequisite: 316. *Mr. L. Van Poolen.*

334 Dynamics of Machinery (3). S. This course investigates various dynamic aspects of machinery. An in-depth study is made of mechanisms such as the four-bar linkage. Cams and gears are studied in the context of their use in machines. Vibration concerns are addressed including methods of balancing rotating machinery. Kinematics and kinetics are studied in a three-dimensional space with an emphasis on application in the area of robotics. Computer simulation of mechanisms is used to reinforce basic concepts. Prerequisite: 202. *Ms. G. Ermer.*

335 Unit Operations II (3). F. Mass transport fundamentals (presented in Unit Operations I) are applied to Chemical Engineering design problems. Principles of equilibrium and non-equilibrium mass transport operations are applied to distillation, gas absorption, extraction, and humidification design. Prerequisite: 330. *Staff.*

337 Chemical Engineering Laboratory (1). F. Principles of fluid flow, heat transfer, mass transfer, stage operations, and chemical kinetics are studied using small-scale equipment. Evaluation and analysis of experimental observations, project proposals, and report writing is emphasized. Prerequisites: 335, Chemistry 317, and concurrent registration in 331. *Staff.*

339 Senior Design Project (2). F. The first course in the senior design project sequence. Introduction to various computer-related design tools including spread sheet analysis, linear and non-linear optimization, and computer-aided graphics and design. Emphasis is on design team formation, project identification, and completion of a feasibility study submitted in written/graphical report form. Prerequisite: CAS 100 and concurrent registration in the seventh semester of the model program of a particular concentration or permission of the instructor. *Staff.*

340 Senior Design Project (4). S. A study of topics related to the practice of engineering design as well as the completion of a major design project initiated in 339. Topics are the engineering enterprise, the design process, socio-economic evaluation of projects, the role of values in design, communication of the design. The focus of the

course is the design prototype form where appropriate. Prerequisite: 339. *Staff*.

382 Engineering Instrumentation Laboratory (1). S. Laboratory course which serves as an introduction to the characteristics and uses of transducers to measure displacement, strain, pressure, temperature, velocity, acceleration, and other physical quantities. Emphasis is on the usefulness, accuracy, and reliability of measurement systems in actual applications. Electronic signal conditioning and digital data acquisition techniques are covered. Laboratory notebook and written reports required. Prerequisites: 204 and 284. *Staff*.

294 / 394 Engineering Seminar. (0). F and S. A seminar devoted to an exploration of topics in engineering. Seminars will cover areas such as the practice of engineering design, non-technical issues in engineering practice, engineering graduate studies, and aspects of engineering analysis. Students will receive transcript recognition for 294 if they attend eight (8) seminars prior to their admission to the engineering program at Calvin. Engineering students will receive transcript recognition for 394 if they attend eight (8) seminars after being admitted to third year status in Calvin's engineering program. Plant tours and technical society meetings may be substituted for seminars upon approval. 294 is not a prerequisite for 394.

385 Engineering Internship (0). Students who do an Engineering Internship during the summer between their junior and senior years as part of the department's internship program may receive transcript recognition for their effort. These internships, consisting of Engineering work at an appropriate level, should be for a minimum of nine, full-

time, consecutive weeks. Students must present a ten minute synopsis of their internship work in a seminar during their senior year. They must also provide a brief written report of their activities under the signature of their supervisor. This report and copies of slides used during the required seminar should be submitted to the department chair for approval in their senior year. Other procedures and activities may be given internship credit. Application must be made to the department chair for these exceptional cases. Transcript recognition will only be given once.

390 Independent Study. F, I, S. Independent readings and research. Prerequisite: permission of the chair. *Staff*.

JANUARY 1999 INTERIM

A catalog with the descriptions of all interim courses is available after October 1998.

W50 Engineering and Plastics (3) *L. Van Poolen.*

W51 Scheduling and Project Management (3) *A. Blystra.*

W52 Digital System and Design with VHDL (3) *R. Brouwer.*

W53 Finite-Element Analysis (3) *R. De Jong.*

IDIS W14 Business and Engineering for the International Market (3) *N. Nielsen, E. Van Der Heide.*

IDIS W15 Dutch Landscapes: Society, Technology, and Environment (3) *H. Aay, R. Hoeksema.*

IDIS W55 Science Fiction and Technology (3) *R. Keeley, D. Rienstra, S. Vander Leest.*

English

Professors R. Anker, L. Basney, W. D. Brown, E. Ericson, D. Hettinga, G. Schmidt,**

J.H. Timmerman, W. VandeKopple, M.A. Walters, D. Ward (chair)

Associate Professors S. Felch, J. Netland, J. VandenBosch

Assistant Professors J. Holberg, D. Rienstra, K. Saupe, E. VanderLei

Instructors D. Hoolsema, C. Pollard

The department offers a major and minor in English, majors and minors in secondary and elementary English education, a minor in linguistics, and interdisciplinary minors in linguistics and in journalism. A student may alter any of the recommended programs with the permission of an academic advisor. All professors in the department advise for the general major and minor. The advisors for the secondary-education programs are Mr. Dale Brown, Ms. Karen Saupe, Mr. William VandeKopple, and Mr. James VandenBosch. The advisors for the elementary-education programs are Mr. Donald Hettinga and Mr. Gary Schmidt. The advisor for the linguistics minor is Mr. William VandeKopple. The advisor for the journalism minor is Mr. Donald Hettinga.

ENGLISH MAJOR

English 210 or 211

English 215, 302, 304, 305, or 307 [Either English 215 or 216, but not both, may be taken to satisfy these two line requirements.]

English 216, 308, 309, 314, or 321

English 334, 337, 339, or 370

English 345, 346, 347, or 350

English 217 or 310

[Either English 217 or 218, but not both, may be taken to satisfy these two line requirements.]

English 218, 311, 312, or 315

English 395

Four English electives

The four English electives include any English Department course with the exception of 101, 201, 356, 357, and 359. Only one interim course may count towards the major.

ENGLISH MINOR

English 210 or 211

English 215, 216, 302, 304, 305, 307, 308, 309, 314, or 321

English 217, 218, 310, 311, 312, or 315

English 334, 337, 339, 345, 346, 347, 350, or 370

Three English electives

The three English electives include any English Department course with the exception of English 101, 201, 356, 357, and 359. Of the seven courses in the minor, at least two must

be 300-level courses in language or literature. Only one interim course may count toward the minor.

INTERDISCIPLINARY MINOR IN LINGUISTICS

English 334

English 337

CAS 140

CAS 210

Three electives chosen in consultation with the program advisor.

SECONDARY EDUCATION MAJOR IN ENGLISH

English 215

English 216

English 346

English 217

English 218

English 326

English 334 or 337

English 283, 312, 320, 321, or 322

English 357

English 210 or 211

English 339

Cognate

CAS 230

Ideally, students should take English 357 in the semester immediately preceding their student-teaching semester. Students must complete 357 successfully before they may student teach. For their student-teaching semester, students must register for both Education 346 (Directed

Teaching) and English 359 (Seminar in Principles of and Practices in Secondary English Teaching). Before being considered for a student-teaching placement, however, students must pass all five sections of the English Department Screening Exam. This test is given in April, September, and October. Additional criteria for approval are found in the Teacher Education Program Guidebook available in the Education Department.

SECONDARY EDUCATION MINOR IN ENGLISH

English 215 or 216
 English 346
 English 217 or 218
 English 334, 337, or 339
 English 283, 312, 320, 321, or 322
 English 357
 English 210 or 211

ELEMENTARY EDUCATION MAJOR IN ENGLISH

English 210 or 211
 English 215, 216, or 346
 English 217 or 218
 English 326 or 328
 English 325
 English 334, 337, or 339
 English 283, 312, 320, 321, or 322
 English 356
 One English elective

Cognate

CAS 230

ELEMENTARY EDUCATION MINOR IN ENGLISH

English 210 or 211
 English 215, 216, or 346
 English 217 or 218
 English 325 or 326
 English 283, 312, 320, 321, or 322
 English 356
 One English elective

ELEMENTARY EDUCATION LANGUAGE ARTS GROUP MAJOR

English 210 or 211
 English 215, 216, or 346
 English 217 or 218
 English 283, 312, 320, 321, or 322
 English 325
 English 326 or 328

English 356
 CAS 203 or 215
 CAS 214
 CAS 230
 Two English or CAS electives

Cognate

Education 322
 Education 326
 Education 327

ELEMENTARY EDUCATION LANGUAGE ARTS GROUP MINOR

English 210 or 211
 English 215, 216, or 346
 English 217 or 218
 English 325 or 326
 English 356
 CAS 203 or 215
 CAS 214
 One English or CAS elective

Cognate

Education 322
 Education 326
 Education 327

INTERDISCIPLINARY MINOR IN JOURNALISM

CAS 230
 English 245
 English 265
 Three electives chosen in consultation with the program advisor.
 English 380 or CAS 346

A minimum grade of C (2.0) in English 101 is required both for graduation and as a prerequisite to any concentration in the English Department. Normally, English 101 is the first course taken in the department. The core requirement in written rhetoric is met by 101 or by examination. In general, any first-year student fulfilling the first literature core requirement should choose a course on the 200 level; the first literature core requirement is typically met by English 205, 210, 211, 215, 216, 217, or 218. Any literature course (as distinguished from language, composition, and film) offered during the regular semester may fulfill additional core requirements in the fine arts.

COURSES

- 101 **Written Rhetoric** (4). F and S, core. A study of written rhetoric in English, including a review of grammar, extensive practice in writing expository essays, a research component, and a required lab. *Staff.*
- 201 **Intermediate Composition** (3). S. A second course in rhetoric and composition, designed for students who wish additional study of academic writing practices. Includes reading, a consideration of the principles of written rhetoric, and extensive practice in writing short papers in a variety of academic traditions. *Ms. E. VanderLei.*
- 205 **Understanding Literature** (3). F and S, core. A study of selected literary works with an emphasis on foundational questions of literary study: What is literature? Why should it be read? What alternative ways of reading and communication are at work in the culture? Is there a Christian approach to reading a text? *Staff.*
- 210 **World Literature I** (3). F and S, core. A course of selected readings and lectures in the literature of the world from the ancient world through the Renaissance, with emphasis on the Western tradition. Additional attention will be given to the literatures of non-Western cultures, such as those of Asia, Latin American, and Africa. *Staff.*
- 211 **World Literature II** (3). F and S, core. A course of selected readings and lectures in the literature of the world from the Renaissance to the present, with emphasis on the Western tradition. Additional attention will be given to the literatures of non-Western cultures, such as those of Asia, Latin America, and Africa. *Staff.*
- 215 **Survey of British Literature I** (3). F and S, core. A survey of major works of British literature from its beginnings to the late eighteenth century. *Mr. E. Ericson, Ms. K. Saupe, Ms. D. Rienstra, Mr. J. Vanden Bosch.*
- 216 **Survey of British Literature II** (3). F and S, core. A survey of major works of British literature from the late eighteenth century into the twentieth century. *Mr. E. Ericson, Mr. D. Hoolsema, Mr. J. Netland, Mr. J. Vanden Bosch, Mr. C. Pollard.*
- 217 **Survey of American Literature I** (3). F and S, core. A chronological study of representative works of the American literary landscape with special attention to various movements from colonial literature through Realism. *Mr. R. Anker, Mr. W.D. Brown, Mr. J. Timmerman.*
- 218 **Survey of American Literature II** (3). F and S, core. A chronological survey of representative works of the American literary landscape with special attention to various movements from Naturalism to Modernism. *Mr. R. Anker, Mr. W.D. Brown, Mr. J. Timmerman.*
- 245 **Basic Journalism** (3). F. A study of the principles and techniques of journalism — especially newspaper journalism — specifically, the definition of news and the varying policies governing the selection and presentation of local, national, and international stories. Against the background of a critical appraisal of current practices, students write, edit, and evaluate news reports and feature stories. *Mr. D. Hettinga.*
- 248 **Writing for the Media** (3). F. An introduction to the content, styles, and formats of media scripts. The course emphasizes the differences in media writing compared with more familiar forms of writing, the role of the script as text in producing media programs, the styles of writing used (journalistic, dramatic, polemical, emotive), and the technical requirements for scripts used to focus the work of directors, actors, camera and sound technicians, editors, and mixers in creating a media product. Prerequisite: English 101. Cross-listed with CAS 248.
- 251 **Introduction to Cinema** (3). F. A study of the development and structure of cinema as an art form and as a cultural medium. The course aims to develop the students' understanding of cinematic language and to guide them in assessing films and film values. Course work includes readings in film history and criticism as well as the viewing and analysis of movies. Cross-listed with CAS 251. *Mr. R. Anker.*
- 262 **Business Writing** (3). Interim. A course introducing students to the kinds of writing and computer presentations that are required in business-related fields. Students collect examples of and practice composing the

types of professional communication that they are likely to craft on the job. The class is conducted as a workshop; students consult with each other and with the instructor. Each student submits several projects. The class also includes a group report (with written, multi-media, and oral portions), in-class writing and computer exercises, and the use of word-processing and presentation software. Prerequisite: Completion of English 101 with a grade of C+ or above. Ms. E. VanderLei, Mr. D. Ward.

265 Feature Journalism (3). S. A course in the art of writing feature stories. The course pays particular attention to the process by which specialized information from various fields—government, science, engineering, medicine, law, religion, and business—is prepared for public comprehension. English 245 is recommended but not required as a prerequisite. Mr. C. Meehan, Mr. D. Hettinga.

280 Modern Canadian Literature (3). S. A study of selected works, principally twentieth-century fiction from English Canada, with some attention to major poets and French-Canadian writers in translation. Emphasis is placed on the social and historical context of Canadian literature. Mr. C. Pollard. Not offered 1998–99.

283 African-American Literature (3). S. A chronological survey of major writers and works of African-American literature. Readings will include fiction, poetry, and drama, with special attention paid to historic and cultural contexts. Mr. D. Ward.

285 Russian Literature (3). F. A study of major Russian writers of the nineteenth and twentieth centuries. Authors to be read include, but are not limited to, Gogol, Turgenev, Dostoevsky, Tolstoy, Bulgakov, Akhmatova, and Solzhenitsyn. Special attention will be paid to spiritual and moral issues, which are of central importance in the Russian literary tradition. Mr. E. Ericson. Not offered 1998–99.

290 Literature and Women (3). S. Readings will emphasize poems, stories, plays, essays, and literary criticism written by women; these readings will include both the established (e.g. Jane Austen, Emily Dickinson, Edith Wharton, Charlotte Bronte) and the recovered (e.g. Anne Lock,

Aphra Behn, Charlotte Smith, Zora Neale Hurston). In addition to focusing on the many contributions made by women to literary culture, this course will examine male and female representations of the feminine experience as well as the issue of gender and its implication for literature. Ms. J. Holberg.

295 Studies in Literature (3). F. A special topics course in various topics. Staff. Not offered 1998–99.

299 Honors Colloquium (1). S. A weekly seminar devoted to developing research skills and critical skills. Taken in conjunction with any approved 300-level literature or language course, the Honors Colloquium is required for those graduating with honors in English; the course should be taken in the sophomore year. Staff.

301 Advanced Composition (3)*. F. A course in advanced expository writing. Readings in the formal essay, together with writing in such types of composition as the formal and informal essay, the opinion editorial, the informative and feature article, and the book review. Open to students who have earned at least a B (3.0) in 100. Mr. L. Basney, Ms. E. VanderLei. Not offered 1998–99.

302 British Literature of the Middle Ages (3)*. F. A study of the literature of the Anglo-Saxon and Middle English periods. The course will analyze the literature by examining it in its cultural and historical contexts, with an emphasis on the epic, the romance, the lyric, the drama, and the histories. Ms. K. Saupe, Mr. G. Schmidt.

304 British Literature of the Sixteenth Century (3)*. F. A study of the poetry and of some prose of the sixteenth century and of the drama of the sixteenth and early seventeenth centuries. Ms. S. Felch. Not offered 1998–99.

305 British Literature of the Seventeenth Century (3)*. F. A study of poetry and prose in England from 1600 to 1660 with emphasis on the religious lyric, especially the poetry of Donne and Herbert. Mr. E. Ericson, Ms. S. Felch.

307 British Literature of the Eighteenth Century (3)*. S. A study of writing and its cultural contexts, with detailed attention to

the works of Dryden, Swift, Addison, Pope, Johnson, and Boswell. *Mr. L. Basney*

308 British Literature of the Early Nineteenth Century (3)* S. A study of the Romantic writers of England in both poetry and prose, with intensive study of Blake, Wordsworth, Coleridge, Byron, Shelley, and Keats. *Mr. D. Hoolsema, Mr. J. Netland.* Not offered 1998–99.

309 British Literature of the Middle and Later Nineteenth Century (3)* S. A study of the Victorian writers of England in both poetry and prose, including intensive study of Tennyson, the Brownings, and Arnold among the poets, and Arnold, Newman, Carlyle, Huxley, and Ruskin among the prose writers. *Mr. J. Netland.*

310 Literature of the United States I: Settlement to Civil War (3)* F A close examination of the fiction, poetry, and non-fiction prose of the United States prior to the Civil War. Special attention is given to major figures and cultural issues within the diverse literary landscape of America. Representative writers include Bradstreet, Hawthorne, Melville, Emerson, Thoreau, and Whitman. *Mr. R. Anker, Mr. W.D. Brown, Mr. J. Timmerman.*

311 Literature of the United States II: Civil War to the Great Depression (3)* S. A close examination of the fiction, poetry, and non-fiction prose of the United States from the Civil War to the Great Depression. Special attention is given to selected figures and cultural issues within the diverse literary landscape of America. Representative writers include Dickinson, Twain, Howells, James, Wharton, Cather, Fitzgerald, Robinson, Frost, and Eliot. *Mr. R. Anker, Mr. W.D. Brown, Mr. J. Timmerman.*

312 Literature of the United States III: World War II to Present (3)* S. A close examination of the fiction, poetry, and non-fiction prose of the United States from World War II to the present. Special attention is given to selected figures and cultural issues within the diverse literary landscape of America. Representative writers include Faulkner, O'Connor, Welty, Ellison, Roethke, Bellow, Baldwin, and Updike. *Mr. C. Pollard.*

314 The British Novel (3)* S. A study of the British novel from its origins through its proliferation of experimental forms in the early twentieth century. This course emphasizes the art and thought of the major novelists, the growth of major strains such as epic, romantic, realistic, and symbolic fiction, and the history of ideas that influenced the growth of novelistic fiction. *Mr. D. Ward.* Not offered 1998–99.

315 The American Novel (3)* F A chronological study of the major novels of the American literary tradition, with reference to the historical and cultural frame in which each work rests. *Mr. J. Timmerman.*

320 Modern British and American Poetry (3)* S. Intensive reading of selected works of major twentieth-century British and American poets. *Mr. J. Timmerman.*

321 British and Commonwealth Literature of the Twentieth Century (3)* F The readings include fiction, poetry, drama, and non-fiction prose of twentieth-century British literature. Special attention is given to the emergence of high Modernism in the 1920s and 1930s as well as its eventual permutation into Post-Modernism and to the effects of the two World Wars and the demise of the British Empire on the development of the literary tradition. Selected writers include James Joyce, Virginia Woolf, T.S. Eliot, W.B. Yeats, Dylan Thomas, George Orwell, Doris Lessing, Graham Greene, V.S. Naipaul, and Derek Walcott. *Mr. C. Pollard.*

322 Modern Drama (3)* F A study of major British, American, and Continental playwrights of the twentieth century. Playwrights to be read may include, but are not limited to, Ibsen, Chekhov, Shaw, Pirandello, Brecht, Williams, Miller, O'Neill, Beckett, Pinter, Shaffer, Fugard, and Norman. Emphasis is placed on the significant movements in modern drama and questions of gender-based criticism. *Ms. M. Walters.*

325 Children's Literature (3)* F and S. A study of children's literature, including intensive reading of the best of this literature and the application of literary standards to what is read. *Mr. D. Hettinga, Mr. G. Schmidt.*

326 Adolescent Literature (3)* F A study and critical evaluation of the nature and con-

tent of adolescent literature, including intensive reading, application of literary standards, and discussion of issues in the field of young adult literature: censorship, selection criteria, reader-response theories, ethnicity, and gender-based criticism. *Mr. D. Hettinga.*

328 Recent Literature for Children (3)* S. A survey and evaluation of children's and young adult literature, with emphasis on the more recent literature; consideration of criteria for selecting such literature in the classroom; examination of reference tools, recent and historical trends; issues and approaches to understanding children's and young adult literature; and study of several representative works. Prerequisite: English 325 or 326. *Mr. D. Hettinga, Mr. G. Schmidt.*

334 Linguistics (3)* F and S. A study of some of the more interesting and important characteristics of language, with particular attention given to the processes of language acquisition; to patterns and effects of linguistic change through time; to variations in language from region to region, social class to social class, and gender to gender; and to the assumptions informing the nomenclature, methodology, and scope of traditional, structural, transformational, generative-semantic, and text grammars. The course incidentally considers the relationship of these grammars to the study of reading, composition. *Mr. W. Vande Kopple, Mr. J. Vanden Bosch, Ms. E. VanderLei.*

337 History of the English Language (3)* F. An analysis of the changes that have occurred throughout the history of the English language, based on an intensive study of selected portions of the *Oxford English Dictionary* and passages from Chaucer, Shakespeare, and various English translations of the Bible. *Mr. J. Vanden Bosch.*

339 English Grammar (3)* Interim. A study of traditional grammar, focusing on its history, its system, its applications, its competitors, and its place in the middle school and high school classroom; special emphasis will be given to the system and terminology of this grammar. *Mr. W. VandeKopple, Mr. J. Vanden Bosch.*

345 Chaucer (3)* S. A study of Chaucer's *Canterbury Tales* and selections from his

minor work which reflect his handling of the major cultural and religious events and issues of his time. Supplementary study of other works and literary movements related to the period are included. *Mr. G. Schmidt.* Not offered 1998-99.

346 Shakespeare (3)* F and S. A study of the major works of William Shakespeare. *Mr. L. Basney, Ms. S. Felch, Ms. K. Saupe, Ms. M.A. Walters.*

347 Milton (3)* S. A study of the poetry and prose of John Milton. *Mr. E. Ericson.*

350 Major Authors (3)* S. A course focusing on the major and minor works of a single author by examining that author's writings in their historical, cultural, and religious contexts; every other year, the department will select a major author to be studied. *Staff.* Not offered 1998-99.

355 The Writing of Poems, Stories, and Plays (3)* S. A course in the principles of the composition of poems, stories, and plays. Works by contemporary authors are analyzed in the light of these principles. Students will practice writing in all three forms. Prerequisite: a grade of B (3.0) in 101. *Mr. L. Basney.*

356 Language, Grammar, and Writing for the Elementary Classroom (3)* F. An introduction to several significant and practical aspects of the nature of language, a review of the nature of traditional grammar, including some comparisons of traditional grammar with more recently developed grammars, and an exploration of the relationships between these grammars and composition instruction and practice. *Mr. W. Vande Kopple*

357 Teaching of Writing (3)* F. A course in the principles, practice, and pedagogy of composition, especially as these apply to middle and high school writing programs. Extensive reading and frequent exercises in composition, revision, and evaluation. Majors in secondary education programs must take this course in the fall semester of their final year. *Mr. D. Ward.*

359 Seminar in Principles of and Practices in Secondary English Teaching (3). S. A course in perspectives on, principles of, and practices in the teaching of English on the

secondary level. This course should be taken concurrently with Education 346: Directed Teaching. Before taking English 359, students must pass the English Department Screening Exam and complete English 357 (formerly English 336), Education 301, and Education 303. Before taking English 359, students normally also complete Education 304, Education 307, and Education 308. *Mr. W. Vande Kopple.*

370 Literary Theory and Criticism (3). * F An introduction to contemporary theories and methodologies of literary criticism with investigations into their historical origins and development. The course includes illustrations of the various methods as well as some practical criticism. *Mr. L. Basney, Ms. S. Felch.*

380 Internship in Journalism and Publishing (3). S. A practicum permitting students to apply theoretical, technical, and ethical principles to specific journalistic activities. Students may be placed with the publishers of magazines or newspapers, publishing houses, or other businesses. Each student works ten hours per week under an agency supervisor and participates in seminars on campus. Prerequisites: junior or senior status, a 2.5 college g.p.a., an average grade of 2.5 or higher in advanced writing courses taken (English 245, 265, 301, 355), and permission of the English Department internship supervisor. *Mr. D. Hettinga.*

390 Independent Study (3). F, I, S. Prerequisite: permission of the department chair. *Staff.*

395 Senior Seminar (3). S. The capstone course in the English departmental major, designed to nurture Christian thinking about literature, literary study, language, and contemporary culture. *Staff.*

399 Honors Thesis (3). F and S. A substantial work of research and criticism in the field of language or literature; required for those graduating with English Departmental Honors. *Staff.*

Graduate Courses

510 Literature for the Adolescent (3). A survey and evaluation of adolescent literature, an examination of reference tools and approaches to the teaching of adolescent

literature, a consideration of criteria for selection, and a critical study of several representative works.

511 Studies in Analytical Approaches to the Teaching of Literature (3). An examination of the theoretical considerations underlying various approaches to teaching literature at the secondary level and application of critical approaches to selected literary works. The specific subject matter will be defined each time the course is offered.

531 Language and the Elementary Classroom (3). * A study of some aspects of traditional grammar and an introduction to the history of the English language, and an examination of current linguistic theory and concerns. Special emphasis is placed on the implications of this knowledge for classroom teaching.

537 Teaching of Writing in Elementary and Middle Schools (3). A course in the principles and practice of writing, including the study of techniques appropriate for teaching elementary and middle school students to write well.

580 Principles, Practices, and Programs in Secondary English Education (3). * An advanced methods course for those teachers working at the middle school or high school level, involving general principles, materials, and pedagogical practices with emphasis on current trends. Each student will make a special study of a given area of language, composition, or literature.

581 Methods and Materials in the Language Arts (3). * A study of programs and techniques of effective teaching of language arts in the elementary school and a review of current materials in relationship to improvement of instruction.

590 Independent Study.

JANUARY 1999 INTERIM

A catalog with the descriptions of all interim courses is available after October 1998.

W10 New England Saints (3) *J. Fondse, G. Schmidt.*

W11 Discovering Nineteenth-Century England (3) *J. Netland, D. Ward.*

W12 Theater in New York City (3) *K. Saupe, M. A. Walters.*

W13 Finding God in the Movies: Exploring Film and Religion (3) *R. Anker.*

W14 Modern Poems and Ordinary Readers (3) *L. Basney*

W15 Twentieth-Century Representations of War (3) *C. Pollard.*

W16 Religious Themes in the Short Story (3) *W.D. Brown.*

W17 Writing Books for Children (3) *D. Hettinga.*

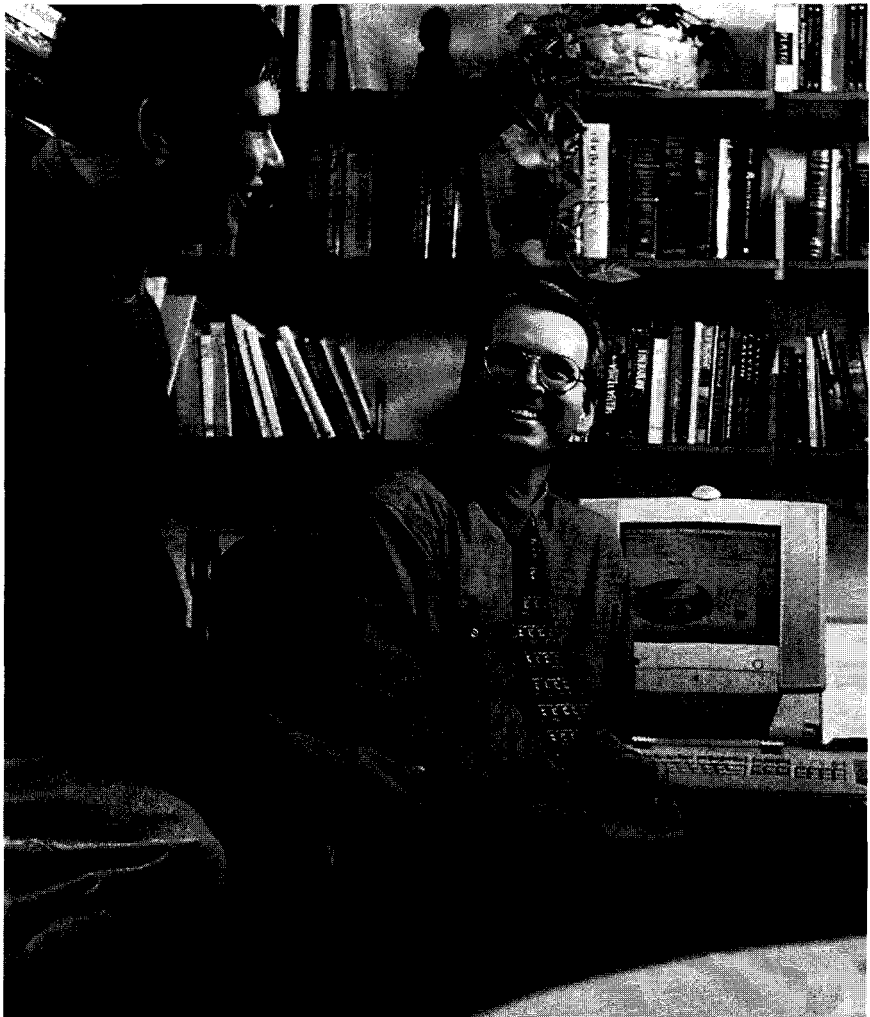
W50 Writing Short Fiction (3) *J. Timmerman*

W51 Solzhenitsyn and Havel (3) *E. Ericson.*

ENGL 262 Business Writing and Communications (3) *E. VanderLei.*

ENGL 339 English Grammar (3) *W. Vande Kopple, W. Vanden Bosch.*

IDIS W55 Science Fiction and Technology (3) *R. Keeley, D. Rienstra, S. Vander Leest.*



Environmental Science Environmental Studies

The College offers a major program of concentration in Environmental Science with an emphasis in either biology, chemistry, or geology and it offers a group minor in Environmental Studies. The Environmental Science major program of concentration is intended for students who plan to pursue a career requiring scientific training in environmental problems and their solutions. The major will prepare students for jobs in a variety of fields or will prepare them for further study in certain graduate programs such as ecology, environmental science, natural resource management, or environmental biology. Students interested in environmental issues but who wish to pursue graduate study in chemistry or geology are encouraged to complete a disciplinary major and the environmental studies minor.

Students who major in environmental science must choose one of three emphases. Those interested in careers in environmental biology should complete the biology emphasis; those interested in careers in environmental chemistry should follow the chemistry emphasis; and those interested in careers in environmental geology should follow the geology emphasis.

The Environmental Studies group minor program of concentration is intended for students who are following a disciplinary major and who also have an interest in studying a broad range of environmental problems and issues at the local, national and global levels. Because the study of such issues is truly interdisciplinary in scope, the environmental studies minor is appropriate for students majoring in the humanities, the social sciences or the natural sciences. While disciplinary majors with environmental interest are encouraged to complete the entire group minor, the Environmental Studies courses also may be taken singly as electives to enrich a program of study.

The advisor for students who choose the biology emphasis is Mr. R. Van Dragt; the advisor for students who choose the chemistry emphasis is Mr. K. Piers; and the advisor for students who choose the geology emphasis is Mr. R. Stearley. The advisor for the Environmental Studies group minor program is Mr. Henk Aay.

ENVIRONMENTAL SCIENCE MAJOR— BIOLOGY EMPHASIS

Biology 141
Biology 242
Biology 243
Biology 345
Two of Biology 336, 341, 344, 346, or approved 300-level courses
Chemistry 103
Chemistry 104
Chemistry 253 or 261
Chemistry 271-281
Geology 151
Geology 311
Geology 312

ENVIRONMENTAL SCIENCE MAJOR— CHEMISTRY EMPHASIS

Chemistry 103
Chemistry 104

Chemistry 201
Chemistry 253 or 261-281
Chemistry 271
One of Chemistry 262, 304, or 323
Biology 141
Biology 242
Biology 243
Biology 345
Geology 151
Geology 311
Geology 312

ENVIRONMENTAL SCIENCE MAJOR— GEOLOGY EMPHASIS

Geology 151
Geology 152
Geology 201
Geology 311
Geology 312
Biology 141

Biology 242
 Biology 243
 Biology 345
 Chemistry 103
 Chemistry 104
 Chemistry 253 or 261
 Chemistry 271-281

**Environmental Science Cognates
 (all emphases)**

Math 143-132 or Math 161-162 and 243
 Environmental Studies 201
 Environmental Studies 302
 Environmental Studies 395

**GROUP MINOR IN ENVIRONMENTAL
 STUDIES**

Environmental Studies 201
 Environmental Studies 302
 Environmental Studies 395
 Two electives from Biology 114, 116, 345, 352; Chemistry 101, 271-281; Environmental Studies 385; Economics 332; Engineering 306; Geography 100, 110, 220, 250, 251, 320, 351; Geology 103, 151, 311, 312 or an approved interim course.

One additional course approved by the program advisor.

In order to be admitted as a major in the Environmental Science program, a student must have completed three college-level science courses with a minimum grade of C (2.0) in each course and be approved by the committee which oversees the Environmental Science program.

COURSES

201 **Human Activities and Natural Environments** (3). * F An examination of the complex system of relationships between human activities and natural environments. The ecology of natural systems will be studied by examining the relationships among their dynamic components. Upon this framework, activities by which societies — past and present — have used, affected, and transformed their natural settings are examined. Not open to first-year students. (Also listed as Geography 201) *Mr. H. Aay.*

302 **Environment and Society: Issues and Policies** (3). * S. The interactions among population, resources, technology, econom-

ics, and public policy are studied in order to understand and address the environmental issues and problems of our day. Attention is focused upon energy, material, and food resource issues as well as upon population and resource relationships. Political, economic, and technological policies plus individual lifestyles are considered as part of responsible earthkeeping. Not open to first-year students. Prerequisite: 201 or permission of instructor. *Ms. J. Curry-Roper.*

385 **Internship in Environmental Studies** (3). * F or S. This course is an internship involving field application of the concepts and principles learned as part of the environmental studies supplementary concentration or the environmental science group concentration. A student is placed in a position in a governmental agency, a not-for-profit organization, or a corporate firm which builds on previous instruction in the student's program of concentration in an area related to environmental matters. Students are assigned a specific project and work under the direct supervision of an employee of the governmental, non-profit, or business entity, as well as under the supervision of the instructor. Prerequisites: 201, 302, and permission of the instructor. *Mr. H. Aay.*

395 **Seminar in Environmental Studies** (3). * S. This course aims to develop a Christian philosophy of the environment and environmental management. Problems, controversies, developments, issues, and research in environmental affairs are examined. These topics are studied through readings, student reports, and guest lecturers. Prerequisites: Environmental Studies 201 and 302 or permission of the instructor. *Ms. J. Curry-Roper.*

JANUARY 1999 INTERIM

A catalog with the descriptions of all interim courses is available after October 1998

W10 **Dutch Landscapes: Society, Technology and Environment.** *Mr. H. Aay, Mr. R. Hoeksema.*

IDIS W20 **Can We Save the Planet? A Focus on Climate Change.** *Mr. J. Clark, Mr. M. Muyskens.*

IDIS W54 **The Dynamic Environment** (3). *Mr. R. DeKock.*

French

Associate Professors G. Fetzer (chair), O. Selles

Assistant Professors I. Konyndyk, L. Mathews

Instructor J. Vos-Camy

The department offers courses of study for students interested in continuing work on the graduate level, for those interested in careers in which foreign language plays a key role, and for those interested in teaching French at the secondary or elementary school levels. Programs in the department include major or minor concentrations in French and major and minor concentrations in secondary and elementary education. Approved courses from study programs abroad may be applied to the program of concentration. Major and minor students are encouraged to consult the French Department Handbook, available from the departmental office. All students wishing to be recommended by the department for a study-abroad program must sit for a language proficiency test.

FRENCH MAJOR: 32 semester hours

French 215

French 216

French 217

Two from French 219, 220, or 221

Three from French 295, 311, 312, 313, 314, 315, 371, or an Interim abroad.

Seven semester hours of electives, excluding 356 and 359.

FRENCH SECONDARY/ELEMENTARY EDUCATION MAJOR: 31 semester hours

French 215

French 216

French 217

French 315

Two from French 219, 220, or 221

One from French 295, 311, 312, 313, 314, 371, or an Interim Abroad

Nine semester hours of electives

FRENCH MINOR (REGULAR AND EDUCATION): 23 semester hours

French 215

French 216

French 217

One from French 219, 220, or 221

Ten semester hours of electives, excluding 356 and 359.

In order to qualify for the elementary or secondary teaching internship in French, all major and minor students are expected to pass, prior to the teaching internship, a departmental oral proficiency exam and a written test in addition to the competency exam administered by the State of Michigan. A ranking of Inter-

mediate-High on the ACTFL Proficiency Scale constitutes the desired level of proficiency. Directed teaching in French is available only during the spring semester. Students interested in the teacher education options should consult the Teacher Education Program Guidebook, available from the Education Department. The advisor for this program is Mr. Glenn Fetzer.

To be eligible for a major concentration in general French studies, a student must have completed at least two courses in French with a minimum grade of C (2.0) and must have completed 101-102, 121, or the equivalent. To be admitted to the Teacher Education Program, a student must have a cumulative GPA of at least 2.5 in the courses required for the major and/or minor.

Completion of French 123 or 202 satisfies the college language requirement. The following courses meet core requirements in the fine arts: 217, 219, 220, 311, 313, and 371.

COURSES

101 Elementary French (4). F An introductory course in the comprehension and use of spoken and written French. *Staff.*

102 Elementary French (4). S. Continuation of 101. *Ms. J. Vos-Camy.*

121-122-123 Introductory and Intermediate French (4, 3, 4). F, I, S. A closely integrated and intensive sequence involving two semesters and the interim for students who have completed two years of high school French but who, on the basis of a placement

test, are not prepared for 201. The course is also open with the permission of the department to students in teacher education programs who have had no foreign language in high school. *Ms. L. Mathews, Staff.*

201 Intermediate French (4). F Further training in oral and written French, study of the structure of the language, and practice in speaking, listening, reading, and writing. *Mr. G. Fetzter, Staff.*

202 Intermediate French (4). F, S. Further training in spoken and written French, study of the structure of the language, and practice in listening, reading and writing. *Mr. G. Fetzter.*

215 Advanced Conversation (3). F This course is designed to develop advanced oral comprehension skills as well as continuing competence in spoken French through exercises, drills, conversation in class and in small groups. Prerequisite: 123, 202, or the equivalent. *Ms. J. Vos-Camy.*

216 Advanced Grammar and Composition (3). S. Systematic study of advanced grammar and composition. Prerequisite: 123, 202, or the equivalent. *Mr. O. Selles.*

315 Advanced Stylistics and Phonetics (3). F For teacher education candidates and for students who wish to increase fluency in oral and written French. Continued study of selected areas of the French language, such as grammar, pronunciation, vocabulary, stylistics, and the written dissertation. Prerequisite: 216, or the equivalent. *Ms. J. Vos-Camy.*

356 Foreign Language Education in the Elementary School (3). I. Theory and practice of foreign language teaching in the elementary school. Study of language skill development, second language acquisition, methodologies, curriculum and programs. Elective but required for K-12 endorsement. If elected, to be taken prior to Education 346 (Directed Teaching) and French 359 (Seminar in Teaching). *Ms. E. Greenway.*

359 Seminar in Principles and Practices in Secondary French Teaching (3). S. A course in perspectives on, principles of, and practices in the teaching of French on the secondary level. This course should be taken concurrently with Education 349: Directed

Teaching. Before taking this course, students must pass the French Department proficiency test and complete Education 301 and 303. *Ms. I. Konyndyk.*

Literature and Civilization

217 Introduction to French Literature (4). S. An overview of selected major writers, movements, and genres from the Middle Ages to the present. Conducted mainly in French. Prerequisites: 215 or 216. *Mr. G. Fetzter.*

219 Francophone Literature (3). F An introduction to representative writers and works of French expression from outside France, especially those of Africa, Canada, and the Caribbean. Conducted mainly in French. Prerequisites: 215 or 216. *Ms. J. Vos-Camy.*

220 French Culture and Society Through the Media Arts and Literature (3). A study of current and popular French culture and society as perceived and created through various forms of literature and media art. Conducted mainly in French. Prerequisite: 215 or 216. Not offered 1998–99.

221 French for the Professions (3). An introduction to the terminology and standard forms of oral and written communication used in selected professions in the francophone world, especially France. The course also considers the cultural and economic context of that communication. Conducted mainly in French. Prerequisites: 215 (202 with permission of instructor). Not offered 1998–99.

295 Special Topics in French (3). Not offered 1998–99.

311 French Drama (3).* A study of the evolution of the theater in France, from its inception to the present. Conducted in French. Not offered 1998–99.

312 French Prose I (3).* S. A study of major literary works of fiction and non-fiction from the Middle Ages through the French Revolution. Conducted in French. *Mr. O. Selles.*

313 French Poetry (3).* F A study of the history and nature of French poetry by means of extensive reading and examination

of major poets with special attention to the poets of the modern period. Conducted in French. *Mr. G. Fetzer.*

314 French Prose II (3).* A study of major literary works of fiction and non-fiction from the French Revolution to the present. Conducted in French. Not offered 1998–99.

371 Literary Doctrines and Problems (3).* A study of representative literary texts in light of selected critical approaches which reflect contemporary theories and perspectives on literary criticism, such as marxist, structuralist, reader-response, and post-structuralist. This course is conducted mainly in French. Not offered 1998–99.

390 Independent Study. *Staff.*

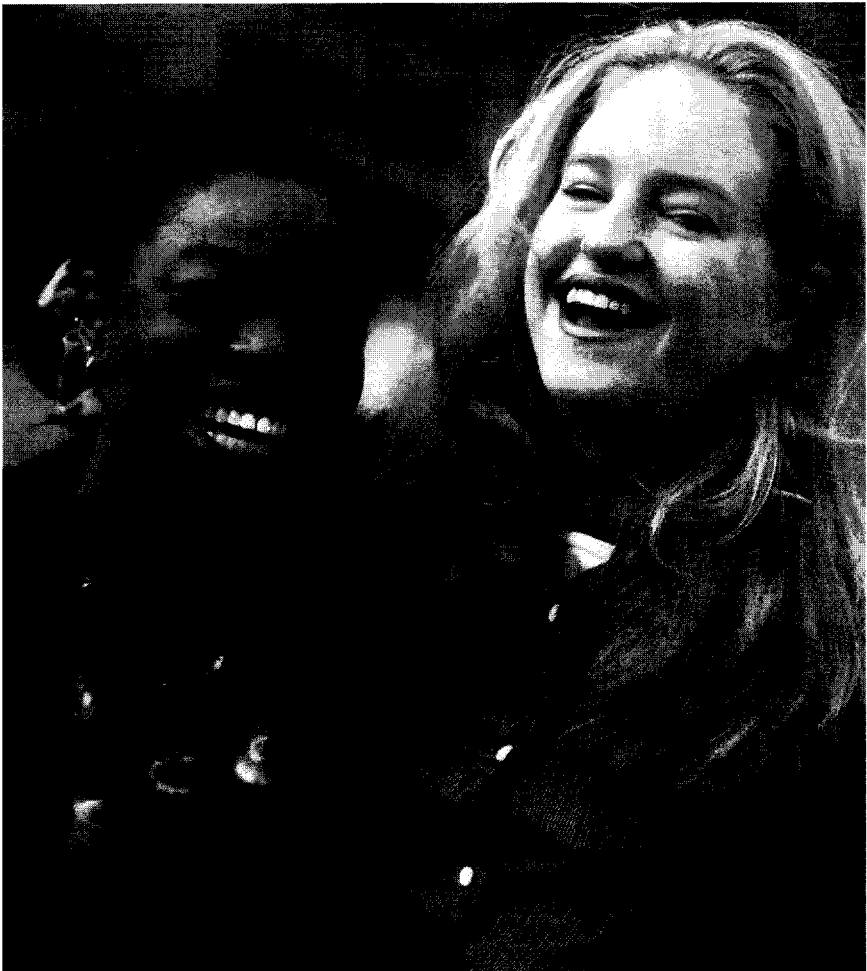
JANUARY 1999 INTERIM

A catalog with the descriptions of all interim courses is available after October 1997.

W50 Quebec: Language, Culture, Society (3) *G. Fetzer.*

FREN 122 Intermediate French (core) (3) *O. Selles, J. Vos-Camy.*

IDIS W50 From Paris to Barcelona: The Art and Architecture of France and Northern Spain (3) *H. Luttikhuisen, L. Mathews.*



Geology and Geography

Professors H. Aay (chair), J. Clark, J. Curry-Roper, R. Stearley†, D. Young
Assistant Professor S. Schimmrich

Programs in the department include major and minor concentrations in geology, a major and a minor in geography, a group minor in environmental studies, as well as majors and minors for teacher education programs. Group majors consisting of geology and chemistry, engineering, or physics are also available.

GEOLOGY MAJOR

Geology 151 or 103
Geology 152
Geology 201
Geology 202
Geology 212
Geology 385
Geology 386
Four Geology electives

Cognate

Chemistry 103

For those wishing to pursue a career or graduate study in geology the following courses are recommended:

Geology 151
Geology 152
Geology 201
Geology 202
Geology 212
Geology 301
Geology 302
Geology 311
Geology 313
Geology 385
Geology 386
Geology 395 or 396
Field camp

Cognate

Chemistry 103
Chemistry 104
Physics 123
Physics 124
Physics 181
Physics 182
Mathematics 161
Mathematics 162

GEOLOGY MINOR

Geology 151 or 103
Geology 152
Geology 201

Geology 212
Two geology electives

GEOLOGY/EARTH SCIENCE MAJOR FOR SECONDARY EDUCATION

Geology 151
Geology 152
Geology 201
Geology 212
Geology 251
Astronomy 110 or 201
Interdisciplinary 250
Environmental studies 201
One elective from Geology 202, 220, 301, 302, 304, 311, 312, 313, 314, 321, or 331

Cognate

Mathematics 110 (or higher)
Mathematics 143
Sixteen semester hours from among college biology, chemistry, and physics with at least one semester of each of the three.

GEOLOGY SECONDARY EDUCATION MINOR

Geology 151
Geology 152
Geology 201
Geology 212
Astronomy 110 or 201
An approved elective

GEOGRAPHY MAJOR

Geography 100
Geography 110
Geography 201
Geography 220
Geography 230
Geography 310
Geography 311
Geography 320
Geography 380
Two from Geography 240, 241, 250, 251, 321, 351, 390, 395, or Environmental Studies 302, an approved interim course.

Cognate

Mathematics 143 or Psychology 250

GEOGRAPHY MINOR

Geography 100
Geography 110
Geography 201
Geography 230
Geography 320
One elective

GEOGRAPHY ELEMENTARY EDUCATION MAJOR

Geography 100
Geography 110
Geography 201
Geography 220
Geography 230
Geography 241
Geography 311
Geography 320
One elective from Geography 240, 250, 251, 310, 321, 351, 380, 390, 395, an approved interim, or
Environmental Studies 302

ELEMENTARY/SECONDARY EDUCATION GEOGRAPHY MINOR

Geography 100
Geography 110
Geography 201
Geography 241
Two electives from Geography 230, 240, 250, 251, 310, 311, 320, 321, 351, an approved interim, or Environmental Studies 302

GROUP MAJORS IN GEOLOGY AND GEOGRAPHY

A group major in science and mathematics meets the needs of some students, particularly those in professional programs. Such group majors require twelve courses in the sciences and mathematics, ten of which must be from two departments with no fewer than four from either, with the remaining two courses chosen from a third department. The chairs of the three departments involved must approve such programs.

Students must have completed at least two courses in geology with a minimum average grade of C (2.0) before they may be formally admitted to the major program in geology. The core requirement in the physical sciences may be met by Geology

103 or 151. The core requirement in the natural sciences may be met by Geology 151-152.

Geography

100 **Earth Science** (4). F, alternate years. An introductory study of four aspects of the earth: earth as a planet in the solar system; the structure and composition of earth's crust and interior and processes affecting earth's surface; earth's atmosphere and weather processes; and the oceans. Laboratory. (Also listed as Geology 100). *Ms. J. Curry-Roper.*

110 **World Regional Geography** (4). F and S. An analysis of the earth's principal culture regions from a geographic perspective: Europe, C.I.S., Middle East, East, South and South-East Asia, Australia and New Zealand, Oceania, and South, Central, and North America. These areas will be examined in the light of several foundational geographic themes: the locational organization of physical and cultural features; society-land relationships, cultural landscapes, and patterns of spatial interaction among and within regions. *Staff.*

201 **Human Activities and Natural Environments** (3). * F An examination of the complex system of relationships between human activities and natural environments. The ecology of natural systems will be studied by examining the relationships among their dynamic components. Upon this framework, activities by which societies — past and present — have used, affected, and transformed their natural settings are examined. Not open to freshman students. (Also listed as Environmental Studies 201). *Mr. H. Aay.*

220 **Cartography and Geographic Information Systems** (4). * S, alternate years. Map design and interpretation with an emphasis upon computer cartographic methods. Portrayal of spatial data and analysis of spatial statistics is considered in the context of geographic information systems (GIS), a computer method that seeks relationships among map systems, remotely sensed images and spatial databases. Prerequisite: 100 or 110; or instructor's permission. (Also listed as Geology 220). *Mr. J. Clark.*

230 **The Geography of the Global Economy** (3). * F, alternate years. This course traces

the geographical and structural evolution of the global economic system. Includes analysis of human interaction with the earth's resources, the impact of distance and relative location on various economic activities, exchange and interaction patterns among places, and theories of uneven development. Prerequisite: 110 or an economics course. Not offered 1998-99.

240 The Geography of Latin America (3). * S, alternate years. A survey of the geography of Latin America with an emphasis on the region's physical, cultural and economic diversity and with a particular focus on issues of development and poverty. Emphasis is put on historic migrations, physical resources, and relative location in the understanding of the formation of regional patterns. *Ms. J. Curry-Roper.*

241 The Geography of the United States and Canada (3). * S, alternate years. Overview of the geographic forces that shaped the North American landscape. These forces include natural processes and the distribution of resources, relative location of resources and markets, and the history of migration. Understanding these processes is used as a framework for the analysis of the regional economic and cultural patterns of North America with an emphasis on cultural landscape features. Not offered 1998-99.

250 Meteorology (3). I, even-numbered years. Meteorology is the science that deals with the atmosphere, weather, climate, and weather forecasting. This course deals with the first three of these aspects of meteorology. Major components include: 1) consideration of the weather conditions that make up climate: temperature, solar radiation, clouds, precipitation, air pressure, and winds; 2) study of natural factors that influence weather conditions: altitude, latitude, and proximity to bodies of water and to mountains; and 3) description of climate with respect to the earth as a whole, North America, and the Great Lakes Region. Some time is devoted to consideration of man's impact on climate through atmospheric pollution, and to the impact of climate on human civilization. Lecture, discussion, activities in observation and in weather map reading. Prerequisite: Geography 100 or high school chemistry or equivalent. Not offered 1998-99.

251 Oceanography (4). * F, alternate years. This survey course includes: a) a look at the history of marine exploration; b) the nature of the ocean floor, including submarine volcanoes, the nature of ocean crust, sea-floor spreading, and marine sediments; c) island and coastal geomorphic processes; d) the properties of seawater, the nature of tides and currents; and e) ecological marine biogeography, including marine plankton, deep-water biota, coral reef communities, and estuarine and intertidal communities. Laboratory; field trips. Prerequisite: 100 or Geology 103 or 151 or permission of instructor. Not offered 1998-99. (Also cross-listed as Geology 251.)

310 Urban Geography (4). * S, alternate years. A study of the spatial organization of cities and systems of cities. Both the internal structure and external relations of cities receive attention. The historic and present-day spatial organization of infrastructure, economic life, social activities, ethnicity, institutions, and politics are examined. Prerequisite: 110 or one social science course. Not offered 1998-99.

311 Geomorphology (4). * F The investigation of landforms and the processes which cause them. This course studies the erosional and depositional features resulting from rivers, glaciers, and wind, as well as coastal, gravitational, and weathering processes. Landforms are described and classified from field observations, topographic maps, and aerial photographs. Explanations of the landforms are offered through quantitative modeling of the processes. Laboratory, field trips. Prerequisite: 100 or Geology 151 or 103. (Also listed as Geology 311). *Mr. J. Clark.*

320 Introduction to Cultural Geography (3). * F, alternate years. An examination of the interactions between culture and nature in pre-agricultural, agricultural, and urban-industrial societies. The course explores the origins, character, content, organization, perceptions, and meanings of cultural landscapes, past and present, large and small. Prerequisite: 110. *Mr. H. Aay.*

321 Glacial Geomorphology and Climatic Change (4). * S, alternate years. Study of the effects of ice sheets and colder climates of past ice ages upon the earth's surface. In this

course glaciology (accumulation and flow of glaciers) and glacial geology (landforms due to glaciation) are studied, emphasizing the glacial stratigraphy of Michigan. An overview of deposits of Quaternary age throughout the world gives additional evidence for and understanding of previous ice ages. Theories of climatic change, as well as man's effect upon and response to climatic change, are also discussed. Laboratory and field trips. Prerequisite: 311. (Also listed as Geology 321). Not offered 1998-99.

351 Introduction to Urban and Regional Planning (3). * F, alternate years. A survey of the practice of urban and regional planning including its theory, history, techniques, issues, and careers. Land use planning and zoning, housing and community development, environmental planning, recreation planning, health care systems planning, transportation planning, historic preservation and urban design, and other subfields are examined within neighborhood, downtown, suburban, regional, and Third World contexts. Prerequisite: two 200-300 level social science and/or geography courses or department approval. Not offered 1998-99.

