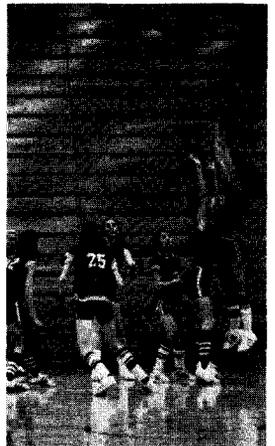




Calvin College

THE COLLEGE OF THE CHRISTIAN REFORMED CHURCH



Catalog for 1974-75

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1974-75

September

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CALENDAR

The Fall Semester 1974

SEPTEMBER	3	Tuesday
	4	Wednesday
	5-7	Thursday-Saturday
	5	Thursday
	9	Monday
OCTOBER	21-22	Monday
		Tuesday
NOVEMBER	12-20	Tuesday
		Wednesday
	27	Wednesday
DECEMBER	2	Monday
	13	Friday
	14	Saturday
	19	Thursday

Faculty-Board conference
Residence halls open
Orientation and registration

Convocation 8 p.m.
First semester classes begin 8 a.m.
Reading recess

Registration for Interim term
and spring semester
Thanksgiving recess 5 p.m.
Classes resume 8 a.m.
Classes end 10 p.m.
Examinations begin 10:30 a.m.
Fall semester ends 5 p.m.
Christmas vacation begins

The Interim 1975

JANUARY	8	Wednesday
	30	Thursday

Interim term begins 8 a.m.
Interim term ends 5 p.m.

The Spring Semester 1975

FEBRUARY	3	Monday
MARCH	21	Friday
APRIL	1	Tuesday
	12	Friday
MAY	15	Thursday
	16	Friday
	24	Saturday

Second semester classes begin 8 a.m.
Spring vacation begins 5 p.m.
Spring vacation ends 8 a.m.
Good Friday, no classes
Classes end 5 p.m.
Final examinations begin 2 p.m.
Commencement 3 p.m.

The Summer Semester 1975

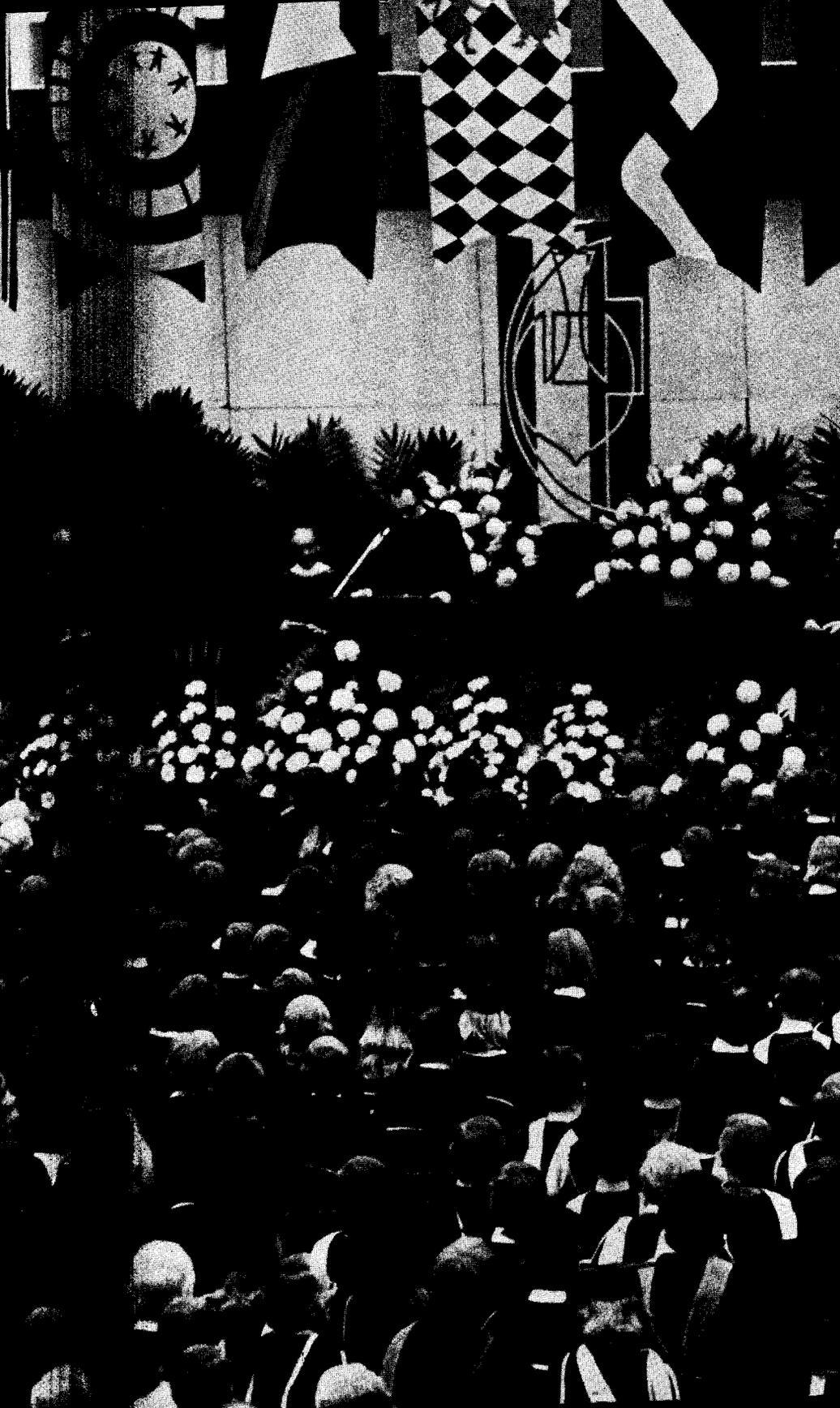
	27	Tuesday
JUNE	18	Wednesday
	19	Thursday
JULY	11	Friday
	14	Monday
AUGUST	5	Tuesday
	6	Wednesday
	28	Thursday

First session begins
First session ends
Second session begins
Second session ends
Third session begins
Third session ends
Fourth session begins
Fourth session ends

The Fall Semester 1975

SEPTEMBER	2	Tuesday
	3	Wednesday
	4	Thursday
	8	Monday

Faculty-Board conference
Residence halls open
Orientation and registration begin
First semester classes begin 8 a.m.



The HISTORY of the college and its objectives

CALVIN COLLEGE is a college of the Christian Reformed Church. The Christian Reformed Church is a century-old church 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 Apostolic 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 Brès, in 1561; and the Canons of Dordt.

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 education 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 pretheological 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 Depart-

ment, 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 last year was 3,200.

In 1965 when it became obvious that the college could expand no further on its Franklin Street campus, the trustees purchased the 165 acre Knollcrest Estate on the edge of the city. The new campus was planned as a unit before the first buildings, the seminary complex, were completed in 1960. Two years later the college constructed four residence halls and a dining hall, beginning what was to be the decade of the divided campus. In the same year the first section of the library combined with Heritage Hall and a classroom wing, Hiemenga Hall, were opened. Other buildings followed: the Physical Education Building in 1965, the Fine Arts Center and four more residence halls in 1966, a new student Commons in 1967, and a Science Building and two more residence halls in 1968. In 1970 the Library was expanded and two additional residence halls were opened to bring the total to twelve with a capacity of 1,500 students. The College Center has just been constructed which along with the Natatorium completes the campus development, providing for the potential of 4,000 students and a reunited campus.

LIBRARY

The Calvin Library is at the center of the campus, serving students of both the college and the seminary. Its 240,000 volume collection of books and bound periodicals is distributed over three floors of open stacks, which are arranged according to the Library of Congress classification. More than 1,750 current periodicals are available for use in the Library. Two major microfiche collections, The Library of American Civilization and The Library of English Literature, are part of the 17,000 item collection of microfilm, microfiche, and microcards. The library, which is air conditioned, can seat 1,100 persons, mainly in individual study carrels but with tables, lounge seating, and seminar rooms as well.

Several special collections are housed in the library. The Curriculum Center contains a wide variety of demonstration teaching material useful to teachers and prospective teachers. The H. H. Meeter Calvinism Research Collection, located on the balcony of Heritage Hall, is one of the

most extensive collections of books and articles on John Calvin and Calvinism available anywhere. The lower level of Heritage Hall houses 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. The Calvin Library is a partial depository of government documents, holding approximately 28,000 items. The Cayvan Room with its many recordings and tapes is available for both the study and enjoyment of music.

AIM AND PURPOSE

Calvin College aims to give young people an education that is Christian and is governed by the Christian faith as reflected in the Reformed standards. The arts and sciences cultivate in the student value-judgments related to a thorough knowledge of facts about man's relationship to God, to himself, to his fellowman, and to the world. The Christian faith is the dynamic force motivating an investigation of all fields of human knowledge revealed by God in His Word and in His world. The student is led to offer his whole creative, imaginative, intellectual, and social enterprise eagerly and earnestly in the service of God and of his fellowman, thereby acknowledging the lordship of Christ over all things. Thus, the college seeks to promote in the student sound scholarship, earnest effort, and a sense of obligation to use his talents fully, in response to a divine calling.

The faculty members subscribe to the credal position of the denomination and in their teaching and personal contacts strive to reflect the Lordship of Christ and the authority of the Word of God.

The college admits not only students from the Christian Reformed Church and other evangelical Protestants, but also others who, interested in the benefit of the Christian atmosphere and Reformed character of the academic programs of the college, show an interest in the aims of the college.

The end of Christian faith is Christian life. Informed and mature faith calls for a life of action and involvement. It seeks personal piety, personal integrity, and social responsibility. It recognizes that service to God and to fellowman is possible and necessary in all professions and all walks of life. It asserts that the life of Christian service must be lived now. Accordingly, at Calvin College many opportunities are provided for students to apply their learning to Christian action and service. Some of these are in the formal academic setting, some are voluntary in the broad urban community which surrounds the college, others include involvement in the churches of the area.

GOVERNMENT

The corporate name of the college is CALVIN COLLEGE AND SEMINARY. It is governed by a single board of trustees, which represents the ecclesiastical divisions of the church, arranged on geographical lines. Internally, the administration, the staff, the student body, and the physical facilities of the college and seminary are completely separate and independent. The membership of the board is constituted of ministers elected by the various classes and approved by synod, and laymen elected by synod. The board of trustees meets in February and May of each year. An executive committee, which meets on the second Thursday of each month, functions for the board throughout the academic year.

Calvin College, in accordance with Title 6 of the Civil Rights Act of 1964, operates in a non-discriminatory manner with regard to race, color, or national origin.

ACCREDITATION

Calvin College is fully accredited by the North Central Association of Colleges and Secondary Schools. It is also accredited by the American Chemical Society and by the National Council for Accreditation of Teacher Education. 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 American Colleges, American Association of Colleges for Teacher Education, College Entrance Examination Board, National Education Association, the Mathematical Association of America, and the American Mathematical Society.

CALENDAR, SUMMER SCHOOL

The academic calendar at Calvin College follows the traditional 4-1-4 plan, consisting of two semesters, each approximately four months in length, plus a one-month interim term in January. Typically, during each of the two semesters a student takes four courses, each of equal academic value, and during the interim he takes one. 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. As part of the 4-1-4 program an honors program has been established for the superior student as well as a special program of assistance for students admitted on probation.

The summer school consists of four consecutive three and a half week sessions with a student permitted to register for one regular course during

each session. A student who attends all four sessions may complete a full semester's program.

THE CALVIN ALUMNI ASSOCIATION

The Calvin Alumni Association is composed of all persons who have attended Calvin College for at least one year or who have completed eight courses. Persons who have attended the Calvin Seminary for one year and those who teach at the college or seminary are also considered members of the association.

The purpose of this association is to provide an avenue for the exchange of ideas between the alumni and Calvin, to undertake projects which advance the college and seminary, to unite all alumni in support of their alma mater, and to be of service to the 20,000 alumni through a variety of contacts.

The Calvin Alumni Association is governed by a board of fifteen members who serve for three years upon election by ballot from all alumni. The board meets four times during the year and the annual business meeting is held during the last week in May. Board meetings are open to any alumnus and alumni chapters are urged to send representatives to the May meeting.

The work of the association is supervised by a full-time Director of Alumni Relations. The alumni-financed program of upperclassmen scholarships and freshmen grants are of special interest to students. Information concerning these may be obtained from the Alumni Office.

BROENE COUNSELING CENTER

The Broene Counseling Center, a part of the Division of Student Affairs, provides a variety of services for the students. It offers vocational testing and counseling, tutorial assistance, training for the residence hall staff, as well as individual and group counseling.

The Center staff works with students who have vocational, learning, social, and milder emotional concerns, but does not aim at long-range treatment for those with severe emotional disturbances.

The staff of the Center is composed of full-time counselors. Outside consultants and agencies are also utilized occasionally by the Center.

TEACHING-LEARNING MATERIALS CENTER

The college maintains a Teaching-Learning Materials Center, which serves the instructional program of the entire college. It includes the audio-visual services, the audio-visual laboratory, the curriculum center, a graphics production center, and television demonstration classrooms.



The STUDENT life and regulations

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 the student how a life of commitment is lived in his room, on the athletic field, in his academic work, and in his 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

All students are expected to worship regularly at a church of their choice. Sunday worship services are held on the Knollcrest campus under the auspices of four local consistories. Students are encouraged to avail themselves of the counseling services of the local pastors or of the college chaplain.

Chapel services are held at 10 o'clock Tuesday through Friday morning. The main chapel is held in the Fine Arts Auditorium but a variety of other services such as morning prayers, foreign language chapels, and group devotions are held at other places at this time. Students are expected to attend some chapel services during the week. In addition there are many opportunities for voluntary religious activities. Bible study groups, student prayer groups, Christian service activities, and evangelistic outreach are a few of these voluntary programs. This part of campus religious life is supervised by the Student Religious Coordinating Council, representing the various phases of Christian activity, and the college chaplain. The latter is available for counsel at any time.

MAINTENANCE OF COLLEGE STANDARDS

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 a student to conduct himself both on and off campus in accord with his statement of religious commitment as he has indicated it in the application forms, but the college 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* describe the regulations and their implementation.

HOUSING

Freshman and sophomore students under 21 years of age not living at home with their parents are required to stay in the Calvin College Residence Hall. Juniors and seniors (students who have successfully completed sixteen or more courses) and students 21 or older as of October 1 of 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 enrollment. Upperclass women students may also arrange to work for their room and board. Information on available housing costs, and further interpretation of these rules is available from the college Housing Office.

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. The dramatic productions of the Thespians as well as intercollegiate debating and other forensic activities are sponsored by the Department of Speech. 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* and *Chimes* provide opportunities for student publication. The Department of Art creates excitement in the various graphic and plastic arts. Student creative work in all fields is stimulated by the Fine Arts Guilds which present an annual Fine Arts Festival in the spring.

For students less interested in participation than in appreciation the student senate provides a program of speakers, of fine films, and of other

entertainment. Other public performances sponsored by various academic departments, by the alumni association, and by community groups are presented on campus.

ATHLETICS

The program of required physical education is organized to promote physical fitness, to introduce students to a variety of sports programs, and to create sufficient skill and interest so that they will continue to participate voluntarily. Accordingly, facilities for both indoor and outdoor recreational facilities are conveniently and freely available. The intramural program is extensive throughout the entire year, with competition organized around sports clubs which may be based on residence units or class groups. Calvin participates in most inter-collegiate sports except football and is a member of the Michigan Intercollegiate Athletic Association (MIAA) composed of Albion, Alma, Adrian, Calvin, Hope, Kalamazoo, and Olivet colleges. It is also a member of the State of Michigan Association for Inter-collegiate Athletics for Women (SMAIAW) of twenty schools.

STUDENT SENATE AND OTHER ORGANIZATIONS

Elected from the four classes, the thirty-three member student senate has an important role in the life of the college. Not only does it serve as the official voice of the student body, but it supervises most student activities. It oversees the budgets of student organizations and concerns itself with student publications, homecoming, the film arts, the Fine Arts Guilds, and similar groups. Some of its members also serve on joint faculty-student committees, particularly the Student Social Activities Committee, the Student Religious Activities Committee, the Communications Board, and the All-campus Discipline Committee.

All residence halls have their own governing councils and judiciary committees. These units work in cooperation with the staff members to enhance community life in the halls.

Numerous clubs and societies exist on campus, many of which are related to particular academic departments, such as education, psychology, and sociology. There are also many volunteer service groups which attract student participation, such as KIDS (Kindling Intellectual Desire in Students), an organization of Calvin students that supplies teachers' assistants, "big brothers" and "big sisters" for the local courts, and tutors for high school students with disadvantaged backgrounds. All organized clubs or similar groups must have formal approval and sponsorship.



HEALTH SERVICES

The college provides limited medical services for all students. This is maintained by a fee incorporated in the tuition charge. The health center, located in the basement of Heyns Hall, is maintained by a full-time nurse and a college physician who holds office hours each morning. This service is limited to out-patient treatment. All serious medical problems will be referred to the student's family physician, in the case of local students, or to a physician of the student's choice.

A Group Accident and Sickness Expense Protection Plan is available to all students on a low-cost, voluntary basis and all students not covered by similar plans are strongly urged to participate. Married student family plans are also available. Information is available in the Business Office.

The Calvin College Blood Donor Club, sponsored by KIDS and chartered by the Michigan Community Blood Center, covers all blood needs of students, faculty, and staff. Campus blood drives provide a blood credit which is administered through the college health center. Blood not needed is made available to the needy of the community.

The college is not liable for injuries sustained by students in their activity 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.

COUNSELING AND ADVISING

During the summer preceding the arrival of the new student on campus, each freshman is assigned to a faculty member or to a member of the college staff. This faculty or staff member will keep in regular contact with him during his freshman year, reviewing his grades and progress, to assure a satisfactory transition from high school to college.

A student after his freshman year is expected to relate himself to some department or to some professor who will assist him in developing an appropriate academic program and in other matters. By the end of the sophomore year each student must work out a counseling form defining a program which will lead to graduation. This usually requires declaring a major in a given department or group of departments. The chairman or some other member of the department at this time becomes the student's

adviser. Such majors and advisers may be changed whenever a student changes his academic interests.

Additional general and specialized services are provided for all students. The college chaplain, the deans of men and women, and the dean of student life are available to students. The Broene Counseling Center provides professional help for specialized problems, including personality and vocational testing and counseling. The college also has working relationships with outside consultants and agencies.

All new students are required to participate in a program of orientation held just prior to registration. At that time they will meet a number of faculty members as well as administrators, including the college president, the vice-presidents, and deans. Information about college activities and facilities, and the distribution of registration materials are a part of the orientation program. Upperclassmen serve as orientation leaders for small groups of new students. The orientation information is mailed to new students during the month before registration.