380 Seminar in the History and Philosophy of Geography (3). S, alternate years. A study of significant episodes and crucial issues in the history and philosophy of geography with an emphasis on present-day geography. Junior or Senior standing in the geography program. *Mr. H. Aay.*

390 Independent Study. F, I, S. The independent study of a subdiscipline or topic in geography not included in the regular curriculum. Prerequisite: permission of the department. *Staff.*

395 Research in Geography (2-4). F, I, S. Field or library research on an approved geographical problem and presentation of the results of this research in a seminar. Open to qualified students by permission of the department. *Staff.*

Geology

100 Earth Science (4). F, alternate years. An introductory study of four aspects of the earth: earth as a planet in the solar system; the structure and composition of earth's crust and interior and processes affecting earth's

surface; earth's atmosphere and weather processes; and the oceans. Laboratory. (Also listed as Geography 100). *Ms. J. Curry-Roper.*

103 Humanity and the Earth (4). F and S, core. An introduction to geology. A study of the materials and processes of the earth leading to a responsible Christian appreciation for and use of the earth. The principles of geology are explored through a survey of the history of the ideas about the Earth. Basic insights of chemistry, biology, physics, and mathematics are applied to the solution of practical geological problems, with emphasis on such geological hazards as earthquakes, volcanic eruptions, floods, marine erosion, and mass-wasting and on the nature and distribution of fossil fuels, metals, ground water, and other mineral resources. Laboratory. *Staff.*

151 Introductory Geology (4). F and S, core. A study of the geological structure of the earth. Topics included are: minerals and rocks; formation and alteration of rocks in the earth's crust; earth's interior and surface structure; surface processes producing landforms; energy and mineral resources. Laboratory. *Mr. S. Schimmich.*

152 Historical Geology (4). S, core. A study of geological structures that have existed in the past and of the changes and development that have taken place in the earth's crust. Evidences for these past structures and events are taken from present rock strata, including the fossil record. Laboratory. Prerequisites: 151, 103, or 100. *Mr. R. Stearley.*

201 Mineralogy (4). * F A study of the principles of crystal structure in minerals with emphasis on the silicates. Modes of geologic occurrence of minerals are reviewed. Crystal morphology and mineral identification are emphasized in laboratory. Laboratory. Prerequisites: 151 and Chemistry 103. *Mr. D. Young.*

202 Optical Mineralogy (2). * S. This course treats the theory of polarized light transmission in minerals and the use of the polarizing microscope in the identification of minerals and determination of their optical properties. Laboratory. Prerequisite: 201. *Mr. D. Young.*

212 Structural Geology (4). * S. An analy-

sis of common geological structures such as folds, faults, joints, and foliations; inquiry into the means by which these structures are formed from stresses within the earth; methods of constructing and interpreting geological maps and cross sections; introduction to field-mapping techniques. Laboratory, field trip. Prerequisite: completion of or concurrent registration in 152. *Mr. S. Schimmrich.*

220 Cartography and Geographic Information Systems (4). * S, alternate years. Map design and interpretation with an emphasis upon computer cartographic methods. Portrayal of spatial data and analysis of spatial statistics is considered in the context of geographic information systems (GIS), a computer method that seeks relationships among map systems, remotely sensed images and spatial databases. Prerequisite: 100 or Geography 110; or instructor's permission. (Also listed as Geography 220). *Mr. J. Clark.*

251 Oceanography (4). * F, alternate years. This survey course includes: a) a look at the history of marine exploration; b) the nature of the ocean floor, including submarine volcanoes, the nature of ocean crust, sea-floor spreading, and marine sediments; c) island and coastal geomorphic processes; d) the properties of seawater, the nature of tides and currents; and e) ecological marine biogeography, including marine plankton, deep-water biota, coral reef communities, and estuarine and intertidal communities. Laboratory; field trips. Prerequisite: 100, 103 or 151 or permission of instructor. Not offered 1998–99. (Also cross-listed with Geography 251.)

301 Igneous and Metamorphic Petrology (4). * F, alternate years. An investigation of the mineralogy, chemistry, structure, texture, field associations, tectonic setting, and genesis of igneous and metamorphic rocks. The petrographic microscope is used extensively in the description and genetic interpretation of rocks. Laboratory. Prerequisite: 202. Not offered 1998–99.

302 Sedimentary Petrology and Depositional Environments (4). * F, alternate years. The study of sedimentary rocks, their classification and origins. Lecture emphasizes the physical, chemical, and biologic processes responsible for the origin, deposition,

and diagenesis of sediments, with particular attention to modern depositional analogs. Laboratory emphasizes identification of sedimentary rocks in outcrop, hand specimen, and thin section. Laboratory, two required field trips. Prerequisites: 152 and Chemistry 103. *Mr. S. Schimmrich.*

304 Geochemistry (3). * F, alternate years. The origins and history of the solar system, earth, crust and mantle, and various rock types in light of the distribution of the chemical elements and of stable and radioactive isotopes. Low-temperature aqueous geochemistry is also discussed. Prerequisites: 201 or 151 plus Chemistry 104, or permission of the instructor. Not offered 1998–99.

311 Geomorphology (4). * F The investigation of landforms and the processes which cause them. This course studies the erosional and depositional features resulting from rivers, glaciers, and wind, as well as coastal, gravitational, and weathering processes. Landforms are described and classified from field observations, topographic maps, and aerial photographs. Explanations of the landforms are offered through quantitative modeling of the processes. Laboratory, field trips. Prerequisite: 151, 103, or 100. (Also listed as Geography 311). *Mr. J. Clark.*

312 Environmental Geology (4). * S. Use of geologic methods and interpretations in understanding and resolving problems related to the environment. Emphasis is on hydrology (groundwater and surface water), coastal zone problems, soil erosion, landslides, and restoration of disturbed geologic regions. Laboratory. Prerequisite: 311. *Mr. A. Blystra.*

313 Paleontology (4). * S, alternate years. A study of organisms that once lived on the earth. Includes an examination of the processes of fossilization and methods of discovering the structure, habitat, and relationships of those organisms, and a review of their distribution and life history. A broad spectrum of organisms is studied with emphasis on invertebrate animals. Laboratory, field trip. Prerequisite: 152 or Biology 242 and 243 (also listed as Biology 313). Not offered 1998–99.

314 Stratigraphy (4). * S, alternate years. Fundamental principles of stratigraphic

nomenclature and interpretation are illustrated through intensive study of stratigraphic sections from the Michigan Basin, the southwestern United States, the Central Appalachian Basin, and Precambrian settings in Ontario. Emphasis on applying the interpretation of sedimentary facies to historical sequences. Applications to petroleum exploration. Laboratory, required field trip. Prerequisites: 152 and 302. *Mr. R. Stearley.*

316S Field Geology (3). Summer only. Introductory field geology. Offered as a summer course at Au Sable Trails Institute of Environmental Studies located near Mancelona, Michigan.

321 Glacial Geomorphology and Climatic Change (4).* S, alternate years. Study of the effects of ice sheets and colder climates of past ice ages upon the earth's surface. In this course glaciology (accumulation and flow of glaciers) and glacial geology (landforms due to glaciation) are studied, emphasizing the glacial stratigraphy of Michigan. An overview of deposits of Quaternary age throughout the world gives additional evidence for and understanding of previous ice ages. Theories of climatic change, as well as man's effect upon and response to climatic change, are also discussed. Laboratory and field trips. Prerequisite: 311. (Also listed as Geography 321). Not offered 1998-99.

331 Geophysics (4).* F, alternate years. An overview of physical methods used for determining properties of the earth's interior (solid earth geophysics) and for discovering economically important resources in the earth's crust (exploration geophysics). Topics in solid earth geophysics: heat flow and the earth's temperature distribution; gravity and the density profile and shape of the earth; magnetism of the earth and paleomagnetism; anelastic properties and viscosity of the earth; and earthquake prediction. Topics in exploration geophysics: reflection and refraction seismology, gravimetry, resistivity, and well-logging techniques. Laboratory. Prerequisites: 151, Physics 124 or 126, Mathematics 162, or consent of the instructor. *Mr. J. Clark.*

359 Seminar in Secondary Geology-Earth Science (3). S. A course in perspectives on, principles of, and practices in the teaching of Geology-Earth Science on the secondary

level. This course should be taken concurrently with Education 346. The seminar provides a forum for the discussion of concerns that develop during directed teaching. This course is part of the professional education program and may not be included in the major or minor in Geology-Earth Science.

385 Advanced Topics in Geology (2). F. The application of knowledge from the various geological disciplines to the detailed investigation of a topic of current importance in geology. Lectures, discussions, and student presentations. Prerequisite: senior status in the major concentration in geology or permission of the instructor. *Mr. D. Young.*

386 Seminar in Geology (2). S. A survey of the historical development of geology as a science and an examination of the principles and practice of geology from a Reformed perspective. Prerequisite: senior status in the major concentration in geology or permission of the instructor. *Mr. D. Young.*

390 Independent Study.* F, I, S. Prerequisite: permission of the department. *Staff.*

395-396 Research in Geology (2-4).* F, I, S. Field and /or laboratory research on an approved geological problem and presentation of the results of the research in seminar. Open to qualified students by permission of the geology staff. *Staff.*

Graduate Courses

520 Advanced Earth Science. This course includes consideration of the main ideas which serve as unifying principles in earth science. Recent discoveries and current research projects are reviewed. The course highlights ideas resulting from studies in earth sciences which have increased our understanding of the relationship between the earth and its human inhabitants. Topics include applications of geology to environmental problems, contributions of space research to understanding the earth, and the relationship between the results of geological study and teachings of the Bible. Special attention is given to topics and concepts which can be incorporated into elementary, middle, and secondary school materials and activities. Prerequisite: Geology 100 or permission of the department. *Staff.*

590 Independent Study (graduate). F,I,S. Staff.

JANUARY 1999 INTERIM

A catalog with the descriptions of all interim courses is available after October 1998.

IDIS W15 Dutch Landscapes: Society, Technology, and Environment (3) H. Aay, R. Hoeksema.

IDIS W21 Can We Save the Planet? A Focus on Climate Change (3) J. Clark, M. Muyskens.

German

Professors J. Lamse (chair), B. Carvill
Assistant Professor H. DeVries

Programs for students wishing to major in German are worked out for them individually by departmental advisors who should be consulted early. Calvin-sponsored programs are available in Germany and Austria for the interim, a semester, the academic year, or the summer. Students interested in such programs should work out the details with the department chair, the director of off-campus programs, and the registrar.

GERMAN MAJOR

German 215

German 216

Two 300-level literature courses

Six electives numbered 123 or higher (except 261), one of which may be the German Interim Abroad (30-32 semester hours)

GERMAN MINOR

German 215

Electives from German 123 or higher (except 261), one of which may be the German Interim Abroad (20-22 semester hours)

GERMAN EDUCATION MAJOR

German 215

German 216

German 315

Two 300-level literature courses

Five courses numbered 123 or higher (except 261), one of which may be the German Interim Abroad (30-32 semester hours)

GERMAN EDUCATION MINOR

German 215

German 216

Four courses numbered 123 or higher (except 261), one of which may be the German Interim Abroad (20-22 semester hours)

Students in teacher education, secondary majors and minors, and elementary minors must pass the test administered by the State of Michigan. They must also pass a German proficiency examination prior to the teaching internship. This examination is offered twice each school year, during October and March; for details see B. Carvill. Additional criteria for approval for the teacher education program are found in the Teacher Education Program Guidebook, available in the Education Department.

To be eligible for the major or minor program, a student must have completed at least two courses in German with a minimum grade of C (2.0) and must have completed 102, 122, or the equivalent. The fine arts core may be met by German literature courses numbered 217 and above.

COURSES

101 Elementary German (4). F An introductory course in the comprehension and use of spoken and written German as well as an exposure to the cultures of the German-speaking countries. Mr. J. Lamse.

102 Elementary German (4). S. Continuation of 101. Mr. J. Lamse.

121-122-123 Introductory and Intermediate German (4,3,4). F, I, S. A closely integrated sequence involving two semesters and the interim for students who have completed

two years of high school German but who, on the basis of a placement test, are not prepared for 201. The course is also open with the permission of the department to students in teacher education programs who have had no foreign language in high school. *Mr. J. Lamse, Staff.*

201 Intermediate German (4). F, core. Grammar review, Landeskunde, readings, and continued emphasis on the development of spoken and written German. Prerequisite: 102 or four units (two years) of high school German. *Ms. B. Carvill.*

202 Intermediate German (4). S, core. Continuation of 201. Prerequisite: 201. *Mr. J. Lamse.*

203 Intermediate German (4). F, core. A one-semester course intended specifically for students who have successfully completed three years (six units) of high school German. Selected readings and continued language study. *Ms. B. Carvill.*

215 Intermediate Oral and Written Composition (3). F Exercises, compositions, and drills designed to develop in the student intermediate competence in speaking and writing idiomatic German. Prerequisite: 123 or 202. *Mr. J. Lamse.*

216 Advanced Oral and Written Composition (3). S. Continuation of 215. *Ms. B. Carvill.*

315 Advanced Grammar and Stylistics (3). F For the advanced student who wishes to increase fluency in oral and written German. Study of selected areas of the German language such as advanced grammar, pronunciation, vocabulary, and stylistics, with practice in speaking and writing. Prerequisite: 216 or permission of the instructor. *Ms. B. Carvill.*

Literature

217 Readings in Major German Authors (3). F, core. Basic introduction to German literature. Selected readings in major German authors from 1750 to 1850. Prerequisite: 123 or 202. *Mr. H. DeVries.*

218 Readings in Major German Authors (3). S, core. Readings in major German authors from 1850 to the present. Prerequisite: 123 or 202. *Mr. H. De Vries.*

250 German Civilization (3). F, core. A study of the German spirit as it finds expression particularly in social customs and institutions, religious and political life, and the fine arts. Lectures and discussions. Prerequisite: 123 or 202. Not offered 1998–99.

301 Classicism (3). * S, even years. A study of the origins, nature, and literary manifestations of the classical ideal in eighteenth-century Germany. Readings from Lessing, Goethe, and Schiller. Prerequisite: 217, 218, or permission of the instructor. *Mr. J. Lamse.*

303 Romanticism (3). S, odd years. The literary theory and philosophical-religious basis of the German romantic movement as reflected in representative works of both earlier and later Romanticists. Prerequisite: 217, 218, or permission of the instructor. *Mr. J. Lamse.* Not offered 1998–99.

304 Nineteenth Century Literature (3). * F, even years. Readings in German, Swiss, and Austrian prose and poetry of the nineteenth century. A survey of the intellectual and cultural changes in this era and an analysis of some literary works characteristic of the period. Prerequisite: 217, 218, or permission of the instructor. *B. Carvill.*

307 Twentieth-Century German Literature I (3). * F, odd years. Selected readings in German literature from 1890 to 1945, with special emphasis on the works of Th. Mann, Kafka, Hesse, and Brecht. Lectures, discussions, and assigned papers. Prerequisite: 217, 218, or permission of the instructor. *Ms. B. Carvill.*

308 Twentieth-Century German Literature II (3). * S, odd years. Readings in German literature from 1945 to the present from such writers as W. Borchert, Frisch, Böll, and M. Walser. Lectures, discussions, and assigned papers. Prerequisite: 217, 218, or permission of the instructor. *Ms. B. Carvill.*

359 Seminar in Principles and Practices in Secondary German Teaching (3). S. A course in perspectives on, principles of, and practices in the teaching of German on the secondary level. This course should be taken concurrently with Education 349: Directed Teaching. Before taking this course, students must pass the German Department language exam and complete Education 301 and 303. *Ms. I. Konyndyk.*

390 Independent Study. This course is tailored to meet the needs of individual students, to enable them to broaden their familiarity with the more important German literary works, and to deepen their understanding of them in tutorial discussions. Prerequisite: approval of the department chair. *Staff.*

395 Seminar (3).

Civilization

261 Introduction to Modern German Culture (3). S. A survey of the German cultural tradition of this century as it finds expression in the various arts, with particular emphasis on films and representative works of

literature in translation. Open to all students, but planned primarily for those in designated preprofessional courses whose programs include the "foreign culture" option. No knowledge of German is required. Not offered 1998-99.

JANUARY 1999 INTERIM

A catalog with the descriptions of all interim courses is available after October 1998.

W50 German Interim Abroad (3) *W. Bratt.*

W51 Der zebrochene Krug (3) *J. Lamse.*

GERM 122 Intermediate German (core) (3)
B. Carvill.

Greek

See the department of classical languages for a description of courses and programs of concentration in Greek.

History

Professors M. Bendroth, J. Bratt (chair), J. Carpenter, B. de Vries, D. Diephouse, D. Howard, D. Miller, F. Roberts, W. Van Vugt, R. Wells

Associate Professor D. Howard, K. Maag

Assistant Professors F. van Liere, K. van Liere

Instructors D. Fleetham, R. Jelks

Students majoring in history will design programs with their departmental advisor. Such programs will reflect the students' interests within the field of history and in related departments, their anticipated vocational goals, and the demands of the historical discipline. For most programs a proficiency in either French or German is advised. Students are asked to consult with departmental advisors early in their college careers concerning their choice of a foreign language and, if secondary teaching is their goal, concerning the various types of programs leading to certification. One upper-level interim course may be used as an elective in any of the history majors or minors.

WORLD HISTORY MAJOR

History 101 or 102

Four from History 203-208, 231-233, 235, 236, or 320

One from History 310-313

One from History 301-306

Two electives

History 395

EUROPEAN HISTORY MAJOR

History 101 or 102

Three from History 301-306

One from History 203-208, 231-233, 235, 236

One from History 310-313

One from History 310-312, 355-358, 360

Two electives

History 395

U.S. HISTORY MAJOR

History 101 or 102
Three from History 310-313, 355-358, 360
Two from History 301-306
One from History 203-208, 231-233, 235, 236
Two electives
History 395

SECONDARY/ELEMENTARY EDUCATION U.S. HISTORY MAJOR

History 101 or 102
Three from History 310-313, 355-358, 360
Two from History 301-306
One from History 203-208, 231-233, 235-236
Two electives
History 395

SECONDARY/ELEMENTARY EDUCATION EUROPEAN HISTORY MAJOR

History 101 or 102
Three from History 301-306
One from History 310-313
One from History 310-313, 355-358
One from History 203-208, 231-233, 235, 236
Two electives
History 395

SECONDARY/ELEMENTARY EDUCATION WORLD HISTORY MAJOR

History 101 or 102
Four from History 203-208, 231-233, 235-236, 320
One from History 301-306
One from History 310-313
Two electives
History 395

SECONDARY EDUCATION HISTORY MINOR

History 101 or 102
Two from History 310-313 (or 211 and one from 355-358)
History 360
One from History 203-208, 231-233, 235-236
One from History 301-306
One elective

In addition to the courses listed in the major, all secondary education history majors must take three additional cognate courses: 1)

Political Science 201: American Government; 2) Geography 110: World Regional Geography, or Geography 241: Geography of the United States and Canada; and 3) Economics 151: Principles of Economics or Economics 221: Principles of Microeconomics.

ELEMENTARY EDUCATION HISTORY MINOR

History 101 or 102
History 211 or 215
One from History 203-208, 231-233, 235-236
One from History 301-306
One from History 355-358, 360
History 320
One elective

Prior to the teaching internship, students must have the approval of the department. Criteria for approval are found in the Teacher Education Program Guidebook, available in the Education Department. Students seeking special advice on teacher education programs should consult Mr. Daniel Miller or Mr. Douglas Howard.

A minimum grade of C (2.0) in 101 or 102 is required for admission to major programs. The core requirement in history must be met by one course from 101, 102, or 101/102 Honors. This course should be taken before courses on the 200- or 300-level, which are not recommended for first-year students. Juniors or seniors who have not taken 101, 102, or 101/102 Honors should substitute a 200- or 300-level course to satisfy the core requirement in history. Any other regular course in the department will satisfy an additional requirement in the contextual disciplines.

COURSES

101 Antecedents to Western Civilization (4). F and S, core. A study of the antecedents of Western Civilization with emphasis on cultural currents in their global context, from the rise of civilizations in antiquity to the transformation of the West in the fifteenth century. Not open to juniors or seniors except by permission. Mr. D. Howard, Mr. F. van Liere.

101 H World Civilization: The Foreign and the Familiar in Travel Literature (4). F, core. The course will begin with a short comprehensive coverage of world history from early hunting-gathering societies to the medieval mercantile empires, followed by an examination. That will provide a framework for the main activity, a series of writing assignments on the course theme, using travel literature as primary sources. Common class readings for this second part will range from epic travels like Gilgamesh (Sumer) and Jason and the Argonauts (Greece) to medieval exploration journals like Ibn Battuta (Central Asia) and Bernal Diaz (Aztec America). Each student's writing assignments will culminate in the contribution of a chapter to an in-class-published book, *The Foreign and the Familiar in Travel Literature*. A book-signing party will replace the final examination. Enrollment is limited to 20 students. *Mr. B. de Vries*.

102 Western Civilization (4). F and S, core. A study of the main cultural currents of Western Civilization with primary emphasis on the period since the Reformation. Not open to juniors or seniors except by permission. *Staff*.

102 H Honors Western Civilization (4). S, core. An intensive study of the great pivotal moments in western history from the Renaissance to the present. Rather than a tradition survey, this course explores the great revolutionary movements in culture, society, and politics from the perspective of historiographical analysis. Students will respond to original works from various periods and write an extended essay on a theme of their choice in the context of western civilization. First- and second-year students with grade point averages of 3.3 or above are eligible. *Mr. W. Van Vugt*.

203 Traditional East Asia (3). * F An introduction to the history of East Asian civilizations from the earliest times to the nineteenth century. Primary emphasis is placed on the civilization of China and Japan. Study of the growth and development of traditional East Asian society is supplemented by topical discussions of religion, philosophy, art, music, and literature. *Staff*.

204 Modern East Asia (3). * S. A study of

the transformation of East Asian society resulting from the intrusion of the West, from the sixteenth century to the present. Primary emphasis is placed on the civilizations of China and Japan and on the contacts between East Asia and the West. Topics on East Asian religion, philosophy, art, literature, and music are included. *Staff*.

205 History and Society in West Africa to 1800 (3). * S. A wide-ranging survey of prominent themes encompassing several centuries of West African history. The principal aim is to introduce students to some of the main currents of West African history and to provide insights into its society and culture. Themes include: precolonial times; culture, commerce, and state building; the trans-Saharan and Atlantic trade; Islam and the socio-political changes it brought; the Atlantic slave trade. Not offered 1998-99.

206 History and Society in West Africa since 1800 (3). S. An examination of the historical, political, and economic development of West Africa since 1800. The course examines European imperialism in the late nineteenth and twentieth centuries, the development of African nationalism, resistance and struggle for independence, neo-colonialism, and the origins of contemporary social, economic, and political problems in the new states of the area. *Mr. R. Jelks*.

207 Latin America (3). * F A study of continuity and change in Latin America from Pre-Columbian times to the present. Topics covered include the mingling of races and cultures in the Conquest Era, the long-term influence of colonial institutions, the paradox of economic development and continued dependency, the Cold War struggle between forces of the Left and the Right, and the growth of Protestantism in a traditional Catholic society. *Mr. D. Miller*.

208 National Histories of Latin America (3). S. A detailed analysis of the history of a single Latin American nation with special attention to those characteristics that make it unique within the Latin American context. Not offered 1998-99.

231 W Ancient Near East (3). F. A cultural history of the ancient Near East from pre-history to Alexander, based on evidences from archaeology and cultural anthropology

as well as on ancient texts in translation, biblical accounts, and contemporary historical records. Special consideration is given to geographical setting, artistic and linguistic traditions, and cultural contacts with European civilizations. *Mr. B. de Vries.*

232 Hellenistic and Late Antique Near East (3).* F A study of the transformation of Near Eastern civilization initiated by the conquests of Alexander the Great, undertaken through archaeological as well as literary evidences. Particular emphasis is placed on the cultural syncretism of the age, which saw the development of Judaism and the emergence of Christianity and Islam. Scientific, technical, artistic, social, religious and political developments will all receive attention. Not offered 1998-99.

233 Modern Near East (3).* S. A study of Near Eastern history from the eleventh century to the twentieth century, with special emphasis on topics concerning the interaction between the Near East and the emerging West, including the Crusades, the Ottoman Empire, the "Eastern Question" in European diplomacy, colonialism, nationalism and Islamic revival. Analysis of the emergence of modern states in the Near East and their various responses to the impact of the West. *Mr. D. Howard.*

235 Traditional South Asia (3). F A cultural history of the Indian subcontinent from the earliest times to the eighteenth century. Primary emphasis will be placed on the civilization of Hindustan and the interplay of Hindu and Islamic religious and cultural forces which took place there up to the advent of European imperialism. Archaeological, literary and artistic evidence receive equal attention. *Mr. D. Howard.*

236 Modern South Asia (3). S. A study of the history of the Indian subcontinent from the seventeenth century to the present, with emphasis on the interaction between South Asia and the modern West. The emergence of the nations of India, Pakistan and Bangladesh is examined against the background of British occupation and colonialism. Economic, social, political, religious and intellectual themes receive consideration. Not offered 1998-99.

National Histories

211 Survey of American History (4). F Selected themes in American history from colonial times to the present. This course is not intended for those who plan to take period courses in American history. *Mr. W. Van Vugt.*

212 England (3).* S. A survey of English history including the Anglo-Saxon background; the medieval intellectual, religious, and constitutional developments; the Tudor and Stuart religious and political revolutions; the emergence of Great Britain as a world power; the growth of social, economic, and political institutions in the modern period. *Mr. W. Van Vugt.*

215 Canada (3). S. A tracing of the founding and character of New France followed by a careful examination of nineteenth- and twentieth-century Canada. *Mr. R. Wells.*

218 Russia (3). S. A survey of Russian history from the Middle Ages to the twentieth century. After an introductory examination of the medieval Russian principalities and the rise of Muscovy, the course will emphasize Imperial Russia from the reign of Peter the Great to the fall of the Romanov dynasty. The course concludes with the dramatic events of 1917-1923, including the revolutions of 1917, the civil war, and the establishment of the U.S.S.R. Not offered 1998-99.

220 France (3). F The history of France from the religious wars of the sixteenth century to the present, with some initial attention given to the country's ancient and medieval origins. The course will emphasize the role of religion and religious conflict in the making of modern France. The centrality of the revolution of 1789 to the national identity will thereafter be underscored. *Ms. K. Maag.*

223 Germany (3). S. A survey of German history with particular attention given to the period from the Reformation to the present. Included in the course are medieval background, the Reformation and its impact on later German developments, the religious wars, intellectual developments of the eighteenth and nineteenth centuries, the movement toward political unity in the nineteenth

century, World War I, the Third Reich, the Weimar Republic and postwar division and reunification. Not offered 1998–99.

Studies of Historical Periods

301 **Classical History (3).** * F and S. A study of the history of Greece and Rome from the Minoan Age through the reign of the Emperor Theodosius. The emphasis is on the political and economic changes which were the background for the shifts in intellectual styles. Particular problems are studied in depth: the emergence of the city-state; the Periclean age of Athens; the age of Alexander; the crisis of the Roman Republic; and the Decline. *Mr. B. de Vries, Mr. M. Gustafson.*

302 **Medieval Europe (3).** * F A study of European society from 400 through 1350. The broad sweep of political, economic, and intellectual change is focused on the analysis of particular topics, such as the emergence of a Christian society, the rise of Feudalism, the tensions between asceticism and humanism, the Crusades, and the Regnum-Sacerdotium controversy. *Mr. F. van Liere.*

303 **Renaissance and Reformation Europe (3).** * S. Studies of topics in European history from 1300 to 1650. Attention is given to such problems in intellectual history as the nature of humanism, the character of religious reform, and the rise of science. Requires readings in narrative histories and sources. *Mr. F. Roberts.*

304 **Early Modern Europe (3).** * S. A topical approach to the history of Europe from the Thirty Years' War through the French Revolution. The course will analyze the components of the "general crisis of the seventeenth century," the origins and characteristics of the eighteenth-century Enlightenment, and the intellectual and political origins of the French Revolution. The readings will be from both secondary texts and primary sources. *Ms. K. van Liere.*

305 **Modern Europe (3).** * F The history of Europe from the French Revolution to World War I. Special attention is paid to social and cultural developments, including the rise of industrial society, ideologies and protest movements, nation-building, mass politics, materialism, and the fin de siecle revolution

in art and thought. *Ms. D. Fleetham.*

306 **Twentieth-Century Europe (3).** * S. The history of Europe from World War I to the present. This course examines the social, cultural, and political implications of the century's major events such as the two World Wars, the rise of totalitarianism, the Holocaust, the emergence of the Cold War, the founding of the European Union, and the fall of the Berlin Wall. Special attention is given to the enduring tension between European unity and national particularism as well as to the burden of the European past. *Ms. D. Fleetham.*

310 **Colonial America (3).** * S. A historical study of the British North America from the first European settlements to the eve of the American Revolution. After examining the European background of and Native American responses to colonization, the course will trace the development of the different social systems and regional cultures that emerged along the Atlantic: Puritan New England, plantation Virginia, commercial mid-Atlantic, Caribbean Carolina, and Scots-Irish backcountry. Special emphasis is given to the role of religion and politics in launching and steering this process. *Mr. J. Bratt.*

311 **The New Nation, 1756-1876 (3).** * F An examination of the emergence of the United States from the revolutionary era through Reconstruction, tracing the challenges that faced its citizens in building and preserving a national union. The course will study the period of Independence and Federalism, Jeffersonian and Jacksonian politics, westward expansion, slavery and sectionalism, the Civil War and Reconstruction, and post-War expansion. *Mr. W. Van Vugt.*

312 **Industrial America, 1877-1945 (3).** * F A historical study of the United States from the end of Reconstruction through World War II, treating political and cultural developments against the background of the nation's turn toward an industrial economy, urban society, and global empire. Particular attention will be paid to religious currents, increasing racial/ethnic complexity, and the changing fortunes of the liberal political-economy in war, peace, prosperity, and depression. *Ms. M. Bendroth.*

313 **Recent America, 1945-present** (3). * S. A study of American history since World War II, focusing on the national impact of the United States' unprecedented international role and power. Particular attention will be paid to the civil rights movement, culture and politics under the Cold War, the 1960's "youth revolution" and renewal of American feminism, the emergence of postmodern culture, and the transition to a postindustrial economy. *Ms. M. Bendroth.*

320 **Contemporary World** (3). * F A chronological and topical analysis of twentieth-century history, stressing comparative responses to forces of global change. Major themes include the spread of nationalism and liberation movements, the century's major ideological and political alternatives, the increasing economic and social interdependency of nations and regions, and the emergence of a competitive, multipolar world system in the post-Cold War era. *Mr. D. Diephouse.*

Topical Studies

219 **Studies in Comparative History: Themes in British and American History** (3). S. The method of this course is comparative, which means that historical themes from both Britain and America will be explored in order to make more meaningful judgments about historical issues common to both nations. Taught in London, England, it will integrate experience with traditional academic study. Prerequisite: History 101 or 102. A college-level course in British or American history is desirable but not required. Not offered 1998-99.

240 **Topics in Women's and Gender History** (3). * S. An introduction to topics in the history of women in Europe and North America, and to the use of gender as a historical category of analysis. This course examines experiences unique to women as well as the changing perceptions of masculinity and femininity evident in different historical epochs. *Ms. M. Bendroth.*

355 **American Intellectual History** (3). * S. A study of the principal modes of American thought from the emergence of the Enlightenment and Evangelicalism around 1740 to the first signs of Modernism a century and a half later. The course will trace "reason" and

"revival" as conflicting and cooperating means of building a proper "republic," and thus will be attending to ideas' social locations and political purposes along with their inherent logic. *Mr. J. Bratt.*

356 **Social and Cultural History of the United States** (3). F A study of the development of American society from 1776 to the present with reference to developments other than those primarily political or intellectual, such as social reform movements, popular culture, art and architecture, educational developments, the labor movement, immigration, nativism and racism, and urban problems. Prerequisite: a general knowledge of American history and one course in American history or permission of the instructor. *Mr. R. Wells.*

357 **Economic History of the United States** (3). * S. A study of United States economic history from colonial times to the present, emphasizing the foundations of the American economy, the dynamics behind American economic expansion, the history of American business, and the costs and benefits of industrialization and modernization. Prerequisite: one course in American history or permission of the instructor. *Mr. W. Van Vugt.*

358 **History of the American West** (3). * S. A study of the American West from the pre-Columbian plains to present-day California, and as a landscape of the mind as well as a real place. The course will plumb the historical significance of the myths made about the West as well as events which actually transpired there, and students will be encouraged to reflect on what the existence of the two "West's" tells them about America as a whole. *Mr. D. Miller.*

359 **Seminar in the Teaching of History on the Secondary Level** (3). F and S. This course is designed to assist student teachers in developing appropriate goals and effective methods of teaching history at the high school and junior high level. The seminar also provides a forum for the discussion of problems that develop during student teaching. Prerequisites: concurrent enrollment in Education 346 and an approved history major, at least three courses of which must be taken at Calvin College. *Mr. D. Miller.*

360 **Afro-American History** (3). * F. An intensive inquiry into the role of the Afro-American in the history of the United States, including an evaluation of past and present assumptions of the place of the Afro-American in American life, and an acquaintance with the historiography on this subject. *Mr. R. Jelks.*

380 **Field Work in Middle East Archaeology** (5). See Archaeology IDIS 340.

390 **Independent Study**. F, I, S. *Staff.*

393 **Museum Studies** (3). * F and S. (See also Art 393.)

395 W **Seminar in History** (5). * F and S. A course in historiography, the philosophy of history, historical bibliography, and the writing of history. *Mr. R. Wells.*

Graduate Courses

590 **Independent Study**. F, I, S. *Staff.*

JANUARY 1999 INTERIM

A catalog with the descriptions of all interim courses is available after October 1998.

W10 **The Mexican Revolution** (3) *D. Miller.*

W11 **Total War: A History of World War II in Europe** (3) *F. Roberts.*

W50 **Reformation Lives** (3) *K. Maag.*

IDIS W30 **Witchcraft** (3) *C. Gunnoe, T. VandenBerg.*

Japanese Language and Literature

Associate Professor L. Herzberg (J. Lamse, chair; Department of Germanic Languages)

JAPANESE MINOR

Japanese 101
Japanese 102
Japanese 201
Japanese 202
Japanese 215
Japanese 216
Japanese 217 or 218

JAPANESE STUDY GROUP MINOR

Japanese 101
Japanese 102
Japanese 201
Japanese 202
Art 241, History 203, Political Science 205,
and an approved Interim

The foreign language core requirement can be met by the study of Japanese through the intermediate level (202).

COURSES

101 **Elementary Japanese** (4). F. An introduction to Japanese culture and language, stressing both spoken and written Japanese. After one semester students will be able to carry on simple conversations in Japanese, read dialogues written in Japanese, and

understand some fundamentals of Japanese social values and ways of thinking. *Mr. L. Herzberg.*

102 **Elementary Japanese** (4). S. Continuation of 101, a study of Japanese grammar with equal emphasis on improving conversational proficiency and on reading and writing Japanese. "Kanji" — the syllabary made up of Chinese characters — will be introduced for reading and writing and as a medium for gaining insight into Japanese culture. Prerequisite: 101 or permission of instructor. *Mr. L. Herzberg.*

201 **Intermediate Japanese** (4). The goal of this course is to further the student's ability to speak and understand, read and write the Japanese language. Extensive oral drills and reading exercises continue to be used. By the end of the term the student will know 300 "kanji." *Mr. L. Herzberg.*

202 **Intermediate Japanese** (4). This term completes the study of basic Japanese grammar and syntax. By the end of the term the student will have been introduced to all the basic grammar patterns of Japanese and will have mastered a total of 500 "kanji." *Mr. L. Herzberg.*

215 Advanced Conversation (4). This course is designed to develop advanced aural comprehension skills as well as advanced competence in spoken Japanese through exercises, drills, and conversation in class. Students will also continue their study of the written language by learning many new "kanji." Prerequisite: 202 or permission of instructor. *Mr. L. Herzberg.*

216 Advanced Grammar and Composition (4). The systematic study of advanced grammar and composition. Students will learn many new "kanji" as they improve their skills in written Japanese. Conversation practice will also be emphasized. Prerequisite: 215 or permission of the instructor. *Mr. L. Herzberg.*

217 Introduction to Modern Japanese Literature: 1868 to the Present (3). A continuation of Japanese language study and an introduction to works written by major Japa-

nese authors from 1868 — when Japan opened itself to the rest of the world and entered the modern era — to the present, as well as selected readings on Japanese history, society, and culture. Prerequisite: 216. *Mr. L. Herzberg.*

218 Further Studies in Modern Japanese Literature: 1868 to the Present (3). This course builds on Japanese 217 and deals with literary texts of greater linguistic difficulty. It also includes further language study and selected readings on Japanese history, society, and culture. Prerequisite: 217. *Mr. L. Herzberg.*

JANUARY 1999 INTERIM

A catalog with the descriptions of all interim courses is available after October 1998.

IDIS W23 **Japanese Movies and Japanese Literature (3)** *L. Herzberg.*

Latin

See the department of classical languages for a description of courses and programs of concentration in Latin.

Mathematics and Statistics

Professors J. Bradley, D. Brink, J. Ferdinands (chair), E. Fife, T. Jager, J. Koop, D. Laverell, S. Leestma, M. Stob, G. Talsma, G. Van Zwalenberg, G. Venema†

Assistant Professors P. McGill, D. Pronk, R. Pruijm, T. Scofield

Adjunct Assistant Professor D. Sammons

Visiting Professor J. Keener

MATHEMATICS MAJOR

Mathematics 161 or 160

Mathematics 162

Two from Mathematics 243, 231, 255, or 261

Mathematics 351

Mathematics 361

Two 300-level electives

An approved interim

Mathematics 391 (taken twice)

Cognate

Computer Science 185

This is a minimal program and students with specific educational or career plans often take more courses. Such programs are planned in consultation with a departmental advisor. A screening test is given to incoming students during orientation to determine proper placement in 110, 160, or 161.

MATHEMATICS MINOR

Mathematics 161

Mathematics 162

Two 200-level courses

Two 300-level courses

SECONDARY EDUCATION MATHEMATICS MAJOR

Mathematics 161 or 160
 Mathematics 162
 Mathematics 243
 Mathematics 255
 Mathematics 329
 Mathematics 351
 Mathematics 361
 Mathematics 321
 Mathematics 325
 Mathematics 391 (taken twice)
 An approved interim

Cognate

Computer Science 185

SECONDARY EDUCATION MATHEMATICS MINOR

Mathematics 161
 Mathematics 162
 Mathematics 243
 Mathematics 255
 Mathematics 361
 Mathematics 321

Cognate

Computer Science 185

ELEMENTARY EDUCATION MATHEMATICS MINOR

Mathematics 221
 Mathematics 222

Three approved mathematics courses

Computer Science 185 or three hours
 chosen from computer science 105-140

The minor for elementary education should be chosen in consultation with a departmental advisor as choices for mathematics courses depend on the student's background. Prior to the teaching internship, students must have the approval of the department. Criteria for approval are found in the Teacher Education Program Guidebook, available in the Education Department. Directed teaching in mathematics is available only during the fall semester.

GROUP MAJOR

A group major in science and mathematics meets the needs of some students, particularly those in professional programs. These majors are not appropriate for students who anticipate attending graduate school or who are in teacher education programs. Such

group majors require twelve courses in the sciences and mathematics, ten of which must be from two departments with no fewer than four from either, with the remaining two courses chosen from a third department. The chairs of the three departments must approve each program of this type. Group concentrations involving economics, philosophy, and other departments are possible on an individual basis.

HONORS PROGRAM

The departmental honors program leads to graduation with honors in mathematics or mathematics education. Beyond the requirements of the general honors program, these programs require further course work and a senior thesis. Details are available from the department. These programs require careful planning to complete, and students should normally apply for admission to the departmental honors program during their sophomore year at the same time that they submit a major concentration counseling sheet.

A minimum grade of C (2.0) in a 200-level mathematics course is required for admission to a program of concentration in the department. The core requirements in mathematics may be met by 100, 132, 143, 160, 161, or 221.

COURSES

100 Elements of Modern Mathematics (3). F and S, core. An introduction to the content, methodology, and history of mathematics. Among the topics which may be covered are cardinal numbers and set theory, axiomatic systems, probability theory, computer programming, groups and fields, and number theory. Prerequisite: one year of algebra and one year of geometry. *Staff.*

110 Precalculus Mathematics (4). F and S. A course in elementary functions to prepare students for the calculus sequence. Topics include the properties of the real number system, inequalities and absolute values, functions and their graphs, solutions of equations, polynomial functions, trigonometric functions, exponential and logarithm functions. Prerequisite: three years of college preparatory mathematics. *Staff.*

132 Calculus for Management, Life, and Social Sciences (4). F and S, core. Functions, limits, derivatives. Applications of derivatives to maximum-minimum problems; exponential and logarithmic functions; integrals; functions of several variables. Not open to those who have completed 161. Prerequisite: 143 or permission of instructor. *Staff.*

143 Probability and Statistics (4). F and S, core. An introduction to the concepts and methods of probability and statistics. The course is designed for students interested in the application of probability and statistics in business, economics, and the social and life sciences. Topics include descriptive statistics, probability theory, random variables and probability distributions, sampling distributions, point and interval estimation, hypothesis testing, analysis of variance, and correlation and regression. Prerequisite: one year of algebra and one year of geometry in high school. *Staff.*

156 Discrete Mathematics for Computer Science (4). F. Sets both as mathematical objects and abstract data types, logic, mathematical induction, combinatorics, probability. Applications in computer science. Prerequisite: CPSC 185 or permission of the instructor. *Mr. L. Nyhoff.*

159 Elementary Functions and Calculus (4) F Mathematics 159 and 160 together serve as an alternative to Mathematics 161 for students who have completed four years of high school mathematics but who are not ready for calculus. Placement in Mathematics 159 or 161 is determined by a calculus readiness test that is administered to incoming first-year students during orientation. Topics include functions and their graphs, polynomial functions, trigonometric functions, exponential and logarithmic functions, limits, and derivatives. Prerequisite: four years of college preparatory high school mathematics. *Mr. T. Jager.*

160 Elementary Functions and Calculus (3) I. core. A continuation of Mathematics 159. Topics include applications of derivatives, integrals, the Fundamental Theorem of Calculus, and applications of integrals. Prerequisite: 159. *Mr. T. Jager.*

161 Calculus I (4). F and S, honors section, core. Functions, limits, derivatives,

applications of derivatives, integrals, applications of integrals. Prerequisite: either four years of college preparatory mathematics and an acceptable score on the calculus readiness test administered by the department during orientation, or 110. *Staff.*

162 Calculus II (4). F and S, honors section. Exponential and logarithmic functions, trigonometric functions, techniques of integration, sequences and series. Prerequisite: 160 or 161. First-year students with advanced placement (AP) credit for Calculus I should normally enroll in section AP. *Staff.*

190 First-Year Seminar in Mathematics (1) F and S, An introduction in seminar format to several different topics in mathematics not otherwise part of the undergraduate program. Topics vary by semester but will include both classical and recent results and both theoretical and applied topics. The goals of the course are to acquaint students with the breadth of mathematics and to provide opportunity for students interested in mathematics to study these topics together. All first-year students interested in mathematics (regardless of prospective major program) are welcome to register. This course may be repeated for credit. It will be graded on a credit/no-credit basis. *Staff.*

221 The Real Number System and Methods for Elementary School Teachers (4). F and S, core. This course provides prospective elementary school teachers with background needed for teaching elementary mathematics. Both content and methodology relevant to school mathematics are considered. Topics covered include the real number system and its subsystems. Pedagogical issues addressed include the nature of mathematics and of mathematics learning, and the role of problem solving and the impact of technology in the elementary school mathematics curriculum. Prerequisites: one year of algebra and one year of geometry in high school. *Staff.*

222 Geometry, Probability, Statistics, and Methods for Elementary School Teachers (4). F and S. This course is a continuation of 221. Both content and methodology relevant to teaching geometry, probability, and statistics in elementary school are considered. Topics covered include basic geomet-

ric concepts in two and three dimensions, transformational geometry, measurement, probability, and descriptive and inferential statistics. Pedagogical issues addressed include the place of geometry, probability, and statistics in the elementary school curriculum, use of computers in mathematics, and the development of geometric and probabilistic thinking. Prerequisite: 221 or permission of instructor. *Staff*.

231 Differential Equations with Linear Algebra (4). F and S. Solutions and applications of first and second order ordinary differential equations. Laplace transforms. Elementary linear algebra. Systems of linear differential equations, numerical methods, non-linear equations. Prerequisites: 162 and experience in computer programming. *Staff*.

243 Statistics (4). F and S. Data collection, random sampling, experimental design, descriptive statistics, probability, random variables and standard distribution, Central Limit Theorem, statistical inference, significance tests, point and interval estimates, and simple linear regression. The student is introduced to the use of the computer in statistical computations and simulations by means of a statistical package such as MINITAB or SPSS. Prerequisite: 162. *Staff*.

255 Applied Linear Algebra (4). S. Matrices, row operations, systems of linear equations, pivoting strategies, vector spaces, linear independence, dimension, orthogonality, determinants, eigenvectors and eigenvalues. Emphasis on computations with matrices. Prerequisites: 162 and either Computer Science 150, 155, or 185 or permission of instructor. *Staff*.

261 Multivariate Calculus (4). F and S. A study of vectors and functions in two and three dimensions. Polar, cylindrical, and spherical coordinate systems. Partial derivatives, multiple integrals, vector functions, vector analysis. Prerequisite: 162. *Staff*.

321 Foundations of Geometry (3). S. Consideration of Euclidean geometry as an axiomatic system, introduction to non-Euclidean geometry, the Poincaré model. Prerequisite: a 200-level course. *Staff*.

325 History of Mathematics (3). S, alternate years. A study of the historical devel-

opment of certain basic mathematical concepts from early times to the present, with consideration of the problems that mathematicians have faced in each age. Prerequisite: a 200-level course. Not offered 1998–99. *Staff*.

329 Introduction to Teaching Secondary School Mathematics (2). S. This course introduces prospective teachers to important curricular and pedagogical issues related to teaching secondary school mathematics. These issues are addressed in the context of mathematical topics selected from the secondary school curriculum. The course should be taken during the spring preceding student teaching. The course may not be included as part of the major or minor in mathematics. Prerequisite: a 300-level course in mathematics. *Mr. G. Talsma*.

333 Partial Differential Equations (4). F. Methods for solving heat, wave, and potential equations, Fourier series, orthogonal functions, Sturm-Liouville problems, separation of variables, Fourier transforms, numerical methods. Intended for students in engineering, the physical sciences, and applied mathematics. Prerequisites: 231 and 261. *Mr. J. Keener*.

335 Numerical Analysis (4). F. Analysis of errors in numerical methods, real roots of equations, approximations using polynomials, numerical integration, applications to differential equations, Lagrange and spline interpolation, least squares approximations, orthogonal polynomials, and applications. Also listed as Computer Science 350. Prerequisites: Computer Science 150 or 185 and two 200-level courses in mathematics. *Mr. E. Fife*.

343 Probability and Statistics (4). F. Probability, probability density functions; binomial, Poisson, and normal distributions; central limit theorem, limiting distributions, sample statistics, hypothesis tests, estimators. Prerequisite: 261 or 362. *Mr. S. Leestma*.

344 Mathematical Statistics (4). S. A continuation of 343 including theory of estimation, hypothesis testing, nonparametric methods, regression analysis, and analysis of variance. Prerequisite: 343. *Mr. S. Leestma*.

351 Abstract Algebra (4). S. Set theory, relations and functions, equivalence relations; the integers, mathematical induction, and elementary number theory; groups, rings, fields, and polynomials. Prerequisite: 361. *Staff.*

352 Advanced Linear Algebra (4). S, alternate years. Vector spaces, matrices, linear equations, linear transformations, determinants, polynomial algebras, eigenvalues and eigenvectors, inner-product spaces, spectral decompositions, canonical forms for matrices. Prerequisite: two 200-level courses. *Mr. T. Jager.*

359 Seminar in Secondary Teaching of Mathematics (3). F. A course in perspectives on, principles of, and practices in the teaching of mathematics on the secondary level. This course should be taken concurrently with Education 346. The seminar provides a forum for the discussion of concerns that develop during directed teaching. This course is part of the professional education program and may not be included in the major or minor in mathematics. *Mr. G. Talsma.*

361 Real Analysis I (4). F. The real number system, set theory, the topology of metric spaces, numerical sequences and series, real functions, continuity, differentiation, and Riemann integration. Prerequisites: two 200-level courses. *Mr. J. Ferdinands.*

362 Real Analysis II (4). S, alternate years. A continuation of 361. Sequences and series of functions, functions of several variables, Lebesgue integration. Prerequisite: 361. Not offered 1998–99.

365 Complex Variables (4). S. Complex numbers, complex functions, integration and the Cauchy integral formula, power series, residues and poles, conformal mapping. Prerequisite: 261 or 362. *Staff.*

381 Advanced Logic (4). F, alternate years. Topics include the formalization of propositional and quantificational logic. Taught jointly with the Philosophy Department; also listed as Philosophy 381. *Mr. R. Pruim.*

385 General Topology (4). F, alternate years. Elementary set theory, topological spaces, separation properties and connectivity, continuous mappings, homeomorphisms, product and quotient spaces, invariants under continuous mappings, compactness, metric spaces and completeness. Prerequisite: 261 or 362. Not offered 1998–99.

390 Independent Study. F, I, S. Independent study of topics of interest to particular students, under supervision of a member of the department staff. Open to qualified students with permission of the department chair. *Staff.*

391 Colloquium. No credit. F and S. Meets weekly for an hour for the presentation of various topics in mathematics, computer science, and related disciplines by students, faculty, and visiting speakers. Prerequisites: two 200-level courses. *Staff.*

395 Senior Thesis in Mathematics. F, I, S. The course requirements include an expository or research paper and an oral presentation on a selected topic in mathematics. Open to qualified students with the permission of the chair. *Staff.*

JANUARY 1999 INTERIM

A catalog with the descriptions of all interim courses is available after October 1998.

W50 Curriculum Projects in Elementary— and Middle-School Mathematics (3) *J. Koop.*

W51 Differential Equations with Mathematics (3) *D. Brink.*

MATH 160 Elementary Functions and Calculus (core) (3) *T. Jager.*

Music

Professors D. De Young, D. Fuentes, C. Stapert (chair), D. Topp, M. Wheeler, J. Worst**
Associate Professors C. Kaiser, H. Kim, M. Mustert, C. Sawyer
Assistant Professor P. Shang Kuan, J. Witvliet

Within the liberal arts framework, the Music Department addresses itself to students majoring in music, to general students wishing to increase their understanding and enjoyment of music through study, and to the campus community. Students can major or minor in music or elect a fine arts program in education that includes music or fulfill a fine arts core requirement by taking of one the specified core courses, or take any course for which they are qualified. In addition, any qualified student may participate in one of the many performing ensembles or take private lessons. All students, as well as the general public, are welcome at the frequent concerts sponsored by the Music Department.

The Music Department offers a variety of programs of study leading to the Bachelor of Arts degree and two programs of study which lead to the Bachelor of Music Education degree. Each of the programs builds on most or all of a central core of basic courses. All music majors must pass a keyboard proficiency test and that includes playing a prepared piece, playing chord progressions from Roman numerals, harmonizing melodies, transposition, clef-reading, and score reading. (For details about level of difficulty and recommended schedule for taking the various parts of the test, consult with your advisor or the department chair.) Students planning to major in music but have little or no piano background, should enroll in Music 120B (class piano lessons). All music majors are required to attend four concerts or recitals, per semester, in which they do not participate (see the department handbook for details).

Mr. Calvin Stapert is the advisor for general, undecided students considering a major in music. Mr. Dale Topp counsels undecided students considering a major or minor in music education or in music therapy. All transfer students interested in a major or minor in music must consult with Mr. John Hamersma at or before their first registration to receive counseling into an appropriate sequence of music courses. Such students also must validate, during their first semester at Calvin, their transfer credits in keyboard harmony and aural perception with Ms. Margaret Wheeler. Those not meeting the minimum standards will be required to enroll in 213 or 214.

MUSIC MAJOR (28 semester hours)*

Music 105
Music 108
Music 213
Music 205
Music 206
Music 207
Music 208
Music 305
Music 308

**Note that these are basic music courses required of all music majors.*

Additional Requirements (9 semester hours)

private lessons (two semester hours)
ensemble (two semester hours)
Music 237
Music 202 or elective (in 1, 2, or 3 semester hour combinations)

Music 180 (taken four times)

MUSIC MINOR (21 semester hours)

Music 105
Music 108
Music 205
Music 234
applied music (4 semester hours)
one non-applied elective (3 hours)

MUSIC THEORY/COMPOSITION MAJOR

Basic music courses Additional Requirements (20 semester hours)

Music 311
Music 312
Two from Music 315, 316, 317, 318, 319
ensemble (eight semester hours)
Music 180 (taken eight times)

APPLIED MUSIC MAJOR

Basic music courses

Additional Requirements

(24 semester hours)

ensemble (eight semester hours)

Music 180 (taken eight times)

Music 210, 220, 230, 240, 260, or 270
(16 hours)

MUSIC HISTORY MAJOR

Basic music courses

Additional Requirements

(20 semester hours)

Music 311

Music 312

Music 313

advanced interim course

ensemble (eight semester hours)

Music 180 (taken eight times)

CHURCH MUSIC MAJOR—ORGAN

Basic music courses

Additional Requirements

(26 semester hours)

Music 236

Music 237

Music 110 (taken twice)

Music 210 (taken six times)

Music 130 (taken twice)

choral ensemble (taken twice)

interim

Music 180 (taken eight times)

CHURCH MUSIC MAJOR—CHOIR

Basic music courses

Additional Requirements

(26 semester hours)

Music 236

Music 237

Music 130 (taken six times)

Music 110 (taken twice) or Music 120 (taken
twice)

Music 337

Music 338

choral ensemble (6 hours)

interim

Music 180 (taken eight times)

CHURCH MUSIC MINOR—ORGAN

(18 semester hours)

Music 105

Music 108

Music 236

Music 237

Music 110 (taken six times)

interim

CHURCH MUSIC MINOR—CHOIR (18 semester hours)

Music 105

Music 108

Music 236

Music 237

Music 130 (taken four times)

Music 131 or 141 (taken twice)

interim

SECONDARY MUSIC EDUCATION— VOCAL

Basic music courses

Additional Courses (40 semester hours)

Music 237

Music 238

Music 339

Two from Music 236, 241, 242, 311-313,
315-317, or an interim

Two from Music 195, 196, 197, and 198.
(195 is required unless the student already
plays a bowed string instrument at an inter-
mediate level.)

Music 338

Music 350

Music 351

Music 110 or 210, 120 or 220 (taken twice)

Music 160 or 260 (guitar) (taken twice)

Music 130 or 230 (taken four times)

Music 101, 111, 131, or 141 (taken seven
times)

Music 180 (taken eight times)

Required Cognate

Philosophy 208 (Music 202)

History core

Literature core

Music 303

Music 359

SECONDARY MUSIC EDUCATION— INSTRUMENTAL

Basic music courses

Additional Courses (40 semester hours)

Music 195

Music 196

Music 197

Music 198

Music 237

Music 238
 Music 337
 Music 339
 Music 350
 Music 352
 One from Music 236, 241, 242, 311, 312,
 315, 316, 317, or an interim
 Music 140, 150, 160, or 170 (taken four
 times)
 Music 151, 161, or 171 (taken seven times)
 Music 180 (taken eight times)
 Music 160 (guitar, taken twice)
 Music 110 or 120 (taken twice)

Required Cognate

Philosophy 208 (Music 202)
 History core
 Literature core
 Education 303 (Music 303)
 Music 359

SECONDARY EDUCATION

MUSIC MINOR (28 semester hours)

Music 105
 Music 108
 Music 213
 Music 207
 Music 205
 Music 234
 Music 237
 Music 339
 Music 110, 120, or 160 (guitar) (taken twice)
 Music 130 or 230 (taken once)
 Music 101, 111, 131, 141, 151, 161, or 171
 (taken twice)

ELEMENTARY EDUCATION

MUSIC MAJOR (38 semester hours)

Music 105
 Music 108
 Music 213
 Music 205
 Music 206
 Music 207
 Music 208
 Music 305
 Music 237
 Music 238
 Music 110 or 120 and 160(guitar) (taken
 twice)
 Music 130 (taken twice)
 ensemble/choral (taken twice)
 one elective (two semester hours)

ELEMENTARY EDUCATION

MUSIC MINOR (28 semester hours)

Music 105
 Music 108
 Music 213
 Music 207
 Music 205
 Music 234
 Music 237
 Music 238
 Music 101, 111, 131, or 141 (taken twice)
 Music 130 (taken twice)
 Music 120 or 160 (guitar) (taken once)

ELEMENTARY EDUCATION FINE ARTS MAJOR CONCENTRATION— MUSIC

Elementary education students may also complete a 17 semester-hour sequence in music as part of a Fine Arts major concentration — 105, 205, 234, 237, 238, and 2 semester-hours of applied music — or a 10 semester-hour sequence in music as part of either a Fine Arts major of minor — 105, 205 or 234, and 238 (Mr. D. Topp, advisor).

The secondary education major programs lead to the B.M.E. degree and, although earning secondary teaching certificates, enable students to teach music at any level grades K-12. An elementary education major qualifies graduates to teach any subject in a self-contained classroom and to teach music in grades K-8. Prior to the teaching internship, students must have the approval of the department. Criteria for approval are found in the Teacher Education Program Guidebook, available in the Education Department.

For admission to a program of study, students must complete 105, 108, 213, and 207 with a minimum grade of C (2.0) in each. (Music 108 and 213 require a pre-college level of skill in the rudiments of music, aural perception and keyboard ability. Students desiring to enter one of the music education programs will be required to meet certain standards for admission. The proposed standards, a list of seven, can be found in the *Everything Book*, the Music Department student handbook. These standards must be met by the second semester of the sophomore year. Admission to the music education programs also requires that students pass a jury exam on his or her instrument

or voice by the second semester of the freshman year. A one-half recital in the junior or senior year is also required of all music education students. An assessment test will be given in the first week of 105 for students considering a major in music.) Students with any possible plans concerning further music study should enroll in 105 as their fine arts core course, for this class provides counsel about the various programs and the individual student's qualifications for each. Another option for students with some musical background who desire core credit is 234. Students with more limited musical experiences may prefer 103, 236, 241, or 242 as their core course elective in music. Music 238 earns core credit for elementary education, recreation, and social work students.

General and Core Courses

103 The Enjoyment of Music (3). F and S, core. An introductory course in music listening for students of any class level with any sort of musical background. Following a brief presentation of the elements of music, the course will introduce the student to the historical eras, some major composers and musical types of Western Art Music. The course will include assigned readings, listening assignments, reports on concerts, quizzes and tests., *Ms. H. Kim, Ms. C. Sawyer, Mr. J. Varineau, Mr. J. Worst.*

105 Introduction to Music (3). F, core. A broad introduction to the art of music. The course will introduce students to a wide variety of musical repertory and to rudimentary technical vocabulary. The course also aims to introduce students to fundamental issues about music in society and, in relation to those issues, to develop their understanding of selected pieces of music. A music theory assessment test will be given during the Fall semester to all those enrolled in this course who are thinking of majoring in music. Prerequisite: the ability to read music in at least one clef. *Mr. J. Hamersma, Mr. J. Worst.*

234 Basic Music History (3).* S, core. A survey of the stylistic development and the cultural context of the art of music from the Classical period to the present. The class will

study representative works of major composers. *Mr. J. Varineau.*

236 The Enjoyment of Church Music (3). S, core. How is music useful to the church, what ought one to listen for in church music, by what criteria should church music be judged, how is one to worship by means of music, and how is church music to be enjoyed? Lectures, discussions, readings, record listening, and church services. Open to freshmen. *Mr. J. Hamersma.*

241 American Music I (3).* F and S, core. A survey course of American folk and folk/popular music, both secular and sacred, beginning with the Anglo-American folk tradition and including folk music from the Afro-American, Hispanic, and Amer-Indian traditions; folk hymns and urban gospel music; and country, blues and rock popular music. No prerequisite. Six short papers, quizzes, and exam. *Ms. C. Sawyer.*

242 American Music II (3).* S, core. A continuation of American Music I; however, I not needed as prerequisite. A survey course of music for theater, parlor, dance floor, concert hall, and electronic studio. Study includes band music, parlor songs, ragtime, jazz, music from Broadway and Tin Pan Alley, the main-stream classical tradition, experimental and avante-garde music, and music and electronic technology. Six short papers, quizzes, and a final essay exam. No prerequisite. Not offered 1998-99.

Basic Courses

108 Music Theory I (4). S. A study of tonal harmony covering triads, inversions, non-harmonic tones, cadences, tonal theory, and dominant seventh chords. In addition to part-writing and analysis, this course includes ear training, sight-singing, and keyboard harmony. Prerequisites: 105 and passing the Theory Assessment Test. *Ms. M. Wheeler.*

205 Music History I (4). F. A study, via listening, score study, and source readings, of music of Western civilization prior to 1750. After a brief introduction to world music, the course continues with study of musical thought in antiquity and the early Christian era, Gregorian chant, and the principal

repertoires of polyphony through the Baroque period. Prerequisites: 105 and 108 or permission of instructor. Students in music major or minor programs take this course concurrently with 213, 215 and 207. *Mr. C. Stapert.*

206 **Music History II** (4). S. A continuation of Music History I. This course is a study of music of Western civilization from 1750 to 1950. The course emphasizes the relationship of music to cultural and intellectual history, beginning with the impact of Enlightenment thought on music, continuing with the Romantic revolution, and concluding with the various 20th century continuations of, and reactions to, Romanticism. Prerequisites: 205 and 207 or permission of instructor. To be taken concurrently with 208. *Mr. C. Stapert.*

207 **Music Theory II** (3). F. A continuation of Music Theory I covering chromatic harmony. This course includes basic keyboard harmony analysis and part writing. Prerequisites: 105 and 108. To be taken concurrently with 213 and 205. *Ms. M. Wheeler.*

208 **Music Theory III** (3). S. A continuation of Music Theory II covering ultra-chromatic harmony, post-tonal techniques, set theory and serialism. This course includes analysis, part-writing, ear training, and keyboard harmony. To be taken concurrently with 206. Prerequisite: 207. *Staff.*

213 **Aural Perception** (1). F. A course in the development of the ability to hear and to sing at sight the rhythmic, melodic, and harmonic elements of music. Rhythmic perception involves all note values and rests in various combinations, with an emphasis on duplet and triplet contrasts. Melodic perception involves all intervals through; also major, minor, and modal scales and melodic dictation. Harmonic perception involves triads and seventh chords in all positions in isolation and in chord progressions. To be taken concurrently with 207. Prerequisites: 105, 108. *Ms. M. Wheeler.*

214 **Keyboard Proficiency**. No credit. S. This course provides additional training in playing chord progressions, harmonizing melodies, transposition, clef-reading, and score reading in preparation for the keyboard proficiency test. Prerequisite: Music 207 and the

ability to play at an intermediate level, approaching that required for playing a Clement sonatina.

305 **Music History III** (3). F. A continuation of Music History II. The course is a study of Western fine art music since 1950, non-Western music as it interacts with the Western musical tradition, and Western (especially American) popular music and its interaction with both of the above. Topics include: electronic and computer music, aleatoric and avant-garde music; traditional and modern music of Africa, the Orient, Eastern Europe, the Near East; Amer-Indian music, music and technology; rock music, and the formation of a youth sub-culture. Prerequisites: 206 and 208 or permission of the instructor. *Staff.*

308 **Analysis and Criticism** (3).* S. An in-depth analysis of a variety of musical works representing at least one non-Western culture, at least one contemporary popular style, and the major historical style periods of Western art music. The analysis will be done not only by studying each piece "in terms of itself" but also "in the context." Students will be exposed to a variety of analytical methods and the assumptions behind them. They will also be encouraged to go beyond analysis to evaluation. *Mr. C. Stapert.*

Advanced Courses

202 **Aesthetics**. See Philosophy 208.

235 **Christian Worship**. See Religion and Theology 237.

237 **Conducting** (2). F; S. A course in basic, general conducting, normally taken in the sophomore year. Prerequisite: 105 or sophomore standing with concurrent enrollment in 105. *Mr. M. Mustert.*

311 **Vocal Polyphony of the Renaissance** (3).* F. A study of the vocal style of Palestrina. Exercises in modal counterpoint. Listening repertory of compositions. Prerequisite: 205 and 207. *Mr. J. Hamersma.*

312 **Instrumental and Vocal Polyphony of the Late Baroque** (3).* S. A study of contrapuntal practice of late Baroque composers, principally J. S. Bach. Exercises in tonal counterpoint. Listening repertory of compositions. Prerequisites: 205 and 208. *Mr. J. Hamersma.*

313 **Studies in Music History** (3). Not offered 1998–99.

315 **Arranging, Orchestration, and Scoring** (3). * F Survey of the history of the orchestra and orchestration, and problems involved in writing for orchestra, band, and small ensembles. A study of the technical capabilities of each instrument. Projects written by class members will be performed by department organizations whenever possible. Prerequisite: 108. *Staff*.

316 **Arranging, Orchestration, and Scoring** (3). * S. Continuation of 315, which is prerequisite. *Staff*.

317 **Composition: Beginning** (3). * F and S. Writing in contemporary forms and according to contemporary practice. Prerequisite: 108 or permission of the instructor and moderate ability on piano or guitar. May be repeated for credit. Performance of student works is required. Works must be for solo piano, organ, or guitar, or solo voice or instrument with piano/organ/guitar accompaniment. *Staff*.

318 **Composition: Intermediate** (3). * F and S. Prerequisite: 317 or permission of the instructor. Performance of a work for brass quintet, woodwind quintet, string quartet, or choir with keyboard accompaniment is required. *Staff*.

319 **Composition: Advanced** (3). * F and S. Prerequisite: 318 or permission of the instructor. Required performance of a work for orchestra or band, or voice(s) or instrument with orchestra or band accompaniment. *Staff*.

337 **Instrumental Conducting** (2). * F (even years). A course in advanced conducting techniques appropriate to bands and orchestras. Prerequisite: 237 and proficiency on a band or orchestra instrument. *Mr. D. DeYoung*.

338 **Choral Conducting** (2). * F (even years). A course in advanced conducting techniques appropriate to choirs. Students will be required to attend some Monday evening rehearsals of the Oratorio Society. Prerequisite: 237. *Staff*.

350 **Vocal-Choral Pedagogy** (3). The course is designed to provide practical study in vo-

cal-choral training and rehearsal techniques which help to develop singing skills in the classroom and in the ensemble. Lectures, demonstrations and discussions focus on vocal techniques which develop healthy singing and pleasing tone quality in children, adolescents and adults. Course work includes listening, textbook readings, written reports on field trips and observations of off-campus choral ensembles. In addition each student will prepare demonstrations of conducting applying the vocal techniques required for all age levels. *Mr. M. Mustert*. Not offered 1998–99.

351 **Choral Literature and Materials** (3). F, even years. A study of the philosophical, aesthetic and practical problems involved in choosing significant and appropriate repertoire for study and performance in elementary, middle school and high school choral programs. Questions about the function of choral ensembles in the school, criteria for choosing quality music and pedagogical methods are examined. Attention is given to literature for particular voice development. In addition to tests and quizzes, emphasis is placed on independent oral and written presentations. *Mr. M. Mustert*. Not offered 1998–99.

352 **Instrumental Literature and Materials** (3). S, alternate years. A study of the philosophical, aesthetic and practical problems and issues involved in choosing appropriate music literature for study in elementary, junior high and high school band and orchestra programs. Questions regarding the function of an instrumental ensemble in an educational institution, the definition of quality music, and how to teach for musical comprehension are dealt with along with acquainting the student with the literature and materials available for school use. Transcriptions and editions of wind repertory are analyzed and evaluated. Emphasis is placed on independent oral and written reports and a final project. *D. DeYoung*. Not offered 1998–99.

390 **Independent Study**. *Staff*.

Music Education

238 **Music and Community** (3). * F and S, core in elementary education, recreation, and

social work programs. This course features interactive musical activity and includes three simultaneous strands of learning: a creative and innovative study of music theory and note-reading, development of music leadership skills through a regular series of Service-Learning experiences in an urban school or special education setting, and an experiential study of the various roles for music in re-forming a learning community that has been broken. Writing journals, a formal book report and comprehensive personal summary, and widely varied readings replace traditional tests. Required in certain elementary education and music education programs but also recommended for students in other programs that work with groups of people. *Mr. D. Topp.*

303 Introduction to Music Teaching (3).* F and S. An analysis of the teaching-learning process in the classroom. The course includes observation and participation in school activities and a laboratory experience to develop competence in the classroom use of audio-visual equipment. This course substitutes for Education 303 for secondary music education students and must be taken concurrently with Education 301. The in-school experience will be divided equally between traditional classroom and music teaching. *Staff.*

339 School Music (3).* F odd years. A study of the philosophy, methods, and materials for teaching elementary and secondary school music. This course is required of secondary music education majors and minors. *Mr. D. Topp.*

359 Seminar in Music Methods (3). S. A seminar taught in conjunction with Education 346 involving general problems of pedagogy as well as the specific methods for teaching music in rehearsal and classrooms. The seminar provides a forum for the discussion of problems that develop during directed teaching. *Mr. R. Rogers.*

Not more than 8 semester hours of credit in applied music and drama may be applied to the minimum requirements for graduation unless the addition is part of a designated major or minor music concentration. See fees on page 225.

Individual Lessons

At least twelve lessons a semester are required and students taking individual lessons must also register for 180.

110 Organ (1). Individual lessons in organ emphasizing skills for the church organist. *Mr. J. Hamersma.*

120A Piano (1). Individual lessons in piano. *Ms. H. Kim, Ms. B. Mustert, Ms. L. Vanden Berg.*

130A Voice (1). Individual lessons in voice. *Ms. D. Lehmann, Mr. C. Kaiser, Ms. C. Sawyer.*

140 Brasses (1). Individual lessons in trumpet, horn, euphonium, trombone, or tuba. *Mr. D. De Young, Mr. G. Good, Mr. R. Britsch.*

150 Percussion (1). Individual lessons in snare drum, tympani, and other percussion instruments. *Mr. C. Ward.*

160A Strings (1). Individual lessons in violin, viola, violoncello, or bass viol. *Ms. M. Wheeler, Mr. S. Brook, Mr. J. Economides, Ms. K. Krummel, Mr. R. Nelson.*

160B Individual Lessons in Classical Guitar (1). *Mr. C. de la Barrera.*

170 Woodwinds (1). Individual lessons in flute, oboe, clarinet, bassoon, saxophone, or recorder. *Mr. M. Colley, Ms. D. Dugan, Mr. J. Varineau, Ms. K. Gomez.*

210 Advanced Organ (2). Individual lessons for the music major concentrating in organ. *Mr. J. Hamersma.*

220 Advanced Piano (2). Individual lessons for the music major concentrating in piano. *Ms. H. Kim.*

230 Advanced Voice (2). Individual lessons for the music major concentrating in voice. *Mr. C. Kaiser, Ms. D. Lehmann, Ms. C. Sawyer.*

240 Advanced Brasses (2). Individual lessons for the music major concentrating in trumpet, horn, euphonium, trombone, or tuba. *Mr. D. De Young, Mr. G. Good, Mr. R. Britsch.*

250 Advanced Percussion (2). Individual lessons for the music major concentrating in timpani, snare drum or mallet instruments. *Mr. C. Ward.*

260A **Advanced Strings** (2). Individual lessons for the music major concentrating in violin, viola, violoncello, or bass viol. Ms. M. Wheeler, Ms. K. Krummel, Mr. S. Brook, Mr. J. Economides, Mr. R. Nelson.

260B **Individual lessons** (2). For the music major concentration in classical guitar. Mr. C. de la Barrera.

270 **Advanced Woodwinds** (2). Individual lessons for the music major concentrating in flute, oboe, clarinet, bassoon, saxophone, or recorder. Mr. J. Varineau, Ms. D. Dugan, Ms. K. Gomez, Mr. M. Colley.

Class Lessons

120B. **Piano Class** (1). Class lessons in piano for the beginner.

130B. **Voice Class** (1). Class lessons in voice for the beginner. Staff.

180 **Repertory Class and Studio Classes**. F and S, weekly, no credit. Performance classes for students of applied music for the purpose of gaining experience in public performance and increasing knowledge of music literature. Attendance is required of all music majors and students registered for individual lessons in applied music. Staff.

195 **String Methods** (2). F (odd years). Class lessons on all string instruments for the instrumental music education major. Emphasis is on the methods for teaching string instruments. Elementary playing skills are developed. Ms. M. DeYoung.

196 **Brass Methods** (2). S (even years). Class lessons on all brass instruments for the instrumental music education major. Emphasis is on the methods for teaching brass instruments. Elementary playing skills are developed. Mr. D. De Young.

197 **Percussion Methods** (2). F (even years). Class lessons on percussion instruments for the instrumental music education major. Emphasis is on the methods for teaching percussion instruments. Elementary playing skills are developed. Mr. C. Ward.

198 **Woodwind Methods** (2). S (odd years). Class lessons on all woodwind instruments for the instrumental music education major. Emphasis is on the methods for teaching woodwind instruments. Elementary

playing skills are developed. Mr. J. Varineau.

320 **Class Lessons in Piano Accompanying** (1). F and S. Includes study of standard piano-accompanied literature plus the actual accompanying throughout the semester of two private voice or instrumental students. Prerequisite: audition with instructor. Ms. H. Kim.

Ensembles

Membership in ensembles is limited to Calvin students except when there is a specific need and the non-student is not replacing a student.

101 **Meistersingers** (1). F and S. An ensemble devoted to singing a wide variety of literature suitable to the college male glee club. Open to the general college student. Mr. M. Mustert.

111 **Lyric Singers** (1). F and S. An ensemble of treble voices devoted to singing a wide variety of literature, both sacred and secular. Emphasis is given to three- and four-part singing, voice development and preparation for performances. Open to the general college student. First-year women who wish to sing in a choir will normally be required to sing in the Lyric Singers. Mr. M. Mustert.

121A **Collegium Musicum** (0). No credit. F and S. An ensemble of singers and instrumentalists devoted to the performance of medieval, Renaissance, and Baroque music. Open to all students who meet the requirements of instrumentation and the demands of musicianship. Collegium can also include various other traditional chamber ensembles such as string quartet. These are open to members of band and orchestra who meet the requirements of instrumentation and the demands of musicianship. For further information contact the Music Department.

121B **Bell Choir** (1) An ensemble of English hand bells which performs original works and arrangements. Membership is open to anyone who meets the requirements, instrumentation, and the deterrants of musicianship. Ms. H. Kaiser.

131 **Campus Choir** (1). F and S. Study and performance of choral literature related to the practice of Christian worship throughout the history of the church and in many

cultures. Emphasis on vocal and musical development, as well as on the theological, historical, and liturgical dimensions of selected choral repertoire. Open to all students who meet the requirements of voice and musicianship. *Witvliet.*

141 **Capella** (1). F and S. Representative works in the field of choral literature are studied and prepared for concert performance. Membership is maintained at a set limit and is open only to those who meet the demands of voice, sight reading, and choral musicianship. Normally one year of experience in a college choir is required. *Mr. M. Mustert.*

151 **Knollcrest Band** (1). F and S. Representative works in wind literature are studied and prepared for concert performance. Meets three times weekly and is open to all freshman and sophomore students who wish to participate in a concert band. *Mr. D. De Young.*

161 **Calvin Band** (1). F and S. Representative works in wind literature are studied and prepared for concert performance. Meets four times weekly and membership is maintained at a set instrumentation. *Mr. D. De Young.*

171 **Orchestra** (1). F and S. Representative works in the field of chamber and symphony orchestra literature are studied and prepared for concert performance. Open to all students who meet the demands of musicianship. *Ms. M. Wheeler.*

181 **Oratorio Chorus**. No credit. The study of representative works of the great masters of choral writing with a view to public performance. Handel's *Messiah* is performed annually at Christmas time and another oratorio is presented in the spring. Open to all who meet the requirements of voice and musicianship. *Staff.*

Graduate Courses

510 **School Choral Music** (3). An examination of the significant choral literature from the Renaissance to the present day. For daily research projects the student will use the reference works, scores, and recordings in the Calvin libraries. The instructor will call attention to the repertoire suitable for junior and senior high school choirs. Prerequisite: undergraduate major or minor in music or permission of instructor. *Mr. M. Mustert.*

512 **Using Music to Teach Other Subjects** (3). An examination of the ways in which music may support the learning of such other subjects as history, literature, geography, physical education, basic school skills, Bible, psychology, sociology, and foreign languages. Students will learn how to find, evaluate, and present music in areas that they select. No previous musical skills are required. Students electing the course for only one-half course credit will do less research. *Mr. D. Topp.*

513 **Analysis** (3). A study of a wide variety of musical works selected from the major historical style periods of Western music. The goal will be to broaden and deepen the students' understanding of some of the principal techniques, styles, forms, and modes of expression in the music of Western civilization. Prerequisite: six college-level courses in music history and theory or permission of the instructor. *Mr. C. Stapert.*

590 **Independent Study**. F, I, S. *Staff.*

JANUARY 1999 INTERIM

A catalog with the descriptions of all interim courses is available after October 1998.

W10 **Igor Stravinsky: World Citizen and Renaissance Man** (3) *J. Worst.*

W50 **Introduction to the Fundamentals of Music** (3) *J. Hamersma.*

MUSC 238 **Music and Community** (3) *D. Topp.*

Nursing

Professor M. Doornbos, S. Mustapha (chair)

Associate Professors S. Etheridge, M. Flikkema, C. Feenstra

Assistant Professors B. Feikema, S. Rozendal

Adjunct Faculty T. George, B. Gordon, S. Mlynarczyk, D. Sietsema, M. Smit, P. Leigh,
G. Zandee

Instructor S. Knoppers

Students should indicate their interest in nursing at the time they apply for admission to the college. They should begin work on their prenursing requirement in their freshman year, following closely the suggested program on pages 54–56. Transfer students who wish to be considered for admission to the nursing program should consult the department chair.

In the sophomore year, by the established due date, students must apply for admission to the Hope-Calvin Department of Nursing. Application forms are available in the department. To be eligible to begin the nursing program a student must have completed the eighteen courses in the pre-nursing program, nine of which must be the required courses in the natural and social sciences. A minimum cumulative grade point average of C+ (2.3) is required and a minimum grade of C– (1.7) is required in each of the natural and social science courses. Since enrollment in the final two years—the clinical nursing years—is limited, admission is selective, and completion of the pre-nursing program does not assure acceptance.

COURSES

315 Pathophysiology (3). F. Students will study selected disease conditions related to circulation, respiration, fluid balance, digestion, body defense mechanisms, endocrine, and neuro physiological processes. Physiologic changes of pregnancy, labor and delivery will be included. Material will be presented primarily at the organ and system level. This course will serve as a foundation for providing holistic nursing care from a Christian perspective for further courses in nursing care. Prerequisite: acceptance into the nursing program. Non-nursing students are expected to obtain special permission from the course coordinator. Ms. P. Leigh, Ms. D. Sietsema.

323 Introduction to Nursing Care (3). F. Students will be introduced to the theory and practice of professional nursing. Fundamental concepts of caring relationships and Christian nursing care are included with a focus on childbearing families. The course includes an introduction to the nursing process, legal-ethical issues, communication, nutrition and principles of teaching-learning. Prerequisite: acceptance into the nursing program. Ms. M. Smit, Ms. B. Feikema.

331 Introduction to Nursing Interventions (4). F. This course is designed to assist students in developing basic nursing techniques in health history taking and physical assessment, psychomotor skills, nursing process and communication. The course provides laboratory practice in a simulated hospital environment, focused clinical practice in an acute care hospital and clinical practice in a hospital-based, maternal-child setting. Independent learning activities with audio-visual and computer assisted instruction are incorporated throughout the course. Prerequisite: acceptance into the nursing program. Ms. C. Feenstra, Ms. B. Feikema, Ms. D. Sietsema, Ms. G. Zandee.

354 Caring Relationships for the Helping Professions (3). I. This course is designed for the future professional who will be involved with helping others. The course introduces the concepts of a caring relationship from a transcultural perspective. It provides the student with practical strategies for interacting with a variety of clients who may be experiencing illness, anxiety, grief crises, addiction or abuse. Both classroom and off-campus activities are included. This course is open to junior nursing students and other juniors and seniors interested in a helping

profession. Ms. M. Doornbos, Ms. M. Smit, Staff.

362 Nursing Care of Psychiatric Clients (2). F and S. This course focuses on the nursing care of psychiatric clients, throughout the lifespan, and their families as they are responding to acute and chronic mental health alteration. Students will design nursing care that addresses psychological, social, spiritual, and physical needs of clients according to professional nursing standards. Learning activities will include presentation of theoretical principles, application case studies, focused writing assignments, and completion of independent study modules. Prerequisites: 315, 323, 331, 354. Ms. M. Doornbos, Ms. T. George.

364 Nursing Care of Children (2). F and S. This course focuses on the nursing care of children and their families who are adapting to acute and chronic health alterations. Students will design nursing care that address the clients' physiologic, psychosocial, and spiritual needs according to professional nursing standards. Learning activities will focus on caring interactions with children and their families to achieve health. Prerequisites: 315, 323, 331, 352. Ms. S. Mlynarczyk, Ms. S. Knoppers.

366 Caring Interventions for Psychiatric Clients (2.5). F and S. This course allows the student to provide holistic nursing care for psychiatric clients and their families in a variety of clinical settings. Learning experiences include laboratory work and supervised clinical. Prerequisites: 315, 323, 331, 354. Ms. M. Doorbos, Ms. T. George.

368 Caring Interventions for Children (2.5). F and S. This course allows the student to provide holistic nursing care for children and their families in variety of clinical settings. Learning experiences include laboratory work and supervised clinical. Prerequisites: 315, 323, 331, 354. Ms. S. Mlynarczyk, Ms. S. Knoppers.

372 Pharmacology (2). S. This is a theory course with the focus on nursing pharmacology and common medication groups used to treat acute and chronic medical disorders. It considers the collaborative role of the nurse related to pharmacology and provides

a basis for the development of clinical competencies related to medication administration and client management. Prerequisites: 315, 323, 331, 354. Non-nursing students are expected to obtain special permission from the course coordinator. Ms. P. Leigh, Ms. D. Sietsema.

429 Nursing Research (2). F In this course students will explore the value of research and its relationship to nursing theory and practice. They will identify appropriate problems for nursing research and learn the steps of the research process. Critical analysis and application of current research findings are included. Emphasis is placed on the development of critical thinking, problem-solving, and professional ethics related to the research process. Prerequisites: 315, 323, 331, 354. Taken concurrently with 432, 446, 434, 447. Ms. C. Feenstra.

435 Nursing Care of Adults (5). S. This course focuses on the nursing care of adult clients and their families who are adapting to acute and chronic health alterations. Prerequisites: 315, 323, 331, 354. Ms. J. Baker, Ms. S. Etheridge, Ms. M. Flikkema, Ms. S. Rozendal.

437 Caring Interventions in Adult Nursing (5). S. This course will take place in the acute care setting where the student will care for adults with a variety of medical-surgical problems. Learning experiences include laboratory and supervised clinical practice. Prerequisites: 315, 323, 331, 354. Ms. J. Baker, Ms. S. Etheridge, Ms. M. Flikkema, Ms. S. Rozendal.

459 Nursing Practicum (2). I. This course provides students the opportunity to select a clinical area of their choice in which they provide individualized nursing care for clients. Learning experiences include theory and clinical practice with a preceptor, and individualized instruction. All shifts and working days may be used. Prerequisites: 315, 323, 331, 354, 372, 382/432, 386/446, 384/434, 387/447, 429. Staff.

476 Nursing Care and Management of Clients in the Community (3). S. This course focuses on the nursing care and management of clients in a variety of community settings. Nursing strategies for the promotion and maintenance of health for families, groups,

populations at risk and communities will be emphasized. Students will complete a project that applies concepts of nursing research learned in a previous course. Prerequisites: 315, 323, 331, 354, 372, 382/432, 386/446, 384/434, 387/447, 429, 459. Ms. M. Smit, Ms. C. Feenstra, Staff.

478 Caring Interventions for Clients in the Community (5). S. This course is designed for the students to focus on nursing care for clients in the community with an emphasis on health promotion and maintenance. Learning experiences include independent and supervised clinical practice in community health agencies. Students will plan, implement, evaluate and manage care for client. Prerequisites: 315, 323, 331, 354, 372, 382/432, 386/446, 384/434, 387/447, 429, 459. Ms. C. Feenstra, Ms. D. Sietsema.

484 Perspectives in Professional Nursing (2). S. This course will help students expand their understanding of Christian nursing and formulate a philosophy of nursing that will shape their professional lives. The students

will be expected to integrate what they have learned from their liberal arts education, their understanding of the history and culture of nursing, and their religious faith. Students will reflect on how their education and professional experiences can be used for personal growth and to influence society. Prerequisites: 315, 323, 331, 354, 372, 382/432, 386/446, 384/434, 387/447, 429, 459. Ms. B. Feikema, Ms. B. Gordon.

JANUARY 1999 INTERIM

A catalog with the descriptions of all interim courses is available after October 1998.

NURS 354 Caring Relationships for the Helping Professions (3) Staff.

NURS 459A Nursing Practicum (3) Staff.

NURS 459B Nursing Practicum in New Mexico (3) Staff.

NURS 459C Nursing Practicum in Mexico (3) Staff.

Off-Campus Programs

Calvin College offers semester and year-long programs for students who want to study abroad or who would benefit from a different sort of academic experience in the United States or abroad that cannot be offered on campus. Although some of the programs described below are offered in conjunction with other institutions, they are officially Calvin-endorsed programs. Students in these programs maintain their eligibility for scholarships, grants, and loans. Students in most programs must be juniors or seniors, but in Calvin sponsored programs, such as the Study in Spain, Study in Hungary, Study in Honduras, Study in New Mexico, and the Study in Britain programs, sophomore students may be participants.

The specific requirements for admission differ from program to program, as indicated below, but each student must be in good academic standing (normally a cumulative G.P.A. of 2.5 or above), in good social standing, and must be recommended by the advisor of the program concerned. Furthermore, students must determine with their advisors in advance how credit for such programs will be applied to graduation requirements and state this on a Preliminary Application for Off-Campus Study. Once admitted to these programs, students must make a special registration at the Registrar's Office and must make financial arrangements (which differ from program to program) to pay the appropriate fees, including a \$75.00 administrative fee, at the Financial Services Office.

Other off-campus programs not sponsored or endorsed by Calvin College are available to students. Credit for them will be considered as transfer credit and financial aid is not available through Calvin. Additional information about off-campus programs and preliminary application forms can be obtained from the Director of Off-Campus Study Programs, Professor F. Roberts.

CALVIN SPONSORED PROGRAMS

These courses are Calvin sponsored programs which have been developed and are implemented through Calvin College.

Study In Britain Program

Calvin College offers a study program each spring semester in cooperation with Oak Hill College in London. Oak Hill College is a theological college located in northern London. Calvin College students live in the college dormitories, have meals in the dining room, and worship in daily chapel services with the Oak Hill students and staff. Calvin students take the equivalent of four courses during the semester — two with the Calvin College professor who directs the program and two courses selected from the offerings of Oak Hill College. For spring 1999 the director is Mr. William Romanowski, who will teach Communication and Culture and Studies in British Culture. The courses from the Oak Hill curriculum include offerings in Biblical and theological studies, church history, ethics, psychology, and sociology. To be accepted into the program, students must have completed one year of college studies with a minimum cumulative grade point average of 2.5. Selection of students will be based on appropriateness of the study to the applicant's college program, class level, and recommendations. Information on the program is available from Mr. William Romanowski, the Communication Arts and Sciences Department, or from the Off-Campus Programs Office.

Study in Honduras Program

Each fall semester Calvin College offers the Program in Developmental Studies in Tegucigalpa, the capital of Honduras. This program is for students who want a first-hand experience living in the Third World to prepare for further study or careers in Third World Development or missions. The program seeks to integrate faith commitment with academic study. During the semester, students live with a Honduran family and take courses at La Universidad Tecnológica Centro Americana (UNITEC). To be accepted into this program, students must have completed one year of college studies with a cumulative grade point average of 2.5. The academic components of the

program are as follows:

- Exploring a Third World Society**
- The Problem of Poverty**
- Development Theory in Practice**
- Spanish Language Study**

Information on the program is available from the Off-Campus Programs Office.

Study in Hungary Program

Calvin College offers a study program each fall semester in cooperation with the Karoli Gaspar Reformed University in Budapest, the Budapest University of Economic Sciences, a university for the social sciences and humanities, and the Technological University of Budapest. The institutions are located on the Danube in the heart of Budapest. Calvin students may register for a number of core and elective courses in history, sociology, psychology, economics, religion and theology, and business. Calvin students take their normal course load while in Budapest: two courses from the Calvin College professor who accompanies and directs the semester, and the remainder from the cooperating institutions.

To be accepted into the program, students must have completed one year of college studies with a minimum cumulative grade point average of 2.5. Selection of students is based on appropriateness of the study to the applicant's college program, class level, and recommendations. Information on the program is available from Mr. Kurt Schaefer, Economics and Business Department.

Study in New Mexico Program

Calvin College offers a multicultural study program each spring semester in New Mexico at the campus of Rehoboth Christian School. The goal of this off-campus study program is to provide students with a cross-cultural learning experience by means of special-focus sections of courses from Calvin's Liberal Arts core and from Calvin's Teacher Education Program. Teacher education students take courses from both categories; other students take courses from the first category only. Native American society in the Southwest provides students with an exceptional opportunity to face an alternative culture. The program allows students

to arrive at a deeper self-understanding and a greater respect for cultures other than their own.

Ordinarily, students must have achieved sophomore status with a GPA of at least 2.5. Exceptionally qualified freshmen may also apply. The academic components of the program are as follows:

Category One—Liberal Arts:

People and Cultures of the Southwest
Introduction to Art, with special focus on Native American art.
Introductory Geology, with special focus on the geological features of the Southwest.
History of the American West
Service Project

Category Two—Teacher Education:

Psychology of Education
Introduction to Teaching

Information on the New Mexico program is available from Mr. Ronald Sjoerdsma, Education Department, or from the Off-Campus Programs Office.

Study in Spain Program

Calvin offers introductory and advanced Spanish language programs each spring semester in Denia, Spain. Students live with Spanish families and attend classes at the local university.

In the introductory program, students earn credit for **Spanish 101, 102, 201, and 202**. Because enrollment is limited, preference is given to upperclass students who are maintaining a cumulative average of at least 2.5. For the advanced program, **Spanish 202** or its equivalent is a prerequisite. Students select four courses from **Spanish 301, 302, 330, 331, and 351**. Preference is given to students who are maintaining a cumulative grade point average of 3.0 or better. For further information, contact Professor Marilyn Bierling, Spanish Department, or the Off-Campus Programs Office.

CALVIN ENDORSED PROGRAMS

These courses are offered in conjunction with other institutions, yet are officially Calvin-endorsed programs.

American Studies Program

The American Studies Program in Washing-

ton, D.C., is a semester-long internship/seminar program for upper division students in most majors who are interested in having on-the-job experiences and in exploring current national and international issues with Washington professionals. The program serves as Calvin's Washington campus and students may earn up to 16 semester hours of credit toward their degree. The program is sponsored by the Coalition for Christian Colleges and Universities, of which Calvin College is a member, and is supervised by the program staff in Washington. The program is designed to help students from Christian colleges and Universities throughout North America gain the experiences they need to live and work in a faithfully Biblical way in society and in their chosen field. Applicants should be juniors or seniors, should have a grade point average of 2.75 or higher, and should show promise of benefiting from the internship and seminar experience.

AMST 320 American Studies Internship (8). F and S. A part-time work experience in Washington, D.C. in a professional setting within the student's major field of concentration. Students may select placements in areas of communication arts, urban ministries, marketing and corporate enterprises, law firms, trade associations, federal agencies, or political offices. Credit is granted at the discretion of each department.

AMST 340 American Studies Seminar (8). F and S. An interdisciplinary examination of selected topics in the American political, historical, and cultural context. Includes four 2-credit study modules on Foundations for Public Involvement, Domestic Policy Issues, Economic Policy Issues, and International Policy Issues. Any term, limited enrollment. May be credited as free electives or as departmental credits when accepted by individual departments.

Information on this program can be obtained from Mr. Corwin Smidt, Political Science Department, or the Off-Campus Programs Office.

Au Sable Institute of Environmental Studies

This institute is sponsored by Calvin Col-

lege and other evangelical Christian colleges and offers course instruction and internships in environmental studies. Either in the forests of northern Michigan or on the shores of Puget Sound in Washington, students take courses which provide academic content, field experiences, and practical tools for stewardship of creational resources. Students who also complete work for a bachelor's degree at a liberal arts college approved by the Institute may earn certificates as environmental analysts, land resource analysts, water resource analysts, and naturalists.

Courses are offered during the January interim (I), during late May to early June (May term), during June and early July (Summer I), and from the middle of July to the middle of August (Summer II).

Courses offered include: (Interim)- Winter Biology, Winter Stream Ecology, Environmental Ethics, Ornithology, and Woody Plants; Tropical Ecology of India (Summer)- Land Resources, Field Botany, Animal Ecology, Natural Resources Practicum in Ethnobotany and Ecological Agriculture, Aquatic Biology, Conservation Biology, Limnology, Insect Biology and Ecology, Fish Biology and Ecology, Restoration Ecology, Natural Resources Practicum in Global Development and Ecological Sustainability, Field Geology of the Pacific Northwest, Natural History of the Pacific Northwest, Marine Invertebrates, Marine Stewardship, and Directed Individual Study with director's permission.

A summer fellowship and some grant-in-aid funds are available each year to qualified students. Interested students should get course enrollment forms and applications from the Au Sable advisor, Mr. Randall Van Dragt, Biology Department.

Calvin College Independent Studies

Custom-designed programs appropriate to one's major or minor concentrations in many locations, domestic or abroad, at variable costs. Credit for these programs will be considered as transfer credit. Students should consult with the Off-Campus Program director to apply.

Central College Programs

In cooperation with Central College, Calvin College offers semester and year-long pro-

grams of foreign language study in France, Germany, Austria, the Netherlands, Spain, and the Yucatan, which permit students to register for courses in a variety of subjects. Those who need language review may take a month-long intensive course in the country of their program before the beginning of the fall semester. English language programs are also available in London, Wales, and the Netherlands. For more information, contact the Off-Campus Programs Office.

Chicago Metropolitan Center Program

The Chicago Metropolitan Center semester long program is sponsored by Calvin College together with Central, Dordt, Hope, Northwestern, and Trinity Colleges and is administered by Trinity Christian College. It offers qualified juniors and seniors with a cumulative grade point average of at least 2.5 the opportunity to gain a semester's credit through studying and working in Chicago. Students participate in seminars at CMC's Loop Center and spend four days a week in an internship related to their career interest and academic major.

All students must take the Field Internship and select two of the three seminars available. Additional information and application forms may be obtained from the off-campus program director.

Fine Arts Seminar (3). F and S. An investigation of urban cultural life as reflected in the arts of Chicago. Data for exploration is gathered by attendance at plays, concerts, movies, and art galleries. This primary information is processed through readings, lectures, and classroom discussion. The seminar operates on the premise that art mirrors the ideas and values held by a particular society or civilization, and that students can be helped to read this cultural mirror more effectively. Meets fine arts core.

Metropolitan Seminar (3). F and S. A broad survey of the major issues in the life of the metropolitan community of Chicago. The seminar treats the economic, educational, political, and social welfare systems. Also it examines the meaning of living in the urban environment, the nature of the relationship between the city and the suburbs, and the relations of national priorities to the quality of life in the urban centers.

Values and Vocations Seminar (3). F and S. An exploration of the values dimension in life, what one lives for and why. Emphasis is placed on helping students determine their personal structure of values in the light of biblical norms. What is sought is a blueprint for an integrated life of Christian action and reflection.

Field Internship (9). F and S. Students enrolled in the Chicago Metropolitan Center program have a large number of placements available to them. Students may select internships from a range of organizations which include art centers, banks, businesses, hospitals, media centers, newspapers, publishing houses, mental health clinics, churches, social work agencies, museums, libraries, and zoos. Work internships demand high quality work and are supervised on the job by Metropolitan Center staff members. For more information regarding this program, contact the Off-Campus Programs Office.

China Studies Program

Participants in the China Studies Program, administered by the Coalition for Christian Colleges and Universities, will live and study for a semester, either in the fall or spring, in Beijing, China. The program will enroll its first students for the spring, 1998, semester. The program consists of the following.

Four seminars:

Geography and History
Society and Culture
China's Relationship with the World
Modern Development of China

Chinese Language Study

The seminars will include considerable travel opportunities, including visits to Shanghai, Xi-an and Guangzhou/Hong Kong and to the Great Wall of China as well as to emperors' palaces and the like.

Applicants must be juniors or seniors, have a 2.75 or higher cumulative grade point average, and must receive a recommendation from the academic dean's office. For more information on this program, contact the Off-Campus Programs Office

Daystar University-Study in Africa

Under the auspices of the Christian College Consortium, a limited number of Calvin students each semester are invited to join over 1,300 Africans from more than 20 African countries who are studying at Daystar University, located in Kenya, East Africa. Daystar University is the only accredited evangelical Christian liberal arts college in all of Black, English-speaking Africa.

Daystar's programs of study include: **Accounting, Bible and Religious Studies, Business Administration and Management, Christian Ministries, Communication, Community Development, Education, English, Marketing, Mathematics, Music, and Peace and Reconciliation Studies.** Also available are courses to introduce the student to the history, culture, literature, politics, art, music and religions of Africa.

During your stay, you will have the opportunity to tour Nairobi, visit wildlife centers and game reserves, participate in a variety of worship services, reside for a time with a Kenyan family, and experience the culture. All instruction is in English and is offered both in the fall and spring semester. The instructors are well-prepared faculty from African, Asian and Western nations.

Applicants must be juniors or seniors with at least a 2.75 cumulative grade point average.

For further information, contact Mr. George Monsma, Economics and Business Department, or the Off-Campus Programs Office.

Dordt Netherlandic Studies Program

This cooperative program with Dordt College is offered each spring semester in Amsterdam. It enables students to live with Dutch families for part of their stay and near the Free University of Amsterdam for the remainder. Prerequisite is sophomore status or higher, and a cumulative grade point average of at least 2.5. Courses offered include: **Elementary Dutch, Intermediate Dutch, Introduction to Modern Dutch Literature, Dutch Art and Architecture, Dutch Culture and Society, History of the Low Countries, and Individual Study.** For more information, contact the Off-Campus Programs Office.

Jerusalem University College

This program is sponsored by Calvin College and other evangelical Christian Colleges. The campus is located on historic Mount Zion, Jerusalem, Israel. From the Jerusalem campus, the students also travel to all parts of Israel and the West Bank to study biblical texts in their original settings. During fall and spring semesters, students can select courses from areas in **Biblical Studies, Middle Eastern Studies, Archaeology, History, Geography, and Hebrew Studies**. For more information, contact Ms. Chris Van Houten, Religion and Theology Department, or the Off-Campus Programs Office.

Latin American Studies Program

Participants in the Latin American Studies Program, administered by the Coalition for Christian Colleges and Universities, will live and study for a semester, either in the fall or spring, in Costa Rica. Patterned after the American Studies Program in Washington, D.C., the program is designed to expose students to the economic and political realities of the relationship between the United States and developing nations of Latin America, to increase sensitivity to the needs of Christians in the Third World, and to deepen understanding of the Lordship of Jesus Christ in an international context.

Applicants must be juniors or seniors, have a 2.75 or higher cumulative grade point average, and must receive a recommendation from a member of the Spanish department. LASP participants typically earn 16 semester hours toward their degree. Students live with Central American families, engage in language classes and seminar courses, work on rural service projects and travel in Central America. Each spring semester, LASP also offers a specialized track for science majors entitled "Tropical Science and Sustainability/Environmental Studies." Participating natural science students branch off from the main LASP body for six weeks to earn a portion of their credits in the natural sciences. Likewise, each fall the LASP offers a specialized track for those students majoring in business. Entitled "International Business: Management & Marketing," this program differs from the core program by offering six credits structured specifically for

business students. For more information, contact the Off-Campus Programs Office.

Spanish Language

Seminar I: Central American History

Seminar II: Faith & Practice in Latin America

Service projects/Central American travel

FALL: Business Track

Seminar II: International Business: Management & Marketing

Internship

Central American travel

SPRING: Natural Science Track

Seminar II: Tropical Science & Global Sustainability

Field Research

Central American travel

For more information, contact Mr. Ed Miller, Spanish Department.

Los Angeles Film Studies Center Program

The Los Angeles Film Study Center (LAFSC) Program, offered in both the fall and spring semesters, is administered by the Coalition for Christian Colleges and Universities of which Calvin College is a member. The goal of the program is to prepare students for discerning participation with professional skill and Christian integrity in the film industry, including both the creative and administrative aspects.

Participants live in a supportive Christian community, located in the Hollywood area, to pursue faith-shaped study, involvement in, and critique of the film industry. The LAFSC program includes visits to studios and production locations, a film screening series, a guest presentation series, an internship, a production product, all within the context of the following academic courses:

Inside Hollywood: The Work and Workings of the Film Industry

Introduction to Film Making

Film in Culture: Exploring a Christian Perspective

Internship

Applicants must be juniors or seniors with a 2.75 or higher cumulative grade point average who provide evidence of academic, creative, and personal maturity in their application, recommendations, and interview with the LAFSC Director. Further information and application forms may be obtained from Mr. Roy Anker of the English Department or contact the Off-Campus Programs Office.

Middle East Studies Program

Participants in the Middle East Studies Program, administered by the Coalition for Christian Colleges and Universities, will live and study for a semester, either in the fall or spring, in Cairo, Egypt. The last two weeks of the semester are spent in Israel. Serving as the Middle East Campus, the MESP is committed to deepening the student's understanding of the Lordship of Christ in an international context. The academic components of the program are:

Arabic Language

Peoples and Cultures of The Middle East

Islam in The Modern World

Conflict and Change in The Middle East Today

Applicants must be juniors or seniors, have a 2.75 or higher cumulative grade point average, and must receive a recommendation from the academic dean's office. For further information, consult Mr. Douglas Howard, History Department, or the Off-Campus Programs Office.

Oregon Extension Program

This cooperative program is conducted in Ashland, Oregon, during the fall semester. About thirty students become part of a small, intellectual community in a quaint rural setting. Instruction is personalized in tutorial or small groups. The focus is on Christian reflection on contemporary life and thought. Students study one course in each of the following categories: *Modern Visions of Human Nature*; *Science and Technology in the Modern World*; *Modern Visions of Society*; and *Religion and Modern Life*. More than half of the academic work must be outside

student's primary field of interest. Credit is issued by Houghton College, Houghton, New York.

Applicants ordinarily should plan to take the program in their junior or senior year, have a grade point average of 3.0 or higher, and show promise of benefiting from tutorial and small group study and discussion. Details about the program are available from Mr. David Diephouse, Academic Dean, or contact the Off-Campus Programs Office.

Oxford Honors Program

The Oxford Honors Program is a partnership program with the Centre for Medieval and Renaissance Studies, affiliated with Keble College of the University of Oxford. It is administered by the Coalition for Christian Colleges and Universities. This program is interdisciplinary in scope and provides course options in a wide array of subjects including *Architecture*, *Art*, *Art History*, *European History*, *Greek*, *Latin*, *European Languages*, *Literature*, *Drama*, *Classics*, *Philosophy*, *Political Science*, *History of Science*, *Biblical and Religious Studies*.

The program includes the following components.

Private Tutorials	8 hours
Integrative Seminar	4 hours
Interactive Seminar	4 hours

Applicants must be juniors or seniors and must have a cumulative grade point average of 3.5. For further information, students may contact Mr. Kenneth Bratt, Classics Department, or visit the Off-Campus Programs Office.

Russian Studies Program

Participants in the Russian Studies Program, administered by the Coalition for Christian Colleges and Universities, will live and study, either in the fall or spring, in three strategic settings in Russia. After a two week orientation in Moscow, the program moves to Nizhni Novgorod (formerly Gorky), Russia's third largest city (10 weeks). The last 2 weeks of the semester are spent in St. Petersburg, where students live with Christian families and will be involved in a two week service project. The academic components of the program are:

Introduction to The Russian Language
Russian History and Culture
Post-Communism Russia in Transition
Service Project

Applicants must be juniors or seniors, have a 2.75 or higher cumulative grade point average, and must receive a recommendation from the academic dean's office. For further information, contact Mr. Frank Roberts, History Department, or visit the Off-Campus Programs Office.

Philosophy

Professors C.S. Evans, L. Hardy (chair), J. Hare†, D. Hoekema, G. Mellema, D. Ratzch, S. Wykstra, L. Zuidervaart
Associate Professor K. Clark
Assistant Professor K. Corcoran, S. Floyd, R. Groenhout, R. De Young

The department offers a major concentration appropriate for various careers, including professions such as higher education, law, the ministry, and government service.

PHILOSOPHY MAJOR

Philosophy 153
Philosophy 171 or 173
Philosophy 251
Philosophy 340 or 341
One 300-level historical course (312-340)
One 200 or 300-level systematic (201-211, 365-390)
One 300-level systematic (365-390)
One elective
Philosophy 395

If the philosophy major is a single major, a four-course cognate from a different department is required.

PHILOSOPHY MINOR

Philosophy 153
Philosophy 171 or 173
Philosophy 251
Philosophy 252
Two electives

HONORS

Students wishing to graduate with honors in philosophy must complete six honors courses overall, including two philosophy honors courses with a grade of B or higher, at least at the 300-level. They must also achieve a minimum cumulative GPA of 3.3 and a minimum GPA in the philosophy

major of 3.0, and they must successfully submit and present an Honors Paper.

Students who wish to present one course toward the core requirement in philosophy should take 153. Those who wish to present two courses should take 153 and 171, 173, or any intermediate or advanced level course (excluding interim courses); or, for those in teacher education, 153 and 209 or Education 304.

Elementary Courses

153 **Introduction to Philosophy** (3). F and S, core. A one-semester introduction to philosophy which aims to give the student a Christian philosophical framework, along with some awareness of important alternative philosophical perspectives. *Staff.*

171 **Introduction to Logic** (3). F and S. A course in elementary deductive and inductive logic with emphasis upon the use of logic in evaluating arguments. Suitable for first-year students; not recommended for students aiming toward graduate study of philosophy. *Staff.*

173 **Introduction to Symbolic Logic** (3). S. A course in elementary symbolic logic, including some modal logic. This course is recommended especially for science and mathematics majors, and for those intending to study philosophy on the graduate level. Open to qualified first-year students. *Mr. K.Clark.*

Intermediate Systematic Courses

All intermediate courses presuppose one course in philosophy and (after 153) satisfy core.

201 **Philosophy of Social Science** (3). * F A study of philosophical problems arising out of the methods and results of the social sciences. Not offered 1998–99.

202 **Philosophy of Law** (3). S A consideration of such topics as: the nature and types of law; sources of law; and the basis of a legal system, of legal and political authority, of obedience to law, and of human rights. Not offered 1998–99.

203 **Philosophy of Physical Science** (3). * S A study of philosophical problems arising out of the methods and results of the physical sciences. *Mr. S. Wykstra.*

204 **Philosophy of Religion** (3). S A study of some philosophical questions arising from religious belief. *Mr. K. Clark.*

205 **Ethics** (3). * F A course designed to deal both historically and situationally with the persistent problems of the moral life. *Staff.*

207 **Political and Social Philosophy** (3). * F A historically-oriented study of the problems of social and political thought, with emphasis on political and social ideals such as justice; equality and the law; the basis of authority; rights and obligations. *Mr. I. Hardy.*

208 **Aesthetics** (3). * F and S A study of the nature of art and aesthetic judgments. *Mr. L. Zuidervaart.*

209 **Philosophy of Education** (3). S A study of the nature, aims, and principles of education. *Mr. G. Mellema.*

211 **Philosophy of Gender** (3). * F A study of the ways in which feminist theory and the newer “men’s studies” interact with traditional topics in philosophy. Particular attention will be paid to research and theory concerning men’s vs. women’s moral reasoning, questions about group vs. individual rights, feminist theorizing on human nature and the nature of knowledge, and the impact of gendered theorizing on religious thought. *Ms. R. Groenhout.*

215 **Business Ethics** (3). F A systematic examination of ethical concepts as they relate

to business conduct, designed to be of interest to all students who are concerned about justice and fairness in the marketplace. Issues such as discrimination and affirmative action, the ethics of advertising, protection of the environment, responsibilities of employees to the firm and the firm to employees, and the rights of other stakeholder groups will be examined in the light of current debates in ethical theory. *Mr. G. Mellema.*

Intermediate Historical Courses

All intermediate courses presuppose one course in philosophy and (after 153) satisfy core.

251 **History of Philosophy I** (3). * F and S A survey of the major Western philosophers and philosophical movements of the ancient and medieval periods. *Staff.*

252 **History of Philosophy II** (3). * F and S A survey of some of the major Western philosophers and philosophical movements from the seventeenth century to the present. A continuation of 251, which is a recommended preparation. *Mr. C. S. Evans, Mr. L. Hardy.*

Advanced Historical Courses

All advanced courses presuppose two or more philosophy courses, or one philosophy course plus junior or senior standing. All satisfy core (after 153).

312 **Plato and Aristotle** (3). * F Advanced study of Plato and Aristotle. Not offered 1998–99.

322 **St. Thomas Aquinas** (3). * F An intensive study of selected passages from Aquinas’ *Summa Theologiae* dealing with the topics of God, human knowledge, and virtue. *Ms. R. De Young.*

331 **Kant** (3). * F A study of the *Critique of Pure Reason*. *Mr. L. Hardy.*

333 **Kierkegaard** (3). * S A study of selected philosophical works of Kierkegaard, focusing primarily on his philosophy of religion. *Mr. C.S. Evans.*

334 **Marx and Marxism** (3). * S A critical study of the thought of Karl Marx and his most important interpreters. Not offered 1998–99.

335 **Nineteenth Century Philosophy** (3). * A study of some major figures in nineteenth

century continental European philosophy. Not offered 1998–99.

336 **Studies in Modern Philosophy** (3). S. A study of major European rationalist thinkers of the seventeenth and eighteenth centuries. *Staff*.

340 **Contemporary Continental Philosophy** (3).* S. A study of major European figures in postmodern thought such as Nietzsche, Heidegger, Foucault, and Derrida. *Mr. L. Hardy*.

341 **Contemporary Anglo-American Philosophy** (3).* F. An in-depth study of some of the major figures and schools of twentieth-century Anglo-American philosophy, beginning with the birth of analytic philosophy in the works of Bertrand Russell, G. E. Moore, and Ludwig Wittgenstein. *Mr. K. Clark*.

Advanced Systematic Courses

365 **Ethical Theory** (3).* S. An examination of the concepts of moral obligation and moral responsibility, with special emphasis upon collective responsibility, supererogation, and the divine command theory. *Ms. R. De Young*.

371 **Epistemology** (3).* F. A study of the nature, sources, types, and limits of human knowledge. *Mr. S. Wykstra*.

375 **Philosophical Anthropology** (3).* S. A critical examination of major philosophical discussions of the nature of human existence, with special attention to selected topics such as gender, culture, society, mind, and body. *Mr. L. Zuidervaart*

378 **Philosophy of Language and Interpretation** (3).* F. A study of the nature and sources of language, and of the most prominent theories and methods of interpretation. Special attention will be given to the basis in philosophies of language for recent controversies in linguistics and literary criticism. Not offered 1998–99.

381 **Advanced Logic** (3).* Topics include the formalization of propositional and quantificational logic. Taught jointly with the Mathematics Department and also listed as Mathematics 381.