USE OF AUTOMOBILES

Automobiles owned or operated by Calvin students must be properly registered in the Security Office and must carry an official college automobile permit. Automobiles may be parked only in approved student parking areas and the drivers will be fined if they are parked elsewhere. Because parking areas are limited, parking regulations are enforced stringently.

GRADUATE PLACEMENT AND FELLOWSHIPS

The college maintains a series of services for graduating students to assist them in securing fellowships to graduate school, teaching positions, and career placement.

The Teacher Placement Bureau, administered through the Department of Education, assists graduates in securing teaching positions. All seniors and graduates of the college who have completed the requirements for teacher certification are eligible for this service without charge but must file all the appropriate data with the bureau to secure the service. Such information is made available to any interested school.

The Student Affairs Office maintains a directory of prospective employers seeking college graduates and makes known through the *Intra-Campus Bulletin* the times when such organizations will interview students. Seniors may place their employment credentials in the office. If authorized by the student, these will be made available to recruiters and prospective employers when they visit the campus or by mail.

Various graduate school and graduate fellowship programs are supervised by the coordinator of graduate fellowships. The broadest of these is the Michigan Scholars program which attempts to identify and encourage students of promise who are interested in graduate education. This program is administered cooperatively by five Michigan liberal arts colleges and the University of Michigan. Students who show outstanding promise are eligible for graduate fellowships. A number of competitive national fellowships are available to Calvin seniors and information on these is also available through the coordinator. These include the Danforth Foundation fellowships, the Rhodes scholarships, the Marshall fellowships, the National Science Foundation fellowships, the various Fulbright grants, and many others. The conditions for these grants vary from year to year as do the deadlines. For most of them, however, application must be made early in the fall and students are advised to take the Graduation Record Examination at the earliest possible date.



ADMISSION

and other academic regulations

ADMISSION

IN SELECTING STUDENTS for admission, Calvin College naturally looks for evidence of Christian concern and for the capacity and desire to learn. Students who are interested in the Christian atmosphere and curriculum at Calvin and show an interest in its aims are eligible for admission. Although the prospect of academic success is of primary consideration, the applicant's aspirations, the recommendations of his pastor and school, and the particular ability of Calvin to be of service to him will be considered.

Any prospective student requesting application material will be sent forms necessary to apply for admission and for financial aid. He will be notified concerning his admission as soon as the office of admission has received his application form, his high school and college transcripts, and his pastor's recommendation. All application forms received later than May 1 must be accompanied by a \$10 late registration fee. In addition to these documents a prospective freshman student must submit the results of a college entrance examination, typically the American College Test or the Scholastic Aptitude Test. Candidates applying for scholarships should take their examination not later than December.

The following documents must support each application:

1. **SCHOLASTIC RECORD** The applicant's previous education must be reflected in a transcript from an accredited secondary school which shows the satisfactory completion of fifteen units of work and the school's appraisal of the candidate. (A unit is the equivalent of five class hours a week for thirty-six weeks in one branch of study.) These fifteen units should include three units of English as well as a three-unit major sequence and two two-unit minor sequences chosen from a single foreign language, the mathematics-physics area, the natural sciences (excluding general science), and the social science area. The remaining units may be selected from those which count toward graduation in an accredited high school, but the Office of Admissions has the ultimate right of rejection. Candidates intending to follow the pre-seminary program are advised to complete a minimum of two units of Latin. Those intending to major in engi-

neering, mathematics, or physics should complete four units of mathematics, if possible.

2. REPORT OF COLLEGE ENTRANCE EXAMINATIONS An entrance examination is required of all entering freshman students. This may be either the American College Test (ACT), the Scholastic Aptitude Test (SAT), or, for Canadians, the Service for Admission to Canadian Universities Test (SACU). Application for these tests must be made approximately a month prior to the testing date and candidates should sit for such examinations at the earliest convenient date.

The American College Test is given, normally, five times a year throughout the world. Application 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 required by the State of Michigan for its competitive scholarship program. Testing dates for the next academic year are October 19, December 14, February 22, April 26, and June 14.

The Scholastic Aptitude Test will be given this academic year on November 4, December 7, February 1, April 5, and June 28. Application forms 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 areas, should apply to the College Entrance Examination Board, Box 1025, Berkeley, California 94701.

3. APPLICATION FOR ADMISSION

4. PASTOR'S RECOMMENDATION

READMISSION

Former students of the college and applicants who previously had been given papers entitling them to admission but who did not register must make formal application for readmission.

TRANSFER STUDENTS, ADVANCED STANDING

Students transferring from other college or universities must follow the same procedures of applying for admission as freshmen, but they are not required to sit for entrance examinations and should have a cumulative grade point average of C (2.0) or higher. They will receive credit for work done in accredited institutions provided the courses were of an academic nature and they received an honorable dismissal. However, not more than sixteen credit hours for each semester in attendance will be accepted. No more than seventy semester hours of advanced credit will be

allowed for work completed at an accredited junior college. Furthermore, no matter how much work done at other institutions may be accepted, a student must complete his last year in residence to graduate from Calvin.

A maximum of three course credits or nine semester hours will be allowed for courses taken by correspondence from accredited colleges and universities. Courses taken in residence at other accredited institutions are accepted, provided they have been approved by the registrar in advance. In no case, however, will work in a junior college be accepted after a student has accumulated more than twenty course units of credit at Calvin.

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.

Entering freshman students may reduce the time required for a degree by giving evidence of knowledge in any course. Candidates for such advanced college credit must apply formally and may demonstrate their ability in any of four ways: they may have completed college-level work while in high school; they may submit a grade of 3 or higher on an Advanced Placement Examination of the College Entrance Examination Board; they may submit satisfactory scores on any of the Subject Examinations of the College-Level Examination Program administered by the College Entrance Examination Board; or they may pass special departmental examinations at Calvin College.

In some cases students may be given advanced standing in some particular field of study, while being excused from a required course, without being given college credit for work previously done. Such advanced standing does not excuse a student from any of the general graduation requirements of the college.

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. At Calvin, the nature and quality of a student's high school preparation may reduce his college graduation requirements (See pages 41-45). Although in general narrow specialization is not desirable in high school, at least two years of Latin are recommended for those intending to become ministers and four years of mathematics for those with a professional interest in engineering, mathematics, the sciences.

English	4 units	
Mathematics	3 units	An additional unit is desirable for prospective mathematics, physics, or engineering majors.
Foreign language	2 units	Preferably three; ideally the last unit in grade 12; prospective ministers should complete two or more units of Latin.
Science	2 units	Biology, chemistry, or physics; one with a laboratory.
History	2 units	
Typing		
Electives	3 units	
<hr/>		
16 units	Additional units are desirable for students with special interests.	

ADMISSION UNDER SPECIAL CONDITIONS

The college is eager to serve any prospective student, including those with irregular academic histories, who show promise of benefitting from a college education. Applicants who are at least twenty-one years of age but have not completed high school or its equivalent may be admitted on probation provided they have successfully completed the General Educational Development Test and submit satisfactory scores on one of the freshman entrance examinations.

Applicants who have not met the requirements as to prescribed high school work or as to the distribution of that work may be admitted provisionally. The deficiency, however, must be removed before the end of the first year of residence. Applicants are strongly urged to make up any deficiency during the summer preceding their enrollment as freshmen. In many cases these deficiencies may be removed by attending the summer session at Calvin College.

Some applicants with weak high school records may be admitted on academic probation because of other evidence of academic promise. Such students will receive special counsel, may enroll for no more than 3.5 courses, and are advised to restrict sharply their involvement in employment, in social life, and in campus activities. Applicants who meet all of the requirements for admission but who do not desire to become candidates for an academic degree may be enrolled as special students for such studies as their preparation qualifies them.

The Calvin College Summer Developmental Program aims to assist students with all sorts of backgrounds who have not yet met the academic admission requirements of the college. In 1974 the program meets during the four weeks of August. Through intensive testing, counseling, and personal teaching, students who have established marginal high school records are given the opportunity to develop themselves in areas in which they are deficient. Particular emphasis is made on developing basic English and basic mathematical skills. Those students who demonstrate ability to do college-level work are admitted to Calvin College.

ADMISSION OF FOREIGN STUDENTS

Calvin College welcomes foreign students who can demonstrate their potential 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), and who can show evidence of their ability to pay most of the cost of their education. The ACT and SAT are given in foreign countries but are not required of students presenting a Senior Matriculation Certificate or who transfer from another college or university where they have earned at least one semester of credit. Such students

should be certain that Calvin College offers the program they need. The college is approved by the United States Immigration and Naturalization Service as an institution of higher education for the training of non-citizens who are in the United States on student visas.

When such an applicant is accepted for admission he will be sent a formal letter of admission by the director of admissions and a copy of the required I-20 form. The prospective student should make application immediately with the United States Consul in his area for a student visa.

Applicants from non-English speaking countries must demonstrate an adequate command of the English language. This can be done by passing either the English Test administered by the English Language Institute of the University of Michigan, Ann Arbor, or the Test of English as a Foreign Language administered periodically throughout the world by the Educational Testing Service of Princeton, New Jersey.

ADMISSION TO THE NURSING PROGRAM

Candidates for the joint nursing program of Calvin College and the School of Nursing at the Blodgett Memorial Hospital must apply for admission to the college as outlined above and must also apply to the Director of the School of Nursing, Blodgett Memorial Hospital, Grand Rapids, Michigan 49506. Those students who are interested should apply during their junior year in high school or not later than the beginning of their senior year. The candidate must be accepted by both the college and by the admissions committee of the School of Nursing. Students interested in nursing should also consider the various bachelor of science in nursing programs listed on page 59.

ENROLLMENT IN SEMINARY CLASSES

College students may, as part of a program worked out with their departmental advisers, carry up to two courses in the 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. Seminary students may enroll for not more than two courses in the college provided the dean of the seminary and the college registrar approve.

STUDENT LOAD AND CLASSIFICATION

The typical student load is four courses a semester. The normal load, however, may range from three to four and a half courses with courses in applied music, drama, and speech and in required physical education not included in the maximum. A semester's participation in applied arts courses carries one-quarter course credit, but not more than two course credits thus acquired may be applied toward graduation, except for music

majors in certain applied music concentrations. Not more than four semesters of basic physical education courses may be applied toward graduation. In exceptional cases a student may apply to carry more than four and a half courses; such an application requires the recommendation of his academic adviser or department chairman and the approval of the dean of the college.

Students with a minimum of seven courses completed will be classified as sophomores; those with sixteen, as juniors; and those with twenty-five, as seniors. For the purposes of conversion, a course is considered to be equivalent to 3.5 semester hours or 5.25 quarter hours.

GRADING SYSTEMS

Grades given during the regular semester are designated by letters A, excellent; B, good; C, average; D, just passing; and F, failure. Courses completed with grades of D or F may be repeated once with only the second grade included in the compilation of the student's cumulative grade point average. When a student in the honors program takes a fifth course it is graded on the basis of satisfactory or unsatisfactory. Grade reports will be issued to the parents or guardians of a student unless the student files a written request to the contrary at the Registrar's Office.

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; and 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 at other colleges and universities are recorded on the student's record but are not included in the compilation of his 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 receives one course unit credit toward the thirty-six required for graduation for each interim course satisfactorily completed. If courses normally offered during either semester are taught during the interim, they will be graded according to the traditional letter system and will be included in the student's average.

If because of prolonged illness or similar extenuating circumstances a student is unable to complete the work required, he may be given an I, indicating that the course requirements have not been completed, or an X, indicating that he was unable to sit for the final examination. Under other circumstances students not completing the required work or willfully absenting themselves from examinations will be given an F for the work not completed. The provisional grades of I and X are computed as F when determining the student's grade point average and automatically become F or U if not removed within a calendar year. The responsibility

for removing such grades rests completely with the student, who must communicate with the professor concerned.

A grade of W, withdrawn, will be recorded if a student leaves a course for any reason with the official approval of his instructor and the registrar before November 15 of the first semester or April 15 of the second. Only under unusual circumstances such as poor health or death in the family may students withdraw officially from courses after these dates. Under these circumstances, grades of WP, withdrawn passing, or WF, withdrawn failing, will be recorded. Students merely doing unsatisfactory work or not attending classes are not eligible for these grades. If a student officially withdraws from school with the approval of the dean of men or the dean of women and of the registrar, he will be given a grade of W in all courses and his parents will be notified.

Any student found guilty of dishonesty in any examination or test or in written work of any character will be given F for the course and will be subject to disciplinary action.

HONORS, PROBATION, ELIGIBILITY

Full-time students with an average grade of A- (3.50) or higher for any semester will be placed on the Dean's List. Students with cumulative averages below C (2.0) are placed on probation. Part-time students and those on academic or disciplinary probation may not participate in any organized extra-curricular activity. For details of these regulations, see the *Student Handbook*.

Students desiring to graduate with an honor designation must participate in the honors programs. Consult page 46 for details.

APPLICATION FOR DEGREES AND CERTIFICATES

In addition to the formal academic requirements for degrees described in the section on "The Academic Programs" beginning on page 41, every student must satisfy certain technical requirements. Normally, he must have completed his last year in residence at Calvin. He must have completed with his departmental adviser a Major Concentration Counseling Sheet and have met all the conditions specified in it (these sheets are normally completed during the sophomore or junior years), and must have filed a formal application for a degree in the Office of the Registrar not later than the beginning of the semester in which he expects to graduate.

Students who meet the conditions for teacher certification in Michigan, as explained on pages 47-53, should apply for this certificate at the Department of Education at the end of the semester during which they have completed the requirements. They must apply within one calendar year after the completion of these requirements.



EXPENSES and financial aid

TUITION AND RELATED FEES

TUITION AND related fees are \$1,780 for the year and \$890 for a semester. This includes \$15 a semester in fees for student organizations including *Prism* and *Chimes* and \$10 for the student center, the health service, and laboratory fees. The interim is considered an extra course which a student may take without an additional charge if he pays full tuition for either semester; if he does not, he will be charged at the one-course rate.

Calvin College is vitally interested in providing financial assistance for outstanding young men and women whose personal and financial resources are inadequate to meet the basic cost of education. The most significant financial support has come from the Christian Reformed Church in the form of institutional grants-in-aid. Students whose parents are members of the Christian Reformed Church, and who thus contribute regularly to the support of Calvin College, may apply for these institutional grants-in-aid at the time of registration. The amount of this grant-in-aid is determined in part by the distance between the student's home and Calvin College, as measured in a direct line. The home of an unmarried student is considered to be that of his parents; that of a married student to be that of his residence before enrolling at Calvin. If a student's parents are not members of the Christian Reformed Church, the grant-in-aid will be based on the location of the Christian Reformed Church of which the student is a member. The grant-in-aid for students whose need has been met by a State of Michigan Scholarship or Tuition Grant is adjusted to meet the regulations governing these programs. The combined institutional grant-in-aid and scholarship assistance for such students is limited to \$200. The institutional grant-in-aid for Michigan students whose need is not met by a State of Michigan Scholarship or Tuition Grant is:

	per semester	per year
Within 10 miles of the campus	\$100	\$200
From 10 to 150 miles	140	280
More than 150 miles	170	340

The institutional grant-in-aid for out-of-state students is:

From 0 to 300 miles	170	340
From 300 to 1,000 miles	210	420
More than 1,000 miles	250	500
Manitoba, Ontario, Quebec provinces of Canada	210	420
Alberta, British Columbia, and Saskatchewan provinces	250	500

In addition, a special reduction of \$25 per student is granted when two or more full-time students enroll from one family.

The tuition rates for part-time students is \$225 for each course, with a \$25 institutional grant-in-aid for those who are members of the Christian Reformed Church. The tuition for students carrying fewer than three courses does not cover any of the related fees for student organizations, the student center, the health service, or laboratory fees. The auditing fee for part-time students is one-half of the regular tuition charge; there is no fee for auditing by full-time students.

TUITION, FEES

Tuition, per sem.*	\$890.00	Late payment fee	3.00
Tuition, part-time, per course*	225.00	Physical education deposit	5.00
Auditing, per course	112.50	Vehicle registration fee	1.00
Room and board, per year	930.00	Transcripts	1.00
Teaching internship fee, per sem.	10.00	Exemption examination fee	5.00
Individual music instruction, per sem.	75.00	Course credit by examination fee	20.00
Residence hall social fee	\$16.00	*See information above concerning grants-in-aid for members of the Christian Reformed Church.	
Late application fee	10.00		
Late registration fee	10.00		

In addition to these direct charges, the student should allow about \$100 per year for the purchase of textbooks and classroom supplies. An annual budget for personal items such as clothing, transportation, entertainment, toilet articles, and miscellaneous supplies varies widely among students.

PAYMENT OF FINANCIAL OBLIGATIONS

Students are encouraged to pay their tuition, fees, room and board in full at the time of registration each semester. For those students who need to make payments over a period of time, payment schedules are available at registration. These schedules will call for a down payment at the beginning of each term and payments of approximately one-third of the balance at the beginning of each subsequent month.

The minimum down payment required at registration for resident students is \$400 for tuition, room, and board; and the minimum down payment for non-resident students is \$250 for tuition.

Accounts that are not paid on time will be subject to a \$3 late payment fee.

Transcripts will not be issued for students owing money to the college.

STUDENT FINANCIAL AIDS

In addition to scholarships, which are granted on the basis of outstanding records and promise, Calvin College has a broad program of financial assistance for its students. This includes, in addition to the institutional grant-in-aid program described on page 27, a variety of other grant-in-aid and loan programs, several of which are supported or underwritten by the state and federal governments or by private organizations, and a placement service for part-time employment. The office also serves as a clearing house for non-college programs. The college urges each applicant to explore local or state sources of financial assistance as well. Generally, a student's financial needs can be met by a combination of the various programs. Students who may be eligible for scholarships should consult the section on page 28.

A prospective student should not deny himself a Calvin College education because of cost. However, financial arrangements should be made prior to registration. At that time he should have in hand a substantial portion of his semester's expenses from savings, scholarships, loans, or grants-in-aid, and, if intending to carry a full academic load, should not plan to carry more than twelve to fifteen hours of employment.

Any student with financial need who feels he is eligible for any student aid program may request additional information from the Office of Scholarships and Financial Aid or request an application form. The office is located in the College Center. As a matter of policy, to be fair to all students, applications for financial assistance must be supported by a Parents' Confidential Statement, which is reviewed for the college by the College Scholarship Service of the College Entrance Examination Board to determine the degree of need. Students who apply should be in good standing or, if freshmen, should be admitted to the college. Freshmen applications should be received by February 1 and upperclass applications by March 1 to receive maximum consideration. Applications for financial aid are enclosed with all admission forms.