383 **Metaphysics** (3).* S. A study of selected topics of metaphysics. Not offered 1998–99.

390 **Readings and Research**. F, I, S. Prerequisite: permission of chair. *Staff*.

395 **Philosophy Seminar** (4).* F. An advanced seminar on topics of current interest in philosophy, culminating in the preparation and presentation of a research paper. Prerequisite: three courses in philosophy. *Mr. L. Zuidervaart*.

Graduate Courses

501 **The Educational Enterprise: A Philosophical Perspective** (3). F, summer. An examination of factors presently operative in the educational enterprise from the perspective of the history of Western philosophy. *Mr. G. Mellema*.

590 **Independent Study** (graduate). F, I, S. *Staff*.

JANUARY 1999 INTERIM

A catalog with the descriptions of all interim courses is available after October 1998.

W10 **Does God Make a Difference in Science?** (3) S. *Wykstra*.

W11 **Shadowlands: The Christian Vision of C.S. Lewis** (3) J. *Brower*.

W12 **The Expectations of Morality** (3) G. *Mellema*.

W13 **Give 'em Another Whack: The Ethics of Punishment** (3) R. *Groenhout*.

W14 **Unbearable Truth: The Life and Thought of Friedrich Nietzsche** (3) L. *Hardy*.

W50 **Independent Study at LAbri** (3) L. *Hardy*.

W51 **Art and the Public Sphere** (3) L. *Zuidervaart*.

IDIS W25 **Presenting...Ethics in Business** (3) K. *Clark*.

IDIS W26 **The Monkey Trials** (3) D. *Ratzsch*.

Physical Education and Recreation

Professors G. Afman, R. Honderd, N. Meyer, M. Schutten (chair), J. Timmer, G. Van Andel, M. Zuidema

Associate Professors D. Bakker, D. DeGraaf, K. Gall, N. Van Noord

Assistant Professor J. Pettinga, K. Vande Streek, E. Van't Hof

Instructors A. Warners

The department serves a number of functions—it provides a required but flexible sequence of physical education courses for all students; it offers professional training for physical education teachers, coaches, exercise scientists, athletic trainers, and recreation leaders; and it directs an extensive program of intramural, recreational, and inter-collegiate sports for men and women.

PE MAJOR*

PE 201
PE 212
PE 213
PE 220
PE 301
PE 315
PE 325
PE 332

Two electives from the 200-level or above
*Note that these are basic courses required of all physical education majors except education.

EXERCISE SCIENCE

Basic physical education courses

Cognate

Biology 141
Biology 205-206
Chemistry 113-114
Physics 223
Math 143

Exercise science program majors are asked to consult Mr. G. Afman or Ms. N. Meyer.

SPORTS MEDICINE

Basic physical education courses

Cognate for Sports Medicine

Biology 141
Biology 205
Biology 206
Chemistry 113
Chemistry 114
Physics 223
Math 143

ADDITIONAL COURSES

PE 255
PE 265
PE 355

Such students are also asked to work towards completion of clinical hours required for NATA (National Athletic Trainers Association) certification by being a student athletic trainer under the guidance of Calvin's certified athletic trainer. Students interested in the sports medicine program are asked to consult Mr. J. Timmer.

TEACHER EDUCATION P.E. MAJOR

PE 156
PE 201
PE 212
PE 213
PE 220
PE 301
PE 302
PE 325
PE 332
PE 380
PE 305
PE 306

SECONDARY EDUCATION P.E. MINOR

PE 156
PE 212
PE 220
PE 302
PE 306
PE 325
PE 332
PE 380

TEACHER EDUCATION MINOR— COACHING EMPHASIS

PE 212
PE 220
PE 255
PE 315
PE 325
PE 380

Two from PE 230-239

ELEMENTARY EDUCATION P.E. MINOR

PE 212
 PE 220
 PE 302
 PE 305
 PE 325
 PE 332
 PE 380

HEALTH EDUCATION MINOR

HE 202
 HE 203
 HE 254
 HE 265
 HE 266
 Nursing 476
 PE 301
 HE 308

Please note many courses in the health education minor are offered alternate years, so this minor takes careful planning.

The education programs require the approval of the Education Department and the approval of one of the department advisors, Mr. Marvin Zuidema, Ms. Debra Bakker, Ms. Kim Gall, or Mr. Jeffrey Pettinga. Prior to the teaching internship, students must have the approval of the department. Criteria for approval are found in the Teacher Education Program Guidebook, available in the Education Department.

RECREATION MAJOR

PE/Recreation 201
 PE/Recreation 215
 PE 301
 Recreation 303
 Recreation 304
 Recreation 305
 Recreation 310
 Recreation 346

Cognate

Social Work 350 or Psychology 201
 Psychology or Sociology 310
 PE 220
 PE 221 or 222
 Recreation 380

RECREATION MINOR

Recreation 201
 Recreation 305

Recreation 310

3 approved courses, one of which may be a recreation interim.

The professional program also includes a four-course interdisciplinary emphasis in a specific subspecialty area. The courses need the approval of the Recreation program advisor. Students who wish to pursue professional certification in therapeutic recreation (recreation therapy) are also required to take Recreation 314 and 324. (See model program on pages 56-57.) The program in recreation leads to a Bachelor of Science in Recreation and requires the approval of the recreation advisor, Mr. Glen VanAndel.

DANCE MINOR

PE 156
 PE 202
 PE 310
 PE 330
 PE 212

Five additional semester hours with at least one course from each of the following areas:

PE 151, 161, 152, 162, 153, 163, 154, 164, 155, or 165
 PE 161, 162, 163, 164, or 165
 One elective dance technique course

Physical Education core requirements in Skill Enhancement and Leisure/Performance are satisfied through the dance minor. Students would need an additional Health/Fitness core course to complete P.E. core. Please note that many courses in the dance minor are offered alternate years, so this minor takes careful planning.

Admission to any of the major concentrations requires the approval of the department chair. The liberal arts core requirement in physical education is met by the following courses: one course from those numbered 101-129 or 222 (Health Fitness Courses); one course from 130-159 or 221 (Skill Enhancement); and one course from 160-189 (Leisure/Performance). Students may take two semester hours in addition to the core requirements which may be applied to the minimum graduation requirements.

Physical Education and Recreation

100-129 **Health Fitness (1)**. F and S. Required of all students. The courses listed in this series have as a primary goal physical conditioning. Courses are either concerned with aerobic cardiovascular conditioning or the development of efficient muscular function. Students with special needs should enroll in PE 106.

- 101 Jogging
- 102 Walking
- 103 Cycling
- 105 Aerobic Dance
- 106 Aerobic Exercise
- 107 Weight Training
- 108 Lap Swimming
- 222 Elementary Health Education Activities (2)

130-159 **Skill Enhancement (1)**. F, I, S. The courses listed in this series include team and individual sports popular in the American society. The course's primary goals are skill development and participation. Personal equipment is needed to enroll in certain courses. Some courses meet off-campus.

- 131 Badminton I
- 132 Golf I
- 133 Tennis I
- 134 Racquetball I
- 135 Volleyball I
- 140 Swimming I
- 141 Swimming II
- 142 Women's Self-defense
- 143 Karate
- 151 Tap Dance I
- 152 Jazz Dance I
- 153 Modern Dance I
- 154 Sacred Dance
- 155 Ballet Dance
- 156 Creative Dance
- 157 Rhythm in Dance
- 221 Elementary Physical Education Activities (2)

160-189 **Leisure/Performance (1)**. F, I, S. The courses listed in this series have as their primary goals lifetime recreational value and performance at a more advanced level. Some courses meet off-campus.

- 161 Tap Dance II
- 162 Jazz Dance II
- 163 Modern Dance II

- 164 Sacred Dance II
- 165 Ballet Dance II
- 166 Square/Folk Dance
- 167 Social Dance
- 169 New Games
- 168 Outdoor Activities
- 171 Soccer
- 172 Slow-pitch Softball
- 173 Basketball
- 174 Touch Football
- 175 Volleyball II
- 176 Ice Skating
- 181 Badminton II
- 182 Golf II
- 183 Tennis II
- 184 Racquetball II
- 185 Bowling
- 186 Visual Design in Dance
- 187 Period Styles in Dance

190-199 **Elective Courses**. F, I, S. The courses listed in this series are offered to attempt to meet the special needs of students. Students may select a course from this group based on interest or academic program. These courses will count toward the total graduation requirement, but will *not* count as core courses.

- 191 Lifeguard Training (2 semester hours)
- 192 Water Safety Instructor (2 semester hours)
- 193 Sports Officiating (2 semester hours)
- 197 Downhill Skiing (1 semester hour)
- 198 Scuba Instruction (1 semester hour)
- 199 Independent Activity (1 semester hour)
- 202 First Aid Practicum (2 semester hours)
- 230-239 Coaching of Sports (2 semester hours)

201 **Historical and Sociological Foundations of Physical Education, Recreation, and Sport (3)**. F, S. A study of physical education, recreation, and sport in the context of their history and development as well as an overview of their role in, and significance to, contemporary society. *Mr. J. Timmer, Mr. D. DeGraaf.*

202 **Dance History (3)**. I. An historical and analytical study of the origins of western dance from early lineage-based societies to modern times with emphasis on its development as a performing art form. *Ms. E. Van't Hof.*

212 **Anatomical Kinesiology** (3). F. A study of human motion based on structural foundations. Particular attention is given to bone, joint, muscle, connective and nerve structures, and the movement patterns specific to these structures. An analysis of efficient anatomical movement patterns for locomotor, manipulative, and sport skills are studied in the course. Prerequisite: Biology 115. *Mr. G. Afman.*

213 **Mechanical Kinesiology** (4). S. An investigation into the physical laws of motion and how these laws apply to the human body and to objects projected by the human body. Specific sports skills are analyzed with respect to both kinematics and kinetics. Students determine efficient movement patterns for sports skills based on the mechanical principles studied in the course. Prerequisites: 212 and Physics 223. *Ms. N. Meyer.*

215 **Physical Education for Persons with Special Needs** (3). S. Philosophy and basic concepts relating to planning and conducting programs in community settings for individuals with disabilities. Concepts and techniques in program planning, leadership and adaptation of facilities, activities and equipment in recreation and physical education services for individuals with special needs are reviewed and discussed. Prerequisite: 201 or permission of the instructor. *Mr. J. Timmer.*

220 **Motor Learning and Skill Performance** (4). *F. This course explores how humans acquire movement skills. It includes an examination of the various characteristics of the learner, an attempt to develop specific theories of how motor skills are acquired, and a review of teaching strategies that are appropriate for teaching them. The focus is on the learner, the learning process, and methods of instruction and includes an evaluation of growth and the developmental factors influencing learning. The course gives opportunities for practical experience in applying motor learning principles. *Ms. M. Schutten.*

221 **Elementary School Activities and Programs** (2). * F and S. The course provides a working knowledge of the fundamentals of physical education planning for elementary school children. It substitutes for one course

in the skill enhancement (130-159) category of the physical education core requirement. This course is required of all elementary education students. *Mr. J. Pettinga, Ms. K. Gall.*

222 **Elementary School Health Education Program and Activities** (2). * F and S. The course provides a working knowledge of the fundamentals of health education planning for elementary school students. Particular attention is given to curriculum sequence, resource materials, and learning activities. The course is required of all elementary education students. It can substitute for a health fitness (100-129) physical education core requirement. *Ms. D. Bakker, Ms. A. Warners, Mr. K. VandeStreek.*

230-239 **The Coaching of Sports** (2). Students with a minor concentration in physical education must take two of these courses. Other college students with an interest in coaching are encouraged to elect courses in this series. Prerequisite: a record of participation in skill performance or completion of the same activity in 380.

230 Field Hockey. F. Not offered 1998-99.

231 Basketball. F. *Mr. K. VandeStreek.*

232 Baseball/Softball. S. *Mr. J. Pettinga.* Not offered 1998-99.

233 Track and Field. S. *Mr. J. Kim.*

234 Soccer. F. *Mr. G. Afman,* Not offered 1998-99.

235 Volleyball. F. *Ms. A. Warners.*

236 Football. F. *Mr. J. Pettinga.* Not offered 1998-99.

238 Wrestling. F. *Mr. J. Pettinga.* Not offered 1998-99.

239 Racquet Sports. S. *Ms. K. Gall.*

255 **Sports Medicine: Basic Athletic Training** (3). S, alternate years. The course covers physiological principles as they apply to physical conditioning and rehabilitation from injuries. Specific types of conditioning programs and general first aid techniques are studied. Laboratory topics include injury evaluation and taping techniques. This course is required for those taking the Exercise Science Major with Athletic Training Emphasis. Prerequisites: Biology 115, or equivalent, and PE 212. *Mr. J. Timmer.*

301 **Measurement and Evaluation in Physical Education and Recreation** (2). * S. A

study of the evaluation techniques and principles in physical education. The emphasis is on evaluation of physical fitness, body mechanics, growth, motor ability, sport skills, knowledge of health practices and sports activities, and program evaluation. Consideration is given to the organization of evaluation programs and the use of such programs. The course covers basic descriptive statistics and statistical research understanding. *Ms. M. Schutten.*

302 Organization of the Curriculum and Programs of Physical Education (3).* S. A study of the structure and curricula of modern physical education programs of elementary and secondary schools and the closely-related areas of administration of athletics, intramurals, recreation, and health programs. Adaptive physical education programs and mainstreaming are also covered. Opportunity is given to construct total programs of physical education for selected schools. *Mr. M. Zuidema.*

305 Instructional Methods for Elementary Physical Education (3). F A study of basic knowledges, skills, and strategies involved in the various educational activities appropriate for elementary school physical education programs. This course focuses on methods and resources for the elementary school curricula. Course includes lectures, discussions, demonstrations, laboratory teachings, student presentations, and resource material compilations. Prerequisites: 220 and 302. *Ms. E. Van't Hof, Mr. M Zuidema.*

306 Instructional Methods for Secondary Physical Education (3). S. This course focuses on methods and resource materials appropriate for secondary school physical education programs. Coverage includes team sports, individual and dual sports, fitness building activities, advanced gymnastic and creative movement activities, recreational sports activities, and adaptive activities. The course includes lectures, discussions, demonstrations, laboratory teachings, student presentations, and compilation of resource materials. Prerequisite: 220 and 302. *Ms. D. Bakker.*

310 Dance in World Culture (3). F A study of the relationship of dance to issues of culture: The role and power of dance to reflect

community, societal, and religious values within culture and the role of dance within the arts of diverse cultures. Prerequisite: PE 250 *Dance History Survey* or permission of instructor. *Ms. E. Van't Hof.* Not offered 1998-99.

315 Sociology of Sport (3). S. A study of the social and social-psychological dynamics of sports in modern society. Areas receiving special attention are youth sports, inter-scholastic sports, and professional sports. Emphasis is put on describing and understanding sports participants, observers, and the relationship of sport as an institution to the rest of the social structure. Offered as Sociology 315. *Mr. G. De Blay.*

325 Physiology of Physical Activity (4).* S. A study of physical efficiency and physiological principles involved in human exercise. Emphasis will be placed on the responses of the respiratory, cardiovascular, and muscular systems. The course includes the physiology of factors affecting performance such as the environment and the use of tobacco, alcohol, and drugs. Prerequisite: Biology 115 or equivalent. *Mr. G. Afman.*

330 Dance Composition and Performance (3). S. A study of the concepts of time, rhythm, space, shape, design, natural and formal choreographic forms, theme, group design, and notation as they relate to dance composition. Students will develop movement studies through lecture, video, discussion, and improvisation; choreograph a final project dance; teach it to dancers; design lighting and costumes; and stage it for an audience. Prerequisites: PE 156 *Creative Dance* (core Physical Education course) and at least one level II course in one of these five techniques: modern, ballet, jazz, tap, or sacred dance, or permission of instructor. *Ms. E. Van't Hof.* Not offered 1998-99.

332 Philosophy of Physical Education and Sport (3).*F This course introduces the student to the philosophical reflections in physical education and sport and examines existing theories about physical education and sport in society. Prerequisites: 201, Philosophy 153, or 151 and 152, junior status. *Mr. J. Timmer.*

355 Sports Medicine: Advanced Athletic Training (3). S, alternate years. The course

covers physiology, prevention, recognition, treatment, and rehabilitation of athletic injuries with an emphasis on advanced evaluation techniques, physical agents used in the treatment of athletic injuries, and therapeutic exercises used for prevention and rehabilitation. Lecture and laboratory time are divided equally in the course. The course is required of all Exercise Science Majors with an Athletic Training Emphasis. Prerequisites: 212, 255, Biology 115. Not offered 1998-99. *Mr. J. Timmer and professional staff.*

359 Seminar in Principles and Practices of Physical Education Teaching (3). F, S. The seminar deals with perspectives and methods of teaching physical education. This course should be taken concurrently with Education 346: Directed Teaching. Before taking this course, students must be admitted into Directed Teaching by the Education and Physical Education Departments. Students must complete the physical education major prior to student teaching. Fifth year and transfer students with special needs may seek department authorization to do directed teaching during the first semester. *Ms. D. Bakker, Mr. M. Zuidema, Ms. K. Gall.*

380 Individual Competences (2). F, S. This course offers opportunity for physical education and recreation majors and minors to develop the physical condition and skill necessary to be beginning teachers or leaders in physical education or recreation. Students are assessed on their skill competence in a variety of fitness and sport activities, and are required to complete fitness and sport classes in activities in which minimal skill competence is not demonstrated. Teaching, administrative, and professional building competences are also required. Students should register for this course with the instructor when they are admitted to a major or minor in the department and remain active until all the requirements are completed. The assessment inventory is given every fall. *Mr. J. Pettinga.*

390 Independent Study. F, I, S. *Staff.*

391 Honors Project and Presentation. F, I, S. *Staff.*

Recreation Courses

201 Historical and Sociological Foundations of Recreation and Sport (3).* F, S. A study of recreation and sport in the context of their history and development as well as an overview of their role in, and significance to, contemporary society. *Mr. J. Timmer, Mr. D. DeGraaf.*

215 Recreation for Persons with Special Needs (3). S. Philosophy and basic concepts relating to planning and conducting programs in community settings for individuals with disabilities. Concepts and techniques in program planning, leadership and adaptation of facilities, activities and equipment in therapeutic recreation services for individuals with special needs are reviewed and discussed. Prerequisites: PE/REC 201 or permission of the instructor. *Mr. J. Timmer.*

301 Measurement and Evaluation in Physical Education and Recreation (2). See PE 301.

303 Leadership in Recreation Programs (2). S. This course studies the organization of recreation programs and gives opportunity for observing programs in action, for structuring new programs, and for developing leadership skills. *Mr. D. DeGraaf.*

304 Management of Leisure Services (3). S. A study of the principles, policies, theories and procedures involved in the organization and administration of leisure services in a variety of settings. *Mr. G. Van Andel.*

305 Program Planning and Development (4). F A study of the principles and techniques of recreation program development. The application of a program development model which is used in the organization and planning of recreation programs is emphasized. Use of selected computer software programs for program administration and promotion will also be developed. *Mr. D. DeGraaf.*

308 Recreation Program and Facility Management (3). I. This course will review the principles and procedures related to the operation and care of private and public recreation resources, areas, and facilities. Topics will include: establishment of legal authority for operations, developing policies and guidelines, interagency coordination and/or competition, safety and security, and systems

evaluation. Prerequisites: Recreation 201 and 305 or permission of instructor. *Staff*.

310 Theory and Philosophy of Leisure (3). F. A study of the theories and philosophies of work, recreation, and leisure that influence contemporary culture. Emphasis is placed on the development of a Christian perspective on work, recreation, and leisure and its implications for professional practice. *Mr. G. Van Andel*.

314 Principles of Therapeutic Recreation (3). F. Alternate years. An introduction to the history, philosophy, and concepts of therapeutic recreation. An orientation to the role and function of therapeutic recreation personnel in the treatment of persons with psychological impairments, physical impairments, developmental impairments, pediatric illnesses, and the problems of aging are presented. Prerequisites: 215 or permission of the instructor. *Mr. G. Van Andel*. Not offered 1998–99.

324 Therapeutic Recreation Practice (3). F, alternate years. An introduction to the basic methods and techniques used in the delivery of therapeutic recreation services. Skills in interpersonal and helping relationships are reviewed and practiced in the context of their application to specific treatment approaches including leisure counseling, play therapy, physical confidence classes, stress-challenge, and physical fitness programs. Prerequisites: 215 and 314, or permission of the instructor. *Mr. G. Van Andel*.

346 Field Internship and Seminar (12). S and SS. This course involves a one-semester field experience in a recreation service or agency. The seminar focuses on the problems and issues involved in relating classroom learnings to professional practice. Prerequisites: completion of all courses in the recreation program, a minimum cumulative average of C (2.0), and the approval of the department. *Mr. G. Van Andel, Mr. D. DeGraaf*.

391 Honors Project and Presentation. F, I, S. *Staff*.

Health Courses

202 Foundations of Health Education (3). F, alternate years. This course will provide students with an introduction to basic issues

in the development of Health Education. In addition to the history and philosophy of Health Education, topics will include the following: health promotion, professional competencies, ethics, faith perspectives, and professional organizations. *Ms. D. Bakker*.

203 First Aid and Emergency Care (2). F. This course will enable the student to acquire increased accident and safety awareness as well as understand the liability aspects of administering first aid. The course will cover the cognitive and practical skills of standard first aid, artificial respiration, and CPR. Opportunity for American Red Cross Certification in adult, child, and infant CPR and first aid will be offered as part of the course. *D. Bakker*.

254 Nutrition (3). F. This course will provide the student with a basic understanding of human nutrition. Special emphasis will be placed on the role of food and nutrients in sustaining optimal health. Specific topics of study will include nutrition as it relates to athletic performance, the onset of diseases, and obesity. Prerequisites: Biology 115 or permission of instructor. *Ms. N. Meyer*.

265 Basic Health Concepts: Mental Health, Fitness, Sexuality, Aging, Addictive Behaviors, and Death (3). F, alternate years. This course is designed to provide students with basic health content. Topics to be discussed include a Christian perspective on health and wellness, mental health and stress, physical fitness, sexuality and reproduction, addictive behaviors, and aging and death. Prerequisite: Biology 115 or permission of instructor. *Mr. R. Honderd*. Not offered 1998–99.

266 Basic Health Concepts: Diseases, Substance Abuse, Community and Environmental Health (3). S, alternate years. This course is designed to prepare Health Education minors with a wide variety of Health Education content include the following: a reformed perspective on health, risk factors for lifestyle diseases, consumer health, environmental health, lifestyle and communicable diseases, substance abuse, and cancer. Prerequisite: Biology 115 or permission of instructor. This course may be taken before HE 265. *Ms. A. Warners*.

308 **Administration and Methods** (3). S. Alternate years. This course is designed to provide experiences that will enable the student to develop methodology, management, administrative, and instructional skills required to plan and implement a contemporary Health Education program in school settings. Prerequisite: HE 202 or permission of instructor. *Staff*. Not offered 1998-99.

JANUARY 1999 INTERIM

A catalog with the descriptions of all interim courses is available after October 1998.

W10 **Women's Health** (3) *D. Bakker, A. Warners.*

W11 **Sport and Fitness Management: Career Strategies and Job Opportunities** (3) *J. Bergsma, J. Kim.*

W12 **History of the Modern Olympic Games** (3) *J. Pettinga, J. Timmer.*

PE 202 **Dance History** (3) *E. Van't Hof.*

RECR 308 **Recreation Program and Facility Management** (3) *A. DeVries.*

IDIS W27 **Aging: A Whole-Person Approach to Care** (3) *E. Kemeny.*

Physics

Professors R. Griffioen, S. Haan (chair), L. Molnar, S. Steenwyk, D. Van Baak†
Associate Professor J. Jadrich
Assistant Professors M. Walhout

The Physics Department offers programs of concentration for students interested in careers or graduate studies in physics, astrophysics, or a related discipline, and for students interested in high school physics teaching. Students intending to major in physics are advised to enter college with four years of mathematics and to complete their 100- and 200-level courses in mathematics and physics during their freshman and sophomore years.

PHYSICS MAJOR: AT LEAST 32 semester hours

- Physics 123 and 181
- Physics 124 and 182
- (Physics 126, 186, and an approved elective can substitute for 123, 124, 181, and 182)*
- Physics 225
- Physics 226
- Physics 280 or W50 (Engineering 204 and 284 can substitute for 280 or W50)
- At least 4 semester hours of 382
- At least 2 upper-level theory courses
- Physics 195
- Physics 196 or approved electives to bring total to at least 32 semester hours

Cognates

- One of Computer Science 150, 155, or 185
- Math 161
- Math 162
- Math 231 (recommended)
- Math 261

All physics majors who are juniors or seniors must enroll in Physics 195 or 196 each semester and are expected to attend Physics Department seminars.

The 32-hour major is intended primarily for students who are also majoring in another discipline or earning an engineering degree but

have an active interest in physics. The major satisfies the college's concentration requirement for graduation with a B.A. degree.

Students wanting a B.S. degree must complete a total of at least 58 semester hours of science and mathematics. Persons interested in a physics-related career who want to earn a B.S. degree based upon a physics major should complete the above minimum requirements plus at least one more upper-level theory course, Physics 395, and Math 231. Students planning to pursue graduate study in physics should take all the upper-level theory courses (335, 345, 346, 365, 375, and 376), Mathematics 333, and Physics 395-96. A summer working as a full-time research assistant is also strongly encouraged.

Students who major in both engineering and physics can earn both a B.S.E. and a B.A. or B.S. provided they meet the minimum program requirements for each major, and provided their total program length is at least 145 semester hours. For a student with four years of high school foreign language, a dual-degree program may require as little as four years plus one summer. Interested students can consult with the Physics Department Chair for more details.

SECONDARY EDUCATION MAJOR IN PHYSICS: 32 semester hours

Physics 123 and 181
Physics 124 and 182
(Physics 126, 186, and an approved elective can substitute for 123, 124, 181, and 182)
Physics 225
Physics 226
Physics 280
Physics 382
Physics 390 (at least 2 semester hours involving a topic appropriate for teaching high school physics)
Physics 195 or 196
One from Physics 335-379
At least one approved elective

Cognates

Math 161
Math 162
Math 261
Astronomy 201 or Geology 331
Chemistry 103
One approved elective from Biology
One approved elective from Biology, Chemistry, or Geology/Earth Science

All juniors and seniors must enroll in Physics 195 or 196 each semester except their student teaching semester, and are expected to attend department seminars.

PHYSICS MINOR

Physics 123 and 181
Physics 124 and 182
(Physics 126, 186, and an approved elective can substitute for 123, 124, 181, and 182)
Physics 225
Physics 226
Physics 382
Approved electives (five semester hours)

Cognates

Math 161
Math 162
Math 261

SECONDARY EDUCATION PHYSICS MINOR: 20 SEMESTER HOURS

Physics 123 and 181
Physics 124 and 182
(Physics 126, 186, and an approved elective can substitute for 123, 124, 181, and 182)
Physics 225
Physics 226
Physics 382
Approved electives from Physics 196 and advanced physics courses

Cognates

Math 161
Math 162
Math 261

PHYSICS/COMPUTER SCIENCE GROUP MAJOR

Physics 126
Physics 186
(Physics 123, 124, 181, and 182 may be substituted for 126 and 186)
Physics 225
Physics 280
Computer Science 185
Computer Science 186
Computer Science 280
One from Computer Science 245, 353, or an interim
Physics or Computer Science electives (to provide a minimum of 24 semester hours in either physics or computer science)

Cognates

Math 161
 Math 162
 Math 231 or 255
 Math 261

HONORS

To graduate with honors in physics, a student must satisfy the general honors requirements of a minimum cumulative GPA of 3.3 and completion of a total of six honors courses (18 hours). In addition, the following departmental requirements must be met: (1) a minimum cumulative GPA of 3.3 in physics and mathematics, (2) At least three honors courses (of 3 or more semester hours each) in physics, including one upper-level theory course (335-379), (3) Completion of an approved physics major of at least 40 semester hours or the secondary education physics major. (4) regular participation in the departmental seminar program, (5) satisfactory completion of a senior project, including presentation of research results in a department seminar.

GROUP SCIENCE MAJOR

A group major in science and mathematics meets the needs of some students, particularly those in professional programs. The majors are not appropriate for students who anticipate attending graduate school in physics or who are in teacher education programs. Such group majors require twelve courses in the sciences and mathematics, ten of which must be from two departments with no fewer than four from either, with the remaining two courses chosen from a third department. The chairs of the three departments must approve each program of this type.

Students may apply for admission to the department before completing 226, but they must have completed the 100 and 200-level physics and mathematics courses with a minimum average grade of C (2.0) before they can be admitted to the major program. The physical science core requirement may be met by 110, 111, 123/181, 126, 221, 223, or the combination of 212 and IDIS 213. Students preparing to be elementary teachers must take either 111 or 212 as their second course of the three-course requirement in natural science, and

can take any of 111, 112, or 212 as their third course. Students with a physical science exemption or transfer credit may substitute 112 for 111 or 212.

Introductory Courses

110 **Physical Science** (4). F, core. This course evaluates the basic assumptions used in the scientific study of nature, discusses the methods of scientific investigation and the development of scientific theories, and presents the results of scientific investigations in the fields of physics and chemistry. It also acquaints students with the fundamental laws of physics and chemistry and explains certain important physical phenomena. This course is designed primarily for non-science majors and is not open to those who have taken or plan to take 111, 123, 126, or 221. Laboratory. *Staff*.

111 **Observational Astronomy and the Science of Motion** (4). F and S, core. This course traces the development of ideas concerning motion and the structure of the cosmos from ancient times through the emergence of modern science in the sixteenth and seventeenth centuries. The apparent motions and behaviors of the stars, sun, moon, planets, and of terrestrial objects are all examined, and the ideas explaining these motions are considered from a historical perspective. The course has a strong laboratory emphasis, and pays particular attention to the processes involved in scientific investigation and in the nature and development of scientific understanding. Aspects of this course are designed specifically for prospective elementary education students, and the course should be taken by students considering the elementary education program. Not open to those who have taken or plan to take 110, 123, 126, 221, or 223. Prerequisites: a year of algebra and a year of geometry in high school. Elementary education students who have taken high school physics may wish to substitute Physics 112 or 212 for this course in their program. *Mr. J. Jadrich*.

112 **Physical and Earth Science for Elementary School Teachers** (4). F and S. This course uses a hands-on approach in surveying topics in physics, chemistry, and earth science that are relevant for teaching in the elementary schools, but which are not cov-

ered in Physics 111. The course is designed to give prospective teachers background knowledge and experiences that will help them to teach hands-on science effectively. Topics covered include energy, sound, optics, electricity and magnetism, the structure of matter, chemical and physical changes, meteorology, and the structure and development of the earth's crust. Students with a physical science exemption may substitute 112 for 111 or 212. Not open to students who have taken or plan to take Physics 110. *Mr. S. Haan, Mr. J. Jadrich.*

123 Introduction to Modern and Classical Physics (3). F; core (with 181). This course, along with 124, serves as an introduction to both classical and modern physics for students planning to major in science or mathematics. Mathematically qualified students are encouraged to satisfy the core requirement with 123/181 rather than with 110. Topics in classical physics include mechanics and thermodynamics. The nature of scientific study in general and its place in one's world and life view are discussed. Prerequisites: concurrent registration in or completion of 181 and Mathematics 161. *Mr. R. Griffioen.*

124 Introduction to Modern and Classical Physics (3). S. A continuation of 123, which is a prerequisite. Prerequisites: Mathematics 161 and concurrent registration in Mathematics 162 and Physics 182. *Mr. R. Griffioen.*

126 Introductory Physics: Mechanics and Heat (4). S, core. An introduction to classical Newtonian mechanics applied to linear and rotational motion; a study of energy and momentum and their associated conservation laws; an introduction to the concept of heat and a study of the first and second laws of thermodynamics. This course serves as a preparation for 225 and is intended primarily for engineering students and others who cannot fit 123-124 into their programs. Prerequisites: Mathematics 161 and concurrent registration in Mathematics 162 and Physics 186. *Mr. R. Griffioen, Staff.*

195 Physics Student Seminar. No credit. F and S. A seminar course featuring student and faculty presentations on topics relating to new developments in physics, to science, technology, and society issues, and to ethi-

cal issues related to physics. Junior and senior physics majors must attend each semester; freshmen and sophomores intending to major are encouraged to attend. By meeting stated requirements in this non-credit course, students can receive an honors designation in another concurrent 100- or 200-level physics course. *Mr. M. Walhout.*

196 Physics Student Seminar (1). F and S. A seminar course featuring student and faculty presentations on topics relating to new developments in physics, to science, technology, and society issues, and to ethical issues related to physics. Both reading and laboratory topics are available for study and discussion. Students may not register for 195 and 196 concurrently. This course may be repeated up to two times, for a total 3 semester hours credit. *Mr. M. Walhout.*

212 Physics for Elementary and Middle School Teachers (4).* F (The combination of this course with IDIS 213 satisfies physical science core.) This course uses a laboratory based approach in surveying topics in physics that are relevant for teaching in the elementary and middle schools, but which are not covered in 111. The course is designed to give prospective teachers background knowledge and experiences that will help them to teach hands-on physics effectively. Topics covered include energy and work, fluids and buoyancy, heat, sound, light, electricity and magnetism, and radioactivity. The relationships of these science topics with the corresponding technology and with society are discussed. Prerequisites: Physics 111, 112, or high school physics. *Mr. J. Jadrich.*

221 General Physics. F; core (4). This course along with its sequel, 222, is designed for those who do not intend to do further work in physics. Beginning with Newton's mechanics, other topics in the sequence include: waves, electricity and magnetism, light, relativity, and atomic physics. Laboratory. Prerequisites: plane trigonometry and high school algebra. *Staff.*

222 General Physics (4). S, core. A continuation of 221, which is a prerequisite. Laboratory. *Staff.*

223 Physics for the Health Sciences (4). F; core. An introduction to those topics in phys-

ics which are applicable to a variety of health science fields with special emphasis on understanding various physical aspects of the human body. Topics include basic laboratory techniques and instruments for physical measurements, data analysis, basic mechanics, fluids, heat, electrical circuits, sound, optics, radioactivity and x-rays, a discussion of the nature of physical science, and a Christian approach to science. Laboratory. Prerequisites: high school geometry and algebra. Not open to those who have taken or plan to take 221. *Mr. S. Steenwyk.*

225 Introductory Physics: Electricity, Magnetism, and Waves (5). F, core. A study of the properties of electric and magnetic fields and of the integral form of Maxwell's equations which describe these fields; a mathematically unified treatment of alternating current circuits, general wave phenomena, and geometrical and physical optics. Laboratory. Prerequisites: 124 or 126, 182 or 186, Mathematics 162, and concurrent registration in Mathematics 261. *Mr. R. Griffioen, Staff.*

226 Introductory Modern Physics (4). S. An introduction to quantum effects and the wave-particle duality of matter and radiation; a study of the structure of atoms, molecules, solids, nuclei, and fundamental particles as described by Schrodinger theory. Einsteinian relativity and statistical mechanics are also introduced. Prerequisites: 225, Mathematics 261. *Mr. S. Steenwyk.*

280 Analog and Digital Electronics (4). S. An introduction to electronic circuits and devices and their applications. The following topics are included: A.C. circuit analysis, diode and transistor characteristics, amplifiers, oscillators, operational amplifiers, digital logic gates, flip-flops, counters, and integrated circuits. Laboratory exercises in all of the above topics are performed. Prerequisite: 225. Not offered 1998-99. (Also see Interim 1998 offerings.)

Advanced Theory Courses

All students enrolled in Advanced Theory Courses are expected to attend Physics Department seminars regularly. Prerequisite for all of the 300-level physics courses is Mathematics 261. Mathematics 231 is recommended.

335 Classical Mechanics (4). * F, alternate years. The motion of particles, of systems of particles, and of rigid bodies is studied by Newtonian and Lagrangian techniques. Topics included are: oscillatory motion, motion in a central force field, motion in non-inertial reference frames, motion of charged particles, and the inertia tensor of rigid bodies. Hamilton's canonical equations are developed and applied to simple systems. Prerequisite: 124 or 126. Not offered 1998-99.

345 Electromagnetism (4). * F, alternate years. The basic equations of electromagnetism are developed and applied to simple charge and current distributions. Further applications are made to electromagnetic energy and electromagnetic properties of matter. Prerequisite: 225. Not offered 1999-2000. *Mr. M. Walhout.*

346 Electromagnetism (4). * S, alternate years. Maxwell's equations are developed and applied to electromagnetic radiation and physical optics. The relativistic character of electromagnetism is discussed and applied to motion of charged particles and the radiation they emit. Prerequisite: 345. Not offered 1999-2000. *Mr. M. Walhout.*

359 Seminar in Secondary Teaching of Physics (3). S. A course in perspectives on, principles of, and practices in the teaching of physics and the other natural sciences at the secondary level. Included are teaching strategies, curriculum studies, readings regarding new developments in science education, and considerations of educational uses of statistics and computers. This course should be taken concurrently with Educ 346, and provides a forum for the discussion of concerns that develop during directed teaching. This course is part of the professional education program and may not be included in the major or minor in physics. *Staff.*

365 Thermodynamics and Statistical Mechanics (4). * S, alternate years. Equations of state, heat capacities, and the laws of thermodynamics. The thermodynamic potentials. Application to some simple systems and changes of phase. Kinetic theory. Statistical mechanics with emphasis on the canonical ensemble. Determination of entropy and the thermodynamic potentials with application to crystals and gases. Introduction to quan-

tum statistical mechanics. Prerequisite: 335. Not offered 1998–99.

375 **Quantum Mechanics (4).*** F The main emphasis is on wave mechanics and its application to atoms and molecules. One-electron atoms are discussed in detail. Additional topics discussed are electronic spin and atomic spectra and structure. Nuclei, the solid state, and fundamental particles are also considered. Prerequisite: 226. *Mr. S. Haan.*

376 **Quantum Mechanics (4).*** S. A continuation of 375, which is a prerequisite. *Mr. S. Haan.*

379 **Contemporary Physics (4).*** S. An introduction to one or more of the major areas of current research in physics. The course emphasis may be on solid-state, atomic, nuclear, or elementary-particle physics. Prerequisite: 375. Not offered 1998–99.

390 **Independent Study in Physics.** F, I, S. Independent readings and research in physics under the supervision of a member of the departmental staff. Prerequisite: permission of the chair. *Staff.*

Laboratory Courses

181 **Basic Electrical Measurements (1).** F. An introduction to basic D.C. electrical measurements including Kirchhoff's Laws, potentiometer circuits, and bridge circuits. Techniques of data handling and analysis and a brief introduction to A.C. circuits are included. *Staff.*

182 **Electrical Measurements (1).** S. Applications of D.C. electrical measurements; A.C. circuits, including experiments on frequency response and resonance; and an introduction to digital circuitry. Prerequisites: 181 and Mathematics 161. *Staff.*

186 **Introductory Physics Laboratory (1).** S. An introduction to basic D.C. electrical measurements and their use in studying vari-

ous mechanical systems and thermodynamic phenomena. Not open to those who have taken 181. Concurrent registration is required in 126 or the permission of the instructor. *Staff.*

382 **Modern Physics Laboratory (2).*** F and S. An introduction to the basic laboratory techniques in atomic, nuclear, and solid-state physics and a study of some of the more important experiments on which modern physical theory is based. This course may be repeated with the permission of the instructor. Prerequisites: 280 (recommended), or a year of college physics and permission of the instructor. *Mr. M. Walhout.*

395-396 **Physics Seminar and Research (2,3).*** F, S, 2 semester hours; I, 3 semester hours. Experimental or theoretical research on an approved topic and presentation of the result of the research in a departmental seminar. Prerequisites: 382 and the approval of the department. *Staff.*

Graduate Courses

590 **Independent Study.** F, I, S. *Staff.*

JANUARY 1999 INTERIM

A catalog with the descriptions of all interim courses is available after October 1998.

W10 **Women's Health (3)** *D. Bakker, A. Warners.*

W11 **Sport and Fitness Management: Career Strategies and Job Opportunities (3)** *J. Bergsma, J. Kim.*

W12 **History of the Modern Olympic Games (3)** *J. Pettinga, J. Timmer.*

PE 202 **Dance History (3)** *E. Van't Hof.*

RECR 308 **Recreation Program and Facility Management (3)** *A. DeVries.*

IDIS W27 **Aging: A Whole-Person Approach to Care (3)** *E. Kemeny.*

Political Science

Professors R. De Vries, J. Penning, C. Smidt, W. Stevenson, C. Strikwerda (chair)
Assistant Professor S. Goi

The department offers a variety of courses in the areas of American politics, international relations, regional studies, and political theory. Students majoring in political science may follow either the regular major program or a program of concentration in international relations.

POLITICAL SCIENCE MAJOR:

33 semester hours

Political Science 201

Political Science 207

Political Science 240

Political Science 251

One from Political Science 203, 204, 205, 206, 210, or 303

Eighteen additional semester hours from the department which may include one interim course

POLITICAL SCIENCE MAJOR: INTERNATIONAL RELATIONS CONCENTRATION (33 semester hours plus twelve approved cognate hours)

Political Science 201

Political Science 207

Political Science 240

Political Science 251

Five from Political Science 203, 204, 205, 206, 210, 303, 308, or 309

Six additional semester hours from the department which may include one interim course

Twelve approved cognate semester hours.

POLITICAL SCIENCE MAJOR: PUBLIC ADMINISTRATION CONCENTRATION (33 semester hours plus four approved cognate course)

Political Science 201

Political Science 202

Political Science 207

Political Science 209

Political Science 212

Political Science 240

Political Science 251

One from Political Science 203, 204, 205, 206, 210, or 303

One from Political Science 314, 317, or 318

One internship in either State/Local Government or Washington, D.C. (minimum 6 hours)

One Political Science elective (if needed to fulfill 33 hr. major requirement)

Four approved cognate courses in Business/Economics. (Recommended: Business 203, 204, 260, Economics 151, 221, 222, 339).

POLITICAL SCIENCE MINOR:

21 semester hours

One from Political Science 201, 202, 209, 212, 310, 314, 317, or 318

One from Political Science 203, 204, 205, 206, 207, 210, 214, 303, 308, or 309

One from Political Science 240, 306, or 320

Twelve additional semester hours from the department which may include one interim course

ELEMENTARY EDUCATION

POLITICAL SCIENCE MAJOR:

33 semester hours

Political Science 201

Political Science 202

Political Science 207

One from Political Science 203, 204, 205, 206, or 303

Political Science 240

Eighteen additional semester hours from the department which may include one interim course

ELEMENTARY AND SECONDARY EDUCATION POLITICAL SCIENCE MINOR

Political Science 201

Political Science 202

Political Science 240

One from Political Science 207, 308, or 309

One from Political Science 203, 204, 205, 206, 210, or 303

Two from Political Science 209, 212, 251, 310, 314, 317, 318, or an interim

INTERNSHIPS

Political Science majors are encouraged to enroll in internship programs and a variety of off-campus interims in the U.S. and

abroad. The department offers an 8 semester hour credit Internship in State and Local Government, Political Science 380. Interested students should contact Mr. J. Penning. Students may also enroll for a semester in the American Studies seminar and internship in Washington D.C., for which they may receive up to 8 semester hours credit in political science (see Off-Campus Programs). The department also cooperates with the Washington Center in placing students with internships in Washington D.C. Students interested in Washington programs should contact Mr. C. Smidt. While students may earn more than 8 semester hours of internship credits, only 8 semester hours may be applied toward the major. Additional internship credits may be taken as electives and applied toward the required total credits for graduation.

HONORS

To graduate with honors in political science, a student must attain a minimum GPA of 3.3, take at least six honors courses overall, with a minimum of four honors courses in political science, and attain a minimum GPA of 3.3 in courses within the major.

To be admitted to a major program in political science a student must have completed 201 or 210 with a minimum grade of C (2.0). Although the political science core requirement may be satisfied by 201 or 210, Canadian students should consider taking 210 and prospective Canadian elementary teachers either 201 or 210.

COURSES

151 Introduction to Politics (3). Core. A general survey course which introduces students to basic political concepts and issues, including the nature and task of the state, the ideologies which shape modern political life, and Christian contributions to political thought and practice. Not offered 1998-99.

201 American Politics (3). F and S, core. A study of American national politics. Emphasis is on the social context, constitutional foundations, processes, and functions of American politics. *Staff.*

202 American State and Local Politics (3). F A study of American politics at the state

and local levels. Emphasis is on state policy-making, urban politics, and metropolitics. *Mr. J. Penning.*

203 West European Politics (3). S. A study of the government and politics of Great Britain, France, and Germany. Attention is given to historical development, current political structures, and movements toward economic and political union. *Mr. C. Strikwerda.*

204 Latin American Politics (3). A study of modern Latin American politics with special emphasis on how different types of political regimes address the challenge of economic development. Not offered 1998-99. *Ms. S. Goi.*

205 Asian Politics (3). F A study of the political systems and political developments in East and Southeast Asia with particular emphasis on China and Japan. Not offered 1998-99. *Mr. C. Strikwerda.*

206 Russia, the CIS, and Central Europe (3). * A study of the development of political systems in the post-communist era with particular emphasis on the prospects of democratic development in the former Soviet Union. Not offered 1998-99.

207 Introduction to International Politics (3). F and S. An analysis of different theoretical approaches to the study of international politics and major problems of the international system, such as nationalism, imperialism, war, nuclear weapons, hunger, and poverty. *Mr. R. De Vries.*

209 Public Administration (3).*S. An introduction to public administration, focusing on organization theory, public management, human resources administration and budgeting.

210 Canadian Government and Politics (3). F Core. A study of the political system of Canada with emphasis on national (federal) government and politics. Examines the origins and development of Canada's political institutions, Canada's constitution, Canadian federalism, the operation of the parliamentary-cabinet system in Canada, political parties and election, social forces and trends in Canadian politics.

212 American Public Policy (3). S. An examination of American public policy, focus-

ing on the process of policy-making, methods of evaluating public policy, and the content of American public policy in key areas such as defense, social welfare, criminal justice, and education. *Mr. J. Penning.*

240 Political Ideas in Historical Perspective (3). F and S. An introduction to the history of political thought. By examining such concepts as freedom, authority, and justice, as they are understood by representative modern and pre-modern political thinkers, the course attempts to uncover the major strands of historical development in Western political thinking. *Ms. S. Goi.*

251 Methods in Political Analysis (3). S. A study of the philosophical assumptions, theoretical issues, methodological approaches, and the analytical tools used in analyzing American, comparative, and international politics. *Mr. C. Smidt.*

295 Religion and Politics in Comparative Perspective (3). F An examination of various religious movements and some of their political manifestations in different cultural contexts. Both fundamentalist and liberation movements are examined. *Mr. C. Smidt.*

303 African and Indian Politics (3).* A study of the politics and governments of the African states and India. Emphasis is on the issues and problems of political and economic development. *Mr. R. DeVries.* Not offered 1998-99.

305 History of Political Thought to the Reformation (3). The development of political thought from ancient Greece to the sixteenth century. Not offered 1998-99.

306 History of Modern Political Thought (3).* S. Representative political theorists from the sixteenth through the nineteenth century. *Mr. W. Stevenson.*

308 Principles of American Foreign Policy (3).* S. An analytical view of American foreign policy; its domestic sources; the process of formulating policy; the instruments of American diplomacy; the nature of U.S. relations with hostile powers, allies, emerging nations, and the United Nations; the limitations and potential of American foreign policy. *Mr. R. DeVries.*

309 International Organizations and Law (3).* F An examination of universal and regional international organizations and international law; their function and processes, their limits and possibilities, and their relationship to the international system. Special emphasis is given to the United Nations system. *Mr. R. DeVries.*

310 Constitutional Law and Judicial Process (3).* S. A comprehensive study of the role of the courts in the American political system, focusing on the Supreme Court's role in constitutional interpretation. *Mr. W. Stevenson.*

314 The President and Congress (3).* An analysis of the powers and processes of these two institutions of American government and the changing relationship between them. *Mr. D. Koopman.* Not offered 1998-99.

317 Parties and Elections (3).* F An analysis of the nature and importance of political parties and elections to American politics. Topics included are party development, party organization, political campaigns, electoral laws, public opinion, voting behavior, and election reforms. Attention is also given to survey research and the analysis of poll data. In election years, students enrolled in the course are encouraged to participate in the political campaign of the party or candidate of their choice. *Mr. D. Koopman.*

318 American Politics and Mass Media (3).* A survey of the relationship between American politics and the mass communications media. The course covers the way the federal government through its regulations and its dissemination of information affects the operations of the media, and how the media influence the social and political values of Americans and the functioning of the political system. (Also cross-listed with CAS 218.) *Mr. C. Smidt.* Not offered 1998-99.

320 Twentieth Century Political Thought (3).* A study of representative political theorists of the twentieth century, their points of emphasis, and their fundamental assumptions regarding politics and political reality. Not offered 1998-99.

380 **Internship in State and Local Government** (8). S. A field experience involving working for a government agency, an elected government official, or a private interest group in state or local government. Interns work sixteen hours per week under the direction of an agency instructor and attend a weekly seminar conducted by the college instructor. Prerequisites: a minimum grade point average of 2.5 and completion of Political Science 202, or permission of college instructor. Application for internships is made in September of each year. *Mr. J. Penning.*

390 **Independent Study**. F, I, S. Reading or directed projects for majors. Open with the permission of the chair and the instructor under whom the work will be done. *Staff.*

395 **Seminar**.* *Staff.*

JANUARY 1999 INTERIM

A catalog with the descriptions of all interim courses is available after October 1998.

W10 **The Vietnam War** (3) *C. Strikwerda.*

W50 **United Nations Interim** (3) *R. De Vries.*

Psychology

Professors C. Beversluis, M. Bolt, J. Brink, W. Joosse (chair), A. Shoemaker, S. Stehouwer, R. Terborg, G. Weaver*

Assistant Professors J. Barrett, M. Gunnoe, S. VanderStoep

The department offers a varied set of courses dealing with important facets of individual human functioning. The major and minor programs in psychology are designed to allow students flexibility to select courses which fit their present interests as well as their future expectations. Students majoring in psychology often enter "people-related" jobs in business, education, and the social services, or they pursue graduate study in psychology and related fields. A student handbook for majors can be obtained from the department office.

The core requirement in psychology is met by 151. Education 301 satisfies the core requirement only for students in teacher education programs.

PSYCHOLOGY MAJOR

Psychology 151

Psychology 255

Psychology 306

Psychology 399

One 330-level Psychology course

Two 300-level Psychology courses

Three Psychology electives (may include one interim)

Students must have a minimum grade point average of 2.00 in psychology courses to declare a psychology major.

Not more than one interim may be included in the ten-course major nor may 390, or any interim, be counted as a 300-level elective.

Strong students intending to do doctoral work in psychology should take 255 by the end of their sophomore year and 308 in the fall of their junior year. They should include 395 in their program of concentration and should plan their program with a departmental advisor. These courses are less important for masters and/or counseling programs.

HONORS

Students wishing to graduate with honors in psychology must complete at least six honors courses of which at least three must be in psychology. One of the three psychology honors courses must involve an honors research paper in Psychology 395 or a comparable honors project in Psychology 390.

Students must also achieve a minimum cumulative GPA of 3.3 in their psychology courses.

INTERNSHIPS

Psychology majors who have demonstrated ability in their psychology courses are encouraged to apply for an internship placement during their junior or senior year. Psychology 380, Internship in Psychology, provides a four-semester hour credit internship experience in one of a variety of areas of professional psychological practice and/or research (see course description). These experiences can provide important background for bachelor's degree level employment or graduate education in psychology. Students may also apply for an eight-week summer internship experience in neuropsychology at Rush Presbyterian St. Luke's Medical Center in Chicago. Although students may earn more than 4 semester hours of internship credits, only 4 semester hours can be applied toward the major. Interested students should contact Mr. G. Weaver or Mr. S. VanderStoep.

PSYCHOLOGY MINOR

Psychology 151

One from Psychology 255, 306, 308, 330, 331, 332, 333, 334

Four Psychology electives (may include one interim)

SECONDARY EDUCATION PSYCHOLOGY MINOR

Psychology 151

Psychology 201

Psychology 212

Psychology 310

One from Psychology 330, 331, 332, 333, 334, or 308

Psychology 399

One psychology elective (may be an interim) is needed to meet the Michigan minimum requirement of 20 semester hours.

COURSES

151 Introductory Psychology (3). F and S, core. An orientation to many of the central concerns of psychology, this course includes consideration of such issues as perception and consciousness, learning and memory, motivation and emotion, personality development and social interaction, stress and

adjustment. Students are introduced to the methods of psychological research and to the role of psychology in scientific endeavor and human application. The psychology core requirements for students in teacher education programs should be met by Education 301 rather than by this course. *Staff.*

201 Developmental Psychology: Lifespan (3).* F and S. An overview of human psychological development from birth to death. The primary objective is to understand the behavior characteristic of each stage of development and the factors which influence that behavior. Not open to students who have taken or plan to take 204. Prerequisite: 151 or Education 301, or permission of the instructor. *Mr. W. Joosse.*

204 Developmental Psychology: Child (3).* F and S. A basic overview of normal development from conception to adolescence. Organization is chronological (infant, toddler, etc.) and conceptual (cognitive development, social-personality development, etc.). Not open to students who have taken or plan to take 201. Prerequisite: 151 or permission of the instructor. *Ms. M. Gunnoe.*

207 Developmental Psychology: Adolescent (3).* S. A study of human development from puberty to early adulthood. Topics include the types of transitions experienced (social, cognitive, physical); the contexts of adolescence (family, peer-group, school, work); and adaptive vs. maladaptive attempts to establish identity and intimacy. Prerequisite: 151 or Education 301, or permission of the instructor. *Ms. M. Gunnoe.*

211 Personality and Adjustment (3).* F and S. A study of theory and research pertinent to personality dynamics and adjustment. Coverage typically includes concepts of mental health, the nature of stress, the self concept, and principles of emotional and interpersonal competence. Special emphasis is given to influential world views, Christian assessments, and personal applications. Prerequisite: 151 or permission of the instructor. *Mr. W. Joosse.* Not offered 1998-99.

212 Psychopathology (3).* F and S. A study of the wide range of abnormal behaviors. Emphasis is on causes, dynamics, and classification, with some attention to treatment

approaches. Prerequisite: 151 or permission of the instructor. *Mr. S. Stehouwer, Mr. G. Weaver.*

216 Psychology of the Exceptional Child (3).* S. A basic overview of children who differ physically, mentally, or behaviorally from "normal" children. Emphasis on causal factors, characteristics, and diagnosis. Not open to students who have taken or plan to take Special Education 216. Prerequisite: 151 or Education 301, or permission of the instructor. *Staff.* Not offered 1998–99.