Basic Educational Opportunity Grant. This grant program, funded by the federal government, is designed to provide grant assistance of up to \$1,400 per year to students whose parents' ability to contribute is very limited. The amount of the grant is reduced proportionately if there are not sufficient funds to aid all eligible students. In 1974-75 this program will be open to full-time students who entered college after April 1, 1973. The maximum grant this year is expected to be approximately \$800 to \$900. Applications for this grant must be made separately.

Supplemental Educational Opportunity Grant. This program, funded by the federal government, is for students of exceptional financial need. The maximum award a student can receive is \$4,000 in four years or, in special circumstances, \$5,000 in five years. This program is open to students at all undergraduate class levels.

Calvin College Grants. A student with a good scholastic record who applies for a Freshman Scholarship or Upperclassman Scholarship may be chosen by the Scholarship Committee to receive a Cal-

vin College Grant if he is not selected as a recipient of a scholarship. The amount of this grant can be up to 40 per cent of the student's financial need, with the remaining need being met by other grants, loans, and employment.

Calvin College Grants-In-Aid. A student who has not been selected by the Scholarship Committee as a recipient of a scholarship or grant can be considered by the financial aid office for a grant-in-aid. The amount of this grant depends upon the student's financial need with \$600 being the maximum award.

SCORR Grants. The Christian Reformed Church has authorized the Synodical Committee on Race Relations (SCORR) to provide grants of up to \$1,000 per year to students of minority races who are within the fellowship of the Christian Reformed Church. The student may receive this award for four years if he continues to demonstrate financial need.

Minority Grants. The Student Senate of Calvin College has provided a limited amount of money to be used to assist student of minority races. A qualified student may receive up to \$500 in this program.

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 his need, with preference being given to applicants with greatest need.

National Direct Student Loan Program. This program, sponsored by the federal government for U.S. citizens, provides long term loans to students with financial need. There is no interest charge on

this loan while the student is attending college, and repayments can be deferred as long as the student continues to be enrolled at least half-time, or serves in the armed forces, in VISTA, or in the Peace Corps. After the borrower completes his service with one of the above mentioned organizations, or nine months after he ceases to be at least a half-time student, a ten-year repayment schedule commences with a 3 per cent interest charge. If the borrower becomes a full-time teacher of handicapped children or teaches in a school "with a high concentration of low income families" all or part of the loan be cancelled. If the borrower serves in the armed forces in an "area of hostilities" up to 50 per cent of the loan may be cancelled.

Loans for Canadian Students. The various provincial governments of Canada have generous loan programs which may be used by students from those provinces.

Guaranteed Loan Programs. Loans from private banks, guaranteed and subsidized by the federal government through various state and private agencies, are available from many banks and other lending institutions in amounts up to \$1,000 of \$1,500. The loan can be interest-free if recommended by the college on the basis of financial need.

Albert Postman Loan Program. This program provides loans up to \$500 per year to members of the Christian Reformed Church who plan to enter full-time Christian service in the church or in its related agencies. Preference is given to students from western Canada.

Emergency Loans. Short-term loans of up to \$50 are available from funds provided by the *Royce Ulferts Memorial Loan Fund*, the *Eben Mumford Scholarship/Loan Program*, and the Kiwanis Club.

SCHOLARSHIPS

A number of scholarships are available for undergraduates of all classes, and each applicant should determine his own eligibility. Approximately two hundred freshman scholarships are awarded annually.

Scholarships are awarded on the basis of academic achievement, character, promise of growth, and, in some cases, financial need. Any application for a scholarship based on financial need must be accompanied by an application for financial aid. All scholarships are one-year awards and are renewable on a competitive basis unless specified otherwise.

Cash stipends given to scholarship recipients vary in amount, depending on the student's need, and such stipends can be supplemented by loans and work opportunities provided by the college. Scholarship recipients who apply for scholarship amounts beyond the minimum stipend must also apply for financial aid. All students holding scholarships awarded by the college are expected to meet part of their own expenses.

Application forms for freshman scholarships are enclosed with admission forms. Applications are reviewed as they are received, beginning in December, and applicants are notified immediately of the results of this review. Applications must be submitted by February 1 to be guaranteed consideration. A freshman scholarship applicant must also arrange for two letters of recommendation to support his application and must have his Scholastic Aptitude Test or American College Test scores reported to the college before his application can be considered.

Applications for upperclassmen scholarships are available from the Office of Scholarships and Financial Aid unless specified otherwise and must be submitted by March 1.

FRESHMAN SCHOLARSHIPS AND AWARDS

Freshman Honor Scholarships. Each year the college awards up to twelve Honor Scholarships to students of superior academic achievement. The minimum stipend is \$150; it can be supplemented by an additional stipend up to 80 per cent of the student's need and by work opportunities and loans. A student will automatically be considered for this scholarship if he has applied for the Calvin College Freshman Scholarship.

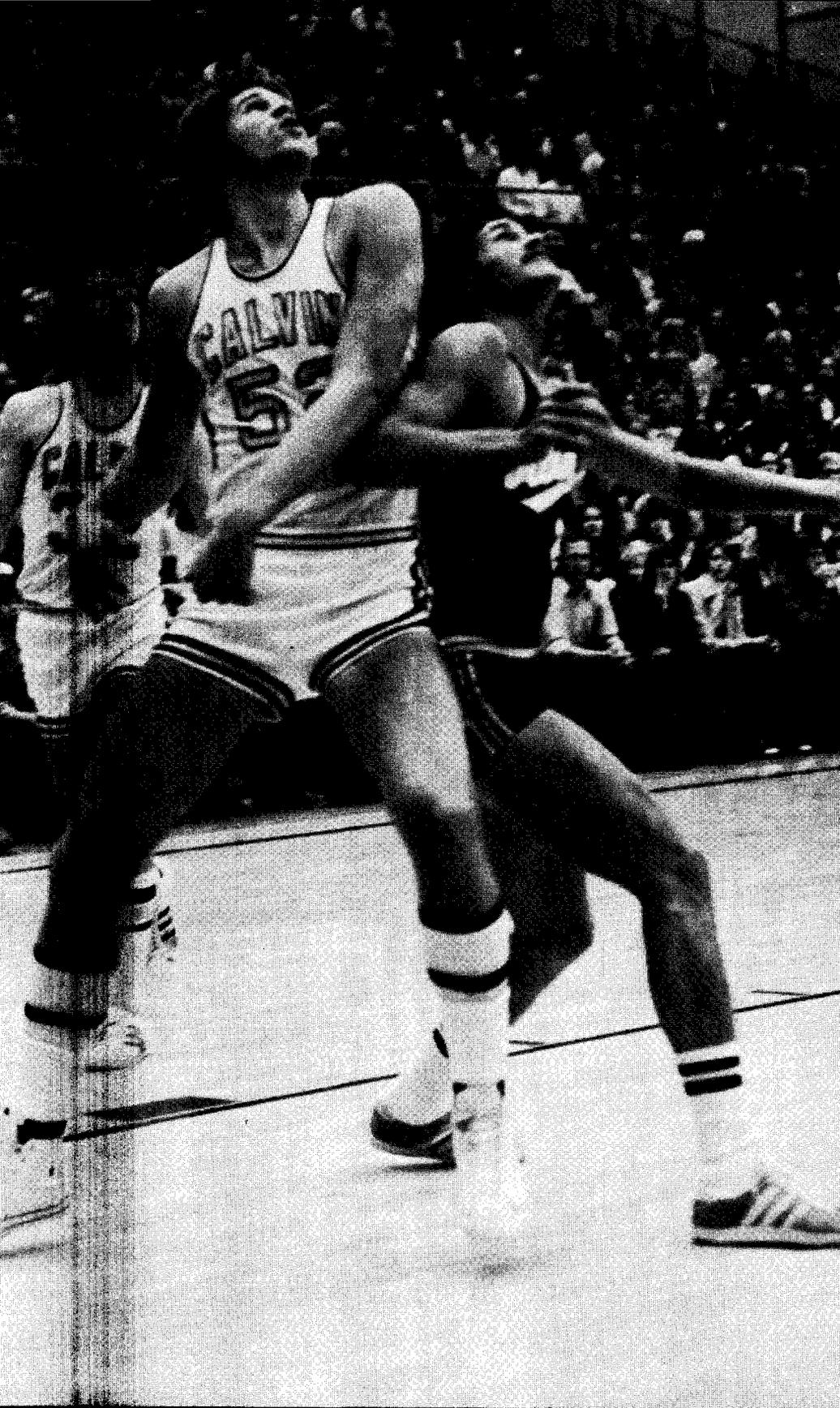
Freshman Scholarships. These are awarded to entering freshmen who have done excellent work in high school. The minimum stipend is \$100, but this can be supplemented by an additional stipend up to 40 per cent of a student's need and by work opportunities and loans. Typically, at least one scholarship is offered to a graduate from each Christian high school.

National Merit Semi-Finalists. Calvin College awards a Freshman Scholarship

to each prospective freshman who has received National Merit Semi-Finalist standing and who indicates this on his application for a Calvin scholarship.

Calvin College National Merit Scholarship. Calvin College annually sponsors one four-year scholarship for a National Merit Finalist. The selection procedure is determined by the National Merit Scholarship Corporation. Prospective students who indicate Calvin College as their first-choice institution will be considered for this award.

The Alvin M. Bentley Foundation Scholarship. Calvin College has been allocated one \$750 scholarship, to be awarded each year under the Alvin M. Bentley Foundation Scholarship Plan. The award is intended for an outstanding high school senior who is a resident of the state of Michigan, and who is seeking admission to Calvin College. The same general dates for other scholarships will



be used in the selection of a candidate for the Bentley Scholarship. The student is expected to have outstanding talents. Consideration will be given to scholarship, character, personality, promise of growth, and financial need.

Kent Medical Foundation Grants. Each year the Kent Medical Foundation provides the college with funds to be awarded to qualified students. These grants are designed for students who are residents of Kent County or vicinities bordering thereon and who have not received a professional degree. To qualify for a grant a student must be matriculated in a health career recognized as scientific in nature. Upperclassmen, as well as freshmen, are eligible to apply for this grant.

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 freshmen from the Whitinsville, Massachusetts, area. Two of the scholarships are one-year awards of \$200 each; the third scholarship is a \$500 award based on financial need and is renewable

for up to four years of study. Selection is made by the Scholarship Committee in consultation with a representative committee from the Whitinsville area.

Bergsma Brothers, Incorporated, Scholarship Program. Bergsma Brothers, Incorporated, of Grand Rapids, Michigan, annually offers one scholarship of \$2,000 to a student planning to enter full-time Christian service with the Christian Reformed Church or its related agencies. This scholarship is awarded on the basis of academic achievement, character, promise of growth, and financial need.

Steven D. Lankester Scholarship Program. As a result of a bequest by the late Steven D. Lankester to the Grand Rapids Foundation, a number of \$500 scholarships are available each year to students from Kent County. Normally two such scholarships will be awarded each year to prospective freshmen. These scholarships are awarded on the basis of academic achievement, character, promise of growth, and financial need. Recipients of this scholarship who wish to be considered for renewal must reapply each year.

FRESHMAN GRANTS NOT ADMINISTERED BY THE COLLEGE

State of Michigan Competitive Scholarships. Each year the Michigan Higher Education Assistance Authority awards a number of state scholarships to beginning freshmen. These scholarships are to be used for tuition and fees and are not to exceed \$1,200. Scholarship winners must demonstrate college potential and financial need. To be eligible for consideration for a state scholarship, each applicant must: (1) qualify as a result of his performance on the national test administered by the American College Testing Program, (2) be a continuous resident of Michigan for 18 months prior to the date of the application, (3) have successfully completed the program of instruction at a Michigan high school or be currently enrolled as a student at such a school and engaged in a program which will be completed by the end of August, and (4) be a person of good moral character. Additional information and application forms can be

secured from the principal's office of any Michigan high school.

Freshman Alumni Grants. Since 1966 the Calvin Alumni Association has given a large number of freshman grants of \$150 each to qualified high school seniors who are in need of special financial assistance. Candidates for these awards are nominated by local alumni chapters or by high school principals and counselors.

Calvin Alumni Chapter Scholarships. Various alumni chapters offer scholarships to Calvin students which are administered locally. Candidates should consult a member of the local alumni chapter.

The Atlantic Monthly Scholarship. The Atlantic Monthly offers a \$500 scholarship each year to the winner of its Creative Writing Contest for high school students. Calvin College participates in

this program by offering a supplementary grant based upon the needs of the winner, if he enrolls at Calvin College. The selection is made by The Atlantic Monthly Company. Complete details concerning this contest can be secured by writing to the Atlantic High School and Private School Contest, 8 Arlington Street, Boston, Massachusetts 02116.

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 needs of the student. The student shall consult with the registrar when planning his 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.

Peter M. Hekman Memorial Scholarship. The Hekman family, in memory of Mr. Peter M. Hekman, provides one \$200 tuition scholarship for the freshman year to a senior graduating from the Ripon Christian High School. The scholarship is awarded on the basis of the appli-

cant's scholastic achievement and financial need. Application forms are available at the office of the Ripon Christian High School.

George M. Pullman Educational Foundation Scholarships. The George M. Pullman Educational Foundation awards each year a number of scholarships to college students with financial need. Applicants should be residents of Cook County, Illinois. Non-resident of Cook County, Illinois, are eligible for consideration only if they are sons or daughters of employees of the Pullman-Standard Car Manufacturing Company or of the Pullman Company.

Applications are accepted from entering freshmen and from current under-graduating students. The application deadline for entering freshmen is January 15, and for current undergraduate students April 15. High school seniors should obtain information about application procedures from high school placement officials. Other candidates should address their inquiries to the Educational Director, George M. Pullman Education Foundation, 1451 East 55th Street, Chicago, Illinois 60615. The National Merit Scholarship Qualifying Test or the College Board Scholastic Aptitude Test is required of prospective freshman candidates. Arrangements to take either of these tests must normally be made before December of the senior year of high school.

SOPHOMORE, JUNIOR, AND SENIOR SCHOLARSHIPS AND AWARDS

Upperclassman Scholarships. Each year Calvin College offers a number of scholarships to members of the freshman, sophomore, and junior classes who have achieved superior records in their previous college work. The minimum stipend is \$100, but this can be supplemented by an additional stipend up to 40 per cent of a student's need and by work opportunities and loans. Holders of Freshman Honor Scholarships and Calvin College Scholarships, as well as other qualified students, are encouraged to apply for Upperclassman Scholarships.

Alumni-Faculty Memorial Scholarships. The Calvin Alumni Association each

year provides the college, in memory of deceased college faculty members, with annual scholarship grants. The number of scholarships given each year is dependent upon the funds available and the number of qualified students making application.

Bergsma Brothers, Incorporated, Scholarship Program. Bergsma Brothers, Incorporated, of Grand Rapids, Michigan, annually offers one scholarship of \$2,000 to a student planning to enter full-time Christian service with the Christian Reformed Church or its related agencies. This scholarship is awarded on the basis of academic achievement, character,

promise of growth, and financial need. Priority consideration in the awarding of this scholarship will be given to a request for renewal if the student continues to qualify under the guidelines of the program.

Dr. John W. Brink Memorial Scholarship. One scholarship in the amount of \$300 is awarded each year in memory of Dr. John W. Brink to a premedical student for use in his junior or senior year at Calvin College. Selection shall be on the basis of academic achievement, character, and promise of growth.

Dr. Harry Kok Memorial Scholarship. An annual scholarship of \$400 is presented each year, in memory of Dr. Harry Kok, to a junior pre-medical student for use in his 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. This scholarship is not limited to students who make formal application.

Dr. John De Vries Memorial Award. An annual award of \$200 in memory of Dr. John De Vries is presented each year to a student majoring in science for use in his junior or senior year. In making the award, the scholarship committee will give consideration to the applicant's scholarship, Christian character, financial need, personality, and promise of growth.

Edward D. Vander Brug Memorial Scholarship. Calvin College has received gifts from the Vander Brug family of Detroit, Michigan, the income of which is to be used to provide grant assistance to students of minority races. These gifts are in memory of the late Mr. Edward D. Vander Brug. Each year the college awards one grant of \$500 to a student of a minority race who is selected on the basis of academic ability, character, promise of growth, and financial need. Recipients may apply for renewal.

Henry Beets Mission Society Scholarship. For information on this grant to American Indians see the previous section.

Dow-Employees Scholarship Fund. The Dow-Employees Scholarship Fund pro-

vides Calvin College with an annual scholarship of \$500.

The stipend is to be given preferably to an outstanding science or engineering major in his junior year, or to a major in another department, if the college selects, for use in his senior year. The recipient must have the ability, initiative, and personality to contribute to his field in coming years. The recipient is to be selected by the scholarship committee of the college on the recommendation of the department concerned.

Dutch Immigrant Society Scholarship. The Dutch Immigrant Society offers annually four scholarships of \$250 each to Calvin College upperclassmen. The applicant must be an immigrant or a child of immigrant parents. This award is granted on the basis of scholarship, Christian character and personality, and financial need. The application must specify why the candidate is eligible for this scholarship and indicate his need. The selection of candidates is made by the scholarship committee.

Spalink Memorial Missions Scholarship. An annual senior scholarship award of \$500 is presented by Mr. and Mrs. John Spalink, in memory of their son, John Spalink, Jr. Its purpose is to encourage superior students to enter missions. The scholarship is awarded to a junior student of either sex 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. The scholarship committee makes final determination of the award.

Kent Medical Foundation Grants. Each year the Kent Medical Foundation provides the college with funds to be awarded to qualified students. These grants are designated for students who are residents of Kent County or vicinities bordering thereon and who have not received a professional degree. To qualify for a grant a student must be matriculated in a health career recognized as scientific in nature.

Steelcase Foundation Scholarships. The Steelcase Foundation of Grand Rapids, Michigan, offers eight scholarships annually of \$250 each to applicants who are children of employees of Steelcase, Incorporated. The winners are selected by the Scholarship Committee of the college, and the applicants are to be judged on the basis of scholastic ability, character, and need. If scholarships are not filled by the children of Steelcase, Incorporated, employees, for whatever reasons, the scholarships are available to other Michigan residents.

Steven D. Lankester Scholarship Program. As a result of a bequest by the late Steven D. Lankester to the Grand Rapids Foundation, a number of \$500 scholarships are available each year to students from Kent County. These scholarships are awarded on the basis of academic achievement, character, promise of growth, and financial need. Recipients of this scholarship who wish to be considered for renewal must reapply each year.

Talen Scholarship Program. Each year Mr. Clare Talen of Menominee, Wisconsin, provides the college with \$800 to be used for two scholarships for upperclassmen. One scholarship is awarded to a junior preseminary student for use in his senior year; the second is awarded to a top student in any other area. Selection is made on the basis of academic achievement, character, promise of growth, and financial need.

The Cayvan Award in Strings. An annual award of \$200 is offered to an outstanding sophomore or junior player of violin, viola, cello, or bass viol for use during his junior or senior year. Selection shall be made by the Department of Music on the basis of proficiency in performance on the instrument, evidence of sound musicianship, academic achievement, and participation in the college orchestra and in a chamber music ensemble. If this award affects the student's eligibility for either the Michigan Scholarship or Tuition Grant, \$100 of the award shall be used for two semesters of private lessons. Application blanks can be obtained from the Department of Music office.

Music Department Upperclassman Scholarship. One or more annual awards of \$200 is offered to outstanding sophomore or junior music majors for use during their junior or senior years. The recipient will be judged by the following criteria in this order: academic achievement; evidence of sound musical understanding through writing, other creative achievements such as composition, performance ability and contribution; and the nature of the student's program. Selection will be made by the Music Department. If this award affects the student's eligibility for the Michigan Scholarship or Tuition Grant, \$100 of the award shall be used for two semesters of private lessons. Application blanks should be obtained from the Department of Music office.

Summer School Scholarship. Twelve scholarships in the amount of \$200 each, one for each National Union of Christian Schools district, will be available to Christian school teachers for undergraduate study at Calvin College during the summer of 1974. The National Union and Calvin College each contributes \$1,200 for this undergraduate program. The cash awards must be used for payment of tuition and other expenses involved in work for personal and professional enrichment, work toward the validation of a teaching certificate, or toward a degree at Calvin College.

To be eligible for a scholarship the teacher:

1. Must have completed three years of successful teaching in the Christian schools.
2. Must be able to produce satisfactory evidence of possessing:
 - a. Ability to pursue academic work successfully.
 - b. Qualities of personality, character, and conviction that are assets to a Christian teacher.
 - c. Loyalty to the Reformed faith.
 - d. Superior teaching ability.
3. Must agree to serve a National Union member school at least one year after receiving a scholarship.
4. Must submit a statement of 250 words or less on the reason(s) for applying for a scholarship.

For details and applications for these scholarships and for grants-in-aid write directly to the Director of Scholarships, National Union of Christian Schools,

865 - 28th Street, S.E., Grand Rapids, Michigan 49508.

Application must be made by February 1.

STUDENT AWARDS

Anna Bruinsma Award in Music. The interest on \$750, given by the late H. J. Bruinsma of Grand Rapids in honor of his deceased wife, one of Calvin's alumnae, is to be used in the Department of Music, two-thirds of it serving as first, and the remaining third, as second prize. This award is open only to seniors.

Oratorio Society Applied Music Awards. A number of awards of \$200 each are presented by the Calvin College Oratorio Society to prospective freshmen. These awards are given to instrumentalists and vocalists who can meet college admission requirements, who have records of superior achievement in high school music activities, and who give evidence of outstanding talent and musicianship in audition. Recipients are expected to participate in the scheduled rehearsals and performances of at least one of the following: concert band, varsity band, orchestra, choir, oratorio chorus. For application procedure, see award below.

Vander Heide Voice Award. An award of \$200 is offered annually by Mr. and Mrs. Jan S. Vander Heide to a vocalist who can meet Calvin College admission requirements and who has a record of superior achievement in high school music activities. The award is applied to four semesters of private voice lessons. The recipient will be expected to participate in the scheduled rehearsals and performances of at least one faculty-directed choral ensemble. Only freshmen are eligible. Applicants will be judged on the basis of evidence of talent and musicianship.

The deadline for applying for the Oratorio Society and Vander Heide awards is April 1. Application blanks and additional information are available from Mr. Geerdes of the Music Department. Awards are announced by April 15.

Baker Extemporaneous Speaking Awards. Through the generosity of the Baker

Book House of Grand Rapids, Michigan, credit vouchers for the purchase of books are awarded annually to the first, second, and third place winners in both the men's and women's divisions of the Extemporaneous Speaking Contest. In each division the winners of first, second, and third places are awarded credit vouchers of \$25, \$10, and \$5, respectively. The first place winners of each division represent Calvin College at the annual State Extemporaneous Speaking Contest.

Broodman Oratorical Awards. Through the generosity of the Broodman family of Grand Rapids, Michigan, a gold medal and a \$25 Savings Bond are awarded to the first place winner in a men's oratorical contest. Silver and bronze medals are given annually to the winners of the second and third places, respectively, in a men's oratorical contest. These awards are presented in memory of the late Dr. G. J. Broodman. The first-place winner represents Calvin College in the State Oratorical Contest of the Michigan Intercollegiate Speech League.

Drama-Interpretative Reading Awards. An anonymous donor annually presents the Speech Department with \$100 to be used as awards in the areas of drama and interpretative reading. This enables the Speech Department each year to make the following awards:

1. A \$25 award to a senior student who has done outstanding work in acting in Thespian productions.
2. A \$25 award to a senior student who has made valuable contributions in the areas of the technical aspects of Thespian productions.
3. \$15 awards to each of the two students selected to represent Calvin College at the League Division of the Annual Interpretative Reading Festival of the Michigan Intercollegiate Speech League.
4. \$10 awards to each of the two students selected to represent our college

at the Junior Division of the Annual Interpretative Reading Festival.

Monsma Speech Award. Each year Dr. and Mrs. John W. Monsma, Jr., offer an award of \$100 to a student majoring in speech. The award is usually given to an undergraduate planning to return to Calvin for additional study and is given on the basis of the student's academic record, his character, and his personality. The Speech Department selects the nominee to receive the award.

Thespian Oratorical Awards. The Thespians, dramatics club of Calvin College, offers three awards in oratory for women, of \$15, \$10, and \$5.

The first award winner represents Calvin College in the State Oratorical Con-

test of the Michigan Intercollegiate Speech League.

The Beets Calvinism Award. The late Dr. and Mrs. Henry Beets established a fund which now amounts to \$1,500, the income of which is to constitute a prize for the best essay or term paper on Calvinism, in any of its expressions, written each year by a Calvin College student. The prize will be awarded at the discretion of the Department of Religion and Theology, in consultation with the president of Calvin College. If, during any given year, the Department of Religion and Theology considers the essays or papers submitted of insufficient merit to deserve the prize, the interest of such a year, or years, will be added to the principal.

POST-GRADUATE FELLOWSHIPS

The William B. Eerdmans Literary Awards. The late Mr. William B. Eerdmans, Sr., established the William B. Eerdmans Literary Awards in the interest of encouraging original, creative writing among Calvin College students.

Under the terms of the foundation three awards—first, \$35; second, \$25; third, \$15 are made. Any type of original writing is eligible for an award, whether it be poetry, fiction, or essay, creative or critical, seriously reflective, or delightfully amusing.

The Rinck Memorial Award. A fund of \$2,500 has been subscribed by former students and friends as a memorial to William Rinck, Professor of Mathematics at Calvin College (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 the Mathematics Department who has, in the opinion of the members of the department, done superior work in undergraduate mathematics.

Jewish Evangelization Award. Dr. and Mrs. William J. Yonker offer a prize of \$50 for the best essay and a prize of \$25 for the second-best essay on a subject bearing on the evangelization of the Jews. The contest is open to all college students.

Board of Trustees Scholarship. Calvin Seminary, under the authority of the Board of Trustees of Calvin College and Seminary, offers a scholarship consisting of \$500 to a member of the graduating class of Calvin College. The award will be made to a student who plans to enter Calvin Seminary and, eventually, the ministry in the Christian Reformed Church.

Applications should be in the hands of the Scholarship Committee by March 1.

Competitive National Graduate Fellowships. Many competitive national fellowships are available to Calvin seniors with outstanding records. These include the Danforth Foundation fellowships, the Rhodes scholarships, the Marshall fellowships, the National Science Foundation fellowships, the various Fulbright grants, and many others. The conditions for these grants vary from year to year, as do the deadlines. For most of them, however, application must be made early in the fall and students are advised to take the Graduate Record Examinations at the earliest possible date. Students interested in any of these grants are advised to consult their departmental chairmen and the assistant dean for academic affairs.

University of Michigan State College Fellowships. These competitive, prestige

fellowships to the Graduate School of by the university to students nominated \$2,400 plus tuition for an academic year's work, are open to students nominated through the scholarship committee. Up to twenty-four grants are made by the university to students nominated by various Michigan colleges and universities. For information, consult the assistant dean for academic affairs.

University of Michigan Scholarships for Graduate of the Three-Year Engineering Course. The University of Michigan offers up to three scholarships to students who have completed their three-year engineering course at Calvin College and who transfer to the University of Michigan to complete their work for an engineering degree. The amount of these scholarships is \$500. Interested students should before March 1 consult

with the chairman of the Engineering Department, which makes its recommendation on the following criteria: a minimum grade point average of 3.0, completion of a minimum of twenty-eight courses at Calvin College, demonstration of serious interest in the activities of the department, and intention to apply for a Calvin Bachelor of Science degree upon completion of the engineering degree requirements.

University of Michigan School of Business Administration Tuition Scholarship. This scholarship may be awarded annually to a graduate of Calvin College who has majored in business administration and who is recommended for the scholarship by the members of the Economics Department. Seniors who are interested should see the chairman of the Economics Department before February 15.



The ACADEMIC programs

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. We believe that in a complete liberal arts education the student should be introduced to the disciplines on two different levels.

In the first place, he 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 the student 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 him to judge the products of the disciplines; and an acquaintance with alternative approaches to the same subject matter.

Secondly, we believe that in addition to such a general or extensive education, each student should also be required to concentrate in some particular discipline and thus to supplement his 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 his field of concentration, however, the student can achieve the same aims more fully, more intensively, in more detail.

This 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. A Bachelor of Fine Arts degree with a professional art emphasis is being introduced in 1974. Calvin College also offers a variety of cooperative bachelor of science degrees in conjunction with other institutions, in engineering, forestry, medical technology, natural resources, nursing, and special education (see pages 53-61) as well as a Bachelor of Science in Education degree in a combined curriculum plan with the Grand Rapids Baptist College.

BACHELOR OF ARTS, BACHELOR OF SCIENCE DEGREES

Because of the flexibility of the Calvin curriculum and the many alternative ways of meeting the formal requirements, including fulfillment by examination, faculty advisers assist students in working out their schedules each semester and are available at any time.

A typical student carrying a normal load will complete thirty-seven and a half courses including four interims. However, to provide flexibility, the formal graduation requirements are the successful completion of thirty-six courses including three interims and the designated liberal arts core with a minimum average grade of C (2.0) both overall and in an approved program of concentration. Not more than one course credit of basic physical education or two in applied music, drama, and speech may be applied to graduation requirements except when such courses are a designated part of a required major program.

Upon the satisfactory completion of these requirements, the student is eligible for a Bachelor of Arts degree. If he has completed at least fifteen courses in biology, chemistry, the earth sciences, engineering, mathematics, and physics, he may elect instead to receive a Bachelor of Science degree.

I. PROGRAMS OF CONCENTRATION

Every student must fulfill the requirements of some approved departmental or inter-departmental program of concentration. Although such majors are not officially chosen until the end of the sophomore year, certain programs do presuppose the completion of certain freshman and sophomore courses. Admission to major status is not automatic but requires the formal approval of the department or program chairman and the completion of a counseling form which details the student's remaining academic program. Such majors may be changed at any time.

To be eligible for acceptance in a given program of concentration, a student must have secured a minimum grade of C (2.0) in the course or courses designated by the department offering the program, he must maintain this average in the program, and he must present at least this average in his program of concentration at the time of his graduation. A student not maintaining a minimum grade of C (2.0) in his program of concentration may be permitted to remain in a program for single semester of probation. The programs of concentration are specified in the section of the catalog describing departmental programs and course offerings which begins on page 63.

Students may initiate cross-disciplinary programs of concentration other than those formally approved by the faculty. Such programs require the approval of the several department chairmen concerned and of the dean of the faculty, who will designate a program adviser.

II. INTERIM COURSES

A student must complete a minimum of three interim courses for graduation. (Transfer students must complete one interim course for each year in residence.) The grade for an interim course, except when decided otherwise by the faculty, shall be honors, satisfactory, or unsatisfactory. Interim courses are taught at three levels. Level I, open to any student; Level II, open to sophomores and juniors; Level III, open to juniors and seniors. A student is not permitted to take more than two interim courses in any single department, nor is he permitted to take more than two interim courses at any single level. Certain designated interim courses may meet core requirements and others may be included in a program of concentration.

Calvin College is associated with a number of similar colleges with January interim programs, making possible the exchange of students during the interim. Specific information is available from Mr. Charles J. Miller, the assistant dean for academic affairs.

III. THE LIBERAL ARTS CORE

The size of the required core is determined in part by the courses the student has taken during his last two years in high school. Although Calvin's liberal arts core apparently requires eighteen and a half courses, typically two or three are satisfied by high school performance and others may be satisfied by examination.

Six of the liberal arts courses provide the context for a Calvin education (history, philosophy, theology); eight provide an introduction to the major systematic disciplines (the sciences, the social sciences, the fine arts); two and a half 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 a minimal mastery of a foreign language. These requirements may be met in many ways and by various courses during the student's four years at Calvin.

The variety of courses in each department which meet the liberal arts core are listed with the departmental offerings.

REQUIRED COURSES

History, philosophy, religion and theology

6

Typically these requirements are met by History 101 or 102; Philosophy 151-152 or 153, which is recommended in teacher education programs; one course in Religion and Theology from 103, 107, 108, 207, and 208 and one from 206, 301, 303, 304, 308, 311, and 312; with the remaining course or courses chosen from these departments and from Interdisciplinary 100, Christian Perspectives on Learning, and Interdisciplinary 234. Not more than one additional course may be selected from any one department; Education 304 when taken in addition to Philosophy 153 satisfies a second philosophy requirement and should be taken by teacher education students.

Mathematics, physics, biology, chemistry, earth science

A student must show a certain level of accomplishment in mathematics and in the natural sciences which may be demonstrated by either high school courses completed with a minimum grade of C or by college courses.

The requirement in mathematics may be met by Senior Mathematics in high school or by Mathematics 109, 111, or 205. Students should consult the recommendations of the department in which they hope to concentrate before selecting a college course in mathematics.

The requirement in physical science may be met by a year of high school physics or by Physics 110, 112 (which is required for elementary students), 123, or by Astronomy 110. The requirement in biological science may be met by a second year of high school biology (Advanced Biology) or by Biology 111 or 121. These requirements in the sciences may also be met by completing a two-course sequence in Biology 121-122, Chemistry 103-104, Geology 251-252, Physics 123-124, Physics 126 and 225, or Physics 221-222.

Economics or political science and psychology or sociology

1-2

Typically these requirements are met by one course chosen from Economics 151, Political Science 151, 201 (if the student is in elementary teacher education), 210 (if the student is Canadian), or 300 and one course chosen from Education 301 (which is required in teacher education programs), Psychology 151, 212, Sociology 151, or 317.

A student who during his last two years of high school has completed with a minimum average grade of C (2.0) either a full year's course in any one of these subjects or an integrated year-long course combining two or more of them, is required to take one rather than two courses in this group.

Art, literature in any language, music speech

2-3

Every student is required to take college-level work in English or American literature. The first course is typically selected from English 200, 202, 203, 212, or 303. Any literature course except for English 225 will satisfy the additional core requirements. At least one course must be taken in another department. Art 206 is recommended for students in elementary teacher education programs.

A student who during his last two years in high school has completed a year's course with a minimum average grade of C (2.0) in any one of these subjects or an integrated year-long course combining two or more of them, is required to take two rather than three courses in this group.

Written rhetoric, spoken rhetoric, physical education

2½

Every student must demonstrate his competence in written rhetoric either by examination or by passing English 100.

Every student must demonstrate his competence in spoken rhetoric by examination or by passing Speech 100, 200, 214 (if in elementary education), 240, or by examination.

Four semesters of participation in physical education are required. This is satisfied by not fewer than four quarter-courses from Physical Education 100-199.

Dutch, French, German, Greek, Latin, Spanish

0-4

A student must study one foreign language through the second-year college level. Typically all foreign language literature courses satisfy the "literature in any language" requirement above as well.

Languages other than those taught at Calvin are acceptable. Students for whom English is a second language may be exempt from this requirement. Three-course sequences beginning with a full review (205, 206, 207) are

available for any student whose high school record in the language is below C (2.0).

Students preparing for teacher education programs who do not have high school foreign language preparation may meet this requirement with a special three-course sequence.

A student usually should complete the core requirements in mathematics, history, and written rhetoric by the end of his freshman year, and should complete the requirements in physical science, biological science, physical education, 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. However, because of the demands of various programs of concentration, the particular courses chosen to meet the student's core requirements and his schedule for completing them should be worked out early with his academic adviser.

BACHELOR OF FINE ARTS DEGREE

A student wishing to obtain a Bachelor of Fine Arts degree (B.F.A.) must successfully complete thirty-six courses, including three interim courses, the liberal arts core courses designated below, and the designated program of concentration.

The program of concentration requires at least four courses in the history of art (231, 232, 332, 340); at least eleven studio art courses (207, 208, 209, 210, 310, 311, 320, 325, 326, and two from 312, 313, 321, 377); two interim courses in art; and one course credit for a senior seminar which must include an exhibition.

The liberal arts core must include six courses from the contextual disciplines (History 101 or 102; Philosophy 153 and 208; Religion and Theology 103 and 301; and one course from these departments or Interdisciplinary 101, Christian Perspective on Learning); one core course from mathematics and the natural sciences; one core course from economics, political science, psychology, and sociology; either one foreign language through the second-year college level or two courses taught by a foreign language department from foreign culture and foreign literature in translation; the core requirements in written rhetoric (typically English 100), speech (typically Speech 100, 200, or 240), and basic physical education; and three core courses from literature, music, and speech. This last requirement is reduced to two courses if a student has completed a year's course in high school with a minimum average grade of C (2.0) in any one of three subjects; at least one of the three must be in American or English literature.

EXEMPTION AND COURSE CREDIT BY EXAMINATION

Students may meet any core requirement by examination, thus receiving an exemption, and may, except when the department concerned deems this inappropriate, earn regular academic credit for any course by examination. A student's performance on such tests becomes a part of his academic record, and he will be charged an appropriate fee.

Students should apply to the registrar by October 1 for the first semester or February 15 for the second if they wish to sit for either exemption or course credit examinations. The program is administered by the Faculty Examinations Committee.

Entering freshmen are permitted to sit for a variety of examinations which either excuse them from taking a given course or which give them college credit for the course. These regulations are specified in the section on Advanced Standing on page 20.

THE HONORS PROGRAM

The General Honors Program provides flexibility and independence for the superior and self-motivated student. The Departmental Honors Program, which requires participation in the General Honors Program, intensifies the training in the student's major discipline and leads to an honors graduation designation.