222 Human Sexuality and Gender (3).* S. This course explores the ways that sexuality and gender have been studied as variables in psychological research and theory. Special attention will be given to recent theories of physiological and cultural influences on men's and women's development. Biblical and popular perspectives on sexuality and gender issues will be examined, and promises and problems in gender relations will also be studied. Prerequisite: 151 or permission of the instructor. *Ms. C. Beversluis.*

255 Social Science Statistics (4).* F and S. An introduction to statistics and computer applications in one of the social sciences. Concepts and procedures taught include levels of measurement, measures of central tendency, correlation techniques, probability theory, design of experiments, and hypothesis tests. Prerequisite: an introductory course in one of the social sciences (e.g. *Psyc 151*). *Mr. A. Shoemaker.*

301 Organizational Psychology (3).* S. A consideration of psychological concepts and research related to human action in work situations, particularly in organizations. The course includes discussions of the psychological processes of individuals involved in work and management (e.g., perceptual discrimination in varying tasks, strategies in problem solving, motivation for power and achievement, effects of compensation on learning), and the social psychology of the work organization (communication patterns, decision-making processes, performance evaluation, conflict, and stress). The relationship of psychological theory and practice are analyzed through case studies of organizational experiences. Prerequisite: 151 or permission of the instructor. *Mr. S. VanderStoep.*

306 History and Systems of Psychology (3).*F and S. This course explores the historical roots of some of the current directions and tensions in the field of psychology. Questions about human nature and the nature of mind and knowledge are addressed through the study of ancient, medieval, and modern psychological theories. Special attention is given to the relationship between historical context and psychological theory. Prerequisites: two courses in psychology or permission of the instructor. *Ms. C. Beversluis.*

308 Experimental Psychology (4).*F: A continuation of 255 with an emphasis on general research methodology at both the conceptual and applied levels. Consideration is given to topics such as the scientific study of human behavior, the formulation of research problems and hypotheses, research design, statistical inference, decision-making, and the writing of research reports. For majors and others interested in the social behavioral, and health sciences. Students who have taken a course in statistics but are not familiar with SPSS must consult the instructor before registering for this course. Prerequisites: 151 and 255 or permission of the instructor. *Mr. R. Terborg.*

310 Social Psychology (3).* F and S. A study of how people think about, influence, and relate to one another. Attention is given to such topics as persuasion and attitude change, conformity and obedience, group conflict and decision-making, stereotypes and illusions of social thought, attraction and prejudice, altruism and aggression. Students may not receive credit for this course and Sociology 310. Prerequisite: 151 or permission of the instructor. *Mr. M. Bolt, Mr. J. Brink.*

311 Theories of Personality (3).* F and S. A study of the enduring human personality characteristics that often distinguish one person from another. Extensive consideration is given to biological, psycho-dynamic, social, cognitive, and trait-descriptive theories of personality structure and functioning. The course also introduces students to a variety of personality scales and inventories designed to identify important individual differences in personality. Prerequisites: 151 and 212, or permission of the instructor. *Mr. J. Brink.*

312 Principles of Psychological Measurement (3).* F An introduction to the theoretical and practical issues of psychological testing. Topics include: reliability and validity of tests, construction of psychological and educational measures, the use and misuse of standardized tests, strengths and weaknesses of commonly used tests, and the social, educational, and legal issues involved in testing and measurement. Prerequisite: 255 or permission of the instructor. *Mr. A. Shoemaker.*

313 Mental Health and the Classroom (3).* S. An introduction to the developmental needs and common developmental crises of school age children. Emphasis is on the methods of communication and classroom management which allow the teacher to promote healthy adjustment. Prerequisite: 151, or Education 301, or permission of the instructor. *Staff.*

314 Theories of Counseling and Psychotherapy (3).* F An introduction to counseling and psychotherapeutic methods for dealing with emotional disorders. The course includes an overview of major approaches to counseling and psychotherapy with an analysis of the theoretical aspects and techniques employed. An attempt is also made to integrate these various approaches and to view them from a Christian perspective. Prerequisite: 212 and 311 or permission of the instructor. *Mr. S. Stehouwer.*

322 Perspectives of Psychology (3).* This course explores the relationships of psychology to, or its involvement in, such areas as religion, literature, art and culture. When offered the particular topic area will be announced in the class schedule. Offered on an irregular basis. Prerequisite: 151 or permission of instructor. *Staff.*

330 Psychology of Motivation (4).* S. An investigation of physiological, learning theory, and social-cognitive explanations of motivation. Topics include: brain mechanisms influencing hunger, sexual desire, attention, punishment and reward; drug effects on personality; emotional processes in addiction; drive and incentive effects in clinical disorders and work activity; gender and culture differences in achievement and power motives; decisional processes in learned optimism; and applications of theory to learn-

ing in inner city classrooms and to industrial productivity. The study of motivation is presented as a model for understanding inter-relationships among different approaches to psychological theory and research. Two-hour laboratory each week. Prerequisite: 151 or permission of instructor. *Mr. G. Weaver.*

331 Psychology of Sensation and Perception (4).* S. A detailed examination of the theories and research pertaining to various sensory and perceptual processes in human beings. Methodological, physiological, and pretheoretical issues are addressed. Two-hour laboratory each week. Prerequisite: 151 or permission of the instructor. Not offered 1998-99.

332 Psychology of Learning Processes (4).* S. A consideration of how research findings and theory relate to learning processes. Included are such issues as the role of reinforcement and punishment, methods of enhancing or suppressing performance, biological limits on learning, stimulus generalization and discrimination learning, the structure and organization of memory, and factors related to forgetting and retention. The importance of learning theory for psychology in general is stressed. Two-hour laboratory each week. Prerequisite: 151 or permission of the instructor. *Mr. R. Terborg.*

333 Physiological Psychology (4).* F This course is an introduction to research on the brain and physiological processes that have become very important in psychology. The course explores the physiological roots of perception and consciousness, learning and memory, sleep, emotion, sexuality, neurological disorders and psychopathology. The course includes an introduction to the work of clinical neuropsychologists and cognitive neuroscientists. Laboratory and off-campus experiences. Prerequisites: 151 and Biology core, or permission of the instructor. *Ms. C. Beversluis.*

334 Cognitive Psychology (4).* F A survey of research and theory in the study of human cognition. The course covers the acquisition, representation, and use of knowledge with emphasis on the processes of memory, language, and decision-making. Two-hour laboratory each week. Prerequisite:

site: 151 or permission of the instructor. Mr. S. VanderStoep.

380 Internship in Psychology (4).* F, S. Students are placed in a field experience related to a specialized area of psychological practice or research (e.g. school psychology, industrial-organizational psychology, counseling-rehabilitation psychology). Students work eight hours per week under the direction of an on-site supervisor and participate in regular seminar meetings conducted by the college instructor. These experiences will introduce students to service in professional psychology as it is related to issues of psychological theory, research, client characteristics and needs, professional standards, and Christian discipleship. Each student will author a project that communicates learning throughout the internship. Prerequisites: junior or senior psychology major, completion of course sequences related to the internship specialization (information available from the Psychology Department), and departmental approval of student application. *Staff.*

390 Independent Study. F, I, S. Prerequisite: permission of the department chair. *Staff.*

395 Research Seminar (4).* S. The preparation, presentation, and discussion of papers based on current psychological literature and upon individual empirical research on selected topics. Prerequisites: 255 and 308. Enrollment is limited and departmental approval is required prior to registration. *Staff.*

399 Psychology and Religion (3).* S. This capstone course will examine relationships between psychology and religion. It will include discussions of how several major psychologists have attempted to explain religious faith and practice. The course will examine frameworks that have been proposed for relating Christian beliefs about persons and psychological explanations. Consideration will be given to how these frameworks have influenced recent investigations of areas related to our experiences of Christian faith (e.g. perception, moral development, emotion). Prerequisite: 151 and three additional psychology courses or permission of the instructor. Mr. G. Weaver.

Graduate Courses

510 Educational Measurement (3). This course provides a theoretical and practical

background which will enable classroom teachers to construct or select tests for specific purposes. It is designed to enable teachers to use test scores wisely and effectively in the learning process. A major paper requires knowledge and application of the concepts of reliability and validity as well as practical considerations in the evaluation of a standardized test of the student's choice. *Staff.*

511 Introduction to Guidance and Counseling (3). This course provides a survey of principles, major theories and resources that shape guidance and counseling efforts in the schools and other settings. The course provides an introduction to the field for those wishing to become more knowledgeable and for those teachers wishing to contribute to and benefit from guidance and counseling efforts. As such, this course provides a focus on emotional disturbance (behavior disorders) and learning disabilities among school-aged children and adolescents, including specific examination of psychodynamic, biophysical, systemic, and behavioral models of etiology and treatment. Particular emphasis will be given to identifying methods of treatment in elementary and secondary schools and the community. These methods will be further examined as cooperating with and complementing the efforts of teachers, parents, and other community professionals. *Staff.*

590 Independent Study. F, I, S. *Staff.*

JANUARY 1999 INTERIM

A catalog with the descriptions of all interim courses is available after October 1998.

W10 Psychology of Interpersonal Relationships (3) A. Shoemaker.

W11 Social Psychology in Film (3) M. Bolt.

W50 Issues in Marriage and Family Life (3) N. Stehouwer, S. Stehouwer.

W51 Knowing Yourself: The Psychology of Self-Understanding (3) J. Brink, G. Weaver.

IDIS W18 Fish: A Natural Resource (3) C. Huisman, R. Terborg.

IDIS W31 The Nature of Sex (3) C. Beversluis, C. Blankespoor.

Religion and Theology

Professors P. Holtrop, R. Plantinga (chair), K. Pomykala, J. Schneider
Associate Professors D. Crump, A. Griffioen**, T. Thompson*, C. van Houten
Assistant Professors P. Kemeny, W. Lee, R. Whitekettle
Instructors K. Hotz, M. Matthews
Adjunct Professor C. Plantinga, Jr.
Adjunct Assistant Professor J. Witvliet

The department offers a general major in religion and theology and a teaching major for students in secondary education. In addition, students are encouraged to design group majors, such as Religion and Philosophy, Religion and History, or Religion and Sociology. Two minor concentrations are offered: a group minor in missions and a general minor. These programs are described below and will be worked out with a departmental advisor who will help design the program according to the student's specific needs and interests.

GENERAL MAJOR (BIBLICAL STUDIES EMPHASIS)

- 103 Biblical Literature and Theology (or equivalent)
- 201 Basic Christian Theology (or equivalent)
- Four biblical studies electives
- Three electives from other areas of religion and theology
- 396 Seminar: Religion and Theology

(SYSTEMATIC/HISTORICAL EMPHASIS)

- 103 Biblical Literature and Theology (or equivalent)
- 201 Basic Christian Theology (or equivalent)
- Four systematic/historical electives
- Three electives from other areas of Religion and Theology
- 396 Seminar: Religion and Theology

The general major in religion and theology is designed for students seeking a strong background in biblical and theological studies as preparation for various professions, for graduate education, or for Christian service generally. It is not limited to students preparing for the ordained ministry. The general major consists of ten courses (30 semester hours), including two core courses and a senior seminar, with emphasis in either biblical studies or systematic/historical studies. At least two courses (excluding Religion 301 and 396) must be from the advanced level (300-level); an interim course, approved by a departmental advisor, may also be included in the required ten courses. As part of the departmental writing program,

majors must designate one department course (excluding 103, 201, 359, or 396) prior to their senior year as writing enriched. This course will include additional writing, a revision component, and intensive evaluation. Students considering seminary or graduate school should consult their advisor about a recommended language cognate. Admittance to the major program requires completion of a core course with a minimum grade of C (2.0).

TEACHING MAJOR

- 103 Biblical Literature and Theology
- 201 Basic Christian Theology
- 250 Introduction to the Study of Religion
- 351 World Religions
- IDIS 234 The Contemporary American Religious Situation
- One elective from biblical studies
- One elective from systematic/historical studies
- Two courses from Art 231, Classics 231, History 231-233, Philosophy 204, 205, Psychology 399, Sociology 153, religion and theology courses in biblical studies and systematic/historical studies, or an approved interim.
- 359 Seminar in Principles of and Practices in Secondary Religion Teaching.

The teaching major is for education students who plan to teach religion in secondary schools (see pages 38-46) and consists of ten courses (30 semester hours), listed above. During student teaching for this program, which is offered in the spring semester, students should

enroll in Education 346 and Religion 359. The teaching major in religion and theology fulfills the requirements for the state-certified Academic Study of Religions minor. (It cannot count as a state-certified major in a secondary education program.) Graduates of the teaching major in religion and theology will receive a special certificate from Calvin College as a credential of qualification for secondary religion teaching. Teaching majors must fulfill the departmental writing program requirements as stated above under the general major. Mr. T. Thompson is the advisor for the teaching major.

INTERDISCIPLINARY MAJORS

Interdisciplinary majors in religion and theology and other fields may be designed according to the guidelines for group majors (see page 35). For example, a student wishing to present an interdisciplinary major in Religion and Philosophy could take 4–6 courses (12–18 semester hours) in religion and theology and 4–6 courses (12–18 semester hours) in philosophy, and 2 courses (6 semester hours) from a third discipline. Interdisciplinary majors must be carefully planned and must be approved by both major department chairs and the registrar.

GENERAL MINOR

One core course in religion and theology
Five other courses from any area of Religion and Theology

The general minor in religion and theology is for students who seek to develop a biblical and theological perspective for work in other disciplines and for Christian service generally. This minor consists of six courses (18 semester hours), one core course and five others, one of which (excluding Religion 301) must be from the advanced level (300-level). An appropriate interim course may be included with the approval of the advisor.

GROUP MINOR IN MISSIONS

251 Christianity and the World's Religions
252 Introduction to Missions
Sociology 253 Intercultural Communication
Three courses chosen (in consultation with an advisor) from the following: Religion 351, Geography 320, 240, Sociology 153, Economics 337, TWDS 201, area study courses (History 203-208, 233-236, 360, Spanish 310), an appropriate interim

course, and other courses approved by the advisor as part of an introduction to holistic missions.

The group minor in missions is for students interested in missions and other cross-cultural ministries and consists of 6 courses (18 semester hours). Mr. J. Schneider is the advisor for the group minor in missions.

One of the two basic core courses in religion and theology must be taken from the biblical studies area; the other from systematic/historical studies. These requirements are normally met by taking 103 and 201. They may also be fulfilled, however, by taking one of the 200-level courses in biblical studies, and one of the 200-level systematic/historical offerings or 251, 301, or 332. Any department course except interims may be chosen by students electing a third core course in religion and theology. Interdisciplinary 234 will also satisfy as a third core course in religion and theology. Interdisciplinary W10 (CPOL) cannot be used to fulfill the two basic religion and theology core requirements.

Basic Courses

103 Biblical Literature and Theology (3). F and S, core. A study of the unfolding of the history of redemption as set forth within the historical framework of the Old Testament, Intertestament, and New Testament eras. Biblical books are analyzed, varying modes of literary expression are examined, and the major themes of Scripture are explicated. Open only to first-year and sophomore students. *Staff.*

201 Basic Christian Theology (3). F and S, core. An introduction to the methods and concepts of systematic theology, to the range of historic Christian and Reformed doctrines (such as God, creation, redemption, Spirit and church, and last things), and to present-day challenges in creative Reformed thought. Not open to first-year students. *Staff.*

Intermediate and Advanced Biblical Studies Courses

These courses are typically offered on an every other year basis.

211 Pentateuch (3). core. A study of the first five books of the Bible. This course ex-

amines the accounts of creation, fall, Israel's ancestors, exodus, and giving of the Law using literary and historical analysis. Comparative literature from the Ancient Near East will be used to shed light on biblical passages. Theological issues explored include the character of God, what it means to be a human, our covenantal relationship with God, the nature of the world, and the presence of God in historical events. Not open to first-year students. Not offered 1998–99.

212 Old Testament Historical Books (3). core. A study of Joshua–2 Kings, 1–2 Chronicles, and Ezra–Nehemiah in terms of their literary features, historical settings, and theological themes. Particular attention will be devoted to the prophetic character of these works that provide a theological interpretation of Israel's history. Not open to first-year students. Not offered 1998–99.

213 The Psalms and Wisdom Books (3). S. core. A study of the books of Psalms, Proverbs, Job, and Ecclesiastes. The three focuses of the course will be: how to read poetry, the different categories of the Psalms and their interpretation, and the role of wisdom books in the Bible. Not open to first-year students. *Mr. R. Whitekettle.*

214 Prophets (3). F, core. A study of Old Testament prophetic literature, including Isaiah, Jeremiah, Ezekiel, and selected minor prophets. Each book will be considered in light of its literary characteristics and socio-historical context with a view to explicating the text's theological message and contemporary relevance. Not open to first-year students. *Ms. C. deGroot-van Houten.*

221 Synoptic Gospels and Acts (3). F, core. A study of Matthew, Mark, and Luke–Acts that concentrates on the relationships, similarities, and differences in form and message among these three works. Not open to first-year students. *Mr. K. Pomykala.*

222 Johannine Literature (3). S. core. A study of the Fourth Gospel and 1–3 John with a view to considering matters of introduction, interpretation, and theology. Not open to first-year students. *Mr. D. Crump.*

223 Paul's Letters (3). F, core. A study of the letters of Paul in terms of their theologi-

cal and ethical themes with an emphasis on how these themes are expressed in the context of Paul's ministry to various early Christian communities. Not open to first-year students. *Mr. D. Crump.*

224 Revelation and General Letters (3). core. A study of Revelation and the general letters, including Hebrews, James, 1 & 2 Peter, and Jude, in terms of their literary features, historical setting, theological emphases, and present relevance. Not open to first-year students. Not offered 1998–99.

307 Interpreting the Bible (3). * F A study of the methods and principles of biblical interpretation. Various exegetical and hermeneutical approaches will be examined and evaluated in terms of their usefulness for understanding the meaning and message of the scriptures. Prerequisite: a biblical core course. *Mr. W. Lee.*

309 Biblical Theology (3). * A course in constructive biblical theology, focusing on central themes, the problem of the unity and diversity of scripture, the "center" of biblical revelation, and proper methodology. Issues are considered in the context of historic and recent attempts to construct a biblical theology. Prerequisite: a biblical core course. Not offered 1998–99.

311 History and Archaeology of Ancient Israel (3). * F A study of the history of ancient Israel from the patriarchs through Ezra in the context of recent research on this topic. This course will consider the sources for reconstructing the history of Israel, including the Old Testament, Ancient Near Eastern literary remains, and archaeological evidence, as well as appropriate methods for interpreting these sources. Prerequisite: a biblical core course. *Mr. R. Whitekettle.*

313 When Women Read the Old Testament (3). * This course is the special topic for The Current Issues in Old Testament Studies course. In the last two decades, biblical interpretation by women and about women has blossomed and made significant contributions to the field of biblical studies. This course will study feminist approaches to the Old Testament and examine key passages relating to gender issues. Prerequisite: a biblical core course. Not offered 1998–99.

321 The Intertestamental Period (3).* A study of the history, literature, and theological developments of Judaism from the return from exile through the time of Christ, as a background for understanding the New Testament. Literature studied includes the Apocrypha and Dead Sea Scrolls. Prerequisite: a biblical core course.. Not offered 1998–99.

323 Christian Origins (3).* This course is the special topic for The Current Issues in New Testament Studies course. An historically oriented study of the origins of Christianity during the first century. This course will examine the Jewish and Greco-Roman context of first century Palestine, the life and teaching of Jesus of Nazareth, the history, practice, and theological formulations of the earliest Christian communities, and various Christian communities associated with both canonical and non-canonical Christian literature. Prerequisite: a biblical core course. Not offered 1998–99.

Intermediate and Advanced Systematic/Historical Studies Courses

These courses are typically offered on an every other year basis.

230 The Doctrine of Revelation (3). core. This course is designed to help students to explore Reformed concepts of revelation in contemporary cultural context. Traditional models of general and special revelation, and models of biblical inspiration and authority will be explored and developed in the context of modern and post-modern concerns in philosophy, science, and non-Christian religions. Not open to first-year students. Not offered 1998–99.

231 The Doctrine of God (3). core. This course is designed to enable students to examine Christian and Reformed concepts of God in considerable depth, and in the contexts of modern academic discussion and debate. Topics include: the attributes of God in current discussion and debate; the God of good, power, and evil; the idea of the God who is three-in-one. Not open to first-year students. Not offered 1998–99.

232 The Doctrine of Creation (3). S, core. This course investigates the Christian teaching about the creation of the world. Such

themes as the following will be considered: the interpretation of Genesis 1 and 2, creation out of nothing, creation and evolution, the goodness of creation and the problem of evil, the image of God, the cultural mandate and the idea of stewardship, and the eclipse of creation in modern thought. Not open to first-year students. *Mr. T. Thompson.*

233 The Doctrine of Christ and Reconciliation (3). F, core. The main goals of this course are to provide students with opportunity to examine and reflect upon historic and Reformed doctrines of the person and works of Christ in the contexts of contemporary analytic thought and current biblical theology. Topics will include: Christ as God and man in current discussion; New Testament Christology and the current debates; Reformed Christology in the making. Not open to first-year students. *Mr. J. Schneider.*

234 The Doctrine of the Holy Spirit and Church (3). core. A study of the biblical teachings, confessional formulations, theological reflections, and experiential impact of the person and work of the Holy Spirit in the life of believing communities, as well as the attributes and ministries of the Church universal. Not open to first-year students. Not offered 1998–99.

235 Eschatology (3). core. A study of Christian teachings concerning the end times and last things — their biblical basis, historical formulations, and contemporary relevance. Topics covered include the return of Christ, the final judgment, the resurrection of the body, and eternal life. Millennialist and dispensationalist issues are also critically analyzed both historically and theologically. Not open to first-year students. Not offered 1998–99.

237 Christian Worship (3). S, core. A study of the history, theology, and practice of Christian worship. This course examines the relationship between theology and worship by considering the biblical basis for worship, the history of Christian liturgy, and contemporary worship. Examples of sermons, baptismal and Lord's Supper practices, hymnody, prayers, dance, art, and architecture from both traditional and contemporary worship are studied. Not open to first-year students. *Mr. J. Witvliet.*

241 General Church History (3). F core. A survey of the history of the Christian church from its beginning to the present time, noting deviations from apostolic faith and practice, the interplay with the political, the great church councils, the crises that emerge, divisions and reunions, and the confluence of forces that determine the complexion of the Christian church today. Not open to first-year students. *Mr. M. Mathews.*

242 American Religious History (3). core. A consideration of the theology and religious history of America from the immigration period to the present. Attention is paid to the European background, early establishment of Christianity in America, the colonial era, revivalism and confessionalism, emergence of evangelicalism, fundamentalism and liberalism, and various 20th century movements, including current ecumenism. Major social and political developments and their influence upon the American religious scene will be considered throughout. Not open to first-year students. Not offered 1998–99.

251 Christianity and the World's Religions. (See *World Religions and Missions* for course description.)

301 Christianity and Culture (3). F and S, core. An historically-oriented study of the Reformed Christian tradition in the Western world — its origin and development, its basic concepts and life-perspectives, its cultural impact and contemporary relevance. Not open to first-year students. *Mr. P. Holtrop.*

332 Basic Christian Ethics (3). * S, core. A biblical-theological study of moral issues, both personal and social, considering relevant ethical principles and practices as they developed in the Judeo-Christian tradition. Not open to first-year students. *Mr. P. Holtrop.*

341 Early and Medieval Theology (3). * A study of the main themes in western Christian theology from the post-apostolic period to the dawn of the Protestant Reformation. This course considers the early articulations of faith in the Apostolic Fathers, through the Trinitarian and Christological controversies, to Augustine as a pivotal figure, then continues with a study of medieval theology as represented by such figures as Anselm,

Aquinas, Ockham, and Hus. The focus throughout this course is on similar and contrasting views on such matters as faith and atonement, Scripture and tradition, church and sacraments, and the papacy and society. Selected writings from major theologians will be studied. Prerequisite: a systematic/historical core course. Not offered 1998–99.

343 Reformation Theology (3). * F A study of Christian doctrine as formulated in the Protestant Reformation and refined and elaborated by later Reformed theologians. Comparisons are drawn between the Reformed system and those of other branches of Christendom. Calvin's Institutes of the Christian Religion serves as a basic text. Prerequisite: a systematic/historical core course. *Mr. P. Holtrop.*

345 Modern Theology (3). * A study of Christian theology from the eighteenth to twentieth century. This course considers how the Enlightenment affected Protestant theology, as reflected in the new interaction of theology, philosophy, and science, and studies major modern theologians in light of this background. Selected writings from major figures of the period, such as Schleiermacher, Barth, Bultmann, and Tillich, will be studied. Prerequisite: a systematic/historical core course. Not offered 1998–99.

World Religions and Missions

250 Introduction to the Study of Religion (3). F A thematic introduction to the phenomenon of religion in comparative perspective. Issues examined include the dichotomy between the sacred and the profane, the nature of religious experience and its various expressions in life, the significance of myth and ritual, and differing analyses of human existence. Attention is also given to questions about the origin, nature, and function of religion in human life and society, and to issues pertaining to the study of religion in the humanities and social sciences. *Mr. R. Plantinga.*

251 Christianity and the World's Religions (3). F core. An examination of the relationship of Christianity to the religions of the world. An attempt is made to understand

the phenomenon of religion from a theological perspective by investigating how various biblical and Christian writers have viewed Christianity's place in the religious history of the world. Special emphasis is placed on twentieth century attempts to confront the reality of religious pluralism. Not open to first-year students. *Mr. R. Plantinga.*

252 **Introduction to Missions** (3). S. A general introduction to Christian missions in biblical and historical perspective. This course surveys the biblical and theological foundations for missions, and the church's interpretation and implementation of the task of spreading the gospel. The methods, challenges, successes, and failures of Christian missionary activity will be considered. Students will be involved in a local mission organization and use this practical experience as an additional basis for reflection. *Ms. C. deGroot-vanHouten.*

351 **World Religions** (3). * S. An historical investigation of the nature of religion by examining the chief theories and practices of some of the world's major non-Christian religions, including Hinduism, Buddhism, Confucianism, Taoism, and Islam. Emphasis is placed on each tradition's analysis of the basic human problem and the solution that it offers to the problem. Some attention is also paid to new, emergent religious movements and their relationship to older established traditions. Not open to first-year students. *Mr. R. Plantinga.*

352 **Judaism** (3). S. *A study of the major developments in Jewish history, thought, and practice beginning with the second temple era and extending to the contemporary period. Subjects studied will include rabbinic Judaism and its literature—the Mishnah and the Talmuds, medieval Jewish philosophy and mysticism, emancipation, Zionism, the Holocaust, and North American Judaism. The question of Jewish-Christian dialogue will also be considered. Not open to first-year students. *Mr. K. Pomykala.*

Seminars

359 **Seminar in Principles of and Practices in Secondary Religion Teaching** (3). S. A course in perspectives on, and practices in the teaching of religion and theology on the secondary level. This course should be taken concurrently with Education 346: Directed Teaching. Before taking Religion 359, students must complete Education 301, 303, and 307. *Mr. T. Thompson.*

379 **Research Topics in Christian Worship** (3). Participation in collaborative research on the theology, history, and practice of Christian worship. Topics are chosen in conjunction with the scholarly initiatives of the Calvin Institute of Christian Worship. Enrollment open to qualified juniors and seniors. Prerequisite: a systematic/historical core course and permission of the instructor. *Mr. J. Witvliet.*

396 **Seminar: Religion and Theology** (3). S. An advanced seminar for senior majors in religion and theology and other qualified students. This course considers significant theological issues and requires a major research paper. Prerequisite: three electives in religion and theology and for non-majors permission of the instructor. *Mr. T. Thompson.*

Graduate Courses

510 **Theological and Philosophical Hermeneutics** (3). This course is an intensive study of the theory and methods of biblical interpretation developed in the context of modern theology and philosophy. Questions about language and events, experience and significance, and authority and community comprise the core of this course. *Staff.*

580 **Perspectives, Programs, and Practices in Bible and Religion Curriculum** (3). A study of various approaches in the schools to curriculum and teaching in biblical studies, church history, Reformed thought, and world religions. Consideration is given to the way fundamental differences of perspective on biblical Christianity influence the selection and use of curriculum designs, materials, and teaching techniques. Course content is adapted to the various grade levels of particular interest to enrollees. *Staff.*

590 **Independent Study**, F, I, S. *Staff.*

JANUARY 1999 INTERIM

A catalog with the descriptions of all interim courses is available after October 1998.

REL W10 *The Dead Sea Scrolls: Ancient Texts from the Time of Jesus* (3) K. Pomykala.

REL W51 *Birth, Sex, and Death in the Biblical World* (3) R. Whitekettle.

REL W52 *From Calvin to Calvinism* (3) P. Holtrop.

IDIS W28 *Visions and Prophecies in the Native American West* (3) J. Schneider.

IDIS W57 *Religions and Cultures of the Pacific* (3) W. Stob.

Sociology, Social Work, and Criminal Justice

Professors G. DeBlacy, E DeJong, P DeJong (chair), J. Hewitt (director of criminal justice)
B. Hugen (social work practicum coordinator) M. Loyd-Paige, R. Rice
Associate Professors C. Kreykes Brandsen (director of social work)
Assistant Professors P. Szto, T. VandenBerg, K. Ver Beek

The department offers courses in sociology, criminal justice, social work, and anthropology. Sociology is the study of the principles of group relationships, social institutions, and the influence of the group on the individual. Social work is the study of theory and practice principles related to generalist, social work practice. Criminal justice is the study of the nature and treatment of crime in society and the interrelationships among criminal law, social order, and social justice. Anthropology is the study of the cultural values of peoples around the world and how these values become expressed in specific behavioral patterns. Programs in the department lead to a departmental major in sociology, a minor in sociology, a major in social work leading to a Bachelor of Social Work (B.S.W.) degree, a minor in social work, and a major in criminal justice

SOCIOLOGY MAJOR

Sociology 151
Sociology 255
Sociology 318
Sociology 320
Sociology 360
Five electives

SOCIOLOGY MINOR

Sociology 151
Five electives

SECONDARY EDUCATION SOCIOLOGY MINOR

Sociology 151
Six electives

Students who spend a semester at the Chicago Metropolitan Center may apply some of that work to a departmental major or minor.

For admission to the major program, a student must complete 151 with a minimum grade of C (2.0). The core requirement in sociology may be met by 151 or 153. Sociology 153 may be a part of the teaching minor in the academic study of religions.

SOCIAL WORK

Social Work classes prepare one for entry-level social work positions involving generalist practice with individuals, families, groups, organizations and communities. Students who wish to earn the B.S.W. degree normally apply for admission to the B.S.W. program by February 15 of their sophomore year. A fuller description of the B.S.W. Program requirements is given both on pages 57-58 of this catalog and in the Social Work Student Handbook which can be obtained at the departmental office (College Center 210).

SOCIAL WORK MAJOR

Social Work 240
Social Work 250
Social Work 255
Social Work 320
Social Work 350
Social Work 360
Social Work 370
Social Work 371
Social Work 372
Social Work 373
Social Work 380

SOCIAL WORK MINOR

Psychology 151 or Sociology 151
Social Work 240
Social Work 350
Social Work 360
Two from Social Work 250, 370, Sociology 212, 253, 304, 306, 309, 314, 316, 317, and 319

CRIMINAL JUSTICE

The fourteen course major in criminal justice provides the theory, context, and practice needed to qualify graduates to make informed decisions in the areas of law enforcement, the courts, probation, juvenile corrections, adult corrections, and alternative community corrections. A four-course specialization provides additional study in a particular area of criminal justice. The specialization is composed of an ethics course and 3 specialization electives. The ethics course may be used to fulfil an elective requirement in the contextual discipline area of the Liberal Arts core and some of the specialization courses may overlap with a selected minor or core. A more complete description of the program is found on pages 51-52.

CRIMINAL JUSTICE MAJOR

Sociology 210
Sociology 211
Sociology 250 or 306
Sociology 317
Sociology 319
Sociology 320
Sociology 395
An approved criminal justice interim
A two-course internship (Sociology 380 or Political Science 380)
A senior capstone course (Sociology 395).

Sociology Courses

151 **Sociological Principles and Perspective** (3). F and S, core. A general introduction to sociology as a body of knowledge dealing with group relationships as these affect both the individual and society. An attempt is made to show how a sociological perspective offers a rational interpretation of issues current in our society. *Staff*.

153 **Cultural Anthropology** (3). F and S, core. A study of the historical trends in anthropology that have led to its present day perspective. The concepts of functionalism and cultural relativism are examined and evaluated. The course surveys various cultural patterns around the world. *Mr. T. Vanden Berg, Staff*.

250 **Diversity and Inequality in North American Society** (3). F and S. An analysis of the social structure of diversity and the social processes of inequality in contemporary North American society. The major objectives of the course are to study the interrelationships of gender, race, and class and to develop an understanding of current social conditions through inclusive analysis of gender, race-ethnic, and class relations. Emphasis is placed on patterns and consequences of discrimination and oppression. *Ms. M. Loyd-Paige*.

253 **Intercultural Communication** (3). F. An examination of the anthropological principles relating to cross-cultural communication. This examination requires an extensive comparison of the components of cultural systems and the nature of cultural dynamics. The areas of application include government, business, peace corps, development, and mission work, with special emphasis on the last two. Special topics include developing an appropriate attitude regarding indigenous cultures and the management of culture shock. (Also cross-listed with CAS 253). *Mr. T. Vanden Berg*.

255 **Social Science Statistics** (4). F and S. An introduction to statistics and computer applications in one of the social sciences. Concepts and procedures taught include levels of measurement, measures of central tendency, correlation techniques, probability theory, and hypothesis tests. Prerequisite: an introductory course in one of the social sci-

ences (e.g. Sociology 151). *Mr. F DeJong.*

304 **The Family** (3). * F and S. An intensive culturally comparative and historical analysis of the family as an institution. The contemporary courtship, marriage, and divorce patterns of the American family are also discussed. *Mr. J. Hewitt.*

306 **Sociology of Deviance** (3). * F. An analysis of deviant behavior: its causes, manifestations, prevention, and programs of control. Special attention is given to the role of social norms in generating as well as controlling deviance. Emphasis is put on ways in which social structures generate and label deviance. Implications are drawn for various institutions, particularly the school and the church. *Staff.*

308 **Demography and World Population Problems** (3). F. This introduction to demographic analysis of society includes a consideration of the major demographic theories of population growth and how these contribute to an understanding of population explosion; a review of how the socio-cultural dimension of human society affects major sources of population growth (fertility, mortality, migration, and how variations in these reciprocally affect society); and an analysis of the causes and consequences of population size, distribution, and composition for human society. Not offered 1998–99.

309 **Sociology of Education** (3). S. A study of education as a social institution and the school as an organization. Emphasis is on discussing the functions of education for society and the effects of society on education and schools. The school class as a special system is also analyzed with special consideration given to the role of the teacher. Not offered 1998–99.

310 **Social Psychology** (3). * F. Human behavior as a consequence of psychological make-up and socio-cultural environment. Attention is given to social interaction as it occurs in small group settings. Attention is also given to theoretical frameworks emphasizing self-concept and role playing. Students may not receive credit for this course and Psychology 310. Not offered 1998–99. *Mr. G. De Blacy.*

314 **Contemporary Social Problems** (3). * S. The course will begin with a theoretical examination of social problems generally. Various contemporary social problems will be discussed with one selected for major emphasis. Not offered 1998–99. *Staff.*

315 **Sociology of Sport** (3). * S. A study of the social and social-psychological dynamics of sports in modern society. Areas receiving special attention are youth sports, interscholastic sports, and professional sports. Emphasis is put on describing and understanding sports participants and observers and the relationship of sport as an institution to the rest of social structure. *Mr. G. De Blacy.*

316 **Social Gerontology** (3). * S. A cross-cultural examination of how various societies react toward the elderly. Specific substantive issues included are: discrimination against the elderly, familial relationships, social security, nursing home services, housing needs, and employment opportunities. There is an analysis of proposed changes in American society which would give assistance to senior citizens. *Ms. C. Kreykes Brandsen.*

318 **Sociological Theory** (3). * F. An assessment of sociological theory in terms of its historical development and current role in understanding human behavior. Particular attention is given to the function of theory in the research process. Direction is given to the student in the formulation of sociological hypotheses from data. Prerequisite: 151. *Staff.*

320 **Social Research** (3). * F and S. An assessment of the nature of the research process as applied to the study of theoretical problems in social science. Students are guided in designing and conducting a research project, involving definition of the problem, consideration of appropriate methods, and the collection and analysis of data. Prerequisite: 151 and 255. *Mr. F DeJong.*

360 **Capstone Course** (3). * S. This course will attempt to integrate the various aspects of the discipline into a unified whole and to integrate the discipline of sociology into a liberal arts education. It will attempt to view one's vocational goals and responsibilities of living in a society from both a sociological

and biblical perspective. The course will also serve as an assessment tool for the department. *Ms.M. Loyd-Paige.*

394 Project Neighborhood Service-Learning Seminar (1). F and S. This seminar integrates content related to urban community assessment, organization and development in connection with service learning in the local community, using a cycle of action and reflection, in a group composed of Project Neighborhood Lake Drive House residents. *Staff.*

390 Independent Study. F, I, S. Prerequisite: permission of the department chair and of the instructor. *Staff.*

Social Work Courses

240 Introduction to Social Work and Social Welfare (3). F and S. An introduction to the profession of social work and the field of social welfare. Attention is given to the development of social welfare as a social institution, including the development of philosophies, values, and attitudes which influence the theory, policy, and practice of social work. Practice settings, professional roles, and value and ethical issues are also considered to increase awareness of the profession and aid students in considering social work as a career. *Ms. C. Kreykes Brandsen, Mr. P. Szto.*

250 Diversity and Inequality in North American Society. See Sociology 250 for description.

255 Social Science Statistics (4). F and S. See Sociology 255 for course description.

320 Social Research (3). See Sociology 320 for description. Prerequisites: Sociology 151 and Social Work 240 and 255.

350 Human Behavior and the Social Environment (4). F A study of the person in her/his environment using a systems-based ecological model of human behavior. Knowledge about persons as biological, psychological, social, cultural, and spiritual creatures is integrated as the "person" is followed through the life cycle. Theoretical frameworks from prerequisite courses are integrated to enable students to assess micro and macro influences on human behavior. Prerequisites: English core, English 101, Social Science core, Social Work 240, 250. *Ms. C. Kreykes Brandsen.*

360 Social Welfare Policy Analysis (3). F and S. A value-critical analysis and evaluation of social welfare policies and programs as responses to defined social problems in their historical, political, and economic contexts. Students will examine the role of the direct provider of social services as a policy practitioner. Prerequisites: History core, Social Science core, Social Work 240. *Mr. P. Szto.*

370 The Helping Interview (3). F and S. A course to teach students the basic skills necessary to conduct a helping interview. Students participate in videotaped role plays. The course also contains contextual material about ethical issues, a Christian view of relationship and interviewing, and interviewing people from different backgrounds. Prerequisite: 240, 350 (or concurrent enrollment). *Mr. P. De Jong.*

371 Generalist Practice With Individuals and Families (3). F A study of generalist social work practice within a "human behavior and social environment" and problem solving context. This course focuses on case management skills, interventions, and issues with individuals and families. Special attention is given to working with clients from different backgrounds. Prerequisites: 320, 350, 360 and 370. *Mr. P. De Jong.*

372 Generalist Practice With Groups (3). S. A study of generalist social work practice with groups with an emphasis on how the social work profession utilizes groups to accomplish individual, family, group, organizational, and community goals. Prerequisite: 371. *Staff.*

373 Vulnerable Populations: Programs, Policies, and Practice (3). F and S. This course integrates social welfare policies and generalist practice skills relevant to serving groups which are economically or otherwise at risk. Prerequisite content in human diversity, policy, and practice is used to teach current programs intended to meet the needs of groups such as abused children and their families, the frail elderly, and the persistently mentally ill. The course emphasizes how these approaches draw on several support systems including the family, community organizations, and state and federal resources. Prerequisites: 371. *Mr. B. Hugen.*

380 **Social Work Practicum.** (5-F; S; 3-1). F, I, and S. Students are placed in a community agency (minimum of 400 hours) under the supervision of a professional social worker. Students will engage in several social work roles and activities to continue to develop generalist practice skills and knowledge of the profession. A weekly on-campus seminar is also required. Prerequisites: previous or concurrent enrolment in 371, 372, and 373, admission to the B.S.W. program, and satisfactory completion of the practicum admission process. *Mr. P. DeJong, Mr. B. Hugen, Mr. P. Szto, Ms. M. Zwaanstra, Staff.*

390 **Independent Study.** See Sociology 390 for course description.

Criminal Justice Courses

210 **The Criminal Justice System** (3). F. A survey and analysis of law enforcement, the courts, and corrections with special attention given to the ethical, legal, and social issues that must be confronted when these components of the traditional criminal justice system are expected to bring about social justice to offenders, victims, and society in general. Goals of restoration, and moral accountability are also assessed. *Mr. J. Hewitt.*

211 **Criminology and Delinquency** (3). S. An examination of the nature, extent, and causes of crime and delinquency. Historical and current theories of the causes of crime and delinquency will be examined in terms of their ability to assist in understanding different types of crime as a prerequisite to prevention, treatment, and control. *Mr. J. Hewitt.*

213 **The Juvenile Justice System** (3). S. This course provides an overview and analysis of the components of the juvenile justice system, law enforcement, the courts, and juvenile corrections. Special attention is given to the religious foundations of the juvenile justice movement and the ethical, legal, and social issues that must be confronted when the system is expected to bring about social justice to offenders, victims, and society. The causes of delinquency, juvenile offender rehabilitation, and moral accountability are discussed and evaluated. Offered every other year. *Mr. J. Hewitt.*

317 **Crime and Community** (3). S. An intensive study of both the negative and positive influences that the dominant structures, norms, and values of the community have, and can have, on crime and delinquency. Both overt and covert ties between the dominant structures, norms, and values of the community (as resident in basic institutions, treatment and control agencies, the media, and public opinion) and the nature of crime and delinquency will be examined. Negative influences will be considered by focusing on such topics as victimization, evasive norms, vigilantism, and apathy. The challenge to influence crime positively through individual and community action will be considered by discussing such topics as volunteerism and community based alternatives to traditional treatment and control programs. Prerequisite: 212. *Staff.*

319 **Special Problems and Current Issues in Criminal Justice** (3). F. Concerted attention will be paid to a major criminal justice related issue or problem, focusing particularly on those for which a Reformed Christian sociological perspective is most strategic. Confronting the drug problem, and white collar crime are illustrations of these issues. Course may be taken two times in the study of different issues and problems for a total of 6 semester hours.

322 **Punishment and Corrections** (3). F. The theoretical approaches to punishment, deterrence, rehabilitation, and treatment within the U.S. correctional system. The course will also cover the administrative and operational components of the corrections system including jails, prisons, probation, parole, boot camps, and community based-corrections programs. Special attention is given to the impact of religious movements historically and currently on the prison movement, and to the ethical, legal, and social issues that must be confronted when the system is expected to bring about social justice to offenders, victims, and society. Prerequisites: Soc 210 (The Criminal Justice System), 211 (Criminology and Delinquency), and an ethics course. Offered every other year. *Mr. J. Hewitt.*

327 **Interpersonal Strategies in Juvenile and Adult Corrections** (3). S. This course is required for students desiring a juvenile jus-

tice or corrections area of specialization. The course is designed to teach the basic interpersonal skills necessary to work with an offender population and will present a basic offender counseling model, a crisis intervention model, and an overview of group leadership with offender groups. Prerequisites: Junior standing; Soc 210, and Soc 213 or Soc 322, and Rel 332 or Phil 205. Offered every other year.

329 Comparative Criminal Justice (3). F An introductory study of model criminal justice systems in other nations. The approach is a historical and political review of the administration of crime and justice in other cultures. The course will center primarily on Great Britain, France, Canada, Japan, the Netherlands, and the Caribbean. The examination of cultural influences will include the traditional areas of police, courts, and corrections; and will discuss the negative and positive influences of each culture's dominant structures, norms, values, religious beliefs, and social policies affecting crime and delinquency. Consideration will also be given to the alternatives forms of treatment and control used by each nation. Prerequisites: Soc 210 (The Criminal Justice System) and Rel 332 or Phil 205. Offered every other year. *Mr. G. DeBlay.*

330 Contemporary Policing: An Introduction to Modern Day Police Operations (3). S. This course will provide an overview of the theoretical and practical problems in modern day police work and police and community relationships. The course will also provide an introduction to the skills and knowledge essential to being a present-day law enforcement officer. Special attention will be given to the ambiguities, moral tensions and potential conflicts that are encountered and encroach on the effective and professional functioning of law enforcement officers and agencies. Prerequisites: Rel 332 or Phil 205. Offered every other year. Offered every other year in fall or interim. *Staff.*

331 Criminal Investigation (3). S. The rules and procedures of preliminary and follow-up investigations; techniques of the collection and preservation of physical evidence at the crime scene; the art of interviewing witnesses and the interrogation of suspects;

the recording of notes, statements and confessions; use of the polygraph; methods used in scientific interpretation of evidence; and preparation of criminal cases for trial. Prerequisites: Rel 332 or Phil 205. The course is limited to criminal justice majors and pre-law students. Offered every other year. *Staff.*

332 Criminal Law (3). F. This course provides an overall study of the legal basis of the criminal justice system including the history, theory, and practice of criminal law. The course will cover: crime vs. private wrongs; the definition and classification of crimes; legal elements of crimes; elements of proof; rules of investigation; regulation of arrest, force, search and seizure; defenses and mitigating circumstances; rights of the accused; moral accountability; and basic court room procedures. Prerequisites: English 101; CAS 100, or 101, or 200, an ethics course, and one criminal justice or political science course. Offered every other year. *Staff.*

380 Internship and Seminar in Criminal Justice (3 or 4). F and S. Students in the Criminal Justice Program are placed each semester of their senior year in a juvenile justice or criminal justice agency: law enforcement, the courts, or corrections. An on-site supervisor monitors and directs the student's day-to-day development in knowledge, skill, and personal growth. These experiences are complemented by regularly scheduled visits to agencies and on-campus seminars conducted by a Calvin College instructor. This field-based assessment is complemented by a student journal and a *term paper* that the criminal justice student must submit to the seminar instructor. Prerequisites: Program Director's approval. *M. Baker.*

395 Capstone Course in Criminal Justice (3). S. A senior level seminar. The course will be required of criminal justice majors in the year 2000, and may be taken as an elective until that time. The course meets once a week over the term of the senior year. One and one-half semester credits will be given per semester (3 for the entire year). The course will review the fundamental concepts of the criminal justice curriculum and will integrate the various aspects of the field. The course will also address vocational goals and

responsibilities from a criminal justice and Christian perspective. Prerequisites: senior status and criminal justice major. Offered every other year. *Staff.*

Graduate Courses

501 **School in Community.** SS. A study of the reciprocal relationship between the school and the community. Particular attention is paid to the interrelationship between the school and religious, familial, political, and economic institutions. *Mr. G. De Blaey.*

590 **Independent Study.** F, I, S. *Staff.*

JANUARY 1999 INTERIM

A catalog with the descriptions of all interim courses is available after October 1998.

REL W10 **The Dead Sea Scrolls: Ancient Texts from the Time of Jesus** (3) *K. Pomykala.*

REL W51 **Birth, Sex, and Death in the Biblical World** (3) *R. Whitekettle.*

REL W52 **From Calvin to Calvinism** (3) *P. Holtrop.*

IDIS W28 **Visions and Prophecies in the Native American West** (3) *J. Schneider.*

IDIS W57 **Religions and Cultures of the Pacific** (3) *W. Stob.*

Spanish

*Professors M. Bierling, S. Clevenger, E. Greenway, E. Miller (chair)
Assistant Professors J. Evans, C. Slagter, D. TenHuisen, D. Zandstra*

Programs for students wishing to major in Spanish are worked out individually by a faculty advisor.

SPANISH MAJOR

Spanish 301

Spanish 302

Two from Spanish 330, 331, 332, or 333

Two from Spanish 351, 352, 353, 361, 362, or 363, one of which must be taken on campus.

Electives level 123 or higher to reach a minimum of 30 hours

SPANISH MINOR

Spanish 301

Spanish 302

Two from Spanish 330, 331, 332, or 333

Electives level 123 or higher to reach a minimum of 20 hours

The advisor for these programs is Ms. Sandra Clevenger.

SECONDARY EDUCATION MAJOR IN SPANISH

Spanish 301

Spanish 302

Two from Spanish 330, 331, 332, or 333

Spanish 304

Spanish 210 or 310 or study abroad

One from Spanish 351, 352, 353, 361, 362, or 363

Electives level 123 or higher to reach a minimum of 30 hours

SECONDARY EDUCATION MINOR IN SPANISH

Spanish 301

Spanish 302

Spanish 304

One from Spanish 330, 331, 332, or 333

Electives level 123 or higher to reach a minimum of 20 hours

EDUCATION (K-12) MAJOR IN SPANISH

Spanish 301

Spanish 302

One from Spanish 330, 331, 332, or 333

Spanish 304

Spanish 210 or 310 or study abroad

One from Spanish 351, 352, 353, 361, 362, or 363

Spanish 356
Electives level 123 or higher to reach a minimum of 33 hours

The advisor for these programs is Ms. Marilyn Bierling during the fall semester and Ms. Dianne Zandstra during the spring semester.

ELEMENTARY EDUCATION MAJOR IN SPANISH

Spanish 301
Spanish 302
Two from Spanish 330, 331, 332, or 333
Spanish 304
Spanish 210 or 310 or study abroad
Spanish 356
Electives level 123 or higher to reach a minimum of 30 hours

ELEMENTARY EDUCATION MINOR IN SPANISH

Spanish 301
Spanish 302
Spanish 356
Electives level 123 or higher to reach a minimum of 20 hours

BILINGUAL EDUCATION GROUP MINOR FOR ELEMENTARY EDUCATION

Interdisciplinary 301
Spanish 310
Spanish 304
Spanish 356
English 329 or Education 311
History 207 or 208
History 211
Political Science 151
Total course hours must equal 24.

BILINGUAL EDUCATION GROUP MINOR FOR SECONDARY EDUCATION

Interdisciplinary 301
Spanish 310
Spanish 304
English 329
Two from History 207, 208, 211, or 356
Political Science 151
Sociology 250
Total course hours must equal 24.

The advisor for these programs is Ms. E. Greenway.

Students interested in the various teacher education programs in Spanish should consult the Student Program Guidebook for Elementary, Secondary, and Special Education (available from the Education Department) for a listing of requirements and should meet with the appropriate Spanish Department advisor as soon as possible to declare their interest in a particular program. All students in the departmental education programs must receive departmental approval before taking 300-level education courses and must pass an oral and written Spanish proficiency examination in addition to the competency exam administered by the State of Michigan prior to enrolling for the teaching internship. The proficiency examination is offered three times each school year, twice during the fall semester and once during the spring semester. There is no charge for a student for taking the proficiency examination the first time, but a \$25.00 fee will be assessed for each subsequent examination. Further information on the proficiency examination is available from Spanish Department advisors. The teaching internship in secondary Spanish is available only in the spring semester.

CREDIT/EXEMPTION EXAMS

Credit and/or exemption exams in the department will be given on the same dates as the proficiency examinations. Procedures and the fee structure for taking such exams are explained in the Calvin catalog section entitled, "Course Credit and Exemption Examination."

OFF-CAMPUS PROGRAMS

During the spring semester, Calvin offers its own full-time language program in Denia, Spain, through which students can complete the core-program courses 101, 102, 201, and 202, to satisfy the college foreign language requirement for the bachelor's degree. Calvin also offers an advanced language and literature program for Spanish majors and minors during the spring semester in Denia. Spanish 100 or 300 is required during the interim prior to Study in Spain. Note: All Spanish majors (including those with group majors of which Spanish is a part) must take their last Spanish course on campus. The advisor for the Denia program is Ms. Marilyn Bierling.

The fall semester Calvin program in third-world development studies began in Honduras in 1996. Participants in the program take one or two courses in Spanish, normally from the following offerings: 101, 102, 201, 202, 210, 302, and a survey literature course (according to demand). Another option for students interested in Latin America is the Latin American Studies Program (LASP) of the Coalition of Christian Colleges and Universities. Advanced students in either the Honduras program or LASP are advised not to take 302 on campus, but rather to wait to take this course during their semester abroad. The departmental advisor for both programs is Mr. E. Miller.

To be eligible for a Spanish major, a student must have completed at least two courses with a minimum average of C (2.0) and must have completed 101-102, 121-122, or the equivalent. Successful completion of Spanish 123 or 202 fulfills the foreign language core requirement. The fine arts core may be met by any 300-level literature course.

Courses

Students in Calvin's Semester in Spain core program, which is taught during the second semester of each year in Denia, Spain, receive credit for 101, 102, 201, and 202. Students in the advanced program take 12-14 semester hours towards a Spanish major or minor.

101 Elementary Spanish (4). F. An introductory course in the use and comprehension of oral and written Spanish. *Staff.*

102 Elementary Spanish (4). S. Continuation of Spanish 101. *Staff.*

121-122-123 Introductory and Intermediate Spanish (4,3,4). F, S. A closely integrated sequence involving two semesters and the interim for students who have completed two years of high school Spanish but who, on the basis of the score on the departmental placement test, are not prepared for 201. *Staff.*

201 Intermediate Spanish (4). F. Review of essential grammatical structures and further training in spoken and written Spanish. Readings from significant Spanish authors. Prerequisites: 101 and 102 or other equivalents. *Staff.*

202 Intermediate Spanish (4). S. Continuation of 201. *Staff.*

203 Intermediate Spanish (4). F. A fourth-semester course intended specifically for students who have successfully completed three years of high school Spanish or who, on the basis of the departmental placement test, demonstrate the requisite preparation. *Staff.*

301 Advanced Grammar and Composition (3). F and S. An intensive review of Spanish grammar integrated with extensive practice in the varieties of written communication. Study and practice will culminate in the writing of final research paper. *Staff.*

302 Advanced Grammar and Conversation (3). * F and S. A course for students who wish to improve their oral facility in the language. The emphasis is on improved pronunciation and fluency through conversation, debates, and oral presentations. Prerequisite: 202 or its equivalent. *Mr. D. TenHuisen, Ms. D. Zandstra.*

304 Spanish-English Linguistics (3). * F. (Formerly 360) An examination of the differences between English and Spanish, particularly those involving sound, spelling, structure, and vocabulary, in order to improve the students' communication skills and to understand the errors made by those learning a second language. Testing and assessment of language skill is discussed. The course is planned primarily for those interested in bilingual education, but it is useful for others in foreign language. Prerequisite: 301. *Ms. M. Bierling.*

Literature

330 Survey of Literature of Spain I (3). The major writers and movements in Spanish literature from the Middle Ages through the Golden Age within their cultural-historical context. To be taken after or concurrently with 301. *Mr. E. Miller, Ms. C. Slagter.*

331 Survey of Literature of Spain II (3). The major writers and movements in Spanish literature from the Golden Age to the present within their cultural-historical context. To be taken after or concurrently with 301. *Mr. E. Miller.*

332 Survey of the Literature of Latin America I (3). The major writers and move-

ments in Latin American literature from the Colonial Period through Modernism within their cultural-historical context. To be taken after or concurrently with 301. Not offered in 1998–99.

333 Survey of the Literature of Latin America II (3). The major writers and movements in Latin American literature from Modernism to the present within their cultural-historical context. To be taken after or concurrently with 301. Ms. C. Slagter, Mr. E. Miller.

351 Spanish Literature from the Middle Ages through the Renaissance (3). * S. This course focuses on the development of Spanish literature from its inception through the Renaissance. Masterpieces in the following genres are analyzed: epic and lyric poetry; eclogues and pre-Golden Age drama; and the sentimental, the pastoral, and the picaresque novel. Oral presentations and/or research papers are required. Prerequisite: 330 or 331. Ms. S. Clevenger. Not offered 1998–99.