A student is eligible for the General Honors Program if his cumulative grade point average is 3.3 or higher; incoming freshmen are eligible if their cumulative high school record meets this standard. Exceptions may be made by the Honors Program Committee upon the recommendation of the student's academic adviser or the departmental chairman.

Students in the General Honors Program may register for a variety of types of honors courses—honors sections in large courses, special honors courses, or honors registration in regular courses for which intensified work will be required. No student may carry more than two such courses at a time. Students in the program may avail themselves of the right to be exempt from core course requirements by examination and of the right to propose cross-disciplinary programs of concentration.

A student in the General Honors Program may apply for admission to the Departmental Honors Program through the chairman of the department in which he is majoring. To graduate with this designation the student must complete, with a minimum average grade of B (3.0), at least six honors courses, two of which must be part of a structured departmental honors program. Juniors and seniors in the Departmental Honors Program may, subject to the approval of the chairman, register for a fifth course which will be graded on the basis of satisfactory or unsatisfactory.

The honors programs are under the supervision of Mr. Charles J. Miller, assistant dean for academic affairs.

YEAR-ABROAD PROGRAMS IN FRANCE, SPAIN, AND AUSTRIA

In cooperation with Central College, Calvin College offers twelve-month, three-semester study programs in Paris; in Vienna, after a summer in Germany; and in Madrid at a cost comparable to a year in residence on campus. To be eligible a student must have completed the study of the appropriate language through the second-year level.

This unique program utilizes an intensive summer semester to assist the student in developing a level of language proficiency which will enable him to enroll in regular university courses and to participate freely in the cultural life of the country. Such courses include not merely those in language and literature but may include those in art, history, music, philosophy, and psychology.

A student may earn up to three course credits during the summer and an additional nine during the regular academic year. The international studies coordinator for these programs is Mr. James Lamse.

WASHINGTON SEMESTER PROGRAM

Calvin College is a participant in American University's Washington Semester Program, which enables selected students to spend a semester in Washington, D.C. at the American University, studying and observing political institutions and processes. Seminars, small group discussions with political leaders, a major independent research project, and observation of governmental institutions form the major portion of the program.

Typically students participate in the program during their junior year. At least one course in American politics and a 3.0 grade point average are the prerequisites for participation in the program. Mr. S. Monsma of the Political Science Department is the faculty adviser.

TEACHER EDUCATION PROGRAMS

Formal application for admission to the teacher education programs should be made at the Department of Education as soon as a student has been admitted to sophomore standing. At the time of admission and when applying for an assignment to a teaching internship (Education 345 or 346) a student must be maintaining a minimum cumulative average of C (2.0). Students entering the program after the sophomore year may require more than four years to complete their programs.

The requirements given below satisfy both the college requirements for a bachelor's degree and the State of Michigan requirements for a provisional teacher's certificate.¹ Students interested in teaching in Canada

¹ In summary, the Michigan code requires: 40 hours of general education, a 30 hour departmental major or a 36 hour group major, a 20 hour departmental minor or a 24 hour group minor, and 20 hours of professional education.

can meet all or most of the teacher licensing requirements for any province by attending Calvin College. Under the present requirements, a student completing the appropriate teacher education program at Calvin is able to go directly into teaching at the elementary or secondary level in all provinces except Ontario. To obtain a professional certificate for teaching at either the elementary or secondary level in Ontario, the student must complete: (1) An acceptable bachelor's degree containing 120 semester hours (or 36 course units) of liberal arts or science courses. Physical education courses and any courses offered by the Department of Education normally do not count towards this total. (2) 30 semester hours (or 9 course units) of professional education courses, including student teaching. A normal teacher education program at Calvin can be modified to meet this requirement. (3) A valid teacher's certificate from the local jurisdiction—in this case, the State of Michigan. This program would generally involve five years at Calvin, or four years after Grade 13. Students intending to teach in Christian schools in Ontario may not be required to meet these standards. Since Canadian standards are changing, it would be wise to keep up to date on these matters. For current information or any further clarification, contact Miss Madge Strikwerda, director of teacher certification, or Mr. Charles J. Miller, assistant dean for academic affairs.

Graduates who have earned a Michigan Provisional Certificate since July, 1970, must complete an eighteen-hour planned program to qualify for a Continuing Certificate. Graduates seeking such certification should consult the director of teacher certification, Miss Madge Strikwerda.

Guidance and counseling programs normally require the completion of a certification program in either elementary or secondary education and several years of successful teaching experience before specialization is permitted. Some concentration in psychology or sociology is desirable but not necessary.

Elementary education. The minimum elementary education program requires the completion of the general education requirements (See pages 41-45 for the courses recommended for students in teacher education): either an approved group concentration of ten and a half courses or a departmental concentration of eight and a half courses; a planned program of six courses in other subjects which are related to elementary education or a six-course departmental minor; and six professional education courses. Programs should be worked out with Mr. William Hendricks, coordinator of elementary education, and have the written approval of an adviser in the area of concentration.

An eight and a half course departmental concentration may be selected from the following subjects: art, biology, English, foreign language

(French, Dutch, German, Latin, Spanish), history, music, mathematics, physical education, political science, and speech.

Most students in elementary education programs, however, complete group concentrations which consist of at least ten and a half courses, of which a minimum of five shall be in one subject listed above, a minimum of three in another subject, and the remaining courses in the same or related subjects. Model programs are listed below but students may consult the appropriate department for further advice.

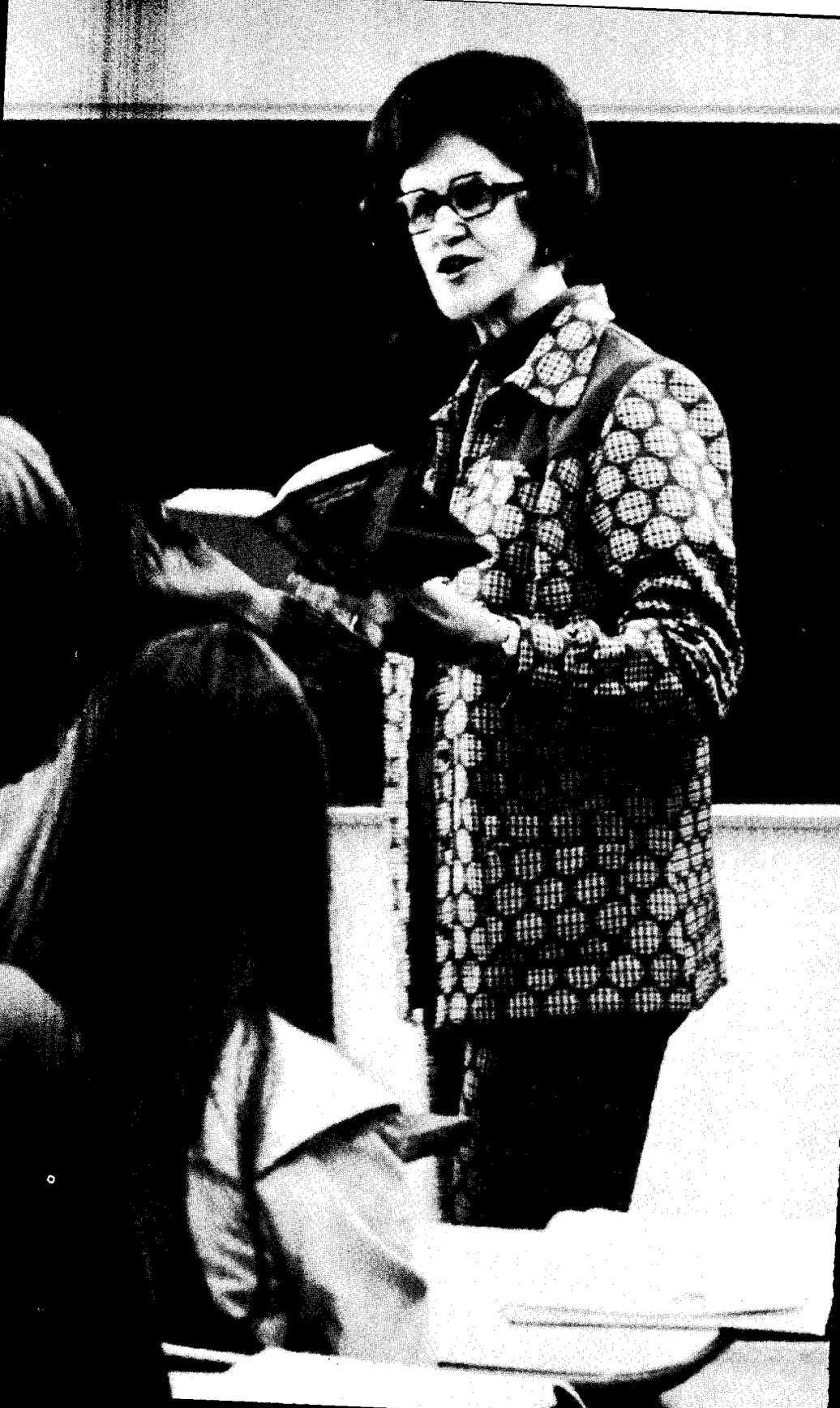
LANGUAGE ARTS STUDIES. Required are English 100 and Speech 214. Recommended five-course sequences are: in English, 100, 200, 225, and two electives; in Speech, 203, 214, 215, 250 and one elective; in foreign language, five courses approved by the chairman of the department. The recommended three-course sequences are the designated courses above. At least ten and a half courses must be selected from this group.

SOCIAL STUDIES. Required are Earth Science 101 or 113, History 101 or 102, Sociology 151 or 203, and one course from Economics 151, Political Science 151, 201, the recommended course, or 300. The recommended five-course sequences are: in Economics, 151, 321 or 322, plus three electives; in History, 101 or 102 and four electives; in Political Science, 151, 201, plus three electives; in Psychology, 204, 310 plus three electives; in Sociology, 151 or 203, plus four electives. The three-course sequences should include the designated courses above. Such a sequence is also possible in Earth Science and Geography. At least ten and a half courses must be selected from this group.

GENERAL SCIENCE STUDIES. Required are Biology 111 or 121; Earth Science 113; Mathematics 109 or 111; and Physics 112, 222, or 225. The electives indicated below may be chosen from departmentally approved interims. The recommended five-course sequences are: Biology 121, 122, 221, 222, plus one elective; Chemistry 103-104 or 113-114, plus three electives; Mathematics 111, 112, plus three electives; Physics 126, 225, 226, plus two electives; biological science: Biology 105, 106, 111, plus two electives; physical science: Physics 112, Earth Science 113, Chemistry 113, Astronomy 110, plus one elective. The recommended three-course sequences are: Chemistry 103-104 or 113-114, plus one elective; Earth Science 113; Geography 201, 210; Mathematics 109 and two electives or 111-112 and one elective; Physics 221-222 or 126 and 225, plus one elective; Psychology 204, 216, plus one elective from 250, 310, 311, or 312; biological science: Biology 111 or 121, 105, 106; physical science: Physics 112, Chemistry 113, plus one approved elective. The adviser for these programs is Mr. Vernon Ehlers.

FINE ARTS STUDIES. Required are Art 207 (or 215, if only one art course is taken), Music 103-104 (or 222, if only one music course is taken), Music 222 or 331, and Speech 214. The recommended five-course sequences are: in Art, 151, 207, 208, 215, and one elective; in Drama, Speech 203, 214, 219, 317, and one elective from 304, 318, or an approved interim; in Music, 103, 104, 203, 302, and 331. The recommended three-course sequences are: Art, 151, 205, and 215; in Drama 203, 214, and 219; in Music 211, 212, and 222 or 333. At least ten and one-half courses must be taken from the fine arts.

The appropriate education courses for students in elementary education are 301, 303, 304, 305, 322, 345, and 355. The six-course planned



program required for Michigan certification typically is met automatically by students meeting the general graduation requirements. Courses recommended for this dual function include: Art 206, Biology 111, English 100 and any literature course in English or in a foreign language, Earth Science 101 or 113, History 101 or 102 and any other history course, Mathematics 109 or 111, Music 222 or 331, Physics 112, Psychology 204, Political Science 151 or 300, and Speech 214. Physical Education 221 is recommended as a substitute for one semester of basic physical education.

Middle school education. The middle school program is planned for students who wish to teach in grades six, seven, or eight, or who are not ready to choose between elementary (k-8) or secondary (7-12) certification.

The requirements of both certification programs may be met by careful scheduling, permitting the student to defer choosing either an elementary or secondary certificate until graduation or until he has obtained a teaching position. The sections describing the requirements for elementary and secondary education refer to such middle school programs. A student internship seminar in middle school education will be scheduled during certain semesters. For information consult either Mr. William Hendricks, coordinator of elementary education, or Mr. Philip Lucasse, coordinator of secondary education.

Secondary education. The minimum secondary program requires the completion of the general graduation requirements (See pages 41-45 for the courses recommended for students in teacher education); a departmental concentration of eight and half courses or a group concentration of ten and a half courses; a minor of six courses in another department or a group minor of seven; and six professional education courses. Programs should be worked out with the appropriate departmental adviser. For specific problems a student should consult Mr. Philip Lucasse, coordinator of secondary education.

The programs of concentration shall be selected from the following subject areas: art, biology, chemistry, Dutch, economics, English, French, German, history, Latin, mathematics, music, physics, physical education, political science, Spanish, and speech. The minor shall be selected from these subject areas or from psychology, religion and theology (the academic study of religions), and sociology. Concentrations in business education, industrial arts, and home economics, subjects not taught at Calvin, are possible when work in these fields is completed at other accredited institutions.

Group concentrations have particular advantages for middle or junior high school programs. A major group concentration consists of at least ten and a half courses, five of which must be in one department, three in another, and the remaining in either the same or related subjects. Such con-

centrations may be in the language arts (English, foreign language, speech), the sciences (earth science, biology, chemistry, mathematics, and physics), and the social sciences (economics, history, and political science). Group minors of seven courses with the minimum of three in one subject may be chosen from these same areas and from the humanities (art, literature in any language, music, philosophy, religion and theology, the social studies including psychology and sociology, and speech).

To be qualified by the standards of the North Central Association a teacher must have completed the following minimum number of courses in each field in which he teaches: art, seven courses; foreign language, six courses; mathematics, six courses; physical education, six courses; science, seven courses with three and a half in each specific subject taught; social science, seven courses with at least two courses in each subject taught—world history, United States history, political science, economics, sociology; and speech, seven courses.

The appropriate education courses for students in secondary and middle school programs are: 301, 303, 304, 346, and 356.

The Bachelor of Science in Special Education degree program. Calvin College in cooperation with Grand Valley State Colleges offers a Bachelor of Science in Special Education degree which leads to regular certification at the elementary or secondary level as well as to special education certification. Students in the programs must complete a designated core of thirteen liberal arts courses, must meet the professional education requirements for either elementary or secondary certification, must meet an appropriate departmental or inter-departmental group program of concentration, and must meet the additional requirements for certification in special education.

Specific special education programs vary in length from a minimum of four years and one summer for those without internship to four years and three summers for those with internships. Furthermore, the particular teaching major chosen and the type of certification sought, introduce variables. Students in special education fields requiring internships take their first Grand Valley course during the summer following their sophomore year; others take their first Grand Valley course during the first semester of their junior year. Students interested in any phase of special education should consult with Mr. Jack Wiersma, the adviser of the programs, as early as possible.

Certification can be obtained in the following areas:

1. Training the mentally impaired and emotionally impaired.
2. Training the mentally impaired and the physically impaired.
3. Training the learning disabled, the emotionally impaired, and the mentally impaired (internship program).

4. Training the hearing impaired and the mentally impaired (internship program).
5. Training the hearing impaired and the emotionally impaired (internship program).
6. Training the hearing impaired and the physically impaired (internship program).

The liberal arts core for students in the special education programs is four course from the contextual disciplines—Education 304, Philosophy 153, one core course in Religion and Theology, and one core course from History; two core courses from biology, chemistry, earth science, mathematics, and physics; two core courses in the social sciences, which normally are met by the major or professional education programs; three core courses from art, literature, foreign language courses beyond the first year college level, music, speech, and foreign culture; English 100 or its equivalent; and a total of one course unit from core courses in speech and basic physical education.

PROFESSIONAL AND PREPROFESSIONAL PROGRAMS

Programs at Calvin College prepare students for admission to the various professional schools and, in some cases, through cooperation with other institutions, for completion of professional programs while at Calvin. In most cases students may qualify for a degree from the college as well as from a professional program if they meet the appropriate requirements.

ARCHITECTURE

The program leading to the Master of Architecture degree, the professional degree in the field, typically requires six years, two of which may be completed at Calvin College. Students interested in such a program should consult Mr. Edgar Boevé of the Art Department or Mr. James Bosscher of the Engineering Department. The program incorporates a significant portion of the basic core curriculum as well as of the preprofessional requirements of the profession. A typical program would be:

<i>First year</i>	COURSES
Art 231	1
English 100	1
Engineering 101	1
Mathematics 107	½
Mathematics 111, 112	2
Interdisciplinary 100, Christian Perspectives (interim)	1
Economics 151	1
Philosophy 153	1
Speech 100	½
Physical Education	½

<i>Second year</i>	COURSES
Art, studio drawing or design	2
Chemistry, if none in high school; biology; or psychology	1
Physics 221, 222	2
Economics, history, political science, or sociology	2
Literature	1
Religion and Theology	1

BUSINESS ADMINISTRATION

Balanced preparation for a business career is provided by meeting the general degree requirements (page 41) and the Business Economics concentration in the Department of Economics and Business (page 74). This program provides a minimum of twelve courses—the equivalent of forty-two semester hours—in business economics and related mathematics courses. This concentration along with the general graduation requirements provides a substantial undergraduate coverage of the functions of the business firm, an understanding of the environment of business and human behavior, and an opportunity to develop one's personal Christian commitment and ethical sensitivity. Completion of the program provides a proper preparation for entry into a variety of business occupations as well as a foundation for graduate study in business.

A representative program is given below. Electives may be used for additional business courses or to fulfill other interests.

<i>First year</i>	COURSES
Interdisciplinary 100, Christian Perspectives	1
Economics 151	1
English 100	1
History 101 or 102	1
Foreign Language	2
Mathematics 205-206 or 111-112	2
Physical education	1/2
Religion and Theology	1
Speech 100	1/2

<i>Second year</i>	COURSES
Art, music, speech	1
Biology 111	1
Economics 207, 212	2
Mathematics 107	1/2
Philosophy 151-152 or 153 and 205 or 207	2
Physical education	1/2
Physics 110, Physical Science	1
Psychology or sociology	1
Elective	1

<i>Third year</i>	COURSES
Economics 309	1
Economics 313	1
Economics 316	1
Economics 322	1
Literature	1

Religion and Theology	1
Electives	3
<i>Fourth year</i>	COURSES
Economics 318	1
Economics 321	1
Economics 331-339 or 400	1
Electives	5-6

Students may also complete two years at Calvin prior to transferring to another institution for a B.B.A. program.