352 Spanish Literature of the Golden Age (3). S. This course focuses on the literature of the sixteenth and seventeenth centuries. Masterpieces in the following genres are analyzed: Renaissance and Baroque poetry; drama of the Lope and Calderón cycles; the origins of the modern Spanish novel, and the literature of the Counter-Reformation. Oral presentations, and/or research papers are required. Prerequisite: 330 or 331.

353 Spanish Literature from the Eighteenth Century to the Present (3). * S. This course focuses on the Spanish literature of the eighteenth century to the present. Masterpieces in the following genres are analyzed: Neoclassic drama, romantic drama and poetry, essays and poetry of the Generation of '98, twentieth century poetry, drama and novel. Oral presentations, and/or research papers are required. Prerequisite: 330 or 331. Ms. S. Clevenger.

361 Latin American Literature from the Colonial Period through Romanticism (3). F. This course focuses on the literature of Latin America from the Colonial Period through Romanticism. Masterpieces in the following genres are analyzed: Colonial chronicles; epic poetry; Baroque poetry; picaresque novel; tradiciones; Neoclassic

poetry, romantic novel, essay, and poetry. Oral presentations and/or research papers are required. Prerequisite: 332 or 333. Mr. D. TenHuisen.

362 Latin American Literature from Pre-Modernism to 1945 (3). * F. This course focuses on the literature of Latin America from Pre-Modernism to 1945. Masterpieces in the following genres are analyzed: Pre-Modernist poetry, short story, and essay; Modernist poetry, short story and essay; poetry and short story of the Vanguardia. Oral presentations and/or research papers are required. Prerequisite: 332 or 333. Mr. E. Miller. Not offered 1998–99.

363 Contemporary Latin American Literature (3). F. This course focuses on the recent literature of Latin America. Masterpieces in the following genres are analyzed: Contemporary novels, poetry, and short stories. Oral presentations and/or research papers are required. Prerequisite: 332 or 333. Ms. D. Zandstra. Not offered 1998–99.

390 Independent Study.* F, I, S. Prerequisite: permission of the department chair.

395 Seminar (3).*

Culture

210 Hispanic Civilization (3). S. A study of the history and culture of Spanish and Latin American social, political and religious institutions. The course will also incorporate discussion of issues currently facing Hispanic peoples. Reading materials include literary and non-literary sources. Prerequisite: 202 or equivalent. *Staff.*

310 Hispanic Culture in the United States (3). * F. A study of the history and culture of Hispanic groups in the United States, their political, social, and religious institutions, and their value systems. The course is designed to assist students in understanding the cultural contributions of each Hispanic group within the broader American culture. Reading materials include literary and non-literary sources. Field trip required. Prerequisite: 202. Ms. E. Greenway.

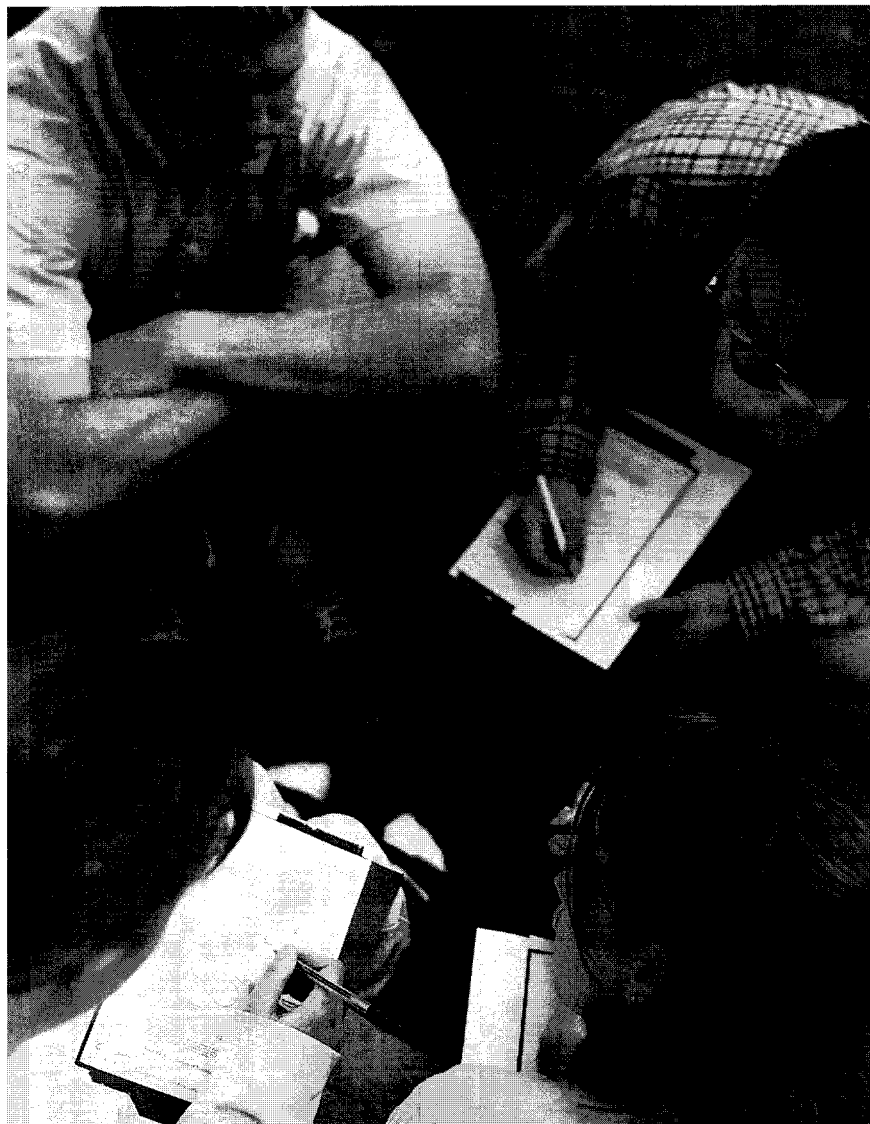
Education

356 Foreign Language Education in the Elementary School (3). 1. Theory and prac-

tice of foreign language teaching in the elementary school. Study of language skill development, second language acquisition, methodologies, curricula and programs. To be taken prior to Education 346 (Directed Teaching) and Spanish 359 (Seminary in Student Teaching). Required for K-12 endorsement. *Ms. E. Greenway.*

359 Seminar in Principles and Practices in Secondary Spanish Teaching (3). S. A

course in perspectives on, principles of, and practices in the teaching of Spanish on the secondary level. This course should be taken concurrently with Education 346: Directed Teaching. Before taking this course, students must pass the Spanish Departmental language exam and complete Education 301 and 303. This course does not count as part of the major or minor program. *Staff.*



January 1999 Interim

A catalog with the descriptions of all interim course is available after October 1997.

W50 Interim in the Yucatan (3) *O. Leder.*

SPAN 100 Introduction to Spanish Language and Culture (3) *M. Bierling.*

SPAN 122 Intermediate Spanish (core) (3) *Staff.*

SPAN 300 Introduction to Spanish Culture and Review of Spanish Grammar (3) *M. Bierling, D. Ten Huisen.*

SPAN 356 Foreign-Language Education in the Elementary School (3) *E. Greenway.*

SPAN 390 Aiding in the Foreign-Language Classroom (3) *D. Ten Huisen.*

Third World Development Studies

The Third World Development Studies minor consists of six courses, three required and three elective, which together comprise a coherent, planned, interdisciplinary program in development studies. Participation in off-campus experiences in the Third World is normally expected. Up to 9 semester hours from semester-long Third World programs may apply to the minor. One off-campus interim in the Third World may apply. Participation in the Calvin College semester in Honduras satisfies three courses in the minor; one of these three Semester in Honduras courses may take the place of TWDS 201 in the minor. The program director is Mr. Roland Hoksbergen of the Economics and Business Department. Along with Mr. Hoksbergen, Mr. D. Miller of the History Department and Mr. Todd Vanden Berg of the Sociology Department serve as program advisors.

THIRD WORLD DEVELOPMENT STUDIES MINOR

Third World Development Studies 201

Third World Development Studies 395

Sociology 253

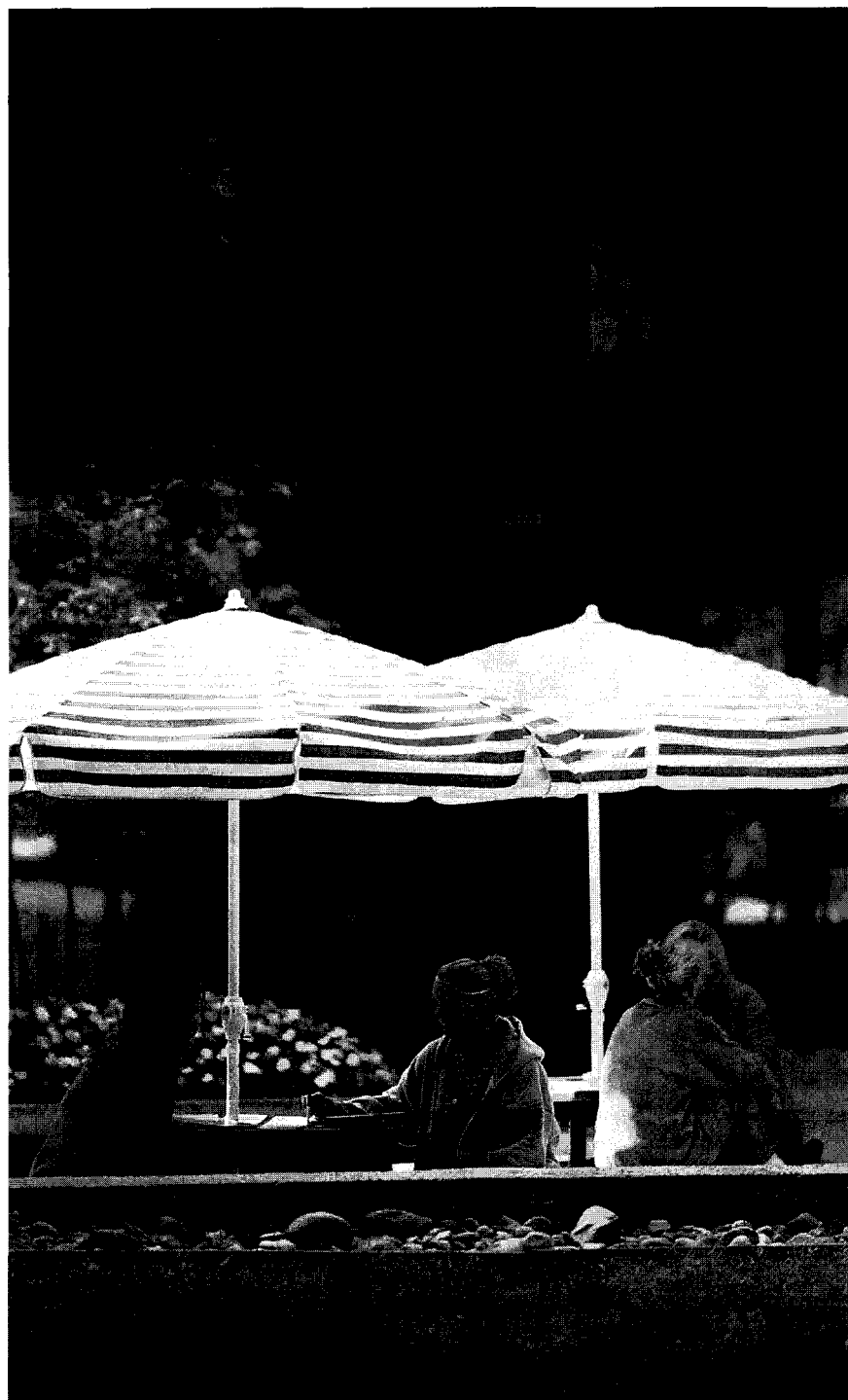
Three electives from CAS 330, Economics and Business 337, 338, Environmental Studies 201, 202, French 219, Geography 110, 210, 230, 240, History 203, 204, 205, 206, 207, 208, 231, 232, 233, 235, 236, Political Science 204, 205, 207, 214, 303, 309, Religion 252, 253, 351, 353, 354, Sociology 153, 308, Spanish 333, 363, and one interim.

201 Introduction to Third World Development (3). S. An introduction to life in the world's low income countries and to competing theoretical perspectives on development and change. The course addresses cultural, social, political, religious, economic, and environmental elements of people's lives in the Third World. It also surveys such dominant perspectives on development as

modernization, dependency, world systems, historical culturalism, and sustainable development, as well as addressing the question of how Christians think about human and social progress. Prerequisite: sophomore status.

SOC 253 See Sociology for a complete course description.

395 Seminar in Third World Development Studies (3). S. A study of some of the major current problems and issues in development. The course has three main objectives: first, to acquaint students with the current state of the debate on development; second, to analyze the ethical foundations of the various prominent voices in the debate; and third, to cultivate Christian thinking on development questions. Emphasis is placed on oral and written reports and on a senior research project. Prerequisite: senior Third World Development Studies minor status.



Financial Information

Tuition and fees

Tuition for the academic year is \$12,915; room and board on campus is \$4,500; and the estimated cost for textbooks and classroom supplies is \$400.

Students taking fewer than twelve semester hours in a semester will be charged on a per-semester hour basis. Those taking more than 17 semester hours will be charged at the per-semester hour rate for the additional courses. The interim is considered a separate course for which there is no charge if the student completes at least 12 semester hours in either semester.

Most Calvin College students receive financial assistance from the grant and scholarship programs. A special grant-in-aid, called a Denominational Grant, is available to members of the Christian Reformed Church in North America to reflect the direct support such students and their families provide the college through the church.

Basic Charges

Tuition, full-time load (12-17 semester hours):	\$6458
Tuition, per-semester hour rate:	555
Tuition, auditing, per semester hour:	277.50
Tuition, clinical years, B.S. in Nursing, academic year	15,380
Room and board, academic year	4,500

Full-time tuition covers student activities such as the Student Senate and student publications.

Deposits

Housing deposit	\$ 75
Physical education locker deposit	10

Special Fees

Application fee	\$35
Directed teaching fee	20
Off-campus program fee	75
Examination fee (course credit)	45
Examination fee (exemption)	15
Individual music instruction	
One hour weekly lesson per sem.	360
Half-hour weekly lesson per sem.	180
For concentrates, per sem.	255
Late installment payment fee:	
1% per month on outstanding balance	
Late registration fee	25
Placement fee, for senior students	15
for alumni	25
Credentials/Recommendations, per set	2
Transcript fee	2
Vehicle registration fee	15
Visitor fee, per course	15
Residence Hall Social Fee	15

Payments for tuition, room and board are to be made as per the following payment schedule unless payment is rendered in full *at the beginning of each semester.*

Due Date	Tuition	Room & Board		
		21 meals	15 meals	10 meals
1st Semester				
Aug. 21, 1998	\$2153	\$697	\$677	\$647
October 23, 1998	2153	697	677	647
November 18, 1998	2152	696	676	646
Total for 1st Semester	\$6458	\$2090	\$2030	\$1940

Interim & 2nd Semester

January 11, 1999

Interim	(1)	430	410	390
Second Semester	2152	660	643	613
Total for January 11, 1998	2152	1090	1053	1003
March 13, 1998	2152	660	643	613
April 17, 1998	2153	660	644	614
<hr/>				
Total for 2nd Semester	6457	2410	2340	2230
Two Semesters & Interim	\$12,915	\$4500	\$4370	\$4170

(1) There is no interim charge for regular on-campus courses if a student maintains twelve semester hours in either the first semester or the second semester. If a student maintains eleven semester hours in both the first and second semester, their regular semester hour interim tuition charge will be discounted by 25%. Otherwise, students will be charged the regular per semester hour charge for interim courses. Course fees and off-campus travel costs are in addition to any interim charge.

The balance for total tuition, room and board charges is reduced by all financial aid credits a student receives for the semester. Any balance due from the students will be divided in thirds. The three payments will be due as per the payment schedule due dates. Accounts not paid on time are subject to a late payment fee of 1% per month on the outstanding balance. Students whose accounts are not paid in full by these dates will not be allowed to attend the next semester. Also, transcripts are not issued for students with past due accounts.

An enrollment deposit of \$200.00 is required of all enrolling first-year, transfer and readmitted students. This deposit serves a confirmation of the student's plans to enroll and is applied toward the orientation fee and \$75. housing deposit (for students living on campus). The remainder is applied to the student's tuition charges. First-year students must pay this deposit by May 1. The due date for transfer students is June 1. The enrollment deposit is not refundable after the due date. Former students who have been readmitted to the college must pay their enrollment deposit by August 1.

Students withdrawing from the college are required to inform the Registrar's Office of their decision to withdraw so that written notification can be circulated to other college offices. All tuition charges will be dropped for any student withdrawing from the college during the first week of the semester, and all financial aid will be refunded in full.

Tuition charges for students withdrawing from the college after the first week will be prorated, and proration will continue until 60% of the semester has been completed (generally through the 9th week of the semester). Financial aid for such students is reviewed, generally reduced, and refunded back to the appropriate financial aid programs. The specifics of the Financial Aid Refund Policy, together with examples, are available from the Financial Aid Office upon request. Refunds, when made to financial aid programs, are made in the following order: Federal Direct Unsubsidized Loan, Federal Direct Subsidized Loan, Federal Direct PLUS Loan, Federal Perkins Loan, Federal Pell Grant, Federal Supplemental Grant, other Title IV federal aid programs, and other federal, state, private, or institutional financial aid programs in which refunds are required. The Financial Services Office will issue a check to the student for any credit balance remaining on their account after all charges have been paid and refunds have been made. If a cash disbursement has been made to a student before discontinuing to pay for off-campus living expenses, the Financial Aid Office will determine whether repayment of a portion of the cash disbursed is required. The student will be notified if there has been an overpayment that needs to be repaid. Upon collection, the overpayment will be returned to the appropriate financial aid programs in the same order as listed above.

Students withdrawing from one or more courses but not discontinuing will have their tuition charges for those courses adjusted under the policies described above. Financial aid will be reviewed also and will likely be reduced.

No adjustments in tuition charges or financial aid will be made after 60% of the semester has elapsed.

Room and board charges will be prorated over the entire semester for students who leave on-campus housing during the semester. Students leaving due to withdrawal from the college will have \$10 deducted from their housing deposit. Students who move off campus but remain enrolled will be assessed a \$100 charge.

All other charges, such as, but not limited to, laboratory fees, art material fees, application fees, and music instruction fees, are non-refundable.

Dually-enrolled students are individuals who are still attending high school but are concurrently enrolled in college courses. Dually-enrolled students may take up to two college courses per semester at a reduced rate that is approximately one-third the normal semester hour amount. For 1998-1999 the dually-enrolled per-semester hour tuition rate is \$185.00. Dually-enrolled students who are taking more than two college courses in a semester will be charged the regular semester hour rate for the additional courses. Tuition charges for dually-enrolled students are due in full at the beginning of each semester unless alternative arrangements are made with the Financial Services Office.

Graduate students should consult the 1996-2000 Graduate Catalog for updated information on graduate tuition costs.

Scholarships and Financial Aid

Calvin College participates in all federal and state student financial aid programs for which our students are eligible. In addition, the college sponsors a number of its own programs which are coordinated with and used to supplement federal and state programs. Programs sponsored by the college include: (1) academic scholarships designed to recognize students with excellent academic ability and to encourage superior academic work, (2) denominational grants which recognize regular contributions to the college through denominational ministry shares, and (3) need-based scholarships and grants for students who are not eligible for state or federal grants or who need more scholarship and grant assistance than state and federal programs provide.

Information about application procedures for financial aid is included with admission information for prospective students and is made available to current students in January of each year.

The Office of Scholarships and Financial Aid assists students in working out programs to cover college costs. Those who apply for need-based financial aid receive an award letter indicating the aid for which they are eligible including grants, scholarships, loans, and income from student employment. Students should determine before registration how they will meet their costs and, if intending to carry a full academic load, should plan to work no more than twelve to fifteen hours per week.

Specific information about financial aid programs is given in the following pages and is divided into three sections: (1) denominational grants, (2) academic scholarships, and (3) need-based aid. The scholarships and need-based programs and their conditions are described in the following sections. Questions or requests for additional information should be directed to the Office of Scholarships and Financial Aid at the address or telephone number given inside the front cover of this catalog.

Enrollment and Academic Progress Requirements. Most scholarship and financial aid programs require attendance at least half time or enrollment in a minimum of six credit hours per semester. There are two exceptions to this: 1) the Denominational Grant, which is not contingent on the number of hours for which a student is registered, and 2) the Michigan Adult Part-Time Grant which is available to students taking at least three but fewer than 12 credit hours per semester.

Minimum enrollment for academic scholarships awarded by the college is 6 credit hours per semester, although many of the named scholarships assume full-time enrollment. Full-time attendance for financial aid requires enrollment in a minimum of 12 credit hours per semester. Students who enroll at least half time but less than full time can be considered for financial aid but usually in reduced amounts.

Students who wish to receive financial aid must be meeting the normal standards for continuation as a student. Thus, to receive financial aid a student must have the minimum cumulative grade point average needed for continuation and the minimum number of credits completed as described in the section "Academic Probation and Dismissal" on page 25. A statement giving more complete information about academic progress requirements for financial aid applicants is sent to all financial aid recipients. A copy of this statement is also available from the Financial Aid Office upon request.

Denominational Grants

Students whose families are members of the Christian Reformed Church and who contribute regularly to Calvin College through denominational ministry shares receive a Denominational Grant. The amount of the grant is determined in part by the location of the student's home.

The home of an unmarried student under 24 years of age is considered to be that of his or her parents. If a student's parents are not members of the denomination, the grant is based on the location of the Christian Reformed Church of which the student is a member. Students who are married or 24 or older receive the grant based on their permanent residence.

Out-of-state students who meet the residency requirements for the Michigan Competitive Scholarship or Tuition Grant are considered Michigan residents for purposes of the Denominational Grant. When the need of a student is met by the Michigan Competitive Scholarship or Tuition Grant, the Denominational Grant is reduced to keep the total amount of aid within the maximum permitted by state regulations.

The Denominational Grants for 1998-99

	<i>Grant per semester, if paying full tuition</i>	<i>Grant per semester hour, if paying by the semester hour</i>
For Michigan students	\$375	\$29
For students from Illinois, Indiana, Ohio, Wisconsin, and Ontario, Canada	\$500	\$38
For students from other states, provinces, and countries	\$625	\$47

Academic Scholarships

Scholarships are awarded to incoming students to encourage good students who are likely to do superior work to enroll at Calvin and to upper-class students to encourage superior academic performance. Most scholarships are granted on the basis of the student's academic record and potential, but in some cases other factors such as program of study, financial need, and other designated criteria are taken into consideration. More than 400 scholarships are awarded annually to first-year students and more than 800 to upper-class students. Individuals may be considered for a named scholarship or departmental scholarship in addition to one of the general college scholarships described below.

General College Scholarships

Incoming first-year students are considered automatically for the general college scholarships described below on the basis of the information received at the time of admission and are not required to file a separate scholarship application form except as noted. For maximum consideration, students must be admitted by February 1.

The Calvin National Merit Scholarship is a four-year scholarship and is renewable for three years, as long as the recipient continues to attend Calvin College. The Presidential, Dean's, Faculty Honors, and Honors Scholarships are available for four years as well if the recipient has the cumulative grade point average required. The grade point averages required for renewal are: 3.50 for the Presidential Scholarship, 3.40 for the Dean's Scholarship, 3.30 for the Faculty Honors Scholarship, and 3.20 for the Honors Scholarship. Presidential Scholarship recipients with a grade point average between 3.40 and 3.49 will receive the Dean's Scholarship for the following year; both Presidential and Dean's Scholarship recipients with a grade point average between 3.30 and 3.39 will have their scholarship renewed as a Faculty Honors Scholarship; and recipients of Presidential, Dean's, and Faculty Honors Scholarships with a grade point average between 3.20 and 3.29 will have their scholarship renewed as an Honors Scholarship. The grade point average used to determine renewal is the average at the end of second semester for first-year students and the average at the end of the interim for others.

Factors considered in awarding Presidential, Dean's, Faculty Honors, and Honors Scholarships include the student's high school grade point average, class rank, ACT or SAT scores, and involvement in, leadership of, and honors received for participation in activities outside the classroom. Typically, a grade point average of 3.5, an ACT composite of 25, or combined SAT scores of 1150 are the minimum qualifications for any of these scholarships. Students selected are awarded the best scholarship for which they qualify. The scholarship amounts listed below are for students entering Calvin in 1998-99. Amounts for students who entered in

prior years are listed in the college catalog for those years.

Calvin National Merit Scholarships. Calvin awards a National Merit Scholarship of \$8,500 to all National Merit Finalists who have a high school grade point average of 3.5 or better, have designated Calvin as their first-choice college, and are not selected to receive another scholarship through the National Merit Corporation.

Presidential Scholarships. Scholarships of \$5,500 each are awarded to the top 75 or more incoming first-year students who do not receive a Calvin National Merit Scholarship.

Dean's Scholarships. More than 75 scholarships of \$3,500 each are awarded to incoming first-year students who demonstrate outstanding academic achievement and potential but have not been selected to receive a Presidential Scholarship.

Faculty Honors Scholarships. Scholarships of \$2,500 each are awarded to more than 100 first-year students with excellent academic records. These scholarships are awarded automatically to students who rank first in their high school class if they have a grade point average of 3.50 or higher with an ACT composite of 25 or higher, or combined SAT scores of 1150 or higher and to others based on the criteria described earlier.

Honors Scholarships. Scholarships of \$1,500 are awarded to approximately 125 or more of the incoming first-year students who are not selected to receive one of the above scholarships.

Academic Achievement Awards. Academic Achievement Awards are awarded in multiples of \$500 to returning students who do not presently have one of the above scholarships and earn a cumulative grade point average of 3.40 or higher, and to those who have an Honors, Faculty Honors, or Dean's Scholarship and earn a cumulative grade point average that is significantly higher than required for renewal of their scholarship.

Awards of \$500 are granted to those who 1) do not have one of the above scholarships but have a cumulative grade point average between 3.40 and 3.54, 2) have an Honors

Scholarship and a cumulative grade point average between 3.50 and 3.64, or 3) have a Faculty Honors Scholarship and a cumulative grade point average between 3.65 and 3.79, or 4) have a Dean's Scholarship and a cumulative grade point average of 3.80 or higher.

Awards of \$1,000 are granted to those who 1) do not have one of the above scholarships but have a cumulative grade point average between 3.55 and 3.69, or 2) have an Honors Scholarship and a cumulative grade point average between 3.65 and 3.79, or 3) have a Faculty Honors Scholarship and a cumulative grade point average of 3.80 or higher.

Awards of \$1,500 are granted to those who 1) do not have one of the above scholarships but have a cumulative grade point average between 3.70 and 3.79 or 2) have an Honors Scholarship and a cumulative grade point average of 3.80 or higher.

Awards of \$2,000 are granted to those who do not have one of the above scholarships but have a cumulative grade point average of 3.80 or higher.

Scholarships for Transfer Students. Calvin awards scholarships of \$5,500, \$3,500, \$2,500, and \$1,500 to prospective transfer students based on their academic record and potential to be successful at Calvin. Selection is based on the student's academic record in both high school and college. Typically, a previous college grade point average of 3.50 or higher is required for consideration. The \$5,500 scholarship is renewed with a cumulative grade point average of 3.50 or higher; the \$3,500 scholarship requires a 3.40 for renewal, the \$2,500 scholarship requires a 3.30, and the \$1,500 scholarship is renewed with a 3.20 grade point average.

Calvin Mosaic Scholarships and Multicultural Scholarships. In an effort to develop a community that celebrates cultural diversity and a student body that is more culturally diverse, Calvin College has developed two scholarships, Mosaic Scholarships and Multicultural Scholarships. Many recipients are ethnic minority students, but some scholarships are awarded also to majority students from ethnically diverse backgrounds.

Up to ten Mosaic Scholarships are awarded

each year to students with excellent academic records and potential for college whose ethnic, cultural, and/or socio-economic background will contribute to a more culturally diverse student body at Calvin. Awards are in the amount of \$5,500 per year, are awarded in addition to the Honors, Faculty Honors, Dean's, Presidential, and National Merit Scholarships for those who qualify, and are renewable for those who maintain a cumulative grade point average at Calvin of 3.20 or higher.

Multicultural Scholarships of \$1,500 each are awarded to all prospective first-year North American ethnic minority students who have a high school grade point average of 3.0 or higher, are granted regular admission to the College, and are not selected to receive a Mosaic Scholarship. Those who have the grade point average required but are not granted regular admission are reviewed for the scholarship individually. For transfer students who are ethnic minorities, a grade point average of 3.0 or better is required in their previous college work. Scholarships are renewed for up to three additional years for students who maintain a cumulative grade point average of 2.60 or higher at Calvin.

Stewardship Awards. Approximately 75 one-time Stewardship Awards of \$600 each are awarded to first-year and transfer students each year. Selection is based on the applicant's written demonstration of his or her stewardship of specific gifts and talents in two or more areas of activity such as music, art, drama, student government, school publications, church involvement, and community service. A clearly stated rationale for involvement, as well as breadth of involvement are criteria for selection. Applicants must have a minimum high school grade point average of 3.2 and be in the top half of the entering first-year class.

Stewardship Award applications are available from the Calvin Admissions Office and must be submitted before February 1. Applicants must also submit a recommendation form (provided with the Award Application) completed by a high school teacher or a church youth leader or minister. Stewardship Award recipients who are also selected to receive an academic scholarship will receive this

award in addition to the scholarship. Recipients will be notified after March 1.

Named Scholarships Funded by Donors

A number of scholarships and grants have been established by donors to support the College's scholarship program and to provide recognition and financial support to students who meet the eligibility criteria described. Application procedures vary from one scholarship to another and are included in the description of each scholarship. For those scholarships that require an application, the deadline for prospective first-year students is February 1 and for others is March 1. For all scholarships where financial need is considered, an application for financial aid is required as well.

Roger L. and Sandra L. Alderink Family Scholarship. Mr. and Mrs. Roger and Sandra Alderink of Caledonia, Michigan, have established this scholarship for graduates of Unity Christian High School in Hudsonville, Michigan, where the Alderinks' children and Mr. Alderink attended. The Alderinks are grateful for the support, encouragement and direction received from the staffs at both Unity Christian and at Calvin, and have chosen this scholarship as a way of supporting those who have the desire and vision to excel in their Christ-centered education. Recipients must demonstrate a reformed faith commitment as evidenced by involvement in volunteer organizations and activities, other than athletics, in church or school. One scholarship of \$2,300 was awarded for 1998-99. Recipients are selected by Unity Christian High School.

Calvin Alumni Association Legacy Scholarships. The Calvin Alumni Association provides funds for seven scholarships of \$1,000 each for incoming first year students whose parents are both Calvin alumni. Scholarships are awarded on the basis of the student's academic record (a grade point average of 3.0 or higher is required), potential for college, participation in church, community, and extracurricular school activities, and financial need. Preference is given to those not receiving other scholarships awarded by the college and to those who will be third generation alumni, i.e. at least one of the student's grandparents has also attended

Calvin. Students who wish to be considered for this scholarship and have had at least one grandparent attend Calvin should contact the Alumni Office to indicate their interest.

Calvin Alumni Scholarships. Scholarships funded by the Calvin Alumni Association are awarded to 10 incoming first-year students from the United States and Canada. These scholarships, of \$1000 each, are awarded to students with good academic records (3.0 or higher) and are based on need. Preference is given to students who do not receive one of the other scholarships awarded by the College. No separate scholarship application is required.

Calvin Alumni Minority Scholarships. Each year the Calvin Alumni Association provides funds for scholarships for North American ethnic minority students. Scholarships are awarded to both prospective and returning students. Primary factors in the selection are the student's academic record, motivation, character, potential for success at Calvin, and financial need. For 1998-99, four scholarships were awarded in the amount of \$2,000 each. No separate application is required.

Clarence and Anne Beets Scholarships. Dr. William C. (Clarence) and Mrs. Anne Beets have contributed a gift to Calvin College, the income from which is used to provide two scholarships of \$1,900 each. Dr. and Mrs. Beets are interested in helping students who have been successful at Calvin and have the potential and motivation to continue to be successful but lack the financial resources to meet all of their expenses. To be considered for a scholarship a student must be entering the junior or senior year, demonstrate financial need, be making normal progress toward a degree, and have a cumulative grade point average of 2.5 or higher. No separate scholarship application is required.

James F. Beré Memorial Scholarship. This scholarship has been established in memory of Mr. James F. Beré, an alumnus and longtime supporter of Calvin College. It is established to carry out his deeply held belief that racial and ethnic minorities should have increased opportunities to pursue a Christian higher education. This is a renewable scholarship normally awarded during the senior year in high school and renew

up to three years for those who meet the renewal criteria. Selection is based on the student's academic record, potential for college, cultural background, potential to contribute to the cultural diversity at Calvin, and financial need. A high school grade point average of 3.0 or higher is required for consideration, and a Calvin grade point average of 2.5 is required for renewal. Nine scholarships of \$2,600 each were awarded for 1997-98. No separate scholarship application is required.

Paul Beré Memorial Scholarship. The college has received a gift from Mrs. Jeanne L. Beré in memory of her late husband, Paul Beré, the income from which is used to award one scholarship of \$700 or more each year. The scholarship is awarded to a prelaw student entering the junior or senior year, with primary emphasis on an evaluation of academic performance and potential. Need is a secondary factor in the selection. Apply through the Financial Aid Office.

Berkowitz Scholarship. Mr. and Mrs. Hyman Berkowitz of Wyoming, Michigan have established this scholarship in gratitude for all that God has given them. It is their philosophy that helping others is not only a duty but a privilege. This scholarship is designed for students with a physical handicap or learning disability. A grade point average of 2.5 or higher is required for entering freshmen; a minimum of 2.0 or higher is required for transfers and returning students. Financial need is also considered. Two scholarships of \$2,000 each were awarded for 1997-98. Prospective students who wish to be considered for this scholarship should write a letter of application giving information about their qualifications for the scholarship to the Financial Aid Office. Returning students are considered automatically; no separate scholarship application is required.

Robert and Marjorie Boot Scholarship. Mr. and Mrs. Robert and Marjorie Boot of Kalamazoo, Michigan have established this scholarship because of their desire to return part of their blessings for use by future generations. Recipients must be returning students with a cumulative grade point average of 3.0 or higher and must demonstrate a love of (1) God, our only hope in life and in

death, (2) Family, with whom we learn to share this love, and (3) America, where we can worship Him and can pursue our goals according to our ability and ambition. Financial need is also considered. Two scholarships of \$1,900 each were awarded for 1998-99. Apply through the Financial Aid Office.

J. Russel Bouws/Russ' Restaurant Scholarships. A scholarship fund has been established in honor of Mr. J. Russel Bouws, founder of Russ' Restaurants in Holland, Michigan, by Mr. Howard De Haan, owner of the franchise for Russ' Restaurants in Kent County. Scholarships of \$700 each are awarded to students at Calvin who are employed by one of the Russ' Restaurants in Kent County. Prospective as well as current students are considered. Selection criteria include the student's academic record, character, motivation, financial need, and length of service with Russ'. Nine scholarships were awarded for 1998-99. Application forms are available in January at participating Russ' Restaurants in Kent County.

Dr. and Mrs. Harvey J. Bratt Medical Scholarships. Harvey and Fran Bratt, medical doctor and registered nurse, respectively, have established a scholarship for worthy young people who plan to pursue a medical career and are in need of financial help. Dr. and Mrs. Bratt are both alumni of Calvin and have established the scholarship out of gratitude to the college for what it has meant to them and to God for what He has done for them. Two scholarships of \$1,600 each were awarded for 1997-98. Eligibility requirements for the scholarship include: unquestioned Christian commitment, intention to enter a medical career, a cumulative grade point average of 3.0 or higher, and evidence of financial need. Applicants must be entering the junior or senior year at Calvin. Other factors that may be taken into consideration are: interest in medical missions, interest in service to the poor and needy, and ethnic minority status. Apply through the Financial Aid Office.

Ronald Buikema Memorial Scholarship. The family of the late Ronald Buikema of South Holland, Illinois, has established this scholarship in his memory. Mr. Buikema was a lawyer, an alumnus of Calvin, an active

supporter of the College, and a member of the college's Board of Trustees at the time of his death in 1997. The scholarship is for students entering the senior year who are planning to attend law school or a graduate program in politics or government who have demonstrated leadership skills and involvement in community or extracurricular college activities. A grade point average of 3.0 or higher is required. Preference is given, first of all, to graduates of Illiana Christian High School in Lansing, Illinois, and secondly to graduates of other Chicago area high schools who meet the above criteria. If there are no qualified candidates from these high schools, others are considered. One scholarship of \$1,500 was awarded for 1998-99. Apply through the Financial Aid Office.

Susan Lemmen Byker Honors Scholarship. Each year, two or more prospective students, who are Honors Scholarship recipients, are selected to receive the special Susan Lemmen Byker Honors Scholarship. This scholarship has been established by Mr. Gary and Mrs. Henrietta (Blankespoor) Byker, to honor their daughter-in-law, Susan (Lemmen) Byker, for her many years of service as a teacher in Christian, public, and international schools, and for her support of their son, Gaylen Byker, current president of Calvin College. Preference for these scholarships is given to students from Unity Christian High School in Hudsonville, Michigan who are planning to pursue a program in Education. If there are no Honors Scholarship recipients from Unity Christian High School planning to study Education, students from Unity in other areas of interest will be considered, and if there are no qualified candidates from Unity, students from other Christian high schools planning to study Education will be considered. No separate scholarship application is required.

Calvin Mentoring Scholarships. Calvin has received a challenge grant to fund a mentoring scholarship that will provide a personal relationship with a mentor as well as a monetary stipend. Ten new scholarships in the amount of \$1,200 each are awarded each year to U.S. and Canadian students who are entering the sophomore year, and a similar number in the amount of \$1,800 each are awarded to new international students.

Recipients must be interested in the personal and professional guidance a mentoring relationship can provide and willing to commit time on a regular basis to build this relationship. Scholarships can be renewed for succeeding years as long as the mentoring relationship continues to be satisfactory to both the mentor and the student.

Calvin College Minority Scholarships. Gifts have been received from constituents and friends of the college to fund this scholarship program for North American ethnic minority students. To be eligible for an award from this fund, candidates must have a grade point average of 2.5 or higher and must demonstrate financial need. Candidates for renewal are given first consideration. Normally, five or six scholarships of \$2,000 to \$2,500 each are awarded each year. No separate scholarship application is required.

Celeryville Area Scholarship. Supporters of the College from the Celeryville, Ohio, area have established this scholarship to encourage students from their area to attend Calvin. Scholarships are awarded to students entering the first year at Calvin who exhibit motivation, Christian character, promise of growth, and some evidence that they have given of themselves to activities in their church and/or community. Candidates must have a high school grade point average of 2.5 or higher and be a child or grandchild of a family living in the Celeryville, Ohio, area. Preference is given to students with greater need. \$1,500 to \$2,000 is available for scholarships each year. Apply through the Celeryville Area Scholarship Committee.

Judith DeJong Clousing Disabilities Scholarship. This scholarship has been established by the family of Ms. Judith Rae DeJong Clousing who developed blindness and epileptic-type seizures at the early age of seven. The scholarship is a memorial to her life testimony of the power and sufficiency of God's grace in her life. Candidates must be permanently physically disabled and have a high school grade point average of 2.5 or higher if an entering first-year student, or a college grade point average of 2.0 or higher if a transfer or returning student. First consideration is given to students who are visually impaired. Two scholarships of \$1,800 each were

awarded for 1998–99 Prospective students who wish to be considered for this scholarship should send a letter to the Office of Scholarships and Financial Aid describing their qualifications for the scholarship. No separate application is required for returning students.

The Chrysler Minority Scholarship. The Chrysler Corporation provides Calvin College funds to award scholarships to promising ethnic minority students who are residents of Michigan and plan to pursue a career in business or education. Four scholarships of \$2,750 each are awarded on the basis of financial need to one student in each class. No separate scholarship application is required.

Alice De Graaf Memorial Scholarship. Funds are provided annually by the Frances W. and Louise Humphries Family Foundation of Chula Vista, California to fund a scholarship for students from Southern California. Candidates must be prospective first year women students with a high school grade point average of 3.0 or higher and must demonstrate financial need. First preference is given to women students graduating from one of the high schools in the Chula Vista area. If there are no qualified candidates from Chula Vista, students from the San Diego area will be considered, and if there are no qualified candidates from the San Diego area, students graduating from other high schools in Southern California will be considered. One scholarship of \$1,000 was awarded for 1998–99. No separate scholarship application is required.

De Groot Family Scholarship. Mr. Amos J. De Groot of Downey, California has established this scholarship to assist the College in its responsibility to provide educational opportunities to minority persons and in its efforts to become a Christian community that reflects and values cultural and racial diversity. Scholarships are available to North American ethnic minority students who are entering the junior or senior year at Calvin, have a cumulative grade point average of 2.5 or higher and are pursuing or planning to pursue a program that will lead to a career of service to disadvantaged ethnic minority families or individuals. Two scholarships of

\$1,700 was awarded for 1998–99. Apply through the Financial Aid Office.

Gerald and Joyce De Nooyer Family Scholarship. This scholarship has been established by Mr. and Mrs. Gerald and Joyce De Nooyer of Kalamazoo, Michigan out of thankfulness for all the blessings God has given them. It is given with the hope that it will help equip and strengthen young people of the future for a purposeful Christian commitment to their generation. The scholarship is a one-year scholarship for students entering their first year at Calvin. Selection is based on evidence of Christian commitment and demonstrated leadership ability in high school, church, or community activities, other than athletics, and requires a high school grade point average of 3.3 or higher. One scholarship of \$3,800 was awarded for 1998–99. No separate scholarship application is required.

De Vries-Visser Scholarship. The family of Mr. and Mrs. Wiebe and Gertrude De Vries of Pella, Iowa, has established this scholarship in recognition of the many years of service that they and their son and daughter-in-law, Harold and Leona De Vries, have given for the cause of Christian education. The scholarship is awarded to the graduates of Pella Christian High School who are planning to attend Calvin, and is renewable through the senior year at Calvin. If there are no graduates of Pella Christian High School who qualify, graduates of Pella Public High School will be considered. Selection is based on Christian character, promise of growth, and evidence of participation and leadership in activities outside the classroom such as church, community, and extra-curricular school activities, other than athletics. A high school cumulative grade point average of 2.5 or higher at Calvin is required for renewal. Selection is made by the high school. For 1998–99, one new scholarship was awarded in the amount of \$1,800.

Bruce Dice Scholarship. Mr. Bruce Dice of Houston, Texas, has established this scholarship out of a desire to help deserving, Christian young people who are in need of financial help to attend Calvin who would likely not be able to attend Calvin otherwise. Scholarships will be awarded to students who have been raised in the Reformed or

Presbyterian traditions and who demonstrate a strong Christian faith. Recipients must qualify for need-based aid from Calvin, have a high school grade point average of 3.0 or higher, and be planning to pursue a major or program other than Sociology. Scholarships can be renewed for three years for those who maintain a cumulative grade point average at Calvin of 2.5 or higher. One scholarship of \$5,500 was awarded for 1998-99. No separate scholarship application is required.

Diekema Family Scholarship. Anthony J. Diekema was president of Calvin College for twenty years, from 1976 through 1995. He and his wife, Jeane, are both alumni of Calvin, and six of their seven children graduated from Calvin during the years of his presidency. They have established this scholarship in grateful acknowledgment of the academically excellent Christian education they all received. Scholarships are awarded to prospective first-year students with exceptional financial need and renewed for those who maintain a cumulative grade point average at Calvin of 2.0 or higher. A high school grade point average of 3.0 or higher is required to be considered for the scholarship. Because of the Diekema family's interest in diversity, preference will be given to ethnic minority students. One new scholarship of \$2,100 was awarded for 1998-99. No separate scholarship application is required.

Dr. Paul and Mrs. Doris Dirkse Health Care Scholarship. Dr. and Mrs. Dirkse have provided the college with a fund, the income from which is used to award scholarships to prospective juniors and seniors pursuing preprofessional courses in medicine, dentistry, nursing, physical therapy, and related professions and paraprofessions. Six scholarships of \$1,900 each were awarded for 1997-98. Selection criteria include vocational interest, academic record, character, and need. Apply through the Financial Aid Office.

Mary Cannon Dively Scholarship. Ms. Mary Cannon Dively of Grand Rapids, Michigan has provided the College with funds for scholarships. Ms. Dively taught in Grand Rapids area schools for more than 40 years and believes strongly in the value of education. With this scholarship she wishes to help

worthy, needy students with their college expenses. Candidates must be entering the sophomore, junior, or senior year at Calvin, must have a 3.0 grade point average or higher, and qualify on the basis of financial need. One scholarship in the amount of \$1400 was awarded for 1998-99. No separate scholarship application is required.

Eelkema Family Honors Scholarship. This scholarship provides the funds for an Honors Scholarship to be awarded to a prospective first-year student. Preference is given, first of all, to students from Oak Harbor High School in Oak Harbor, Washington, and secondly, to students who are members of the Christian Reformed Church and attend one of the Christian schools in the state of Washington. If there are no qualified candidates from either of these high schools, candidates from other schools will be considered. If there is more than one qualified candidate in any of the above categories, final selection will be based on Christian character, promise of growth, and participation and leadership in church, community, and extra-curricular school activities. No separate scholarship application is required.

Emerson Minority Scholarship. Each year Calvin College receives a gift from Mr. and Mrs. James Emerson to be used for scholarships to North American ethnic minority students. Three scholarships of \$1,600 to \$1,700 each are awarded yearly on the basis of the student's academic record and financial need, with preference given to students from single-parent families. Returning students are considered as well as incoming first-year students. A minimum grade point average of 2.5 is required for consideration. No separate scholarship application is required.

Farmers Insurance Group of Companies Scholarship. Each year the Farmers Insurance Group of Los Angeles, California, provides the college with a gift of \$2,400. This is to be used to award scholarships to second-, third-, or fourth-year students in mathematics or business administration. Financial need is a primary factor in selecting a recipient; however, an academic record of C+ or better is also required. Apply through the Financial Aid Office.

John G. and Anne Feringa Scholarship. Mr. John and Mrs. Anne Feringa of Rockford, Michigan, have provided Calvin with funds for this scholarship out of a desire to help worthy, needy students with their college expenses. New scholarship candidates must be entering their first year at Calvin, have a cumulative high school grade point average of 3.0 or higher, and demonstrate financial need. Preference is given to those not receiving another Calvin-awarded scholarship who have been actively involved in church, community, and extra-curricular school activities. Scholarships are renewed for a second year for those who earn a grade point average of 2.5 or higher for their first year at Calvin. One new scholarship of \$1,500 was awarded for 1998–99. No separate scholarship application is required.

First Michigan Bank Corporation Scholarship. The First Michigan Bank Corporation, headquartered in Holland, Michigan, has provided Calvin with a gift the income from which is used to fund scholarships. Recipients must have a grade point average of 3.0 or higher and must demonstrate financial need. Preference is given to students from western and central Michigan who are not receiving one of the general scholarships awarded by the college. Two scholarships of \$1,500 each were awarded for 1998–99. No separate scholarship application is required.

Grand Rapids Foundation Scholarship. As a result of a bequest by the late Stephen D. Lankester to the Grand Rapids Foundation, five or six scholarships of \$500 to \$750 each are available each year to prospective and returning students from Kent County. The primary purpose of this program is to provide assistance to students with good academic records (3.0 or better) who have financial need. Recipients of this scholarship who wish to be considered for renewal must reapply each year. Apply through the Financial Aid Office.

Jerry and Lynne Granger Family Scholarship. This scholarship is awarded to a senior at Lansing Christian High School in Lansing, Michigan, who plans to attend Calvin the following year and is renewable for the sophomore year. Candidates must have a high school grade point average of 2.7 or higher and must exhibit Christian

character and promise of growth. A grade point average of 2.5 or higher is required for renewal. One new scholarship of \$2,000 was awarded for 1998–99. Selection is made by the high school.

Carl and Sandra Gronsman Family Scholarship. Mr. Carl and Mrs. Sandra Gronsman of Kalamazoo, Michigan, have established this scholarship out of gratitude to God for the influence Calvin College has had on their lives and on the lives of their children. As a tangible expression of that gratitude, they want to assist in making a Calvin education available to others. Recipients of this scholarship must be entering the junior or senior year, have a cumulative grade point average of 2.75 or higher, and be majoring in Business, Education, Medicine, or Social Work. Financial need is considered also. One scholarship of \$1,600 was awarded for 1998–99. Apply through the Financial Aid Office.

William and Winifred Haeck Medical Scholarship. Funds for this scholarship have been provided by Dr. William and Mrs. Winifred Haeck out of gratitude for the assistance Dr. Haeck received from faculty members at Calvin in obtaining tuition scholarships for him to the University of Chicago and Rush Medical College. Scholarships are awarded to students entering the junior or senior year at Calvin who are pursuing a pre-medical program. A cumulative grade point average of 3.3 or higher is required. One scholarship of \$2,400 was awarded for 1998–99. Apply through the Financial Aid Office.

Hamstra Foundation Scholarship. The trustees of the Bernard and Dorothy Hamstra Charitable Foundation provide this scholarship in recognition of the Hamstra's dedicated support of Christian education. Scholarships are awarded to students from northern and central New Jersey with priority given to those from Eastern Christian High School in North Haledon, New Jersey. Recipients are selected as prospective first-year students, and scholarships are renewed for the sophomore, junior, and senior years for those who are in good standing and are making satisfactory academic progress. Candidates must demonstrate financial need and must have a high school grade point average of 3.0 or higher. Other factors that may

be considered include Christian character, a strong work ethic or motivation, academic achievement, and leadership ability. Two new scholarships were awarded for 1998–99 in the amount of \$3,500 each. No separate application is required.

George G. Harper Scholarship. Mr. and Mrs. Don and Carol Holthrop of Montague, Michigan, have established this scholarship in honor of George G. Harper who gave many years of service to Calvin, principally as professor of English, but also as a counselor of students, mentor to young faculty members, repository of insightful memories and stories, and valuable volunteer. The scholarship is designed for an African American minority student in the junior or senior year with preference given to those pursuing a major or minor in English. One scholarship of \$2,200 was awarded for 1998–99. Apply through the Financial Aid Office.

James and Catherine Haveman Family Scholarship. In appreciation for what Calvin has done in the past and the impact that Calvin will continue to have in the future, the James and Catherine Haveman family has established this scholarship fund to assist students who have financial need to obtain a Christian college education. New scholarships are awarded to prospective first-year student and renewed for the sophomore for those who qualify. Recipients must demonstrate financial need and have a high school grade point average of 2.5 or higher. Preference is given to students planning to pursue a program in pre-architecture, primary education, social work, or engineering. Scholarships are renewed for those making satisfactory academic progress. Two new scholarships were awarded for 1998–99 in the amount of \$1,800. No separate scholarship application is required.

Hearing Impaired Scholarship. This scholarship is funded by numerous members of the Pauw, Plantinga, and Van Harn families and their friends out of their desire to help hearing impaired students obtain a Calvin College education. Candidates must give evidence of suffering from deafness or a hearing impairment. First consideration will be given to renewals. Two scholarships of \$2,000 each were awarded for 1998–99. Prospective students who wish to apply for this

scholarship should send a letter to the Office of Scholarships and Financial Aid describing their qualifications for the scholarship. No separate application is required for returning students.

Hearst Foundation Scholarship. Funds for this scholarship are provided by the Hearst Foundation of New York which was established by publisher and philanthropist William Randolph Hearst. The scholarship is a reflection of his priority to “programs to aid poverty-level and minority groups.” The scholarship is a renewable scholarship awarded during the senior year in high school and renewed for up to three years for those who meet the renewal criteria. Selection is based on the student’s academic record, potential for college, cultural background, potential to contribute to cultural diversity at Calvin, and financial need. Preference is given to students who have participated in Calvin’s Entrada Program. A high school grade point average of 3.0 is required for consideration, and a Calvin grade point average of 3.0 is required for renewal. One new scholarship of \$2,700 was awarded for 1998–99. No separate scholarship application is required.

Heritage Class Scholarship. Members of Calvin College graduating classes of more than 50 years ago make annual donations to the Heritage Class Scholarship Fund to honor current Calvin students with scholarships. Recipients are selected on the basis of academic record, potential, motivation, Christian character, and financial need. A Calvin grade point average of 3.0 or higher is required. Three scholarships of \$1,900 each were awarded for 1998–99. No separate scholarship application is required.

Roger W. Heyns Presidential Scholarships. Each year five or more students receiving Presidential Scholarships, are designated as Roger W. Heyns Presidential Scholars. These scholarships are in honor of Dr. Roger W. Heyns, a 1940 graduate of Calvin College, who had a long and distinguished career in education. His appointments included Professor of Psychology and Vice President of Academic Affairs at the University of Michigan, Chancellor of the University of California at Berkeley, and President of the American Council on Education. Funds for the

scholarships are provided by the William and Flora Hewlett Foundation where Dr. Heyns served as president from 1977 through 1992. No separate scholarship application is required.

Dr. Roger A. and Bradley J. Hoekstra Memorial Scholarship. A gift designated to provide student scholarships has been received from Mrs. Janice Veenstra in memory of her late husband Roger and son Bradley. Two scholarships of \$1,600 each are awarded to upper-class students who plan to pursue the study of medicine. Selection is based primarily on the student's academic record and potential, although financial need is also taken into consideration. Apply through the Financial Aid Office.

Marti and Wayne Huizenga Family Presidential Scholarships. In recognition of the gifts received from Marti and Wayne Huizenga to support the college's scholarship program, one or more students receiving the Presidential Scholarships are designated each year as Marti and Wayne Huizenga Presidential Scholars. Because of the Huizenga family's interest in philanthropic and charitable efforts throughout south Florida, preference will be given to Presidential Scholarship recipients from that area. No separate scholarship application is required.

Ken and Joyce Jipping Family Scholarship. Mr. and Mrs. Ken and Joyce Jipping of Jenison, Michigan, have established this scholarship for students graduating from Unity Christian High School in Hudsonville, Michigan, to encourage these students to attend Calvin. Recipients are selected on the basis of Christian character, promise of growth, and evidence that they have given of themselves to activities, other than athletics, in their church and/or community. A minimum grade point average of 2.7 is required. Scholarships are renewable for a second year for students who are in good standing and continue to exhibit Christian character in their activity at Calvin. One new scholarship of \$1,500 was awarded for 1998-99. Recipients are selected by the high school.

Wilhemina Kalsbeek Memorial Scholarship. The family and friends of Wilhemina

Kalsbeek have established a fund in memory of her and her missionary work in China from 1922 until 1949. The purpose of the scholarship is to assist with a Christian college education for students from mainland China who in turn can bring the Christian faith to the Chinese people. To be eligible for the scholarship a student should be from mainland China, committed to return to China, proficient in speaking and writing the English language, and qualified to do college level work. Other criteria considered in the selection include the student's academic potential, potential for Christian service in China, and financial need. Typically, three or more scholarships in the amount of \$2,000 or more will be awarded each year. Apply through the Financial Aid Office.