ENGINEERING

Students planning to enter the engineering program should consult with Mr. James Bosscher, chairman of the Department of Engineering, when arranging their programs. Students wishing to graduate from Calvin College on the combined curriculum plan are advised to complete the twenty-eight course program below. (A minimum of twenty-seven courses and a minimum cumulative grade point average of C is required.) If a student completes this program and subsequently completes a degree program at a recognized school of engineering, which typically requires an additional three semesters, he will also receive a degree from Calvin College—a Bachelor of Science in Letters and Engineering on the combined curriculum plan.

A typical program for engineers is given below. With the advice of the engineering faculty, a student may select from the electives and options indicated those courses which meet his interests and the program of the school to which he intends to transfer. The half course, Engineering 312, is also recommended.

<i>First year</i>	COURSES
Chemistry 103	1
Engineering 101	1
Engineering 102	1/2
Mathematics 111, 112	2
Physics 126	1
Interdisciplinary 100, religion and theology, or approved history	1
Economics 151	1
English 100	1
Mathematics 108	1/2
Physical education	1/2
<i>Second year</i>	
Engineering 205	1
Engineering 202 or an engineering elective	1
Engineering 308	1
Mathematics 211, 212	2
Physics 225	1
Literature	1
Philosophy 153	1

Social science interim	1
Speech, 100	½
<i>Third year</i>	
Engineering elective	1
Technical elective, from 200 or 300 level courses in biology, chemistry, engineering, mathematics, or physics	2
Interim, engineering	1
Philosophy, 200 series course	1
Religion and Theology	1
Literature, if none in high school, or a non-technical elective	1
Fine arts elective	1
Elective	1

FORESTRY

Student wishing to prepare themselves to become certified foresters can do so by enrolling in the combined-curriculum program in forestry. This program requires a student to take his first three years at Calvin College, completing a minimum of twenty-seven courses, and his final two years in the School of Natural Resources at the University of Michigan. At the end of his third year at Calvin, the student attends the University of Michigan summer camp.

After completion of the first full year's work in the School of Natural Resources at the university, the student is eligible for the Bachelor of Science in Letters and Forestry degree from Calvin College. At the conclusion of the second year at the university the student will receive the Bachelor of Science in Forestry degree from the University of Michigan, if he has met the requirements for the degree.

The science requirements for the program are: Biology 121, 122, 221, 222, 341, 346, and 352; Mathematics 111 and 112; Earth Science 251 (geology); and a two-course sequence in Chemistry and/or Physics from one of the following: Chemistry 103-104, Chemistry 113-114, Physics 221-222, or Chemistry 113 and Physics 112. The liberal arts requirements are: one course each in history, philosophy, religion and theology with an additional course from one of the three or Interdisciplinary 100 in the interim; Economics 151 plus one additional course from economics, sociology, psychology, or political science (By the end of the fifth year a student must have completed four courses in this area with two recommended in economics); one course in American or English Literature with two additional courses in art, literature, music, speech, or foreign culture; English 100; and Speech 100 plus two semesters of basic physical education or four semesters of basic physical education.

Students wishing to consider the combined-curriculum program in forestry or forestry programs other than the combined-curriculum plan should consult Mr. Alan Gebben.

LAW

Students who plan to enter a law school upon graduation from Calvin College should complete the requirements for a Bachelor of Arts degree as these are listed on pages 41-45. The selection of the program of concentration should be made in consultation with Mr. Johan Westra, the prelaw adviser.

MEDICINE AND DENTISTRY

All students planning to enter the premedical or predental programs should consult Mr. Henry Bengelink, faculty director of the premedical and predental programs. Students should also note the premedical entrance requirements on page 21.

The minimum requirements for these programs are Chemistry 103-104, 201, 204, and 301-302; Biology 121, 122, 221, 222, and 321; and Physics 221-222 or their equivalent. Mathematics 111 and 112 are strongly recommended.

Most medical and dental schools give preference to students who complete a four-year college course. However, students with an exceptionally high grade point average who wish to secure a baccalaureate degree from Calvin College on the combined curriculum plan, should complete twenty-seven courses, including the program prescribed above, and as much of the core curriculum as possible. For their electives, students should choose such subjects as are required for admission to the particular medical or dental school which they expect to attend. Upon satisfactory completion of this course and one year of successful work in a recognized medical or dental school, the student will be eligible on the combined curriculum plan for the degree of Bachelor of Science in Letters and Medicine, or Bachelor of Science in Letters and Dentistry.

It is the responsibility of the student who desires to secure a baccalaureate degree on the combined curriculum plan to notify the registrar's office by April 1 of the year in which he expects to receive the degree.

MEDICAL TECHNOLOGY

To qualify for the 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 Mr. Gordon Van Harn. The following courses are prescribed: Biology 121, 122, 221, 222, and 336; Chemistry 103, 104, 253, 254; one mathematics course from 109, 111, or 205; English 100; History 101 or 102; one course in philosophy; one course in religion and theology; one additional course from history, philosophy, religion and theology, and Interdisciplinary 100; two courses from economics, political science, and

foreign culture including one from English or American literature; the total of one course unit credit from the core courses in speech and basic physical education; and one foreign language through the first year college level, a requirement which may be fulfilled by two years of high school study.

A typical student program is as follows:

	COURSES
<i>First year</i>	
Biology 121, 122	2
Chemistry 103, 104	2
English 100	2
Foreign language (See paragraph above)	1
History 101 or 102	1
Interim	1
Physical education	½
<i>Second year</i>	
Biology 221, 222	2
Chemistry 201, 204, 253, 254, 301, or 302	2
Other required courses	4
Interim	1
Physical education	½
<i>Third year</i>	
Biology 336	1
Chemistry	1
Other required courses	4
Free elective	1
Interim, biology	1
<i>Fourth year</i>	
Internship in an accredited school of medical technology.	

THE MINISTRY

Calvin College, the college of the Christian Reformed Church, maintains a close relationship with Calvin Theological Seminary, the seminary of the Christian Reformed Church. Calvin Theological Seminary is a fully accredited member of the American Association of Theological Schools and is maintained primarily to provide theological education for those aspiring to the ministry in the Christian Reformed Church. The seminary stands as a representative of the historic Reformed faith, its theological standpoint being formulated in the Belgic Confession, the Heidelberg Catechism, and the Canons of Dordt.

A student seeking to qualify for admission to Calvin Theological Seminary should meet all of the regular requirements for a Bachelor of Arts or a Bachelor of Science degree as well as the specific course requirements of the seminary. To qualify for admission as a degree candidate, he should earn a grade-point average of 2.67 or higher. A student may present a concentration in either a single department or in a group of related departments, as permitted in the college curriculum, provided a minimum of seven courses is presented in a single department. Concentrations of partic-

ular **relevance** to theological studies are: English, Greek, history, philosophy, **psychology**, and sociology.

Calvin Seminary requires the following courses for admission:

	COURSES
Economics, political science, and/or sociology	2
Education and/or psychology	2
English	3
Greek	4
History	3
Latin (May be met by two years in high school)	2
Modern foreign language (See paragraph below)	0-4
Science	2
Philosophy (excluding courses in logic)	3
Religion and theology	2
Speech	2

The seminary recommends that Calvin College students planning to enter the seminary satisfy the above requirements in part by including the following courses in their programs: Education 301-303, Greek 205-206, History 301, at least two philosophy courses chosen from the Intermediate or **Advanced** Historical Courses, and Speech 200 followed by either 203 or 240.

The foreign language requirement may be met by the successful study of **one** foreign language through the second-year college level or by demonstrated competence at this level. Dutch is recommended as the preferred language and German as the second choice, but other languages are acceptable.

Students desiring counsel should consult their departmental adviser; Mr. Jack Reiffer, the seminary registrar; or a member of the Preseminary Advisory Committee.

NURSING

Students interested in nursing have several options. They may follow a two and a half year program leading to a nursing diploma without a college degree. (Calvin and Blodgett Hospital provide this option.) They may also follow a four-year program leading to a Bachelor of Science in Nursing degree. (Calvin has a cooperative arrangement with Grand Valley State Colleges to provide this option.) One or two years of such programs typically may be completed at Calvin. Students interested in any of these programs should work out their programs with the nursing adviser, Miss Beverly Klooster.

The diploma program with Blodgett Memorial Hospital School of Nursing requires thirty months, the first nine months of which involve courses at the college are Biology 105 and 107. English 100 or, if not required, some other course in English; and Psychology 151 with Basic

Nursing I taught at the school of nursing. During the second semester students take Biology 106, Sociology 151, and Speech 100 at the college and Chemistry 101, Basic Nursing II and Nutrition at the school of nursing.

Upon successful completion of this program, the student is awarded a diploma in nursing by Blodgett Memorial Hospital School of Nursing and is eligible to write the examinations given by a state board of nursing. After passing these examinations a person is licensed to practice as a registered nurse.

Persons wishing to take this diploma nursing program must make application with both the director of the Blodgett Memorial Hospital School of Nursing and with the admissions office of Calvin College. Application should be made during the last part of the junior year of high school or early in the senior year. No application will be processed until *all* required forms and test scores are available to the director of the school of nursing (See page 23). Admission to this nursing program is determined by the admission committee of the school of nursing.

The Bachelor of Science in Nursing programs involve completion of the degree requirements at another institution. Increasingly, such programs are divided into two parts, a basic, two-year prenursing curriculum which may be completed at any qualified college and a two-year professional nursing part. Normally students apply for admission to such nursing schools during their sophomore year. Such programs are offered by the schools of nursing at Cornell and Columbia universities in New York, at Case Western Reserve in Ohio, and at Grand Valley State College in suburban Grand Rapids, with which Calvin has a close working relationship.

The core of the prenursing program for students preparing to transfer to Grand Valley is: four designated courses in biology, Chemistry 103-104, 253-254, a course in physics, Psychology 151, English 100 plus a literature course, a course in sociology, a course in developmental psychology, and three semesters of basic physical education. Students who have not completed four years of high school mathematics should complete Mathematics 101-102, 109, or another appropriate course.

Student may also complete the requirements for a Bachelor of Science in Nursing degree by transferring into four-year programs at such schools of nursing as University of Michigan, Michigan State University, or Wayne State University. Other schools in Michigan offering the degree are: Andrews University, Madonna College, Nazareth College, Mercy College and Northern Michigan University.

NATURAL RESOURCES

Calvin College, in cooperation with the University of Michigan, provides a five-year program leading to a Bachelor of Science in Letters and Natural Resources. Three years are spent at Calvin and two at the uni-

versity. At present there is no professional degree in this field. The adviser for all programs in natural resources is Mr. A. Bratt.

The basic courses required are: Biology 121, 122, 221, 222, 313, 341, 346, and Earth Science 251. Cognate courses typically include Chemistry 103-104; Physics 221-222 or Physics 112 and Chemistry 113; and Mathematics 111-112. Because there are different concentrations possible within the field of natural resources, individual programs must be worked out with the adviser. The liberal arts core requirements are the same as those specified for forestry.

A two-year program preparing for transfer to the wildlife management program at the university is also possible. Such students should complete: Biology 121, 222, 221, 222, and 321; Mathematics 111-112; and as many of the core requirements as possible. The university requires twelve semester hours in the humanities and twelve in the social sciences.

Other schools require similar preparation for transfer students. Employment opportunities are limited in the field of natural resources, however, for persons holding only a bachelor's degree. It is advisable to complete additional training at the graduate level. Persons interested in research or management positions are advised to complete a regular four-year program at Calvin, majoring in biology, then specializing in natural resources at the graduate level.

OTHER PROFESSIONAL PROGRAMS

Students interested in preparing for any profession should see the registrar of the college. Curricula can be arranged to enable such students to remain at Calvin for one or two years.



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Description of COURSES

The symbols F (Fall), I (Interim), and S (Spring) indicate when each course is offered. The term *core* designates those courses in each department which meet the general graduation or core requirements of the discipline. The few courses which carry more or less than a single course credit are indicated; all others carry a single course credit. Courses regularly offering honor sections are indicated; honor registration in any course is possible subject to the approval of the instructor and the chairman of the department. Interim courses numbered 1-19 and 101- are open to any student; those numbered 20-29 are open to sophomores and juniors; and those numbered 30 or higher are open to juniors and seniors.

Faculty members on leave of absence for the 1974-75 academic year are indicated by an asterisk (*), those on leave for the first semester by a dagger (†), and those on leave the second semester by double asterisks (**).

Interdisciplinary

100 CHRISTIAN PERSPECTIVES ON LEARNING. I. An introductory study of the relationship between Christian faith and learning. Beginning with a consideration of some contemporary alternatives and challenges to Christianity, the course proceeds to an examination of current statements of the nature of Christian faith and discipleship. The course culminates in an examination of how different views of Christian faith and its relation to culture produce different kinds of secular and Christian colleges. The ground is thus laid for a critical examination of one's academic experience at Calvin College. Taught by a committee representing the several disciplines and open to freshmen and sophomores. *Miss G. Huisman, Mr. H. Ippel, Mr. D. Jellema, Mr. T. Jager, Mr. B. Kreuzer, Mr. P. Lucasse, Mr. T. Minnema, Mr. D. Nykamp (chairman), Mr. D. Ra-*

maker, Mr. R. Stouwie, and Mr. J. Timmer.

234 THE CONTEMPORARY AMERICAN RELIGIOUS SITUATION. S. A description and analysis of current American religious developments in historical, sociological, and theological perspective. Institutional and non-institutional developments, within and outside of the Judeo-Christian tradition, will be examined. Satisfies as a *third* core course in Religion and Theology. *Mr. J. Primus and Mr. W. Smit.*

1974-75 INTERIM

The full description of interim courses is given on pages 125-142.

30 CHRISTIAN PERSPECTIVE ON THE STUDY OF MAN, *Staff.*

100 CHRISTIAN PERSPECTIVES ON LEARNING, *Staff.*

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| <p>101 THE ART OF PHOTOGRAPHY, <i>Mr. V. Ehlers, Mr. C. Overvoorde.</i></p> <p>102 ENVIRONMENTAL SCIENCE, <i>Mr. A. Bratt.</i></p> <p>103 NATURE LITERATURE, <i>Mr. G. Harper, Mr. G. Van Harn.</i></p> <p>104 CLASSROOM DEMONSTRATIONS IN THE TEACHING OF THE PHYSICAL SCIENCES, <i>Mr. H. Broene.</i></p> <p>105 ELEMENTARY, MY DEAR WATSON; THE SCIENCE OF CRIME DETECTION, <i>Mr. W. Van Doorne.</i></p> <p>107 CLASSICAL MYTHOLOGY, <i>Mr. E. Van Vugt.</i></p> <p>108 THE TEACHING OF COMPETENCE AND CREATIVITY IN THE LANGUAGE ARTS AND ENGLISH, <i>Mr. H. Baron, Mr. K. Kuiper.</i></p> <p>109 BASIC AFRIKAANS, <i>Mr. W. Lagerwey.</i></p> <p>110 INTERDISCIPLINARY PROBLEM SOLVING, <i>Mr. J. Bosscher, Mr. K. Kuipers.</i></p> <p>111 THE MIDDLE AGES IN MODERN NOVELS, <i>Mr. H. Rienstra.</i></p> <p>112 SEMINAR IN ENERGY SOURCES, <i>Mr. A. Kromminga.</i></p> | <p>113 WITCHES, WIZARDS, WARLOCKS, WEREWOLVES, AND WHOO-OOO?, <i>Mr. C. Vos, Mr. R. Youngs.</i></p> <p>114 MAY GOD GO TO SCHOOL? THE ROLE OF RELIGION IN PUBLIC EDUCATION, <i>Mr. H. Hoeks.</i></p> <p>115 TRAVEL ACCOUNTS AS LITERATURE, <i>Miss E. Borger, Mr. R. Tiemersma.</i></p> <p>116 INTRODUCTION TO BILINGUAL EDUCATION, <i>Mrs. E. Greenway.</i></p> <p>117 WORKSHOP IN OPEN EDUCATION, <i>Mr. D. Holquist.</i></p> <p>118 JOURNALISM WORKSHOP, <i>Mr. P. Oppewal, Mr. T. Ozinga.</i></p> <p>119 SAINTS OR SINNERS, <i>Mr. L. Teit-sma, Mr. L. Vos.</i></p> <p>125 PLANTS AND CIVILIZATION, <i>Mr. M. Karsten.</i></p> <p>135 FOLKLORE OF FOREIGN LANDS, <i>Mr. C. Hegewald</i></p> <p>136 PEELING THE ONION—WHICH IS YOU, <i>Mr. D. Oppewal.</i></p> <p>150 SEQUEL TO CPOL, <i>Mr. P. De Boer</i></p> <p>234 THE CONTEMPORARY AMERICAN RELIGIOUS SITUATION, <i>Mr. J. Primus, Mr. W. Smit.</i></p> |
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Art

Associate Professors E. Boevé (chairman), R. Jensen, C. Overvoorde.
Assistant Professors H. Bonzelaar, C. Huisman, N. Matheis.

THE ART PROGRAM at Calvin has been conceived within the framework of the liberal arts tradition. The department also offers a program for those who wish to teach art in the elementary and secondary schools. Students intending to major in the field must secure a minimum grade of C (2.0) in 207. The minimum major program is 207, 208, 209, 210, 231, 232, 320, 325, one course from 326, 310, or 311 and either 332 or 340. During the spring semester of their senior year all art majors will be required to present an art exhibition on campus. The major program for elementary and secondary education is: 207, 208, 209, 215, 216, 231, 232, 310 or 311, and 320 or 325; the major concentration is: 207, 208, 209, 216, 231, and 232. Advisers for these programs are Mr. Boevé, Mrs. Bonzelaar, and Mr. Jensen.

The Bachelor of Fine Arts (B.F.A.) program, with a greater professional emphasis, is fully described on page 45.

The core requirements in the fine arts may be met by 151, 215 (elementary education students), 231, 232, 332, or 340. Art 231 and 232 may be part of the teaching minor in the academic study of religions.

151 **INTRODUCTION TO ART.** F and S, core. **Lecture** and participation in the basic elements and principles of art. **Emphasis placed** upon the student's involvement and response to materials and ideas. **Not ordinarily** a part of major or minor program. *Staff.*

207 **TWO DIMENSIONAL DESIGN.** F and S. **Discovery** of design through the use of the basic art elements: line, color, shape, texture, space, value. *Mrs. H. Bonzelaar, Mr. C. Huisman, Mr. R. Jensen, Mr. N. Matheis.*

208 **THREE-DIMENSIONAL DESIGN.** F and S. **Construction, carving, and modeling** in various materials will be pursued in relation to problems in space, movement, balance, rhythm, and integration of the total form. Prerequisite: 207. *Staff.*

209 **DRAWING I.** F. Various media are used to explore the possibilities and problems in drawing from a creative point of view. Famous artists of the past and present will be studied to acquaint the student with a variety of approaches to the medium. Prerequisites: 207, 208. *Mr. C. Huisman, Mr. N. Matheis.*

210 **DRAWING II.** S. Continuation of Drawing I with emphasis on more personal expression. Prerequisites: 207, 208, 209. *Mr. C. Huisman, Mr. N. Matheis.*

215 **PRINCIPLES OF ART EDUCATION.** F and S, core. A course emphasizing methods and techniques of organizing and motivating art instruction on the elementary school level. It includes lectures, demonstrations, and art teaching experiences in the school situation. Research paper required. Recommended for elementary teacher training programs. *Mr. E. Boevé, Mrs. H. Bonzelaar, Mr. J. Jensen.*

216 **PRINCIPLES OF ART EDUCATION.** S, core. A course emphasizing methods and techniques of organizing and motivating art on the secondary school level. Media explored will emphasize clay, enameling, jewelry-making, weaving, batik, printmaking, and painting. Prerequisites: 207, 208, 209. *Mr. R. Jensen.*

231 **AN INTRODUCTION TO THE HISTORY OF THE FINE ARTS.** F, core. A survey of the history of architecture, painting, and sculpture in Ancient, Medieval, and Renaissance times. A study of the character of ancient art from Egypt 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. *Mr. E. Boevé.*

232 **AN INTRODUCTION TO THE HISTORY OF THE FINE ARTS.** S, core. Continuation of 231. The study of painting from 1500 to the present. *Mr. E. Boevé.*

310 **SCULPTURE.** S. Exploration of traditional and contemporary sculpture material. Application of their use and control for personal expression. Prerequisites: 207, 208, 209, 210. *Mr. C. Huisman.*

311 **CERAMICS.** S. Creation and study of ceramic forms. Exploration of the expressive and functional possibilities of the media. History of ceramics from the pre-Columbian times to the present. Prerequisites: 207, 208, 209, 210. Not offered 1974-75.

312 **SCULPTURE II.** Continued exploration of materials and techniques discovered in 310, with the opportunity for an in-depth study of such areas as carving, casting, construction, and modeling. Prerequisite: 310. *Mr. C. Huisman.*

313 **CERAMICS II.** Continued exploration of the chemical composition of clay bodies, glazes, and stains. Prerequisite: 311. *Mr. C. Huisman.*

320 **PRINTMAKING.** F and S. An introduction to the four basic printmaking media—relief, intaglio, serigraphy, and planography—through slide presentations, lectures, readings, and demonstrations. Each student will explore in depth one or two of the basic media in the print studio. Prerequisites: 207, 208, 209, 210. *Mr. C. Overvoorde.*

321 **PRINTMAKING II.** Continued development of the visual ideas and the techniques of relief, intaglio, serigraphy,

and planography. Continuation of work in intaglio can lead to exploring various sub-techniques—aquatint, hard ground, soft ground, engraving, mezzotint, and drypoint. Other options are also open. Prerequisite: 320. *Mr. C. Overvoorde.*

325 PAINTING I. F. and S. A study of the tradition in painting, emphasizing techniques and methods of communicating ideas visually. Studio work will give opportunity to experiment in various techniques and subjects. Prerequisites: 207, 208, 209, 210. *Mr. N. Matheis, Mr. C. Overvoorde.*

326 PAINTING II. F and S. Continuation of 325. Prerequisites: 207, 208, 209, 325. *Mr. N. Matheis, Mr. C. Overvoorde.*

327 PAINTING III. A study of painting techniques not studied in 326 and of methods such as tempera, fresco, varnish, for communicating ideas visually. Studio work provides opportunity for developing a more personal expression than is available in 325 and 326. Prerequisite: 326. *Staff.*

332 HISTORY OF DUTCH PAINTING. F, core. A historical survey of Dutch painting from the Gothic to modern times. Emphasis on the images created and the ideas expressed by the major painters such as Van Eyck, Bosch, Brueghel, Rubens, Rembrandt, Van Gogh, and Mondrian. *Mr. C. Overvoorde.*

340 CONTEMPORARY PAINTING AND ARCHITECTURE. S, core. A study of painting from Impressionism to the present with emphasis on Expressionism, Abstractionism, Non-objectivism, and Abstract Ex-

pressionism. Architecture is studied in relation to programming, technology, materials, and site, beginning with Sullivan, Eiffel, and Gaudy and continuing into the twentieth century with Wright, Le Corbusier, Mies vander Rohe, and Saarinen. Outside reading and papers will be required. *Mr. E. Boevé.*

390 INDEPENDENT STUDY. F, I, S. A student wishing to register for the interim must submit a project to the chairman for his approval.

395 SEMINAR AND EXHIBITION. 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, the writing of a scholarly statement of the candidate's philosophy of art, a study of exhibitions in art galleries and museums, and the presentation of a one-man show. Prerequisite: senior status and a concentration in art. *Staff.*

1974-75 INTERIM

The full description of interim courses is given on pages 125-142.

- 10 FORMS IN FIBERS, *Mrs. H. Bonzeelaar.*
- 11 COLLAGE: THE MODERN MEDIUM, *Mr. N. Matheis.*
- 30 CINEMATOGRAPHY AS AN ART FORM, *Mr. R. Jensen.*
- 31 SCULPTURAL FORMS IN CLAY, *Mr. C. Huisman.*

The following interdisciplinary course is also offered by a member of this department.

- 101 THE ART OF PHOTOGRAPHY, *Mr. V. Ehlers, Mr. C. Overvoorde.*

Astronomy

STUDENTS INTERESTED in graduate work in astronomy should major in physics and should plan their program with the chairman 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. Van Till.

110 PLANETS, STARS, AND GALAXIES. F and S, physical science 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. *Mr. Van Till, Mr. M. Vanderhill.*

390 INDEPENDENT STUDY. F, I, S, half or full course. Independent readings and research in astronomy. Prerequisite: permission of the chairman. *Staff.*

Biology

Professors A. Bratt (chairman), A. Gebben, B. Ten Broek, G. Van Harn
Associate Professors J. Beebe, M. Karsten, B. Klooster
Assistant Professor H. Bengelink

VARIOUS PROGRAMS of concentration in biology prepare a student for graduate study, for high school teaching, and for professional training in medicine and related fields. To be admitted to a concentration in biology a student must have a minimum average of C (2.0) in 121 and 122 or in an equivalent program approved by the department.

The major program requires 121, 122, 221, 222; at least one investigative course; two additional 300-level courses; and 395, Biological Perspectives. Required cognates include either Mathematics 111-112 or Mathematics 205-206 or a year of college physics, and the completion of a second year of college chemistry. Students who have previously been admitted to a major in the department may satisfy the requirements designated in earlier catalogs.

The secondary school teaching major is essentially the same except that an additional 300-level course is required. The required cognates constitute a minor in the physical sciences. Prior to the internship semester, a student must successfully complete a screening test administered by the department. The elementary teacher education adviser is Mr. Vernon Ehlers.

The core requirement in biology may be met by a year of Advanced Biology in high school, by both Biology 105 and 106, or by any other course in biology.

NURSING PROGRAM COURSES

105 INTRODUCTORY HUMAN ANATOMY AND PHYSIOLOGY. F. An introduction to the study of human biology, including elements of anatomy, histology, and physiology. *Staff.*

106 INTRODUCTORY HUMAN ANATOMY AND PHYSIOLOGY. S. Continuation of 105. *Staff.*

107 INTRODUCTORY MICROBIOLOGY. F. An introduction to the principles and

techniques of microbiology, with emphasis on the bacteria. *Miss B. Klooster.*

GENERAL COLLEGE COURSES

111 BIOLOGICAL SCIENCE. F and S. An introduction to the principles and concepts of biology and the history and philosophy of biological thought for the general college student. Prerequisites: none, but Mathematics 109 and Physics 110 recommended. *Staff.*

115 HUMAN BIOLOGY. F and S. A study of the normal biological structure and function of man. (Previously 205). *Mr. G. Van Harn.*

116 FIELD BIOLOGY. F. An introduction to the study of the common plants and animals in their natural environment. The course will provide acquaintance with general concepts and methods used in field biology and will give experience in the identification of plants and animals and their inter-relationships. (Previously 206). *Mr. H. Bengelink.*

PROGRAM OF CONCENTRATION COURSES

Basic Courses

121 CELL BIOLOGY. F. A study of cellular, subcellular, and molecular structure and function. Cell theory is developed as a basis for study in other areas. *Staff.*

122 ORGANISM BIOLOGY. S. An introduction to the anatomy and physiology of plants and animals. Emphasis is on seed plants and vertebrate animals. Prerequisite: Biology 121. *Staff.*

221 GENETICS AND DEVELOPMENT. F. A study of the development of contemporary concepts of the gene and an introduction to the study of biological development, including both embryonic and post-embryonic systems. Prerequisites: Biology 121 and 122. *Staff.* Not offered 1974-75.

222 ECOLOGY AND EVOLUTION. S. An introduction to the study of biological populations and communities and contemporary concepts of organic evolution. Prerequisites: Biology 121, 122, 221. *Staff.* Not offered 1974-75.

251 ORGANISM BIOLOGY I — ANIMAL STRUCTURE AND FUNCTION. F. A study of animal morphology and physiology

with emphasis on the vertebrate organism. Principles of homeostasis and complementarity of structure and function are emphasized. Prerequisites: Biology 151 and 152. *Staff.* Not offered after 1974-75.

252 ORGANISM BIOLOGY II — PLANT STRUCTURE AND FUNCTION. S. An introduction to the anatomy and physiology of plants with emphasis on the seed plants. Prerequisites: Biology 151, 152. *Staff.* Not offered after 1974-75.

261 ANIMAL DIVERSITY. F, quarter course. A systematic study of the classification, morphological patterns, and adaptations of invertebrates and vertebrates. Prerequisites: Biology 152. *Mr. Bratt.* Not offered after 1974-75.

262 PLANT DIVERSITY. S, quarter course. A systematic study of the classification, morphological patterns, and adaptations of vascular and non-vascular plants. Prerequisites: Biology 152. *Mr. A. Gebben.* Not offered after 1974-75.

INVESTIGATIVE COURSES

Prerequisites for all investigative courses include Biology 121, 122, 221, and 222.

350 INVESTIGATIONS IN THE DIVERSITY OF ORGANISMS. F. A systematic study of the classifications, morphological patterns, adaptations, and evolution of plants and animals. *Mr. A. Bratt and Mr. A. Gebben.* Not offered 1974-75.

351 INVESTIGATIONS IN GENETICS AND DEVELOPMENT. S. Laboratory studies of genetic and developmental phenomena of selected organisms. *Mr. J. Beebe and Mr. B. Ten Broek.* Not offered 1974-75.

352 INVESTIGATIONS IN ECOLOGY. F. Laboratory and field studies of biological populations and communities. *Mr. A. Gebben.* Not offered 1974-75.

ADVANCED COURSES

Prerequisites for all advanced courses include Biology 121, 122, 221, 222, or their equivalent.

303 DEVELOPMENTAL BIOLOGY. F. An introduction to the study of biological development, including both embryonic and post-embryonic systems. Additional prerequisite: Chemistry 254 or its equiv-

alent. *Mr. J. Beebe and Mr. B. Ten Broek*. Not offered after 1974-75.

313 **GENERAL ECOLOGY**. F. An introduction to the study of biological populations and communities, including discussions of biogeographic regions, the ecosystem concept, and interactions of organisms with the biotic and abiotic environment. *Mr. A. Gebben*.

321 **DEVELOPMENTAL AND COMPARATIVE ANATOMY**. S, one and a half courses. A study of the development and comparative anatomy of vertebrates. Four hours of lecture and two laboratory sessions per week. *Mr. H. Bengelink*.

326 **PLANT MORPHOLOGY — NON-VASCULAR PLANTS**. F. A consideration of structure, life cycles, and phylogeny of the algae, fungi, and bryophytes. *Mr. M. Karsten*.

331 **COMPARATIVE ANIMAL PHYSIOLOGY**. S. A comparative study of basic functional mechanisms of animals. Additional prerequisites: Chemistry 254 or equivalent. *Mr. G. Van Harn*.

332 **PLANT PHYSIOLOGY**. F. A study of plant function. Course topics include photosynthesis, photomorphogenesis, plant hormones, and the movement of water and solutes. Additional prerequisite: Chemistry 254 or equivalent. *Mr. J. Beebe*. Not offered 1974-75.

336 **GENERAL MICROBIOLOGY**. S. A study of the structure and function of micro-organisms with emphasis on the bacteria. Additional prerequisite: Chemistry 254 or equivalent. *Miss B. Klooster*.

341 **ENTOMOLOGY**. F. Study of the biology of insects, with emphasis on systematics. *Mr. A. Bratt*.

346 **PLANT TAXONOMY**. S. Identification, nomenclature, and classification of vascular plants. Lectures, laboratories, and field trips, including some Saturdays. *Mr. A. Gebben*.

SEMINAR AND RESEARCH COURSES

390 **INDEPENDENT STUDY**. F, I, S. Prerequisite: Approval of department.

395 **BIOLOGICAL PERSPECTIVES**. F, S. A study of the history of biology and its major ideas and concepts; a study of the biological literature; and a critical analysis of various philosophies of science. Prerequisite: senior status in biology program of concentration. *Staff*.

1974-75 INTERIM

The full description of interim courses is given on pages 125-142.

10 **GETTING TO KNOW THE BIRDS**, *Mr. H. Bengelink*.

21 **LABORATORY EXPERIENCES IN BIOLOGY**, *Mr. B. Ten Broek and Staff*.

30 **SUPERVISION OF LABORATORY WORK IN BIOLOGY**, *Mr. B. Ten Broek and Staff*.

31 **BIOLOGY AND CHEMISTRY OF HELPFUL AND HARMFUL PLANT PRODUCTS**, *Mr. A. Gebben and Mr. K. Piers*.

390 **INDEPENDENT STUDY IN BIOLOGY**, *Mr. J. Beebe*.

The following interdisciplinary interim courses are also offered by members of this department.

102 **ENVIRONMENTAL SCIENCE**, *Mr. A. Bratt*.

103 **NATURE LITERATURE**, *Mr. G. Harper, Mr. G. Van Harn*.

125 **PLANTS AND CIVILIZATION**, *Mr. M. Karsten*.

Chemistry

Professors H. Broene, T. Dirkse, W. Van Doorne, E. Wolthuis (chairman)
Associate Professors R. Albers, K. Piers

PREREQUISITE TO BEING admitted to a concentration in chemistry is a minimum average of C (2.0) in 103, 104, and 201.

For students who do not plan to pursue graduate study in chemistry, additional courses required are: 277-278 and either 253-254 or 301-302. Required cognates are Mathematics 111-112 and a year of college physics.

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 eleven courses: 103-104, 201, 277-278, 301-302, 305, 309, 310, and 303 or at least one approved chemistry interim course; Mathematics 111-112, 211-212; Physics 126, 225, 226 or 123, 124, 225. A reading knowledge of German is required and of French is recommended.

The nine-course chemistry major for teacher education students includes 103-104, 201, 204 or 277, 253-254 or 301-302, two courses in physics other than 110 or 112, and one chemistry course chosen from 278, 305, 309, 310, or an approved interim course. The teaching minor is 103-104, 204, 253-254 or 301-302, and either an elective or an approved interim course.

The teaching group major in chemistry and physics consists of Chemistry 103-104 and 253-254 or 301-302; Physics 123, 124, 225, and 226; and two and a half courses in chemistry and/or physics which are approved by the Science Division Education Coordinator. Recommended courses include: Chemistry 201, 277, 278, Physics 381, and 382.

The Science Division Education Coordinator and Elementary Education Adviser is Mr. Vernon Ehlers of the Physics Department.

101 CHEMISTRY FOR NURSES. S. A one-semester survey of inorganic, organic, and biological chemistry as applied in the field of medicine. Open only to students in the Blodgett Hospital nursing program. *Mr. T. Dirkse.*

103 GENERAL CHEMISTRY. F. A study of the basic principles of chemistry, with emphasis on the laws of chemical combination, theories of atomic structure and chemical bonding, the periodic law, kinetic theory, and chemical and physical equilibria. Laboratory. A high school chemistry course is strongly recommended. *Staff.*

104 GENERAL CHEMISTRY. S, core. A continuation of 103, with emphasis on acid-base theory, reaction rates, ionic equilibria, redox reactions, electrochemistry, and nuclear chemistry. The laboratory work involves the systematic separation and identification of cations and anions. Laboratory. Prerequisite: 103. *Staff.*

113 FUNDAMENTALS OF CHEMISTRY. F. This course is intended for elementary education students and for those who need only one course in general chemistry to satisfy various paramedical professional requirements. 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, and periodicity. Laboratory. *Mr. R. Albers.*

114 INTRODUCTION TO ORGANIC AND BIOCHEMISTRY. S. A study of the fundamental classes of organic compounds, their syntheses and reactions, followed by a survey of compounds and chemical changes occurring in living systems, of photosynthesis, metabolism, respiration, etc. Laboratory. Prerequisite: 113. *Mr. R. Albers.*

201 QUANTITATIVE ANALYSIS. F. A study of the theory and practice of titri-

metric and gravimetric methods of analysis. Laboratory. Prerequisite: 104. *Mr. T. Dirkse.*

204 INTRODUCTORY THEORETICAL CHEMISTRY. S. A study of the states of matter, properties of solutions, thermodynamics, chemical kinetics, and the colloidal state. This course treats some of the topics also covered in Chemistry 277-278, but is designed for students who have not had Mathematics 111-112. Prerequisite: 104. *Mr. H. Broene.*

253 ORGANO-BIOCHEMISTRY. F. A study of organic compounds, reactions, and reaction mechanisms, emphasizing their biochemical significance. Laboratory. Prerequisite: 104. *Mr. E. Wolthuis.*

254 ORGANO-BIOCHEMISTRY. S. A continuation of 253, concluding with a study of the chemistry of metabolism and the application of quantitative methods to biochemical analyses. Laboratory. Prerequisite: 253. *Mr. E. Wolthuis.*

277 PHYSICAL CHEMISTRY. F. A study of the kinetic theory as applied to gases, liquids, and solids; introduction to thermodynamics. Prerequisite: 201, Mathematics 112, and a high school physics course. *Mr. H. Broene.*

278 PHYSICAL CHEMISTRY. S. A continuation of 277, with a study of electrochemistry, chemical thermodynamics, and kinetics. Laboratory. Prerequisite: 277. *Mr. T. Dirkse.*

301 ORGANIC CHEMISTRY. 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, and preferably 201. *Mr. K. Piers.*

302 ORGANIC CHEMISTRY. S. A continuation of 301. Laboratory. Prerequisite: 301. *Mr. K. Piers.*

303 BIOCHEMISTRY. F. A study of proteins, carbohydrates, lipids, enzymes, coenzymes, hormones, vitamins, metabolism, biosynthesis, and bioenergetics.