William R. Kenan Jr. Presidential Scholarships. Each year four students receiving Presidential Scholarships, are designated as William R. Kenan, Jr., Presidential Scholars. The scholarships are in honor of Mr. William Rand Kenan who established the William R. Kenan, Jr., Charitable Trust in 1966 and who believed that "a good education is the most cherished gift an individual can receive." The trust has chosen to emphasize gifts to private educational institutions, preferring to give a small number of substantial grants that can make a real difference to the institution. No separate scholarship application is required.

Dr. Harry Kok Memorial Scholarship. Two scholarships of \$2,600 are presented each year, in memory of Dr. Harry Kok, to juniors for use in the senior year at Calvin College. The award is given primarily for achievement in scholarship, although other factors such as financial need, will be taken into account. Apply through the Financial Aid Office.

Loranna Konrad Memorial Scholarship. This scholarship has been established by Dr. Walter Konrad of Grosse Point Farms, Michigan in memory of his late wife, Loranna, to benefit students attending Calvin who do not come from Dutch or Reformed ethnic or religious backgrounds. The scholarship is a one-year award for students entering their first year at Calvin. In addition to considering ethnic and religious background, a high school grade point average

of 3.0 or higher is required. One scholarship was awarded for 1998–99 in the amount of \$2,000. No separate scholarship application is required.

Marlene and Bret Kort Canadian Scholarship. In gratitude for the outstanding Christian education they received at Calvin, Dr. Bret and Mrs. Marlene Kort of Colorado Springs, Colorado, have provided funds to encourage students from Canada planning to attend Calvin. One scholarship of \$1,500 is awarded each year to a student from Canada entering the first year at Calvin. The award is given to a well-rounded student who has participated in music, theater, and/or other service or extra-curricular activities, not including athletics. The student's academic record, potential, and financial need are considered as well. No separate scholarship application is required.

Henry J. and Myrtle R. Kreulen Family Scholarship. Dr. Henry and Mrs. Myrtle Kreulen of Grand Rapids, Michigan have established this scholarship out of gratitude for the Christian education they and several of their children and grandchildren have received at Calvin. The scholarship is to be used to help students who desire and are qualified for a Calvin College education but who may not be able to attend because of cost. New scholarships are awarded to prospective first year students who demonstrate financial need and have a high school grade point average of 3.2 or higher. Preference is given to those with the greatest need who are not receiving other scholarships awarded by the college. Scholarships are renewed for a second year for those who maintain a cumulative grade point average at Calvin of 3.0 or higher. One new scholarship of \$1,500 was awarded for 1998–99. No separate scholarship application is required.

Leonard M. Krull Scholarship Aid Fund. As a result of a bequest to Calvin College by the late Leonard M. Krull of Westborough, Massachusetts, three scholarships are available each year to prospective first-year students from the Whitinsville, Massachusetts, area. The scholarships range from \$475 to \$950 with selection based on the student's academic record, ACT or SAT scores, and, in some cases, on financial need. The \$950 scholarships are renewable for up to four

years. Selection is made by the Committee on Scholarships and Financial Aid of the college in consultation with a representative committee from the Whitinsville area. No separate scholarship application is required.

Florence G. Kuipers Scholarship. Dr. Florence Kuipers is an alumna of Calvin College who through her work with the government and with Wycliffe Bible Translators has developed a sensitivity to the educational needs of displaced and minority people in the world. She has established this scholarship program to assist minority students in obtaining a Christian college education at Calvin College. New scholarships are awarded to North American ethnic minority students who demonstrate financial need. A high school grade point average of 3.0 is required for prospective first-year students, and a previous college grade point average of 2.5 is required for prospective transfer students. Scholarships are renewed for those who maintain a cumulative grade point average at Calvin of 2.5 or higher. One scholarship of \$2,500 was awarded for 1998–99. No separate scholarship application is required.

Milton and Carol Kuyers Family Mosaic Scholarships. Each year ten or more students receiving Mosaic Scholarships, are designated as Milton and Carol Kuyers Family Mosaic Scholars. The scholarships are funded by a gift from the Kuyers family, and are given in recognition of their long-standing commitment to Christian education and their interest in and work in ethnic minority communities. No separate scholarship application is required.

Wilbur A. Lettinga Family Scholarship. Mr. Wilbur A. Lettinga has provided funds for this scholarship to encourage students from South Christian High School in Grand Rapids, Michigan, to attend Calvin College. Mr. Lettinga has been a strong supporter of both South Christian High School and Calvin College, and this scholarship has been established out of gratitude for the excellent Christian education his children have received at both schools. New scholarships are awarded to students graduating from South Christian High School and are renewed for the sophomore year for those who have a cumulative grade point average of 2.5 or higher at Calvin. Selection criteria include

Christian character, promise of growth, and participation and leadership in activities outside the classroom such as church, community, and extra-curricular school activities, not including athletics. A grade point average of 3.0 or better is required for consideration. Selection is made by the high school. For 1998–99, one new scholarship was awarded in the amount of \$1,800.

McGregor/Miller Foundation Scholarship. This scholarship was established by the designation of a McGregor Fund Trustee, Mr. Eugene A. Miller, for the purpose of providing assistance to financially needy students who have demonstrated academic ability. Candidates for this scholarship must be entering the sophomore, junior or senior year, have demonstrated financial need, and have a cumulative grade point average of 3.0 or higher. Six scholarships of \$2,000 each were awarded for 1997–98. No separate scholarship application is required.

Hugh and Eve Meeter Calvinism Awards. Mr. Hugh and Mrs. Eve Meeter established these awards to stimulate interest in and knowledge of the Calvinistic world-and-life view among high school seniors planning to attend a Christian Reformed-related college. One scholarship of \$2,500 and one of \$1,500 are awarded each year. Selection is based on the evaluation of an 8–12 page research paper required for consideration. Application should be made with the Meeter Center at Calvin.

Dr. and Mrs. Bernard Meeuwsen Medical Scholarship. Dr. and Mrs. Bernard Meeuwsen of Grand Rapids, Michigan, have provided Calvin College with a gift out of gratitude for what God has done for their family and in appreciation of what Calvin College has meant to their family. Dr. Meeuwsen is a graduate of Calvin, and a number of the Meeuwsen's children are either graduates or current students at Calvin. The gift is used to fund a scholarship for a student pursuing a nursing or pre-medical program and entering the sophomore, junior, or senior year. A cumulative grade point average of 3.3 or higher is required along with evidence of financial need. One scholarship of \$1,900 was awarded for 1998–99. Apply through the Financial Aid Office.

Menninga Memorial Scholarship. This scholarship was established in memory of Henry and Minnie Menninga and Shirley Menninga by Mr. and Mrs. Roger Warnshuis, Jr. New scholarships will be awarded to prospective first-year students, and will be renewed for the sophomore, junior, and senior years. Candidates must demonstrate financial need, Christian character, personal integrity, and motivation. A cumulative high school grade point average of 3.0 or higher is required and a grade point average of 2.5 is required for renewal candidates. One scholarship of \$3,000 was awarded for 1998–99. No separate scholarship application is required.

Mephibosheth Scholarship. A scholarship has been established by an anonymous donor to provide scholarship assistance to students with physical disabilities. The donor, who has physical disabilities himself, has established this fund out of gratitude for all that God has done for him and has named it the Mephibosheth Scholarship because, as he indicates, "he too has dined at the King's table" (cf. II Samuel 9:13). First consideration for scholarships is given to prospective first-year and transfer students who have a physical impairment that is likely to continue indefinitely and who have the academic ability to be admitted as regular students. Preference is given to students who have financial need and to those who have an impairment that makes employment during the academic year less likely. Normally, up to five scholarships of \$2,500 each are awarded each year. Scholarships are renewable for those who maintain satisfactory academic progress as required for other financial aid programs. Prospective students who wish to be considered for this scholarship should send a letter of application to the Office of Scholarships and Financial Aid describing their qualifications for the scholarship. No separate scholarship application is required for returning students.

William and Matilda Monsma Scholarship. The children of Mr. and Mrs. Monsma have established this scholarship in memory of their parents to assist students who are pursuing opportunities and developing skills needed to assist, counsel, help, and teach others. Candidates must be entering the

sophomore, junior, or senior year, have a grade point average of 3.0 or higher, be pursuing a major or program in English, Education, or Communication Arts and Sciences, or be planning a career in a helping profession, and give some evidence of financial need. Preference is given to students from the south Chicago area. One scholarship of \$1,700 was awarded for 1998–99. Apply through the Financial Aid Office.

Arnold and Cynthia Morren Family Scholarship. Mr. Arnold and Mrs. Cynthia Morren of Grandville, Michigan, have established this scholarship for students graduating from Calvin Christian High School in Grandville, Michigan, to encourage these students to attend Calvin College. This is a renewable scholarship awarded on the basis of Christian character, promise of growth, and participation and leadership activities, other than athletics, outside the classroom such as church, community, and extracurricular school activities. A grade point average of 3.0 or higher is required. Three new scholarships of \$2,000 each were awarded for 1998–99. Selection is made by the high school.

Jay and Kathleen Morren Family Scholarship. Mr. Jay and Mrs. Kathleen Morren of Grand Rapids, Michigan have provided contributions to fund one or more scholarships for prospective students from South Christian High School in Grand Rapids, Michigan. Selection criteria for the scholarship include the student's academic record, promise of growth, Christian character, participation and leadership in church, community, and extra-curricular school activities, other than athletics, and financial need. A high school grade point average of 3.0 or higher is required for consideration, and the scholarship is renewable for one year for those who maintain a grade point average at Calvin of 2.50 or higher. One new scholarship of \$1,500 was awarded for 1998–99. Selection is made by the high school.

Ben M. Muller Memorial Scholarship. The Muller family of Grand Rapids, Michigan has established this scholarship for graduates of west Michigan Christian high schools who would otherwise not be able to attend Calvin because of cost. The scholarship is a two-year scholarship awarded for the first year

to a student who has been granted regular admission to Calvin, and renewed for the second year for first-year recipients who are in good standing and making satisfactory academic progress. First preference for new scholarships is given to ethnic minority students from Grand Rapids Christian High School, and second preference to minority students from other Christian high schools in western Michigan. If there are no ethnic minority students from these schools who qualify, other students from Grand Rapids Christian High School are considered. One new scholarship was awarded for 1998–99 in the amount of \$1,500. No separate scholarship application is required.

Naomi Scholarship. This scholarship is established for students from single parent families who have lost a parent through death or divorce or a student who herself or himself is a single parent because of the loss of a spouse. New scholarships are awarded to those entering Calvin as new students, either first year or transfer students, who demonstrate financial need. A minimum high school grade point average of 3.3 or higher is required for those entering as transfers. A Calvin grade point average of 3.0 or higher is required for renewal. Preference is given to those not eligible for a Denominational Grant or for academic scholarships awarded by the college. One new scholarship of \$1,600 was awarded for 1998–99. No separate application is required.

Amos Nordman Scholarship. Funds have been received from the Amos Nordman Foundation Charitable Trust to be used for scholarships to students at Calvin College. Mr. Nordman was a resident of Marne, Michigan, and established a foundation that makes contributions to several colleges in Michigan for student aid. The scholarships are awarded to students who have a cumulative grade point average of 3.0 or better and are from families with limited income. Typically, one or two scholarships of \$750 to \$1,000 each are awarded each year. No separate scholarship application is required.

Peter B. Northouse Family Scholarship. The children of Mr. and Mrs. Peter B. and Jeannette H. Northouse have established this scholarship to honor their parents because of their dedication to Calvin and their inter-

est in education. Scholarships are awarded to students who are entering the sophomore, junior, or senior year and have a cumulative grade point average of 2.70 or higher. Preference is given to students who are sincere, industrious, motivated, worthy students who are not receiving other scholarships awarded by the college. Two scholarships of \$2,500 each were awarded for 1998–99. No separate scholarship application is required.

David M. Ondersma Family Scholarship. The David Ondersma family of Hudsonville, Michigan, has established this scholarship to encourage graduates of Covenant Christian High School in Grandville, Michigan, to attend Calvin. Scholarships are awarded on the basis of Christian character, promise of growth, and participation and leadership in activities, other than athletics, outside the classroom, other than athletics. A high school grade point average of 3.0 is required for consideration. Scholarships can be renewed for up to three additional years for recipients who maintain a cumulative grade point average of 3.0 or higher at Calvin. One new scholarship of \$1,500 was awarded for 1998–99. Selection is made by the high school.

Robert T. and Charlotte F. Otten Scholarship. Robert, a professor of Classics, and Charlotte, a professor of English, who enjoyed teaching at Calvin for many years, have established a scholarship for a first-year entering student. The scholarship is based on evidence of commitment to Christian liberal arts education and requires a high school grade point average of 3.0 or higher. Preference is given to students who plan to pursue a career in college teaching. One scholarship of \$1,500 was awarded for 1998–99. Students who wish to apply for this scholarship should send a letter to the Office of Scholarships and Financial Aid describing their qualifications for the scholarship.

Alan and Jan Pauw Family Scholarship. Mr. and Mrs. Pauw have a special interest in liberal arts education and have established this scholarship for students majoring in history, philosophy, or a foreign language. Candidates must be entering the junior or senior year, have a cumulative grade point average of 3.0 or higher, and give some evidence of financial need. One scholarship of \$3,000

was awarded for 1998–99. Apply through the Financial Aid Office.

Theodore J. Peters Scholarship. A scholarship fund has been established by the late Mr. Theodore J. Peters, the income from which is used to provide scholarships to students from a number of West Michigan Christian High Schools. Each year one scholarship is awarded to a prospective student at each of the following Christian high schools: Calvin Christian, Grand Rapids Christian, Holland Christian, Kalamazoo Christian, South Christian in Cutlerville, Unity Christian in Hudsonville, and West Michigan Christian in Muskegon. The amount of the scholarship for 1998–99 is \$10,000 less the amount received from state and federal grant programs and from the college's Denominational Grant Program. Selection is made by the high school on the basis of the student's academic achievement, Christian character, leadership, and participation in extracurricular activities. No separate scholarship application is required.

Johannes and Charlotte Moss Plekker Memorial Faculty Honors Scholarship. Mr. John and Mrs. Judith Bielema of Grand Rapids, Michigan provide Calvin with annual gifts to be used to fund a scholarship in memory of Judy's parents, Dr. Johannes and Mrs. Charlotte Moss Plekker. These gifts provide funds for a Faculty Honors Scholarship to a student entering the junior or senior year at Calvin who is pursuing either the pre-medical program or a program in Chemical Engineering. No separate scholarship application is required.

Reunion Class Honors Scholarship. Many graduating classes at Calvin have established endowments to provide scholarships to students. Income from these endowments is combined and is used to fund Honors Scholarships for needy students in the junior and senior classes. No separate scholarship application is required.

Paul and Thelma Schutt Family Medical Scholarship. Dr. Paul and Mrs. Thelma Schutt of Grand Rapids, Michigan, have provided the college with funds for this scholarship for students pursuing a Pre-medical or Nursing program. Candidates must be entering the junior or senior year, have a

cumulative grade point average at Calvin of 3.0 or higher, and give some evidence of financial need. Preference is given to those who demonstrate a strong Christian character and a caring personality. One scholarship of \$1,600 was awarded for 1998–99. Apply through the Financial Aid Office.

Race Relations Multiracial Student Scholarship. The Christian Reformed Church of North America (CRCNA) has authorized the Synodical Committee on Race Relations (SCORR) to provide scholarships of up to \$1,000 per year to North American ethnic minority students who are related to the Christian Reformed Church. Selection criteria include the student's academic record, financial need, and interest in serving God's Kingdom through the Christian Reformed Church of North America (CRCNA). Returning students are considered as well as incoming first-year students. Apply through the Financial Aid Office.

James E. Smith Presidential Scholarships. Each year four students receiving Presidential Scholarships, are selected as James E. Smith Presidential Scholars. These scholarships are in memory of James E. Smith who was a graduate of Calvin College and an active alumnus. He was president of the Calvin College Oratorio Society at the time he passed away unexpectedly in October 1991. The scholarships are funded by contributions from Gordon Food Service where Mr. Smith was a long-term employee as Director of Operations. No separate scholarship application is required.

Spalink Memorial Missions Scholarship. The Spalink family has established a scholarship fund in memory of John Spalink, Jr., which provides one scholarship of \$1100 each year. Its purpose is to encourage superior students to enter missions. The scholarship is awarded to a student who shows a definite interest in a missionary vocation. The award is given primarily for academic achievement, although other factors, such as financial need, will be taken into account. Generally, members of the Christian Reformed Church who aspire to a career with that church's missions will be shown preference. Apply through the Financial Aid Office.

Steelcase Foundation Scholarship. The Steelcase Foundation of Grand Rapids, Michigan, offers scholarships totaling \$8,000 annually to applicants who are children of Steelcase employees. Typically scholarships of \$800 to \$1,000 each are awarded to first-year and upper-class students combined. The recipients are selected by the Committee on Scholarships and Financial Aid of the college. Applicants are judged on the basis of scholastic ability, character, and need. Prospective students who want to be considered for this scholarship must send a letter of application to the Office of Scholarships and Financial Aid at Calvin. Returning students should complete the upper-class scholarship application.

Wilma Steketee-Bean Scholarship. Mrs. Wilma Steketee-Bean remembered Calvin College among the charitable beneficiaries of her estate and created this scholarship. Mrs. Steketee-Bean expressed her desire but lack of opportunity to attend college when she was young. Her purpose for this scholarship is to help financially needy young men and women to have the opportunity she lacked to benefit from a college education. One or more new scholarships of \$2,000 each will be awarded to high school seniors with financial need who are planning to attend Calvin College. Candidates for renewal must have a cumulative grade point average of 2.5 or higher. No separate scholarship application is required.

Edward C. and Hazel L. Stephenson Foundation Scholarship. Each year Calvin receives a gift from this foundation to be used for scholarships. For 1998–99, eight scholarships were awarded in amounts of \$2,000 each. No separate scholarship application is required.

Sullivan Scholarship. Each year Calvin receives \$1,000 from the Sullivan Scholarship Fund Trust to be used for one or two scholarships to incoming first-year students. The scholarships are awarded to needy students from high schools in the greater Grand Rapids area. Selection is made on the basis of academic achievement, character, participation in extracurricular activities, and financial need. No separate scholarship application is required.

Wilma Zondervan Teggelaar Family Scholarship. The family of Mrs. Wilma Zondervan Teggelaar, of Grand Rapids, Michigan, has established this scholarship in her honor to recognize her lifelong generous and dedicated support of Christian education. New scholarships are awarded to first-year students and renewed for the sophomore year. Selection criteria include the student's academic record and financial need with a high school grade point average of 3.0 or higher required for consideration. Preference is given to students who have been involved in service-related and other volunteer activities during their high school years. Scholarships are renewed for students who are in good standing and continue to qualify on the basis of need. Two new scholarships of \$2,500 each were awarded for 1998-99. No separate scholarship application is required.

Tong Family Scholarship. Dr. Joseph Tong, an alumnus of Calvin from El Monte, California, has established this scholarship to assist international students at Calvin. Candidates must profess the Christian faith, demonstrate academic proficiency, and give evidence of financial need. First consideration is given to renewal candidates who have a grade point average of 2.5 or higher. Preference for new scholarships is given to students from Asia, particularly Indonesia. Two scholarships of \$1,300 each were awarded for 1998-99. No separate scholarship application is required.

Robert F. and Ella Topp Family Scholarship. Mr. and Mrs. Topp have established this scholarship out of gratitude for the excellent Christian education their three sons received at Calvin College. Scholarships are awarded to prospective students graduating from Grand Rapids Christian High School who have a high school grade point average of 3.0 or higher and demonstrate financial need and are renewed for one year for those who maintain a grade point average at Calvin of 2.7 or higher. Preference for new scholarships is given to students planning to pursue a program in business administration. One scholarship of \$2,500 was awarded for 1997-98. No separate scholarship application is required.

David O. Triezenberg Scholarship. This scholarship, funded by the Triezenberg fam-

ily in memory of David O. Triezenberg, former teacher, former Calvin College employee, and friend to students is established to encourage a new student from Illiana Christian High School in Lansing, Illinois, or Grand Rapids Christian High School in Grand Rapids, Michigan, to attend Calvin College. Recipients must be graduating from either Illiana Christian High School or Grand Rapids Christian High School, demonstrate financial need, have a high school grade point average of 3.0 or higher, and not be receiving other scholarships awarded by the college. Recipients will alternate between the two high schools. Preference will be given to those preparing for a career in Christian service such as teaching, social work, or work in the not-for-profit sector. One scholarship of \$900 was awarded for 1998-99. No separate scholarship application is required.

Cornelia and Marvin Vanden Bosch Scholarship. Mr. and Mrs. Vanden Bosch have established this scholarship for physically disabled students with a disability that is likely to continue indefinitely. Candidates for new scholarships must have a previous grade point average of 2.5 or higher and demonstrate financial need. Scholarships are renewable for those who maintain satisfactory academic progress. Two scholarships of \$2,000 each were awarded for 1998-99. Apply through the Financial Aid Office.

Edward D. and Jennie VanderBrug Memorial Scholarship. The children of Mr. and Mrs. VanderBrug have established this scholarship in memory of their parents to encourage and enable promising students to uphold the Christian world and life view that was theirs. Scholarships are open to non-Anglos who are committed Christians with preference given to African Americans. Recipients must have the academic potential and promise to be successful at Calvin. Financial need is not required, but preference is given to those with need. Scholarships are renewed for up to three years for those who maintain a cumulative grade point average of 2.60 or higher or a grade point average of 3.00 or higher for the previous year. Preference for new scholarships is given to those who have been involved with any recruitment program that has introduced them to

the value and advantages of studying at Calvin. Four scholarships of \$2,400 each were awarded for 1998–99. Apply through the Financial Aid Office.

Joseph and Ralph Gelmer Vander Laan Memorial Scholarship. This scholarship fund was established by the Vander Laan family in memory of Joseph and Ralph Gelmer Vander Laan, who were brothers. One of the scholarships is awarded to a prospective junior or senior who is pursuing a program in the health professions, with preference given to those interested in missions or some other type of Christian service. The other scholarships are awarded to top students in any area. For 1998–99, five scholarships of \$2,000 each were awarded. Selection criteria include the student's academic record, character, and need. Apply through the Financial Aid Office.

Gerald and Jessica Vander Wall Scholarship. Dr. and Mrs. Gerald and Jessica Vander Wall of Grand Rapids have established this scholarship because of their desire to help deserving students obtain a Christian college education. Scholarships are awarded to returning students based on their academic record and financial need. A cumulative grade point average of 2.5 or higher is required to be considered. One scholarship of \$2,700 was awarded for 1998–99. No separate scholarship application is required.

William H. Van Dyke Memorial Scholarship. Mrs. Janice Van Dyke of Oak Brook, Illinois, has established this scholarship in memory of her husband, William, who passed away of cancer in November of 1993. Each year, one scholarship of \$2,500 is awarded to a senior at Timothy Christian High School in Elmhurst, Illinois, and one scholarship of \$1000 is awarded to a senior at Lynden Christian High School in Lynden, Washington. Selection is made by the high schools. Scholarships are renewable for three additional years for students who have a cumulative grade point average at Calvin of 2.5 or higher.

Vermeer Scholarships. The Vermeer Charitable Foundation of Pella, Iowa has established two scholarships at Calvin. Each year two or three students are designated as Vermeer Presidential Scholars and funds for

these scholarships are provided by an endowment established by a gift from the Vermeer Foundation. A second scholarship, the Vermeer Charitable Foundation Scholarship is awarded each year to a senior at Pella Christian High School who is planning to attend Calvin the following year. Factors considered include Christian character, promise of growth, and participation and leadership in activities, other than athletics, outside the classroom such as church, community, and extra-curricular school activities, other than athletics. A high school grade point average of 3.0 or higher is required for consideration, and a Calvin grade point average of 3.0 or higher is required for renewal. One new scholarship of \$2,500 was awarded for 1998–99. The scholarship is awarded by the high school.

Victor VerMeulen Medical Scholarships. Gifts have been received from Mrs. Mildred VerMeulen of Grand Rapids, Michigan, to fund a scholarship in honor of her husband, Victor R. VerMeulen, SR. Each year, eight or more awards of \$1,700 each are made to students entering the junior or senior year, six in the nursing program and two in the pre-medical program. Selection is based primarily on the student's academic record and potential for Christian service in medicine. Financial need is considered as a secondary factor. Apply for the pre-medical scholarships through the Financial Aid Office.

Voetberg Scholarship for Students with Disabilities. Mr. and Mrs. Robert Voetberg of Grand Rapids, Michigan have established this scholarship in honor of their son Mike, a physically disabled student who attended Calvin from 1987 to 1991. The Voetbergs' desire is to recognize other promising students who are physically disabled and assist them in meeting their educational expenses. Candidates must be permanently, physically disabled and must demonstrate the ability to do college-level work. Financial need is considered as well. One scholarship of \$1,800 was awarded for 1998–99. Prospective students who wish to be considered for the scholarship must send a letter of application describing their qualifications for the scholarship to the Financial Aid Office. No separate application is required for returning students.

Wallace and Olive Waalkes Memorial Scholarship. Two scholarships of \$2,100 each are awarded each year to pre-law students entering the junior or senior year at Calvin with preference given to prospective seniors. Candidates must be planning to attend law school after graduating from Calvin and must have a grade point average of 3.0 or higher. Apply through the Financial Aid Office.

Charles and Anna Wabeke Memorial Scholarship. Calvin has received a gift from Mrs. Ruth Heerspink, daughter of Mr. and Mrs. Wabeke, which has been used to establish a scholarship fund. Scholarships are awarded to upper-class students who are planning to enter full-time Kingdom service with preference given to those interested in missions. The student's academic record and faculty recommendations are primary factors in the selection (a grade point average of 3.0 or better is required) although financial need is considered as well. One scholarship of \$1,000 is awarded each year. Apply through the Financial Aid Office.

Samuel L. Westerman Foundation Scholarship. Mr. Samuel L. Westerman established a foundation in 1971, and upon his death in 1984, his entire estate went to the Foundation. The Foundation graciously supports a wide range of worthy causes in education, arts and music, health, religion and science. Candidates for this scholarship must be entering the junior or senior year, demonstrate financial need and have a cumulative grade point average of 3.0-3.49. Recipients must be active in the Student Volunteer Service at Calvin or in other community or volunteer work. Three scholarships of \$2,400 each were awarded for 1998-99. Apply through the Financial Aid Office.

Peter and Esther Westra Family Honors Scholarship. This scholarship provides the funds for Honors Scholarships to be awarded to prospective first year students from Kalamazoo Christian High School in Kalamazoo, Michigan. Preference is given to students with financial need. If there are no qualified candidates from Kalamazoo Christian High School, prospective students from other schools in the Kalamazoo, Michigan area will be considered. No separate scholarship application is required.

Dr. Morris Wilderom Scholarship. The family of the late Dr. Morris Wilderom has established a scholarship in his memory to be awarded to students in medicine. Dr. Wilderom graduated from Calvin in 1931 and practiced medicine until his death in 1985. Candidates for this scholarship must be pursuing a premed program, entering the junior or senior year, and be in need of financial assistance. Other factors considered in the selection include the student's motivation, Christian character, and ability to contribute to the medical profession in future years. One scholarship of \$2,800 was awarded for 1998-99. Apply through the Financial Aid Office.

Bernard and Carol De Mots Woltjer Family Scholarship. Mr. Bernard and Mrs. Carol Woltjer have established this scholarship because of their desire to share with others the wonderful blessings of a Christ-centered education at Calvin College. They are both graduates of Calvin and celebrate the faithfulness of God to their family as three generations have been educated at Calvin. Recipients must be entering the first year at Calvin and have a high school grade point average of 2.5 or higher. Preference will be given to descendants of Mr. and Mrs. Woltjer. If no descendants are identified, scholarships will be awarded to students graduating from Unity Christian High School in Hudsonville, Michigan who have demonstrated leadership in church, community, and school activities other than athletics. Two scholarships of \$1,400 each were awarded for 1998-99. Descendants of Mr. and Mrs. Woltjer should apply through the Financial Aid Office.

Woodlawn Christian Reformed Church Minority Scholarship. Each year the Woodlawn Christian Reformed Church of Grand Rapids, Michigan, provides the college with funds to be awarded to North American ethnic minority students who are personally committed to Jesus Christ and His Church. The amount of the scholarships, which can range from \$1,500 to \$2,000, depends on the amount of the student's need and the availability of other aid. A minimum grade point average of 2.5 is required. Prospective students who wish to be considered for the scholarship must send a letter of application describing their qualifications for

the scholarship to the Financial Aid Office. Returning students should use the upper-class scholarship application form.

Departmental Scholarships Funded by Donors

A number of other scholarships have been established by donors to recognize students in particular departments. Applications for these scholarships must be submitted to the department for which the scholarship is designated except for nursing scholarships. Applications for these scholarships are submitted to the Financial Aid Office.

Alumni Association

Calvin Alumni Association Scholarships. The Calvin Alumni Association awards at least six scholarships of at least \$1,400 each to students who have been active in volunteer work on and off the Calvin campus through membership and involvement in student and/or community organizations (where payment for services has been minimal or nonexistent.) Students who wish to qualify for these scholarships must also be able to articulate a connection between their volunteer activity and life goals, and have a minimum cumulative grade point of 2.5. Candidates should secure an application from the Alumni Relations Office in November and December and return it by the due date in January. A team of Alumni Association Board members reviews the applications and interviews finalists during Homecoming weekend each February.

Art Department

Edgar G. Boevé Art and Art History Scholarship. Through the generosity of alumni and friends this scholarship honors Edgar G. Boevé for his contribution to the Art Department, the college, the denomination and the larger community as art teacher, the first chair of the Art Department, art consultant, artist and leader. Two scholarships of \$2,000 each are available for any art student enrolled in any art program. Selection will be made by the members of the Art Department based upon financial need, grade point average, and an essay describing interest, career goals and a Christian commitment. A

grade point average of 3.0 in Art Department courses is required.

Sandra Bowden Art Scholarship. Mr. Robert Bowden, from New York, has established this scholarship in honor of his wife, Sandra, who is an artist. They want to encourage Christian artists to prepare to become leaders in the field of art. The \$750 scholarship is available to a sophomore, junior, or senior majoring in art who has a minimum grade point average of 2.5 or higher. The recipient is expected to send slides of his or her art to Sandra Bowden and also an explanation of his or her motivation for doing one work of art represented by a slide.

Pat Snyder Verduin Scholarship. The college has received a gift from Mr. Calvin and Mrs. Patricia Verduin of Grand Rapids, Michigan, the income from which is used to provide a scholarship of \$1,000 to a prospective junior or senior majoring in art. The purpose of the scholarship is to encourage artists who are Christians to prepare for a life of service in the field of art directed by Christian values. Candidates for the scholarship must have a minimum grade point average of 2.5 or higher and will be required to prepare a paper describing a work of art they have created. Financial need will be considered as well.

Biology Department

Martin and Frances Karsten Biology Scholarship. This scholarship is provided by a gracious bequest from the estates of Martin and Frances Karsten. Martin Karsten faithfully served Calvin College as professor of biology for thirty years and concentrated in the areas of botanical sciences. Candidates for this scholarship must be Biology majors entering the junior or senior year. Preference will be given to those concentrating in botany. Four scholarships of \$2,100 were awarded for 1998-99.

CAS Department

Ervina Boevé Scholarship for Theater Arts. Through the generosity of former students and friends this scholarship honors Mrs. Ervina Boevé for her contribution to the theater and the college while serving as Director of Thespians. Each year a scholarship of \$600, to be applied toward tuition, will be

awarded by the Department of Communication Arts and Sciences to a junior speech major with a theater arts concentration on the basis of academic record and proven ability and dedication in performance, production, or scholarly research in theater.

Calvin Media Scholarship. Norman and Crystal Unema established this \$1000 scholarship, awarded to a student entering the junior or senior year and planning on a career in journalism, radio, or television broadcasting. Candidates for this award will be nominated and selected by the CAS Department.

Department of Communication Arts and Sciences Scholarship for Telecommunications. Contributions by friends of the Communication Arts and Sciences Department have made possible a \$250 scholarship, which is awarded annually to a junior telecommunications concentrate. The recipient is chosen on the basis of academic record, spiritual maturity, and exceptional promise for a career in mass communication.

David J. Holquist Scholarship. This scholarship is given annually in honor of a former Calvin Professor of Communication Arts and Sciences who influenced the lives of many students through his personal and professional commitment to redeeming interpersonal communication. The award is given to a junior or senior who has demonstrated a commitment to serving others through such activities as community service, church involvement, small-group leadership, and the support and encouragement of other students. Candidates for this scholarship will be nominated and selected by the CAS Department.

Ann Janssen Noteboom Scholarship. This scholarship was established by William and Ann Noteboom. Dr. Ann Noteboom taught at Calvin for thirty-five years. Up to two awards of \$900 will be awarded annually to returning junior or senior majors who show outstanding promise in the areas of oral interpretation and/or public address.

John Miller Scholarship. Rev. John Koole established this scholarship in honor of Mr. John Miller, who supported him in his love for music and drama and assisted him financially in his Calvin education. One scholar-

ship of \$1,000 or more will be awarded annually to returning junior or senior majors who demonstrate excellence in theatrical ability. Candidates for this scholarship will be nominated and selected by the CAS Department.

Vande Guchte Award in Communication Disorders. Presented by Dr. Marten Vande Guchte, this annual cash award will be given to an outstanding student who intends to enter the professions of speech-language pathology or audiology. The Communications Disorders program advisor will recommend a nominee to the Department on the basis of the student's academic record, Christian character, and commitment to service in the speech and hearing profession.

Grace Dykstra Vellenga Scholarship. Grace Dykstra Vellenga had a keen interest in effective communications and was active in giving public readings and elocution instruction to private students. She was also an active witness for Jesus Christ and frequently used her speaking skills in serving as a Bible class teacher and Bible study group leader. Her children have established this scholarship in her honor to support a student desiring to integrate their faith with a career in communications. Preference will be given to students majoring in telecommunications, to those planning a career in the Christian media, and to those who demonstrate the ability to express the importance of their Christian faith in their lives.

Chemistry Department

John A. Bolt Memorial Scholarship. This scholarship has been established to honor John A. Bolt who was a Calvin graduate, a research chemist, and Director of Research for the American Oil Company. This scholarship recognizes his love for the field of science and his intense interest in encouraging young people to seek excellence in education. Candidates must be entering the junior or senior year, majoring in Chemistry or Biochemistry, and have a cumulative grade point average of 3.0 or higher. Preference will be given to those pursuing a career in teaching and/or research in the sciences. Two scholarships of \$2,600 each were awarded for 1998-99.

Peter and Margaret (Bell) De Haan Chemistry Award. Mrs. De Haan has established a scholarship fund for the benefit of students in chemistry in memory of her late husband, Peter. Awards are based on Christian character, personality, possible financial need, and promise of growth. Candidates must be Chemistry majors entering the junior or senior year. One scholarship of \$2,300 was awarded for 1998-99.

Dow Chemical Company Foundation Scholarship. The Dow Chemical Company Foundation has established a scholarship of \$4,000 per year for four years to a first-year student who intends to major in Chemistry or Biochemistry. Eligible candidates must be U.S. citizens and have a sincere intent to continue in chemistry as a chosen career after graduation. A minimum grade of 'B' in each credited course at Calvin is required in order to continue the scholarship from year to year.

Westerbeek Family Scholarship. The Westerbeek Family has established this scholarship to encourage students in Chemistry. Candidates must be majoring in Chemistry or Biochemistry, entering the sophomore, junior, or senior year, and have a cumulative grade point average of 3.0 or higher. There should be some evidence that the scholarship is needed to help meet educational expenses. One scholarship of \$2,400 was awarded for 1998-99.

Dr. and Mrs. Enno and Lucile Wolthuis Chemistry Scholarship. Dr. Enno Wolthuis, Professor of Chemistry at Calvin College from 1949-1976, has established a scholarship fund for the benefit of Chemistry and Biochemistry majors who have an interest in pursuing a career in research or college-level teaching. Candidates must be Chemistry or Biochemistry majors entering the sophomore, junior or senior year and must have a cumulative grade point average of 3.0 or higher. One scholarship of \$1,700 was awarded for 1998-99.

Economics and Business Department

Clarence and Nelly Battjes Scholarship. Clarence Battjes was a businessman who attended Calvin College from 1924 to 1925. His wife, Nelly, formed this scholarship in his memory in hopes of encouraging other

Calvin students in their pursuit of business knowledge. Applicants must be junior or senior business majors with a minimum grade point average of 3.0. Two scholarships will be awarded each year with the possibility of renewal for a second year.

John and Judith Bielema Economics and Business Scholarship. The Bielemas are strong supporters of Christian liberal arts education, and have provided this scholarship for a student entering the junior year in the Economics and Business Department who demonstrates promise of leadership and the ability to integrate Christianity in the chosen field of study. Financial need is a secondary consideration.

Lawrence D. Bos, Sr. Family Scholarship. This scholarship celebrates Mr. Bos's long career in the life insurance business in the Grand Rapids area. It has been established to recognize and encourage deserving students in the fields of business and economics to promote responsible Christian capitalism in their business life and in their contribution to the economic well-being of the community. Candidates must be entering their junior or senior year with at least a 3.5 average.

Margaret and Douglas Bush Family Business Scholarship. The Bush family has provided the college with funds to encourage worthy students to prepare for positions in business and business education. Scholarships are awarded each year on the basis of diligence, character, commitment to service of the Lord and humankind, promise of growth, and, in some cases, financial need. Although the student's academic record is not a primary factor, a grade point average of 3.0 or better is required.

Bouwer Mentoring Scholarship. Mr. and Mrs. John and Marian Bouwer established this scholarship for students in business, especially those who would benefit from a mentoring relationship. Criteria include leadership or entrepreneurial potential and a grade point average of 3.0 or higher.

James and Judith Chambery Scholarship. The Chamberys have spent their careers in human services, particularly the care of chronically ill persons. They have established this scholarship to encourage the study of

ethical questions facing the health care industry. The scholarship is for a student entering the junior or senior year pursuing a program that can lead to a career in health care management, health services administration, health care economics, or public health care policy.

Frank and Bernice Deppe Family Scholarship. Frank and Bernice Deppe have been longtime supporters of Christian education and of Calvin College. Mr. Deppe owned and operated a construction and tool equipment business and the Deppes wish to provide a scholarship to a junior or senior student majoring in Business, preferably aiming at a career in sales and marketing, with a grade point average of 3.0 or higher.

De Vos Business Scholarship. Mr. and Mrs. Dick De Vos established this scholarship for incoming students who are planning to pursue an education in Economics or Business. This scholarship is intended to support students who demonstrated strong academic achievement throughout their high school careers and have a financial need. Preference will be given to those who are first generation college students. This scholarship can be renewed throughout the recipients' years at Calvin given they maintain a certain GPA and continue to pursue a degree in Economics or Business.

Patricia S. Duthler Scholarship. The Duthler family has enjoyed a long legacy of entrepreneurship, and this fund springs from Patricia's gratitude for that gift. The scholarship invests in women committed to Christian leadership in the business world and is awarded to students who have a grade point average above 3.0 and have made voluntary contributions to the community, preferably secular.

J. Herman and N. Lucile Fles Scholarship. Established by the family of Mr. and Mrs. J. Herman and N. Lucile Fles as a tangible expression of the Fles' love for and dedication to Christian liberal arts education, the scholarship is awarded to a student majoring in Business, with first consideration given to graduates of Grand Rapids Christian High School.

James R. Hertel Scholarship. Mr. James Hertel established this scholarship in appre-

ciation for the fine education he received at Calvin College. The recipient should be a business or economics student entering the junior or senior year. Although the award is not based on the student's academic record, a grade point average of 2.7 is required.

Minority Business Award. An annual award is made available by Shirley and John Roels to a North American minority student studying business or economics who shows leadership promise in one of these fields. The award will be based on a student's academic record, spiritual maturity, and potential for a career in business or economics.

Rietberg Family Scholarship. The family has established this scholarship for students who exhibit a commitment to the highest ethical and moral standards in pursuing a career that provides for the exercise of Christian leadership in business or public administration. Students must be entering the junior or senior year, majoring in business or public administration, and planning to participate in an internship or in the cooperative education program.

Scholarship for Women in Business. Barbara and Melvin VanderBrug of Detroit, Michigan, established this scholarship to encourage women students, particularly those with entrepreneurial interests, to enter the for-profit business world. The recipient should be a female business major entering her junior or senior year and express willingness to consider a summer internship with Recordmasters, a medical records management company.

Jacob and Jennie Tuinstra Scholarship. Alumna Doris Tuinstra, in honor of her parents, has provided a fund to generate income for scholarships to be awarded to sophomore or junior women students for their junior or senior year at Calvin College in a business major, a B. S. in Accountancy program, or a group major with an emphasis in business. Criteria for selection are primarily motivation and potential for Christian service in a business career, and secondarily academic record and financial need.

Herbert and Doris Vander Mey Scholarship. Mr. and Mrs. Vander Mey established this scholarship for majors in economics and business out of their conviction that Chris-

tian leadership is needed in all areas of human endeavor. This scholarship is intended to support students who demonstrate creativity and enthusiasm for meeting the changing management needs of an international and global economic order. Students entering the junior or senior year with a minimum grade point average of 3.0 are eligible to apply.

Randall K. Vander Weele Memorial Scholarship. Randall Vander Weele was killed in an accident shortly after his graduation from Calvin College in 1981. His family and friends have established a fund to generate income for scholarships to be awarded to junior students for their senior year in a business major or a B.S. in Accountancy program. Criteria for selection include academic record and potential for Christian leadership in business.

Kenneth J. Van Spronsen Memorial Scholarship. This scholarship has been established in memory of Kenneth J. Van Spronsen by his wife, family, and friends. Ken, a 1989 graduate of Calvin College, was ambitiously pursuing a business career when he was tragically killed in an automobile accident in October 1992. This award is intended to aid an upper-class student in pursuit of a business major or group major with an emphasis in business. Eligibility requirements include a minimum B- average and financial need. In addition, the student must exhibit leadership qualities as well as initiative in pursuing a business career. A non-resident of Michigan is preferred.

Bernard Vellenga, Jr. Scholarship. The late Mr. Bernard Vellenga's wife and family have established this scholarship in Mr. Vellenga's memory to recognize his Christian witness, example, and desire to help Christian young people pursue their goals in the business and economic life of our culture. Candidates must be entering the junior or senior year, have a cumulative grade point average of 3.0 or higher, some evidence of financial need, and be pursuing a program in Business Administration or Accounting. If these criteria are met, preference is given to those pursuing a program in Business Administration, to those who have been involved in volunteer and extracurricular activities, and to those who demonstrate the ability to express

the importance of their Christian faith in their lives.

Education Department

John L. De Beer Memorial Scholarship. This scholarship is established through the gifts of Ann Heyns De Beer and family in honor of the contributions to Calvin College of John L. De Beer, long-time professor of education and founder and director of the Instructional Resources Center. A \$500 scholarship is awarded yearly to a current Calvin student who is entering the junior or senior year with a grade point average of 3.0 or higher and is pursuing either elementary or secondary education.

Kevin Dale De Rose Memorial Scholarship. Kevin De Rose was killed in an accident his junior year at Calvin in 1989. His family and friends have established this scholarship in his memory to be awarded annually to a student who demonstrates a love for providing Christian service in non-academic areas of life. Candidates for this scholarship must be admitted to the teacher education program and have a cumulative grade point average of 3.0 or better. If there are several candidates, preference will be given to those with the greatest need. Preference will also be given to those planning to pursue a career in teaching English at the secondary level. During the 1998-99 academic year, a \$2,000 scholarship was awarded.

DeVries-Post Teacher Education Scholarship. Mr. John W., Jr. and Dr. Arden R. (DeVries) Post have established this scholarship to assist future educators in the teacher education program at Calvin College. Because of their special interest in minorities and persons with disabilities, the scholarship is directed first to an individual from either of these groups who demonstrates financial need. If there are no students who qualify on this basis, other students with a record of service to minorities or to those with disabilities will be considered. Two scholarships of \$1,000 each are awarded annually.

Beulah B. Goodenough Memorial Scholarship. Mr. John and Mrs. Mary Gideon have established this scholarship for seniors in elementary education who are planning to

teach in a public school. As public school educators, they see a need for committed Christians to teach in public schools in order to positively influence our society. The scholarship is in memory of Mrs. Gideon's mother, Beulah Goodenough, who was a first grade teacher in the New Jersey public schools for over 35 years. One scholarship of \$1,500 is awarded annually.

David and Shirley Hubers Scholarship. David and Shirley Hubers have a long-standing commitment of Christian education which was passed on to their daughters, Stephanie, who graduated from Calvin with a BA in Education, and Lisa, who graduated with a BS in Nursing. This scholarship, established in their honor, is established to help students entering the teaching and nursing professions and alternates yearly between the Education and Nursing Departments. Scholarship candidates must have a cumulative grade point average of 3.0 or higher, be entering the junior or senior year, demonstrate financial need, and exhibit potential for Christian service. For the 1998-99 academic year, one scholarship of \$2,500 was awarded to a nursing student.

John A. Kuiper Family Scholarship. This scholarship has been established by Mrs. Vivian J. Kuiper and her family in memory of their husband and father, Mr. John A. Kuiper, a Chicago businessman who was deeply committed to Christian education. An annual scholarship of \$1,500 is awarded to a student entering the junior or senior year who has a cumulative grade point average of 3.0 or higher, demonstrates Christian character and concern for others through active involvement in church and community activities, and gives evidence of financial need. Preference is given to candidates planning to pursue a career in a Christian school in an urban setting.

The J.C. Lobbes Scholarship Fund. J.C. Lobbes served as a teacher and administrator in Christian schools for 54 years. He served in schools in Edgerton, Minnesota, and Rock Valley, Iowa. This scholarship is being established in his honor to help students who are entering the teaching profession. Candidates for this scholarship must be entering their junior or senior year in the teacher education pro-

gram, have a cumulative grade point average of 3.0, and give some evidence that the scholarship is needed to help meet educational expenses. Preference will be given to descendants of Mr. Lobbe's former students, upon their identification of this connection on the scholarship form to the Education Department. One scholarship in the amount of \$1,800 was awarded in 1998-99.

Jay and Lois Mol Family Scholarship. Because of their strong feeling for Christian education at all levels, Jacob and Lois Mol established this scholarship to help in the training of junior and senior education students at Calvin who intend to become career teachers in Christian elementary and secondary schools. Scholarship recipients will normally have a grade point average of 3.0, although candidates with lower grade point averages may be considered if there are special circumstances. First consideration will be given to those planning to pursue a career in Christian education. There should be some evidence that the scholarship is needed to help meet educational expenses. If the above criteria are met, preference will be given to students who have worked hard, volunteered, and been involved in extracurricular activities. One scholarship of \$2,000 is awarded annually.

Patti J. Morren Memorial Scholarship. This scholarship was set up by Jay and Kathleen Morren of Grand Rapids, in memory of their daughter Patti, who was mentally impaired. She passed away recently at the age of twenty-nine. The Morrens greatly appreciated the amount of love and compassion that was shown to Patti by her special education teachers. They want to assist a student who is qualified to work with children with disabilities. They also set up this scholarship to allow a student to experience college life, something their daughter Patti could never do. In 1998-99, three scholarships of \$1,800 were given.

Angeline Nydam Spoelhof Memorial Scholarship. Former President of Calvin College, William Spoelhof, and the extended Spoelhof family and friends of Mrs. Spoelhof have established a scholarship to honor her for her supportive contributions as the wife of the college president during the transitional pe-

riod of Calvin's relocation and rapid development. In recognition of her career as a Christian school teacher and her work in church, college, and community causes, the scholarship is to be awarded to an education student entering the junior or senior year with a grade point average of 3.3 or higher, who has active involvement in volunteer activities, and shows some evidence of financial need. Two scholarships in the amount of \$1,700 were awarded for the 1998-99 academic year.

Fred and Carol J. Vanden Bosch Scholarship. This scholarship, established by Mr. and Mrs. Fred Vanden Bosch, is provided to assist experienced Christian teachers to return to full- or part-time education in the Master of Education Learning Disabilities (LD) program at Calvin College. To be eligible for the scholarship, a student must be a professing Christian teacher, must be committed to continuing in this profession, and must be enrolled for graduate credit in a minimum of two courses per semester. The recipient will be required to assist in laboratory components of the M. Ed.-LD courses, must demonstrate potential for advanced academic scholarship, and demonstrate financial need based on criteria for financial aid. Typically, \$2,000 or more is available each year with individual amounts depending on the number of qualified candidates and the students' enrollment status.

George J. Van Wesep Memorial Scholarship. Each year Mr. and Mrs. Richard De Vos of Ada Michigan, provide Calvin with a gift of \$10,000 to be used for scholarships. The gift is given in recognition of Mrs. De Vos's father, Mr. George J. Van Wesep, who was a teacher / administrator in the public and Christian schools for more than fifty years. Because of Mr. Van Wesep's commitment to education, and to Christian education in particular, the scholarships are awarded to students planning to pursue education as a career. Scholarships are awarded to juniors and seniors, who have been accepted in the teacher education program, primarily on the basis of the student's academic record and potential for Christian service in education. Financial need is considered as a secondary factor. Five scholarships of \$2,000 each are awarded annually.

Vander Ark Family Scholarship. The Vander Ark family, known as the teaching family, has funded a scholarship which is available to students who will be juniors or seniors in the teacher education program at Calvin. Candidates for this scholarship must have a cumulative GPA of 2.75 or higher and exhibit sound moral character, a strong commitment to Christian teaching, and a promise of expanding maturity. There should be some evidence of financial need. Preference will be given to relatives of the Vander Ark family upon notification to the Education Department that this relationship exists. Normally, two to four scholarships are awarded in the amount of \$1,200 to \$1,500 each.

Janet D. Van Dyke Education Scholarship. This scholarship was established by Mrs. Janet D. Van Dyke, a 1930 graduate of Calvin College. Mrs. Van Dyke taught elementary education for 35 years in the Grand Rapids public and Christian schools. She enjoyed teaching younger students and greatly impacted many of their lives. It was her desire that this scholarship would benefit deserving students who wish to follow in her footsteps and pursue a career in elementary education. For 1998-99 five scholarships in the amount of \$1,600 each were awarded to current Calvin students with a grade point average of 3.0 or higher who are entering the junior or senior year, pursuing elementary education, and who show some evidence of need to meet educational expenses.

Engineering Department

James Bosscher Engineering Scholarship. Former students and friends of Dr. Bosscher have generously funded a scholarship in his name. Scholarships will be awarded to incoming engineering freshman students who demonstrate outstanding academic achievement and potential. The number of awards and the value of each award will be determined by the amount of money available each year. The award for the first year is contingent on enrollment in a typical engineering program at Calvin. Scholarships are renewable for the sophomore year in the engineering program based on the first year's college performance, including the achievement of at least a 3.0 grade point average.

Special consideration will be given to North American ethnic minority students. To be considered for the Bosscher Scholarship students need only apply for admission to the college by February 1. They must also indicate engineering as their primary interest.

Brian L. DeWall Memorial Scholarship. Mr. Gordon and Mrs. Joan DeWall of Fruitport, Michigan have established this scholarship in memory of their son, Brian, who was tragically killed in an automobile accident during his senior year at Calvin. Scholarships are awarded to those who are entering the senior year in the Mechanical Engineering Program at Calvin, live life with a positive attitude and a good sense of humor, demonstrate Christian character, and demonstrate the potential to make a positive impact in their work both professionally and as a Christian. A grade point average of 2.8 or higher is required.

Calvin Engineering Scholarship. The Kamstra family has established a scholarship in honor of the late Gordon Kamstra. Candidates should be entering the junior year as full-time students in the B.S.E. program in Engineering. A cumulative grade point average of 3.0 or higher is expected, and a full year of prior study at Calvin is required.

Calvin Junior Engineering Scholarship. This scholarship was established by the Calvin Engineering Advisory Council to assist full-time engineering students entering the junior year of the B.S.E. program. A cumulative grade point average of 3.0 or higher is expected and a full year of prior study at Calvin is required. The candidate must show a high level of personal integrity and leadership.

URS Greiner, Inc. Architectural/Engineering Scholarship. URS Greiner, Inc. has established two scholarships to encourage ethnic minorities to pursue architecture or engineering as a career. The candidate must be a full-time student in a B.S.E. program in Engineering or an A.B. program in Architecture (not yet established at Calvin). A cumulative grade point average of 2.5 or higher and full-time student status are expected. Recipients must be U.S. citizens or permanent residents of the

United States. If there are no ethnic minority candidates available, scholarships are awarded based on need.

English Department

Dr. Charlotte Otten Scholarship. This scholarship reflects Charlotte F. Otten's interests and writing and research during her teaching years at Calvin College. A scholarship of \$1,500, open to a junior or senior English major who shows promise as a writer of poetry, fiction, or non-fiction, the scholarship is designed to encourage writers to consider a career in writing. Also open to a junior or senior English major who is considering a career in Renaissance studies, women's studies, or children's literature. Selection is based on writing samples, academic record (3.0 or higher), and a statement of the applicant's career goals.

Schemper-Kamp Family Scholarship. This scholarship is established as a tribute to Calvin College Professor John J. Timmerman and his wife, Mrs. Carolyn Hager Timmerman, both of whom had a profound impact on the lives of the donors, Mr. Henry and Mrs. Carol Kamp. The Kamps established this scholarship out of gratitude for what the Timmermans have done for them and in recognition of what Dr. and Mrs. Timmerman have done for Calvin College and many of its students. The scholarship is awarded annually by the English Department to a returning junior or senior English major who has demonstrated academic excellence and a Christian perspective in his or her writing.

Steve J. and Viola Van Der Weele Scholarship. The family of Steve Van Der Weele, who taught at Calvin College from 1950 to 1986, has provided for an award of \$3,500 or more to be given annually to a returning junior or senior English major who shows evidence of coming to maturity through a liberal arts education and of enriching the Christian community through those studies. Academic excellence and Christian character are the primary criteria; need may be considered as a secondary criterion. The English Department will designate the recipient of the award.

Geology, Geography, and Environmental Studies Department

Clarence Menninga Field Course Scholarship. A scholarship fund, established in honor of Calvin's first geology professor, Clarence Menninga, provides annually a \$650 scholarship to a student enrolling in a summer geology field course.

History Department

Peter D. Hoekstra Scholarship. This scholarship, established by the History Department in honor of one of its founding members, is made possible by gifts received from Dr. Robert G. and Mrs. Kathryn (Schuringa) Andree. The scholarship is awarded to a first year student entering Calvin with the intent of majoring in History who has demonstrated interest and accomplishments in history as manifested in her/his high school record and additional projects or independent study. One scholarship of \$2,000 is awarded each year. Apply through the History Department.

Earl Strikwerda Memorial Scholarship. Memorial contributions from the relatives and friends of Professor Earl Strikwerda have enabled the History Department to honor the memory of their former colleague with an annual scholarship to a junior history major. One \$2,700 scholarship was awarded for 1997-98.

Music Department

Janice Broekhuizen Music Scholarship. This scholarship is in honor of Janice Broekhuizen, an alumni of Calvin College, who graduated with a degree in Elementary Education and who was active in music ensembles during her years at Calvin. This scholarship has been established by the family and friends of Mrs. Broekhuizen out of love and respect for her memory. An annual award of \$1,500 will be awarded to a full-time student entering the junior or senior year with a grade point average of 3.1 or higher and who has demonstrated superior achievements in Calvin's music activities.

Henry Bruinsma Family Scholarship. This scholarship is in honor of Anna Bruinsma, wife of Henry J. Bruinsma, graduate of one of the first classes at Calvin College and a lover of music in all its forms, and in honor

of Henry A. Bruinsma, son of Henry J. and Anna. Dr. Henry A. Bruinsma was a professor of music at Calvin College who was known for his research and leadership in music and the humanities. The scholarship has been established by Grace Hekman Bruinsma, wife of Henry A. Bruinsma and Dean of Women at Calvin from 1944-47. An annual award of \$600 is given to a full-time student who is a music major entering the senior year at Calvin. The award is based on overall contributions to the music program at Calvin. Grade point average will also be considered but not given priority.

Leo Cayvan Scholarship in Strings. An annual award of \$720 by Mrs. Leo Cayvan is offered to an outstanding player of violin, viola, cello, or string bass entering the junior or senior year at Calvin College who has attended Calvin at least one year. This award is in memory of her late husband, Mr. Leo L. Cayvan, a great benefactor of the Music Department. Selection shall be made on the basis of proficiency in performance on the instrument, participation in the Calvin Orchestra, and grade point average (minimum of 2.5 in music). Students are required to participate in the Calvin Orchestra and to take private lessons for credit in the medium for which the scholarship is granted during the scholarship is used (except for music education students during student teaching).

Douglas DeVries Church Music Scholarship. An annual award of \$720 is given by Douglas De Vries to an outstanding student who has an interest in and aptitude for a career in church music. The award is for students entering the sophomore, junior, and senior year at Calvin College who have attended Calvin at least one year. Applicants will be judged by the following criteria: proficiency in performance as a singer or keyboardist, participation in an appropriate faculty-directed ensemble or accompanying, and grade point average (minimum of 2.5 in music). Students are required to participate in an appropriate faculty-directed ensemble and to take private lessons for credit in the medium for which the scholarship is granted during the year the scholarship is used (except for music education students during students during student teaching).

Harold Geerdes Violin Scholarship. Contributions have been received by the Music Department in honor of Harold Geerdes, former conductor of the Calvin College Orchestra, the Oratorio Society, and Professor of Music. Interest from this fund provides an annual award of \$720 to an outstanding violin student entering the junior or senior year at Calvin College who has attended Calvin at least one year. Applicants will be judged on the basis of proficiency in performance as a violinist, participation in the Calvin Orchestra, and grade point average (minimum of 2.5 in music). Students are required to participate in the Calvin Orchestra and to take private lessons for credit in the medium for which the scholarship is granted during the year the scholarship is used (except for music education students during student teaching).

Harold and Gladys Geerdes String Scholarship. Contributions have been received for the establishment of a string award. Interest on this amount will provide an award of \$720 to an outstanding string player entering the sophomore, junior or senior year at Calvin College. The recipient should have attended Calvin at least one year, although consideration may also be given to outstanding entering freshmen. Applicants shall be judged on the basis of proficiency in performance as a string player, participation in the Calvin Orchestra, and grade point average (minimum of 2.5 in music). Consideration will also be given to those active in a chamber music ensemble. Students are required to participate in the Calvin Orchestra and to take private lessons for credit in the medium for which the scholarship is granted during the year the scholarship is used (except for music education students during student teaching.)

Helene Hekman Gezon Voice Award. Contributions have been received by the Music Department in memory of Mrs. Gezon, a prominent contralto soloist with the Calvin College Oratorio Society. Interest from this fund provides an annual award of \$720 to an outstanding voice student entering the junior or senior year at Calvin College who has attended Calvin at least one year. Applicants shall be judged on the basis of proficiency in performance as a singer, participa-

tion in an appropriate faculty-directed choir, and grade point average (minimum of 2.5 in music). Students are required to participate in a faculty-directed choir and to take private lessons for credit in the medium for which the scholarship is granted during the year the scholarship is used (except for music education students during student teaching).

John and June B. Hamersma Scholarship in Organ. For the purpose of encouraging the serious study of the organ and its literature, an award of \$1,200 is offered to an entering first-year student with a high-school grade point average of 3.5 or better who wishes to major in organ or in church music with an emphasis in organ. The applicant is expected to audition by means of performance on a keyboard instrument, preferably in person though tape is permissible. The student is required to take private organ lessons for credit during the year the scholarship is used. The scholarship is renewable for the sophomore year if a Calvin grade point average of 3.2 or better is achieved and approval to major in organ or church music has been granted by the Music Department.

Henry and Nellie Holtvluwer Music Scholarship. Contributions have been received from J. Henry and Leone Holtvluwer in memory of Henry Holtvluwer, first chairman of the board of the The Calvin College Oratorio Society. Interest from this fund provides an annual award to the music major entering the junior year at Calvin College who has attended Calvin at least one year and has the highest overall grade point average.

Marge Houskamp Organ Scholarship. An annual award of \$1,500 is given by Mr. Robert W. Houskamp in memory of Margaret A. Houskamp to an outstanding first-year organ student, who intends to become a church organist, for use toward the cost of individual lessons in organ and toward defraying other educational costs. The award is also open to students from other classes, although preference will be given to an entering student.

Allene Huizenga Goguen Education Scholarship. The family of Allene Huizenga Goguen established this scholarship to honor her life and career in urban music education. The scholarship is an award to

students who have demonstrated through course work or extra-curricular activity an interest in urban music education. Applicants must be entering their final year in the Bachelor of Music Education program, have a cumulative grade point average of at least 3.0, and exhibit the musical skill and leadership qualities needed for music education. The amount of this award for 1998-1999 is \$1,500.

Arnold Christopher Minderhout Memorial Scholarship. An annual award of \$720 is given by Mrs. Marion Minderhout to an outstanding organ student who is a returning sophomore, junior, or senior at Calvin. Applicants must be pursuing a program in church organ music, have a cumulative grade point average of 3.0 or higher, demonstrate some financial need, and give evidence of volunteer activities outside the class room. Recipients are required to take private organ lessons for credit during the year the scholarship is used.

Music Department Applied Music Scholarship. Four two-year awards of \$1,500 each are presented by the Calvin College Music Department to prospective first-year students. These awards are given to instrumentalists and vocalists who have records of superior achievements in high school music activities and who give evidence of outstanding talent and musicianship in audition. Students are required to participate in an appropriate faculty-directed ensemble, and to take private lessons for credit in the medium for which the scholarship is granted.

Norman and Anne Noordeloos Keyboard Scholarship. Contributions have been received by the Music Department in memory of Norman and Anne Noordeloos, relatives of students active in Calvin's music program. Interest from this fund provides annual awards of \$720 to outstanding pianists or organists entering the junior or senior year at Calvin College who have attended Calvin at least one year. Applicants will be judged on the basis of proficiency in performance at the keyboard, participation in an appropriate faculty-directed ensemble or accompanying, and grade point average (minimum 2.5 in music). Students are required to take pri-

vate lessons for credit in the medium for which the scholarship is granted during the year the scholarship is used (except for music education students during student teaching).

Oratorio Society Applied Music Scholarships. Four two-year awards of \$1,500 each are presented by the Calvin College Oratorio Society to prospective first-year students. These awards are given to instrumentalists and vocalists who have records of superior achievement in high school music activities, who give evidence of outstanding talent and musicianship in audition, and who will participate in the scheduled rehearsals and performances of a faculty-directed ensemble.

Rainbow Foundation Wind Scholarship. An annual award of \$720 is given by Thomas and Marjorie Hoogeboom through the Rainbow Foundation of Kalamazoo to an outstanding performer on a wind instrument entering the junior or senior year at Calvin College who has attended Calvin at least one year. Applicants will be judged by the following criteria: proficiency in performance, participation in an appropriate faculty-directed ensemble, and grade point average (minimum of 3.0 in music). Students are required to participate in an appropriate faculty-directed ensemble and to take private lessons for credit in the medium for which the scholarship is granted during the year the scholarship is used (except for music education students during student teaching).

John Scripps Wind Scholarship. An annual award of \$720 is given by John Scripps to an outstanding performer on a wind instrument entering the junior or senior year at Calvin College who has attended Calvin at least one year. Applicants will be judged by the following criteria: proficiency in performance, participation in an appropriate faculty-directed ensemble, and grade point average (minimum 2.5 in music). Students are required to participate in an appropriate faculty-directed ensemble and to take private lessons for credit in the medium for which the scholarship is granted during the year the scholarship is used (except for music education students during student teaching).

Seymour Swets Voice Scholarship. Contributions have been received by the Music

Department in memory of Seymour Swets, the founder of Calvin's Music Department. Interest from this fund provides an annual award of \$720 to an outstanding voice student entering the junior or senior year at Calvin College who has attended Calvin at least one year. Applicants will be judged on the basis of proficiency in performance, participation in an appropriate faculty-directed choir, and grade point average (minimum 2.5 in music). Students are required to participate in an appropriate faculty-directed choir and to take private lessons for the credit in the medium for which the scholarship is granted during the year the scholarship is used (except for music education students during student teaching.)

John and Doris Van Dellen Music Scholarship. Contributions have been received by the Music Department from John and Doris Van Dellen, brother and sister, who have long had an interest in vocal music and in Calvin's music program. Interest from this fund provides an annual award of \$1500 to a student musician entering the junior or senior year at Calvin College who has attended Calvin at least one year. Applicants will be judged on the basis of proficiency in performance, participation in an appropriate faculty-directed ensemble or accompanying, and grade point average (minimum of 2.5). First consideration will be given to students who are outstanding in vocal music. Students are required to participate in an appropriate faculty-directed ensemble and to take private lessons for credit in the medium for which the scholarship is used (except for music education students during student teaching.)

Vander Haagen Family Scholarship for Church Musicians. An annual award of \$1200 is given by David and Jane Vander Haagen of Lansing, Michigan to an outstanding student who is pursuing or planning to pursue a program in church music, either general, organ, or choral. The award is for a current Calvin student entering the junior or senior year. Applicants will be judged by the following criteria: proficiency in performance as a singer or keyboardist, participation in an appropriate faculty-directed ensemble or accompanying, a cumulative grade point average of 2.7, and some demonstrated financial need. Students are required to

participate in an appropriate faculty-directed ensemble and to take private lessons for credit in the medium for which the scholarship is granted during the year in which the scholarship is used.

Vander Heide Voice Scholarship. A two year award of \$1500 is offered by Jan and Anne Vander Heide family to a vocalist who has a record of superior achievement in high school music activities. Students are required to participate in an appropriate faculty-directed choir and to take private lessons for credit in the medium for which the scholarship is granted during the year in which the scholarship is used. Applicants will be judged on the basis of evidence of talent and musicianship.

Lloyd and Arlene Warners Keyboard Scholarship. One two-year award of \$1500 is offered annually by these donors to keyboardists who have a record of superior achievement in high school music activities. The recipients will be expected to participate in the scheduled rehearsals and performances of at least one faculty-directed ensemble or fulfill this requirement by accompanying student lessons and performances. Applicants will be judged on the evidence of talent and musicianship.

John and Betty Zandee Organ Music Scholarship. Contributions have been received by the Music Department in memory of John and Betty Zandee through the generosity of Mr. and Mrs. Everett Hassing of Kalamazoo, longtime supporters of Calvin College and its music department. Interest from this fund provides an annual award to an organ student entering the junior or senior year. Applicants will be judged by the following criteria: proficiency in performance, participation as a chapel organist or choir accompanist, a cumulative grade point average of 2.7, and some demonstrated financial need. Students are required to take private organ lessons for credit during the year in which the scholarship is used.

Nursing Department

Kate Borgman Nursing Scholarship Fund. A fund was established by Mr. and Mrs. Fred Borgman of Grand Rapids, Michigan to establish a scholarship fund in memory

of their mother, Mrs. Kate Borgman, who dedicated her life to the nursing profession. The scholarship is derived from the income of the fund. The scholarship recipient should be a nursing student in their junior or senior year having a grade point average of 2.5 or higher and should demonstrate industry, motivation and worthiness to be successful in the Nursing Program and to contribute to society through the nursing profession. A scholarship in the amount of \$3,500 was awarded for 1998-99.

Thedford P. and Ruth I. Dirkse Scholarship. The children of Thedford and Ruth Dirkse have established this scholarship to honor their parents' long association with Calvin College. Dr. Dirkse taught Chemistry to students in the Nursing Program and Ruth Imanse Dirkse was Manager of the Bookstore and active in the Alumni Association. Candidates for this scholarship must be entering the junior or senior year, be pursuing a program in Nursing, and have a GPA of 3.3 or higher. A scholarship of \$1,800 was awarded for 1998-99.

Bryan Dykstra Nursing Scholarship. The family and friends of the late Bryan Dykstra from Rochester, New York, have contributed funds to be used for scholarships in Bryan's memory. Bryan was a student at Calvin in 1982-1983 before he contracted leukemia and passed away in the fall of 1983. The scholarship will be awarded to a junior or senior who is pursuing nursing as a career, and is awarded in recognition of all that Christian nurses did for Bryan before his death. One scholarship of \$1,200 was awarded for 1998-99.

Wilma Bylsma Hertel Memorial Nursing Scholarship. This scholarship has been established by Mr. James Hertel of Fremont, Michigan, in memory of his wife, Wilma, who dedicated her life to providing compassionate nursing care. Candidates must be entering the junior or senior year, pursuing nursing as a career, and have a cumulative grade point average of 2.5 or higher. Preference will be given to those who do not necessarily have the strongest academic record but who demonstrate the potential to be successful in the Nursing Program and to contribute to society through the nursing

profession. One scholarship of \$3,200 was awarded for 1998-99.

David and Shirley Hubers Scholarship. David and Shirley Hubers have a long-standing commitment of Christian education which was passed on to their daughters, Stephanie, who graduated from Calvin with a BA in Education, and Lisa, who graduated with a BS in Nursing. This scholarship, established in their honor, is established to help students entering the teaching and nursing professions and alternates yearly between the Education and Nursing Departments. Scholarship candidates must have a cumulative grade point average of 3.0 or higher, be entering the junior or senior year, demonstrate financial need, and exhibit potential for Christian service. For the 1998-99 academic year, one scholarship of \$2,500 was awarded to a nursing student.

Kent Medical Foundation Grants. Each year Calvin College receives funds from the Kent Medical Foundation to be used for scholarships for students in nursing. Recipients of these awards must be residents of Kent County or bordering counties and enrolled or planning to enroll in the Bachelor of Science Nursing Program. Selection is made on the basis of the student's academic record, potential for service as a nurse, and financial need. One grant of \$1,650 was awarded for 1998-99.

Milton and Carol Kuyers Family Nursing Scholarship. This scholarship will be awarded to a junior or senior who is pursuing nursing as a career, has a cumulative GPA of 2.5 or higher, and can provide evidence that the scholarship is needed to help meet educational expenses. Preference is given to highly motivated students who have been successful in their college program to date, and who demonstrate the potential to be successful in the nursing program and contribute to society in the nursing profession. Five scholarships of \$2,200 each were awarded for 1998-99.

Sammie Vander Laan Nursing Scholarship. Mrs. Sammie Vander Laan of Palm Springs, California, has established this scholarship because of her commitment to nursing and to helping people. Candidates must be entering the junior or senior year, pursuing

nursing as a career, have a cumulative grade point average of 3.0 or higher, and have the gifts for and the desire to provide good bedside care. One scholarship of \$2,600 was awarded for 1998–99.

Victor VerMeulen Medical Scholarships.

Gifts have been received from Mrs. Mildred VerMeulen of Grand Rapids, Michigan, to fund a scholarship in honor of her husband, Victor R. VerMeulen, Sr. Each year six or more awards of \$1,800 each will be made to students who are entering the junior or senior year of the nursing program and two or more awards to students in the pre-medical program. Selection is based primarily on the student's academic record and potential for Christian service in medicine. Financial need is considered as a secondary factor.

Ruth Zylstra Memorial Scholarship. Each year Calvin College awards one scholarship of \$400 or more to a student in the nursing program who is entering the junior or senior year at Calvin. Selection is made on the basis of the student's academic record, potential, character, and financial need.

Off-Campus Programs

The Kate Bytwerk Scholarship for Study Abroad. This scholarship, in the amount of \$2000, is established in memory of Katherine Bytwerk, daughter of Communications Arts and Sciences Professor Randall and Sharon Bytwerk, who died at age twelve while hiking in the mountains during the 1996 Calvin Semester in Hungary program. Because of her delight in the opportunity to travel and learn through this international program, her family and friends have set up this scholarship to assist Calvin students to enjoy the benefits of studying abroad. Recipients must be at the junior or senior class level at the time the scholarship is used and must be a participant in a Calvin College semester abroad program. A minimum grade point average of 2.5 is required of those who apply. Application for the scholarship may be made through the Director of Off-Campus Programs.

The International Opportunities Scholarship. Mr. Shane and Mrs. Melissa De Jong Schaap have generously established a scholarship of \$3000 for a student entering the junior or senior year at Calvin College, with

a minimum 3.0 grade point average, who will be a participant in one of Calvin's semester abroad programs (Britain, Honduras, Hungary, or Spain). The recipient must be pursuing a major in History, Political Science, Economics or Communications and be planning a vocation on the international scene. Applicants must write a brief essay about their career goals and how this scholarship will help them achieve their goals. At completion of the recipient's semester abroad, a short paper on his/her experience will be submitted to the donor. Application for this scholarship may be made through the Director of Off-Campus Programs.

Philosophy Department

The Bouwsma Memorial Scholarship in Philosophy. Through the generosity of the late Mrs. Gertrude Bouwsma-Bos and in memory of her husband, the late Professor O.K. Bouwsma, a \$1000 scholarship is available each year to a philosophy major who exhibits outstanding achievement and continuing promise in philosophy. Professor Bouwsma was a Distinguished Alumnus of Calvin and an influential American philosopher. The recipient is selected by the Philosophy Department.

The Kenneth J. Konyndyk, Jr. Scholarship. Professor Konyndyk taught in the Philosophy Department of Calvin College for 27 years, until his life's work was cut short in 1994 by cancer. His career was characterized by professional scholarship of the highest caliber, an unwavering commitment to teaching as a Christian vocation, a genuine interest in his students, and the pleasure he took in the company of his colleagues. In his memory, the Konyndyk family has established a \$2,000 scholarship to be awarded annually to a philosophy major entering the senior year. Applications are available in the Philosophy office.

Physical Education and Recreation Department

Huddleston Family Exercise Science Scholarship. Mr. and Mrs. Ken and Kay Huddleston of Ripon, Wisconsin, and their daughter, Cheryl, have established this scholarship in appreciation for the excellent education Cheryl received at Calvin that

prepared her for graduate school and a career in Cardiac Rehabilitation. Candidates for the scholarship must be in the junior or senior year at Calvin, majoring in Exercise Science, have completed a minimum of four courses in the major with a grade point average of 3.3 or higher, and plan to pursue graduate studies in Exercise Science. Candidates are nominated by the department; no separate application is required.

The Dr. Barney Steen Scholarship for Physical Education. Through the generosity of Gerrit and Agnes Hennink, as well as other friends and former athletes of Barney Steen and the College, this scholarship honors Dr. Barney Steen for his many contributions to the Physical Education and Recreation Department and Calvin College while serving as department chair, athletic director, professor, and coach. Scholarships are awarded to students entering the senior year at Calvin who are pursuing a major or minor in physical education. Selection is based on leadership ability, ethical character, academic achievement, ability to articulate a Christian perspective, and service vision. Two scholarships of \$1,400 will be awarded annually.

Physics Department

Ivan E. and Rebecca J. Boerman Scholarship. Dr. Ivan and Mrs. Rebecca Boerman of Grand Rapids, Michigan, have provided the college with a gift out of gratitude for their Christian education and experience, and out of a desire to honor Calvin Professor Howard Van Till, a long-time teacher, scholar, and friend, for his extensive contribution to Calvin College and the broader evangelical community in the area of physics/astronomy. The income from this gift is used to provide scholarships to students in their first or second year who are pursuing a major in physics. New scholarships are awarded to prospective first-year students and can be renewed for the sophomore year for those who meet the renewal requirements. One scholarship of \$2,000 was awarded for 1997-98.

Political Science Department

DeKryger-Monsman Memorial Prize. As a result of a gift to Calvin College by Mrs. Gerald Monsman in memory of her husband, one prize is awarded each year to a junior political science major for use in the

senior year at Calvin College. The award is given solely on the basis of academic achievement.

Peace and Justice Scholarship. Each year one or more scholarships are awarded to sophomore, junior, or senior students actively involved with global peace and justice issues, particularly related to the causes of war and conditions for peace in the nuclear age. Although initially funded by Calvin alumnus Paul Hoffman, contributions from like-minded constituents and friends are welcome. The numbers and amounts of the scholarships vary each year, depending on the availability of funds.

John Van Dellen Scholarships. John Van Dellen, a Calvin College graduate and generous supporter of the College, established this scholarship to honor his nephew, Calvin Political Science Professor, Charles Strikwerda. Each year the scholarship is awarded to a student who (1) is a current Calvin sophomore or junior political science major, (2) has a cumulative g.p.a. of 3.0 or higher and (3) is an excellent student in and out of class as demonstrated by regular, thoughtful, and cheerful contributions in class discussions and by participation in campus and/or community activities. The scholarship is intended for an all-around good student who contributes significantly to the classroom and campus environment.

Psychology, Sociology, Social Work, and Criminal Justice Departments

Barbara Gezon Baker Scholarship for Academic Excellence in Sociology and Social Work. Mr. David Gezon of Grand Rapids, Michigan, has provided the college with gifts to fund this scholarship in honor of his daughter, Barbara Gezon Baker. Additional gifts have been received by friends of the Sociology and Social Work Department. Scholarships are awarded to students entering the junior or senior year who have an outstanding academic record, particularly within the department. The quality of the student's written work may be considered as well. Candidates are nominated by department members; no application is required. Two scholarships of \$2,000 were awarded for 1998-99.

Connie Bratt Social Work Scholarships. Connie Bratt, one of the first students from Calvin College to pursue a professional career in social work, established this scholarship in hopes of encouraging other students in the Bachelor of Social Work Program. Two scholarships of \$1,100 or more will be awarded annually to two seniors who have been accepted into the Bachelor of Social Work program and who exhibit a commitment to Christian service.

Daniel C. Duyst Memorial Scholarship. This fund has been established by the Duyst family of Grand Rapids, Michigan, to honor the memory of Daniel's life of devoted service in law enforcement. Officer Duyst gave his life on Memorial Day, 1994, at the age of 37, in a rescue attempt by selflessly responding to another's need. While special consideration may be given to those who aspire to a career in law enforcement, those interested in a broad range of service opportunities in court, correction, and treatment-related roles are eligible to apply. Applicants must be entering the junior or senior year, have a cumulative grade point average of 2.70 or higher, and be pursuing a Criminal Justice major. One scholarship of \$1,200 was awarded for 1998-99.

Donald and Marie Boersma Family Scholarship. The Boersma family has long believed that well-trained, Christian social workers are critical to meet the needs of disadvantaged and hurting people. It has established this scholarship to recognize a promising student in the Bachelor of Social Work Program. Normally, one award of \$1000 will be given annually to a promising junior BSW student who can then renew the award for the senior year provided the student maintains a g.p.a. of 2.5 or higher.

Leanne Joy Knot Memorial Scholarship. With the generous help of many friends, the family of Leanne Joy Knot, a 1991 graduate of Calvin, has established this scholarship in loving memory of their daughter and sister. Sociology and social work majors entering their junior or senior years are eligible to apply. A recipient during the junior year may reapply for the senior year and will be considered on an equal basis with other applicants. One scholarship of \$1500 was given for 1998-99.

Vanderploeg-Edgerly Scholarship. Drs. Gretchen and David Edgerly have established this scholarship to recognize a promising student majoring in Psychology or Sociology or who has been accepted into the Bachelor of Social Work Program. Applicants must be entering the junior or senior year and have a cumulative grade point average of 3.0 or higher. In accepting the award, the recipient will agree to write a major paper on the topic of child sexual abuse. Two scholarships of \$1000 were awarded for 1998-99.

Religion and Theology Department

Dr. John. H. and Gladys A. Bratt Family Scholarship. This scholarship has been established by the children of Dr. John H. and Mrs. Gladys A. Bratt in Dr. and Mrs. Bratt's honor to recognize Dr. Bratt's distinguished professorship of 30 years in the Department of Religion and Theology at Calvin College. This scholarship is intended to provide recognition and financial assistance to junior and senior students of Calvin College who are pursuing either parish ministry, missionary service, or a teaching career in religion and theology. Applicants may be, but need not be, majors or minors in the Religion and Theology Department. They must have a cumulative grade point average of 3.30 or higher. The amount of this scholarship is \$1,200 for 1997-98.

Gordon J. Spykman Memorial Scholarship. The family of Gordon J. Spykman established this scholarship to honor the life, work and convictions of Prof. Gordon Spykman who died in 1993 after teaching at Calvin College for 32 years. The Gordon J. Spykman Memorial Scholarship encourages students to explore the implications of Jesus Christ's claim on every square inch of creation, on all spheres of life. Recipients must be religion and theology majors or minors who demonstrate an interest in the reformational worldview that Prof. Spykman articulated in his writings and teaching at Calvin College. Candidates for this scholarship must be entering the junior or senior year, have a cumulative grade point average of 3.0 or higher, and have an interest in a reformational worldview. The amount of the scholarship is \$1,900 for 1998-99.

William and Anna Vanden Bosch Scholarship. In grateful response to the Lord's blessings and out of a desire to share these blessings, Mr. and Mrs. Vanden Bosch have established this scholarship. They wish to support those students seeking to enter parish ministry, particularly pastoral leaders with a heart for missions. One scholarship of \$2,000 was awarded for 1998-99.

John S. Vander Heide III Memorial Scholarship. Mr. and Mrs. John S. Vander Heide, Jr. have established a scholarship in loving memory of their son, John III, who passed away in 1989 at the age of 28. Because John III was greatly influenced by his pastors, Mr. and Mrs. Vander Heide wish to offer a scholarship through the Religion and Theology Department to pre-seminary students who show promise of theological and pastoral leadership in the ministry of the Christian Reformed Church. The amount of the scholarship is \$1,200 dollars for 1998-99.

Rev. David Warden Pre-Seminary Scholarship. Dr. Bret and Mrs. Marlene Kort of Colorado Springs, Colorado, have established this scholarship to recognize the selfless service provided by the Rev. David Warden to the people on the Navajo Reservation in Shiprock, New Mexico. One scholarship in the amount of \$1,000 is awarded each year to a student pursuing a pre-seminary program at Calvin who is entering the senior year. The scholarship requires a cumulative grade point average of 3.3 or higher, and preference is given to students who have demonstrated a commitment to Christian service and leadership while at Calvin.

Dr. and Mrs. William J. Yonker Scholarship. The Yonker Fund, originally established to award prizes for student papers in the area of Jewish evangelism, now grants an annual scholarship for Calvin students who intend to pursue a career in Christian ministry or missions. Candidates for this scholarship must be entering their junior or senior year at Calvin, must have a cumulative grade point average of 3.0 or higher, and must write a brief statement setting forth their aspirations or career goals for Christian missions or ministry. The amount of the scholarship is \$1,900 for 1998-99.

Science Division

John and Lillian Van Oosten Scholarship. As a result of a bequest to Calvin College by the late Dr. and Mrs. Van Oosten, six scholarships of \$1,900 each are available to students pursuing studies in the natural sciences. Scholarships are awarded to juniors and seniors primarily on the basis of the student's academic record and financial need. Candidates for this scholarship must have a minimum grade point average of 3.0 or higher.

Steven M. Zifferblatt Memorial Scholarship. Mrs. Patricia M. Zifferblatt of Grand Rapids, Michigan, has provided the college with funds to award scholarships in memory of her late husband, Steven. Because of Mr. Zifferblatt's spiritual experiences during the last five years of his life when he was in special need of health care, scholarships will be awarded to students who are pursuing a program in one of the health care professions such as medicine, dentistry, nursing, physical therapy, etc. Applicants will be required to write a paper on some aspect of health and of ethical issues related to health care. Applicants must be entering the senior year and have a cumulative grade point average of 3.0 or higher. Fifth year seniors are also eligible to apply. One scholarship of \$4,400 was awarded for 1997-98.

Service-Learning Center

Geraldine Vogelzang Scholarship. This scholarship has been established by the extended family and friends of Geraldine Vogelzang in her honor. All are alumni, friends and supporters of the college. The scholarship is an award for a student or students who have demonstrated through their class work or extra curricular activities that they have a commitment to service to others and leadership within the Kingdom. The donors' intent is to allow the recipient to provide Christian service during the summer months when (s)he would otherwise have had to work to earn the funds the scholarship provides. Students must be entering the sophomore, junior, or senior year, have a cumulative grade point average of 3.0 or better, and although financial need is not required, it may be considered as a factor in awarding the scholarship. The recipient is

required to write a report about her/his summer experience after the experience is completed. Apply through the Service-Learning Center.

Need-Based Financial Aid

Significant need-based financial aid is available to students from the college, the denomination, the federal government, and the various state and provincial governments. There are opportunities for part-time employment off campus as well.

Applications for need-based aid must be filed each year. To be fair to all students, requests for aid must be supported by a financial statement which provides information about income, expenses, assets, and indebtedness. This statement is reviewed for the college by an independent agency using nationally standardized criteria to determine the degree of need. Information about the criteria used to determine eligibility for need-based aid is available from the Office of Scholarships and Financial Aid.

First-year applications for financial aid should be filed by February 15 (April 1 for Canadians) and upper-class applications should be filed by March 15 to receive maximum consideration. Later applications are considered if funds are available.

Michigan Competitive Scholarships and Tuition Grants. The State of Michigan provides awards of up to \$2,500 to Michigan residents attending eligible institutions in the state. Competitive scholarships are awarded on the basis of ACT scores and need and can be used in both public and private colleges in the state. Tuition grants are awarded solely on the basis of need and can be used only at private colleges. Competitive scholarships are available only to undergraduate students; tuition grants are available for graduate as well as undergraduate work.

Federal Pell Grants. The Pell Grant Program, funded by the federal government for U.S. citizens and permanent residents of the U.S., is designed to provide grant assistance of up to \$3,000 per year to students whose parents' income is approximately \$40,000 or less. Since there are factors other than income considered in the evaluation, some with incomes above \$40,000 may qualify for the program, and others with lower incomes may not qualify. Only students in undergraduate programs are eligible.

Federal Supplemental Educational Opportunity Grant. This program, funded by the federal government, provides funds to the college for needy students. These grants are awarded to students who qualify for need-based aid but are not eligible for or do not receive enough grant assistance in the Pell

and State Grant programs. Recipients must be U.S. citizens or permanent residents of the U.S. and must be enrolled in an undergraduate program. The maximum grant is \$4,000 per year.

Albert Postman Loan Program. The late Mr. Albert Postman of La Glace, Alberta, Canada, has established a loan fund to assist Canadian students attending Christian colleges. The primary purpose of the fund is to assist students who are planning to enter full-time Christian service with the Christian Reformed Church or its related agencies. To the extent that funds are available, however, loans will also be made to other Canadian students who are in need of assistance.

Knollcrest Scholarships and Calvin Grants. The College has established a program of scholarship and grant assistance for students who have financial need but are not eligible for other grant programs or whose need cannot be met with other grant programs. Awards range from \$200 to as high as \$8,000 depending on need and other financial aid received. The program is open to graduate as well as undergraduate students. The program provides a minimum award of \$1,000 to first-year students who demonstrate need, have a high school grade point average of 3.0 or higher, or an ACT Composite score of 22 or higher, or combined SAT scores of 1000 or higher, and are not receiving the

equivalent of an Honors or better scholarship from the College. These minimum awards are renewable for one year if the student earns a cumulative grade point average of 2.6 or higher at Calvin.

Exchange Grant for Canadian Students. An exchange adjustment program has been established by the college to offset in part the additional costs encountered by Canadian students resulting from the exchange on Canadian funds. This adjustment applies to tuition and room and board charges and is awarded automatically to those who apply for need-based aid. Others who wish to receive the grant are required to file a separate application form. For 1998–99, the Exchange Grant is \$2,000 for all students.

Michigan Adult Part-Time Grant Program. This program provides a limited amount of grant assistance to needy adult Michigan students who are enrolled in an undergraduate program on a part-time basis. To be eligible a student must have been out of high school at least two years, be enrolled for at least three but fewer than twelve semester hours, and qualify for financial aid as an independent student. Grants of up to \$600 per year are available for not more than twenty-four months of study. When there is not enough money to provide awards to all eligible applicants, preference is given to those with the greatest financial need.

Grants for Off-Campus Programs. The college provides need-based grants to students enrolled in off-campus courses when there is additional cost involved. This includes off-campus interim courses as well as programs for the semester or academic year where the cost is higher than for a student on-campus. The amount of the grant depends on the amount of the additional cost involved and on the student's need. The maximum grant is determined annually and is \$600 for 1998–99.

Federal College Work-Study Program. Students who need employment to help pay for college expenses are eligible for employment by Calvin College or in approved off-campus agencies under this federally supported program for U.S. citizens. The student's eligibility depends on need, with preference being given to applicants with greatest need.

Federal Perkins Loans. This program, sponsored by the federal government for U.S. citizens and permanent residents, provides long-term loans to students with financial need. There is no interest charge on the loan, and repayment can be deferred as long as the borrower is enrolled in college at least half time. Repayment begins six to nine months after the borrower ceases to be at least a half-time student, and the interest rate during repayment is 5 percent simple interest. The minimum repayment is \$120 every three months with a maximum repayment period of ten years for loans which require larger payments. Under certain conditions, repayment and interest can be deferred and, in some cases, all or part of the loan may be cancelled.

Federal Direct Loan Program. The federal government provides loans through this program to U.S. citizens and permanent residents to assist with educational expenses. Loans are available ranging from \$2,625 to \$8,500 per year for dependent students, depending on class level, and in larger amounts for independent students. The loans are interest-free while the student is in school for those who qualify based on need. Students who do not qualify based on need may receive a loan also, but are required to pay interest during the in-school period. Interest rates are variable and capped at 9%. Repayment of principal begins after the borrower graduates or ceases to be at least a half-time student with the monthly payment and the length of the repayment period depending on the size of the loan and the repayment plan chosen.

Canada Student Loans. The Canadian government sponsors an interest-free loan program for Canadian citizens similar to the Federal Direct Loan Program described above, with a maximum loan of \$5,600 to \$6,400 per year, depending on the province. Application forms are available from provincial Offices of Education.

Other Student Awards

Beets Calvinism Award. The late Dr. and Mrs. Henry Beets established a fund, the income from which is used to award a \$150 first prize and a \$75 second prize for the best

research papers on annually specified themes in Calvinism studies, written by Calvin College students. The prize or prizes are awarded at the discretion of the Department of Religion and Theology.

Henry Beets Mission Society Scholarship. The Henry Beets Mission Society of the La Grave Avenue Christian Reformed Church provides an annual grant to promote the ministry of the Church to the American Indian. Initial funds for this grant were given by the Herrick Foundation of Detroit, Michigan. Those eligible are American Indians who intend, preferably, to minister as pastors or teachers to members of their own race. The amount of the grant is determined by the need of the student. The student should consult with the registrar to plan a program. Candidates should apply in writing to the Henry Beets Mission Society, La Grave Avenue Christian Reformed Church, 107 La Grave Avenue, Grand Rapids, Michigan 49503.

Beverluis Awards in Christian Philosophy of Education. From income generated by a grant of money given by a retired professor of educational philosophy and his wife, two awards of approximately \$250 each are offered each year by the Education Department to students nominated by their professors for outstanding interest and competence in keeping good theorizing about Christian education connected to good practice in Christian education. Criteria include a grade point average of 3.5 or higher, significant initiative and contributions in classroom discussions, and outstanding written work in papers and tests.

Paul Boonstra Memorial Award. Each year the Department of Mathematics and Statistics makes an award in memory of Professor Paul Boonstra who taught mathematics education at Calvin College from 1965 through 1987. The prize is awarded to a graduating senior specializing in mathematics education at the secondary level. The recipient is selected on the basis of performance in mathematics courses and in directed teaching. The award represents the income from a fund established by students and colleagues of Professor Boonstra.

O.K. Bouwsma Memorial Award in Philosophy. Through the generosity of the widow of Professor O.K. Bouwsma and other benefactors, an annual prize of \$250 will be awarded to one upper-class student for distinguished achievement in philosophy and promise of future contribution to Christian scholarship. The Philosophy Department selects the recipient on the basis of submitted papers.

Calvin Alumni Chapter Scholarships. Several Alumni Association chapters offer scholarships, which are administered locally, to incoming Calvin first-year students. Candidates should consult the Alumni Relations Office or a member of the local Alumni Association chapter for information.

John De Bie Prize in History. In memory of Professor John De Bie an annual prize of \$50 is awarded for the best paper in history written by a Calvin student. Selection is made by the History Department faculty from submitted papers.

William B. Eerdmans Literary Award. The late Mr. William B. Eerdmans, Sr., established the William B. Eerdmans Literary Award in the interest of encouraging original, critical, and creative writing among Calvin College students. The \$200 award is administered annually by the English Department.

Geology/Geography Outstanding Graduating Senior Award. Departmental awards are presented each year to the outstanding graduating senior with a major in Geology and/or the senior with a major in Geography. The recipient is selected by the Departmental Faculty.

Dr. Peter D. Hoekstra Memorial Award. Dr. Robert G. Andree and Mrs. Katherine Schuringa Andree have established a prize of \$1,000 to be awarded annually to an outstanding senior graduating with a major in history. The award is made in memory of the late Dr. Peter D. Hoekstra, a former professor of history at Calvin College. Selection is made by the faculty of the History Department on the basis of academic excellence. The recipient must have completed at least two years of undergraduate work at Calvin College.

Dr. Roger A. and Bradley Hoekstra "Toward Christian Excellence in Medicine" Award. Roger A. Hoekstra, M.D., an alumnus and supporter of Calvin College, and his son, Bradley J., an outstanding sophomore premedical student at Calvin College, were tragically killed in an airplane accident in July 1981. In their memory, the Hoekstra family has established a scholarship fund, a part of whose income is used for an annual award to the outstanding senior premedical student. The award consists of a cash gift and an appropriate commemorative plaque. The candidate for the award will be nominated and selected by a faculty committee. The candidate must be a graduating senior who has completed more than two years of undergraduate work at Calvin College and has been accepted into an accredited medical school. The award will be based on academic excellence, strength of Christian character, and potential for excellence and Christian service in the practice of medicine.

Harmon D. Hook Memorial Award in English. An award of \$200 is offered each spring to an English major who has indicated a serious interest in English or American language and literature and whose work in the discipline gives evidence of personal enrichment and promise of future service. To be considered, a student should have demonstrated not only academic competence but also such qualities as an interest in humane letters and a Christian concern for cultural and spiritual growth through literature. The English Department selects the person to receive the award.

National Association of Accountants (NAA) Outstanding Accounting Student Award. The local chapter of the NAA annually recognizes the top accounting student at Calvin College, based on a recommendation by the instructors in accounting. Ideally, the student should intend to pursue a career in accounting.

Rinck Memorial Prize. A fund has been established by former students and friends as a memorial to William Rinck, professor of mathematics at Calvin College from 1905 to 1920. The income of this fund is devoted to an award for outstanding work in mathematics. The prize is awarded annually to the senior student majoring in mathematics who

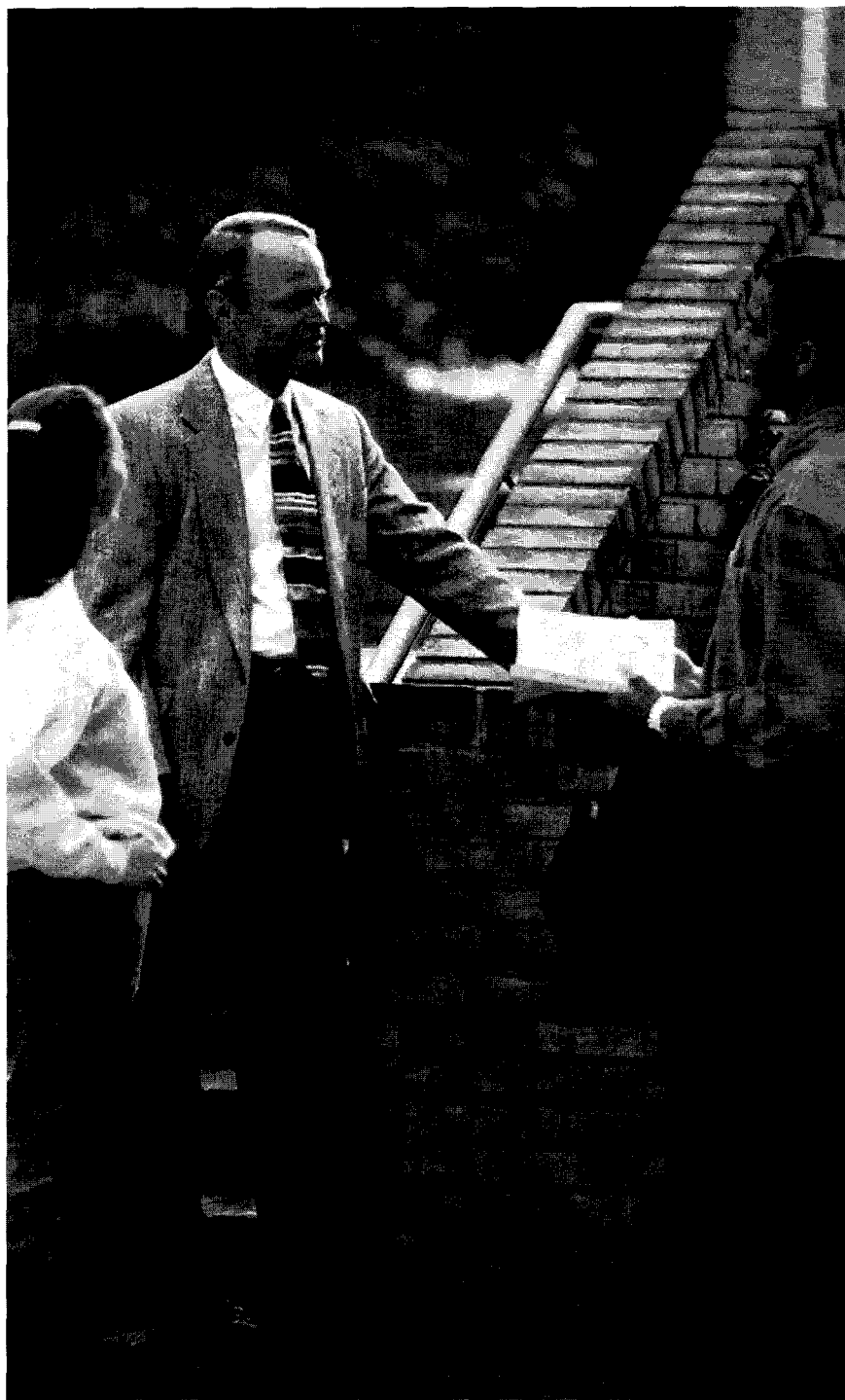
has, in the opinion of the Department of Mathematics and Statistics, done superior work in undergraduate mathematics.

Bernard J. TenBroek "Excellence in Biology in Secondary Education" Award. At the time of his retirement from teaching, the Biology Department established the TenBroek Award fund. This award is given to a student completing the senior year of study who has declared a major in biology and has fulfilled the requirements for certification in secondary education. The student must have completed at least three years of study at Calvin College to be eligible for this award.

Bernard J. TenBroek "Excellence in Biology in Research" Award. At the time of his retirement from teaching, the Biology Department established the TenBroek Award fund. This award is given to a student completing the senior year of study who has declared a major in biology and has completed at least three of these years at Calvin College. The recipient must have demonstrated ability to do investigative work in the biological sciences and be completing application for graduate studies.

Vander Ark Distinguished Teacher Education Student Award. The Vander Ark family, known for the number of family members who have served as teachers and administrators, sponsors annually an award by the Education Department to outstanding student teachers who are nominated by their instructors for superior performance in student teaching and course work. The awards will be announced by May 1 of each year.

Henry Zylstra Memorial Award. In honor of the memory of Professor Henry Zylstra, an award of \$200 is offered each fall to one or more senior English majors at Calvin who plan to continue studies in literature on the graduate level upon graduating from Calvin College. The award is intended primarily to help defray expenses incurred in applying to graduate schools. Application should be made to the chair of the English Department by September 30 of the applicant's senior year. The recipient or recipients will be selected by the English Department on the basis of demonstrated academic ability, commitment to and promise of success in graduate work, and a concern for Christian liberal education.



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- Calvin R. Stapert, M.A., Ph.D. (Chicago, 1968, 1973)
*Professor of Music
Chair of the Department of Music*
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Associate Professor of Geology
- Jennifer S. Steensma, M.F.A. (Rochester Institute, 1992)
Assistant Professor of Art
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Professor of Physics
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*Professor of Education
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Director of Teacher Education*
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Professor of Science Education and Biology
- R. Scott Stehouwer, M.A., Ph.D. (Wayne State, 1977, 1978)
Professor of Psychology
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*Professor of Communication Arts and Sciences
William Spoelhof Scholar-in-Residence Chair*
- William R. Stevenson, Jr., M.A. (East Carolina, 1978), Ph.D. (Virginia, 1984)
Professor of Political Science
- Michael J. Stob, M.S., Ph.D. (Chicago, 1975, 1979)
*Professor of Mathematics
Dean for the Contextual Disciplines and for Natural Sciences and Mathematics*
- Charles E. Strikwerda, M.A. (Wisconsin, 1969), Ph.D. (Kentucky, 1977)
*Professor of Political Science
Chair of the Department of Political Science*
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Professor of Education
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Assistant Professor of Sociology and Social Work
- Gary W. Talsma, M.S., Ph.D. (Purdue, 1975, 1986)
Professor of Mathematics
- Dwight E. TenHuisen, M.A. (Illinois, Urbana, 1991)
Assistant Professor of Spanish
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Professor of Psychology

- *Thomas R. Thompson, M.Div., Th.M.
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*Associate Professor of Religion and
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Institute of Technology, 1975)
Professor of Economics
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Professor of Biology
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Professor of Physical Education
- John H. Timmerman, M.A., Ph.D. (Ohio,
1971, 1973)
Professor of English
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Assistant Professor of Nursing
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*Professor of Education
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- G. Dale Topp, M.Mus., Ph.D. (Michigan,
1960, 1967)
Professor of Music
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Director of Career Development
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Professor of Biology
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Professor of Physical Education
- †David A. Van Baak, M.A., Ph.D. (Harvard,
1975, 1979)
Professor of Physics
- William J. Vande Kopple, M.A., Ph.D.
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Professor of English
- Todd M. Vanden Berg, M.A. (State University
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- Evert M. Van Der Heide, M.A., Ph.D. (Wayne
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Professor of Economics
- Steven H. Vander Leest, B.S.E. (Calvin,
1988), M.S.E.E. (Michigan Tech, 1991)
Assistant Professor of Engineering
- Scott H. Vander Linde, M.A., Ph.D. (Notre
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Professor of Economics
- Elizabeth A. Vander Lei, M.A., Ph.D.
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Assistant Professor of English
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Ph.D. (Colorado, 1993)
Assistant Professor of Computer Science
- Diane D. Vander Pol, M.L.S. (Rutgers, 1970)
Librarian
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Assistant Professor of Psychology
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Professor of Business
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*Assistant Professor of Communication Arts
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Assistant Professor of Physical Education
- William Van Doorne, M.S., Ph.D. (Michigan,
1962, 1965)
Professor of Chemistry
- Randall G. Van Dragt, M.S. (Cornell, 1971),
Ph.D. (Rhode Island, 1986)
*Professor of Biology
Director of Ecosystem Preserve*
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1981), Ph.D. (Michigan State, 1991)
Professor of Education
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*Professor of Interdisciplinary Studies
Acting Chair of the Department of Art*
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Ph.D. (Notre Dame, 1989)
Professor of Religion and Theology
- Frans A. van Liere, M.Div., M.A., Ph.D.
(Groningen, 1988, 1989, 1995)
Assistant Professor of History
- Katherine Elliot van Liere, M.A. (Cambridge,
1988); M.A., Ph.D. (Princeton, 1990,
1995)
Assistant Professor of History

- Lambert J. Van Poolen, M.S.M.E., Ph.D. (Illinois Institute of Technology, 1965, 1969), P.E. (State of Illinois, 1971)
Professor of Engineering
- Ellen R. Van't Hof, M.A. (Western Michigan, 1975)
Assistant Professor of Physical Education
- William E. Van Vugt, M.A. (Kent State, 1981), Ph.D. (London School of Economics, 1986)
Professor of History
- George Van Zwalenberg, M.A. (Florida, 1955), Ph.D. (California-Berkeley, 1968)
Professor of Mathematics
- David B. Vellenga, M.B.A. (Illinois-Urbana, 1967), Ph.D. (Pennsylvania State, 1976)
Professor of Economics and Business
- †Gerard A. Venema, Ph.D. (Utah, 1975)
Professor of Mathematics
- Kurt A. Ver Beek, M.S. (Azusa Pacific, 1991), Ph.D. (Cornell, 1996)
Assistant Professor of Sociology and Social Work
- Jolene E. Vos, M.A. (Indiana, 1994)
Instructor in French
- Matthew S. Walkout, Ph.D. (Maryland, 1994)
Assistant Professor of Physics
- Mary Ann Walters, M.A. (Michigan, 1962), Ph.D. (Michigan State, 1975)
Professor of English
- Dean A. Ward, Ph.D. (Virginia, 1987)
Professor of English
Chair of the Department of English
Director of Writing Program
- Amber L. Warners, M.S. (Michigan State, 1996)
Instructor in Physical Education
- David P. Warners, M.S. (Wisconsin, 1989)
Assistant Professor of Biology
- Glenn D. Weaver, M.Div. (Princeton Theological Seminary, 1972), M.A., Ph.D. (Princeton, 1974, 1978)
Professor of Psychology
- Thomas J. Weeda, M.A. (Michigan State, 1957)
Assistant Professor of Economics
- Ronald A. Wells, M.A., Ph.D. (Boston, 1964, 1967)
Professor of History
Director of the Calvin Center for Christian Scholarship
- W. Wayne Wentzheimer, M.S., Ph.D. (Pennsylvania, 1966, 1969)
Professor of Engineering
- Margaret J. Wheeler, M.M. (North Carolina, 1977), D.M.A. (Illinois, 1994)
Professor of Music
- Richard W. Whitekettle, M.A.R., Th.M. (Westminster Theological Seminary, 1986, 1994), M. Phil., Ph.D. (Yale, 1992, 1995)
Assistant Professor of Religion and Theology
- Mark F. Williams, M.A. (North Carolina-Chapel Hill, 1977), Ph.D. (Illinois, 1982)
Professor of Classical Languages
Chair of the Department of Classical Languages
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Assistant Professor of Philosophy
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Assistant Professor of Music
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Professor of Music
- Stephen J. Wykstra, M.A., Ph.D. (Pittsburgh, 1973, 1978)
Professor of Philosophy
- *Charles R. Young III, M.Div. (Reformed Theological Seminary, 1974), Ph.D. (Georgia, 1983)
Professor of Art
- Davis A. Young, M.S. (Pennsylvania State, 1965), Ph.D. (Brown, 1969)
Professor of Geology
- Dianne M. Zandstra, M.A. (Michigan State, 1993)
Assistant Professor of Spanish
- Marvin A. Zuidema, M.A. (Michigan State, 1959), P.E.D. (Indiana, 1971)
Professor of Physical Education
Director of Athletics - Men
- Lambert P. Zuidervaart, M.Phil. (Institute for Christian Studies, 1975), Ph.D. (Vrije Universiteit, Amsterdam, 1981)
Professor of Philosophy
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Professor of Biology
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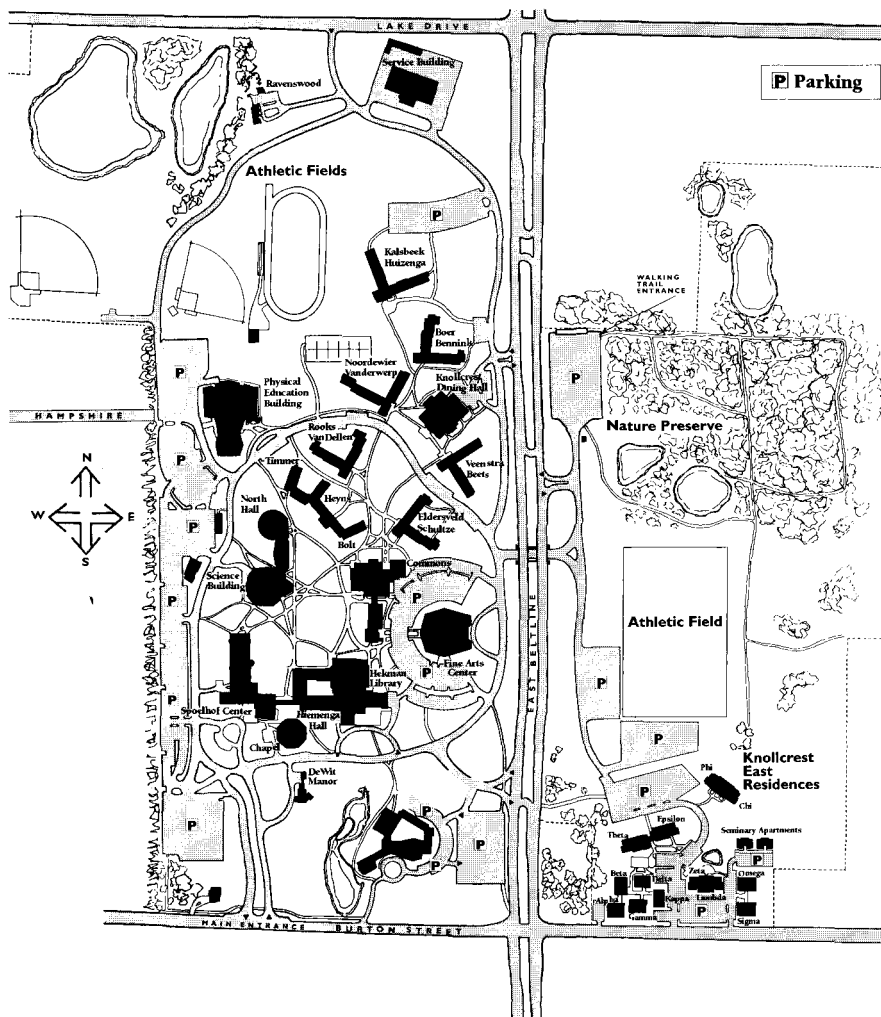
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Campus Map



Addresses

Calvin College is located on the East Beltline (M37) between Lake Drive and Burton Street. Mail for all offices should be addressed: Calvin College, 3201 Burton St., S.E., Grand Rapids, Michigan 49546. When possible, the specific office or purpose should be indicated on the envelope — Admissions, Scholarships, Housing, etc. Mail for students should be addressed: Student's name, student's residence hall, Calvin College, 3201 Burton St., S.E., Grand Rapids, Michigan 49546. The address of the Calvin Theological Seminary is 3233 Burton St., S.E., Grand Rapids, Michigan 49546.

Although each office and student room has its own phone number, any office or room can be reached through the general college and seminary phone number: (616) 957-6000. The FAX number for the college is: (616) 957-8551.