Laboratory. Prerequisite: 302. *Mr. R. Albers.*

305 ORGANIC SYNTHESIS AND ANALYSIS. F. Lectures consist of a study of selected topics in advanced organic chemistry. Laboratory work consists of literature searches on assigned multi-step syntheses, followed by the preparation of the required compounds, and chemical and instrumental analyses at various stages of the syntheses. Prerequisite: 302. *Mr. E. Wolthuis.*

309 ADVANCED QUANTITATIVE ANALYSIS. S. A study of optical, electrometric, chromatographic, and radiochemical methods of analysis, with emphasis on their theoretical bases. Laboratory. Prerequisites: 201, 277. *Mr. T. Dirkse.*

310 ADVANCED INORGANIC CHEMISTRY. S. A study of the chemical elements from the standpoint of periodicity and the nature of chemical bonding. Crystal field theory and ligand field theory are discussed in connection with the chemistry of the transition elements. Laboratory. Prerequisite: 278. *Mr. W. Van Doorne.*

390 SENIOR RESEARCH. S. Library and laboratory research on an assigned problem. Open only to approved seniors majoring in chemistry. *Staff.*

395. SEMINAR. F and S. Meets one hour per week for discussion of selected topics. The program features visiting speakers, student reports on projects and senior research, staff presentations of their research, and discussion of topics of general interest. All juniors and seniors in the chemistry program are advised to participate. *Staff.*

1974-75 INTERIM

The full description of interim courses is given on pages 125-142.

30 ADVANCED INTERMEDIARY METABOLISM, *Mr. R. Albers.*

31 CHEMISTRY AND BIOLOGY OF HELPFUL AND HARMFUL PLANT PRODUCTS, *Mr. A. Gebben and Mr. K. Piers.*

301 WHAT'S IN THE STUFF WE BUY?, *Mr. T. Dirkse, Mr. E. Wolthuis.*

390 INDEPENDENT STUDY, *Staff.*

The following interdisciplinary interim courses are also offered by members of this department.

104 CLASSROOM DEMONSTRATIONS IN

105 THE TEACHING OF THE PHYSICAL SCIENCES, *Mr. H. Broene.*
ELEMENTARY, MY DEAR WATSON;
THE SCIENCE OF CRIME DETECTION, *Mr. W. Van Doorne.*

Classical languages

*Professors G. Harris, R. Otten (chairman), R. Wevers
Assistant Professor E. Van Vugt*

THE DEPARTMENT OFFERS THREE programs of concentration: Classics, Greek, and Latin. The Classics program is designed for graduate studies, the Greek for pre-seminarians, the Latin for those intending to teach the language at the secondary school level. Modified concentrations are available to other students.

The Classics program requires fourteen courses and one interim, including six elementary or intermediate courses chosen from: Latin 201-202, Greek 101-102, 201-202, 203-204; six intermediate or advanced courses selected from: Latin 205-206, 301-302, 303-304; Greek 201-202, 203-204, 301, 302; and two courses in ancient history (Greek 311 and Latin 312, or History 301 and an interim). Reading competence in French and German is strongly recommended.

The Greek program requires eight courses selected from: Greek 101-102, 201-202, 203-204, 205, 206, 301, 302, 311, Latin 312, and History 301. The recommended program for pre-seminarians is the following: Greek 101-102, 201-202 or 203-204, 205, 206, 311 and Latin 312 or History 301 and a 300-level Greek course.

The recommended Latin program, which prepares for a secondary teaching certificate, includes 101-102, 201-202, 205-206, 301-302, 303-304, 312, and two approved interims, one of which should be in either classical mythology or classical literature in translation. The specific nine-course program depends on the student's high school preparation. The teacher education adviser is Mr. Van Vugt.

A Latin teaching minor requires five courses beyond the 100 level and an approved interim.

Students who have completed one year of high school Latin should enroll in Latin 101; two years in 201; three years, in either 202 or 205; more than three years, in 205 or 206. Those who have completed one year of college Latin should enroll in 201.

The core requirements in the fine arts may be met by Greek 202, 204, 301, 302, any Latin course numbered 202 through 304, and desig-

nated interims. Interdisciplinary 107, Classical Mythology, may be part of the teaching minor in the Academic Study of Religions.

GREEK

101 **ELEMENTARY GREEK.** F. Text: Crosby and Schaeffer, *An Introduction to Greek*, Mr. G. Harris, Mr. R. Wevers.

102 **ELEMENTARY GREEK.** S. Continuation of 101. Completion of the text and the reading of the first book of Xenophon's *Anabasis* or its equivalent. Mr. G. Harris, Mr. R. Wevers.

201 **INTERMEDIATE GREEK A.** F. Readings in the early dialogues of Plato. Special emphasis is put on gaining reading proficiency in Greek prose. Prerequisite: 102. Not offered 1974-75.

202 **INTERMEDIATE GREEK A.** S, core. Readings in Homer's *Iliad*. Attention is given to the characteristics of Homer's world. Prerequisite: 201 or 203. Not offered 1974-75.

203 **INTERMEDIATE GREEK B.** F. Readings in Herodotus. Special emphasis is put on gaining reading proficiency in Greek prose, with some attention to the characteristics of Herodotus as historian in relation to Thucydides. Prerequisite: 102. Mr. R. Wevers.

204 **INTERMEDIATE GREEK B.** 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: 203 or 201. Mr. R. Wevers.

205 **NEW TESTAMENT GREEK: THE GOSPELS.** F. 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 everywhere emphasized. Prerequisite: 102. Mr. R. Otten and Staff.

206 **NEW TESTAMENT GREEK: THE EPISTLES.** S. A study is made of some of the Pauline Epistles. Prerequisite: 205. Staff.

301 **PLATO'S REPUBLIC.** F, core. The Greek text is studied. This course aims at an understanding and evaluation of Plato's views as presented especially in the *Republic*. Prerequisite: Four courses in Greek. Mr. G. Harris.

302 **GREEK DRAMA.** 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. Mr. G. Harris.

311 **GREEK HISTORY.** F. The political, social, and cultural history of the Greek city-status up to the time of the Roman conquest. Some attention is also given to the history of the Near and Middle East. Not offered 1974-75.

LATIN

101 **ELEMENTARY LATIN.** F. For students who have 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. Mr. R. Otten.

102 **ELEMENTARY LATIN.** S. 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. Staff.

201 **INTERMEDIATE LATIN.** F, honor sections. A thorough review of the essentials of grammar will accompany the reading of selected Latin prose. Prerequisite: two units of high school Latin or two courses of college Latin. Staff.

202 **INTERMEDIATE LATIN: VERGIL AND THE ANCIENT EPIC.** S, core, honor sections. A study of the *Aeneid* and the ancient epic in translation. Selected books in the *Aeneid* will be read in Latin with a study of the prosody of Vergil.

Prerequisite: three units of high school Latin or three courses of college Latin.
Staff.

205 READINGS IN LATIN LITERATURE. F, core. Intensive reading in the major writers of prose from the Late Republic to the Early Empire. Collateral readings in the literary history of the period. Prerequisite: 202. *Mr. R. Otten.*

206 READINGS IN LATIN LITERATURE. S, core. Intensive reading in the major writers of poetry from the Late Republic to the Early Empire. Collateral readings in the literary history of the period. Prerequisite: 202. *Staff.*

301 LATIN PHILOSOPHICAL LITERATURE: LUCRETIVS AND SENECA. F, core. Selections from Lucretius and Seneca, designed to portray some of the major ethical and political issues raised in Roman thought. Collateral reading and reports. Prerequisite: 205 or 206. Alternates with 303. Not offered 1974-75.

302 LATIN PHILOSOPHICAL LITERATURE: CICERO AND AUGUSTINE. S, core. Readings in Cicero and Augustine, selected to complete the survey begun in 301 and to present the first major Christian critique of classical thought. Collateral readings and reports. Prerequisite: 205 or 206. Alternates with 304. Not offered 1974-75.

303 LATIN LYRIC POETRY. F, core. A study of Latin lyric poetry from Catullus through the elegiac poets, with some at-

tention to early Christian and medieval poetry. Collateral reading and reports. Prerequisite: Latin 205 or 206. Alternates with Latin 301. *Mr. R. Otten.*

304 TACITUS AND PLINY. S, core. Readings in the historical works of Tacitus and the correspondence of Pliny as sources and commentary on the political issues and movements of the Early Empire. Collateral reading and reports. Prerequisite: Latin 205 or 206. Alternates with Latin 302. *Mr. R. Otten.*

312 ROMAN HISTORY. S. The history of Rome from the foundation of the city to A.D. 565, the death of Justinian. The emphasis falls on the development of the constitution and its effect upon, and how in turn it was affected by, the expansion of Rome over the Mediterranean. Economic, social, and literary history studied in their relation to the political. The decline of paganism and the rise of Christianity are viewed in their relation to each other. Prerequisite: Greek 311. Not offered 1974-75.

1974-75 INTERIM

The full description of interim courses is given on pages 125-142.

10 GOD, MAN, AND THE HUMAN COMMUNITY, *Mr. G. Harris.*

The following interdisciplinary interim course is offered by a member of this department.

107 CLASSICAL MYTHOLOGY, *Mr. E. Van Vugt.*

Dutch

Professors W. Bratt (chairman, Department of Germanic Languages), W. Lagerwey (program adviser), Queen Juliana Professor of Language and Culture of the Netherlands.

PREREQUISITE to concentration in Dutch is a minimum average of C (2.0) in 101, 102, 201, and 202 for students without a background in the language or in 203 and 204 for those with. In addition to this basic language foundation a student must complete three courses from the 300 level and two interims approved by the department.

101 **ELEMENTARY DUTCH. F.** An introductory course in the comprehension and use of spoken and written Dutch. *Mr. W. Lagerwey.*

102 **ELEMENTARY DUTCH. S.** Continuation of 101. *Mr. W. Lagerwey.*

201 **INTERMEDIATE DUTCH. F.** Selected readings of modern Dutch prose and poetry. Review of grammar and syntax. *Mr. W. Lagerwey.*

202 **INTERMEDIATE DUTCH. S.** Continuation of 201. *Mr. W. Lagerwey.*

203 **ADVANCED DUTCH. F, core.** A course intended to serve students who already have some knowledge of the Dutch language but who are deficient in their ability to speak, comprehend, and write the language.

204 **ADVANCED DUTCH. S, core.** A continuation of 203.

305 **DUTCH CLASSICS. Core.** Study and discussion of several Dutch literary

texts representative of the classical and modern periods of Dutch literature.

306 **DUTCH CLASSICS. Core.** A continuation of 305.

307 **READINGS IN DUTCH CHURCH HISTORY. F.** A study in the Dutch language of source documents pertaining to the history of the Reformed churches in the Netherlands during the period 1450-1700.

308 **READINGS IN DUTCH CHURCH HISTORY. S.** A continuation of 307 for the period 1700-1945.

309 **NETHERLANDS CIVILIZATION. A** study conducted in the Dutch language of several important aspects of Netherlandic civilization: language, literature, history, religion, art, architecture, social structure, and education.

1974-75 INTERIM

The full description of interim courses is given on pages 125-142.

30 **INTENSIVE COURSE IN SPOKEN DUTCH, Mr. W. Lagerwey.**

Earth science, geography, geology

Professor V. Ehlers (chairman, Department of Physics)
*Associate Professor *C. Menninga*

Students preparing for an elementary school certificate in general science studies must take 113; those preparing in social studies may take 101 or 113. A three-course sequence consisting of 113, 201, and 210 may be applied to a group concentration in either general science studies or social studies. For those selecting only one course, 113 is recommended for students expecting to teach in the primary grades, and 101 for those in the intermediate grades.

Students preparing to teach science at the junior high level should take 113 or 251-252. Those wishing to qualify for teaching earth science should take Geology 251-252, Astronomy 110, and an approved elective. Geology 251-252 satisfies the natural science core requirement.

101 **INTRODUCTION TO GEOGRAPHY. F and S.** A study of several aspects of geography — cultural, economic, and

physical — in the context of world regional studies. The course seeks to develop a geographic perspective on cur-

rent ecological and demographic problems using the principles and procedures of the discipline. *Mr. G. Oosterman.*

113 EARTH SCIENCE. F and S. A study of the physical characteristics of the earth. It includes consideration of the place of earth in space, the structure of earth's crust and interior, rocks and minerals, and processes giving rise to changes in earth's crustal and surface features. Includes laboratory. *Mr. O. Schipper.*

201 INTRODUCTION TO CULTURAL GEOGRAPHY. F. A study of man's interaction with his environment, including his climatic and physiographic setting. Consideration of the geographer's approach to gaining, organizing, and displaying information. Prerequisite: 113. *Mr. G. Oosterman.*

210 GEOGRAPHY OF NORTH AND SOUTH AMERICA. S. A comparative study of the physical, cultural, and economic aspects of both North and South America. Ecological and demographic factors will

be considered in some detail. *Mr. G. Oosterman.*

251 PHYSICAL GEOLOGY. F. 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; processes producing geological changes; earth as a representative planetary body in space. Includes laboratory. Prerequisite: previous or concurrent study in chemistry. *Mr. K. Bruder.*

252 HISTORICAL GEOLOGY. S. 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. Includes laboratory. Prerequisite: 251. *Mr. Menninga.* Not offered 1974-75.

390 INDEPENDENT STUDY IN GEOLOGY. Full course or half course. Prerequisite: permission of department.

Economics and business

Professor D. Pruis (acting chairman)
Associate Professor G. Monsma
Assistant Professors E. Dykema, K. Kuipers
Instructor R. Medema

Principles of Economics (151) must be completed with a minimum grade of C (2.0) for admission to any of the departmental programs of concentration. An appropriate concentration must be selected from the three listed below: the economics concentration provides thorough coverage of economic theory and analysis, the business economics concentration is the usual business administration program, and a group concentration may be arranged to accommodate particular interests. For teacher education, requirements are given below with each concentration.

Economics concentration requirements are 151, 207, 321, 322, six other courses (five for teacher education) including at least four (three for teacher education) from 331-342 and 400, and the mathematics cognate.

Business Economics concentration requirements are 151, 207, 212, 313, 316, 318, 321, 322, two other courses including at least one from 331-339

and 395 (one other course from 331-339 and 395 for teacher education), and the mathematics cognate.

Economics Group concentration requirements are 151, 207, 321 or 322, three other economic courses (four for teacher education), and three courses in either history, political science, psychology, or sociology. For teacher education, one additional social science course is required. One approved interim course may be included in a program of concentration.

The minimum mathematics cognate requirement is 205 and 206, which should be completed in the sophomore year. In view of the importance of mathematics in the study of economic theory and its applications in economic and business analysis, Mathematics 111, 112, 211, 212, and 343 are recommended. In the cognate requirements, 111 may be substituted for 205, and 343 may be substituted for 206.

An interdisciplinary group concentration involving six courses in economics and business and six courses in mathematics is possible. Interested students should consult the chairman.

For teacher education, an appropriate minor should be approved by the chairman. Economics minor requirements are 151, either 321 or 322, and four additional courses which may include two interims. To accompany either the Economics or Business Economics concentration, a minor in mathematics or a group minor including mathematics may be arranged.

The core requirement in the social science is met by 151.

151 **PRINCIPLES OF ECONOMICS.** 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 and to prepare them for further work in economics, history, and government. *Staff.*

207 **INTRODUCTION TO FINANCIAL ACCOUNTING.** F. An introduction to accounting with emphasis on principles of asset valuation and income determination. *Mr K. Kuipers, Mr. D. Pruis.*

212 **FINANCIAL AND MANAGERIAL ACCOUNTING.** S. Continuation of Economics 207. Interpretation of published financial statements. Introduction to cost accounting and to reporting to management. *Mr. D. Pruis.*

307 **INTERMEDIATE ACCOUNTING.** F. A study of financial accounting theory and generally accepted accounting principles

applied to asset valuation, accounting for liabilities and stockholders' equity, related income determination problems, and preparation of corporate financial statements. Prerequisite: 212. *Mr. K. Kuipers.*

308 **ADVANCED ACCOUNTING.** S. Continuation of 307 with applications to accounting for partnerships, preparation of consolidated financial statements, and accounting for installment and consignment sales. Introduction to governmental or fund accounting. Prerequisite: 307. *Mr. K. Kuipers.*

309 **LAW IN BUSINESS.** F. 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. *Staff.*

312 **COST ACCOUNTING.** S. Principles and methods of accounting for manufac-

turing and operating costs, with emphasis on analysis and reporting to management to facilitate planning, control, and decision-making. Prerequisite: 212. *Mr. D. Pruis.*

313 BUSINESS ORGANIZATION AND MANAGEMENT. F. A study of the principles and problems of organization and management for optimal administration of the general management function in the firm, with emphasis on effective utilization of the human resources of the firm. Prerequisites: 151 and 207. *Mr. R. Medema.*

316 FINANCIAL PRINCIPLES. S. A study of the principles and problems involved in the optimal administration of the finance function in the firm, including financial aspects of the form of organization, and the allocation of capital to and within the firm. Prerequisites: 151 and 207. *Mr. K. Kuipers.*

318 MARKETING. S. A study of the principles and problems involved in the optimal administration of the marketing function in the firm, including production and promotional policy, price determination, and distribution channels. Prerequisite: 151. *Mr. R. Medema.*

321 THE NATIONAL INCOME. F. An intermediate course in macroeconomic theory which studies the theory of aggregate demand, the level of employment, the general level of prices, and economic growth. Prerequisite: 151. *Mr. E. Dykema.*

322 THE PRICE SYSTEM. S. An intermediate course in microeconomic theory, emphasizing the role of the price system in organizing economic activity and an evaluation of its efficiency and equity. Prerequisite: 151. *Mr. G. Monsma.*

331 CREDIT AND MONETARY THEORY. 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: 151. *Staff.*

334 INDUSTRIAL MARKETS AND PUBLIC CONTROL. S. A study of the structure, control, and market behavior of Amer-

ican industry, and the public policies for the control of economic power. Prerequisite: 151. *Staff.*

335 LABOR ECONOMICS. S. A study of the labor market and its relation to the economy as a whole, with emphasis on wage theory, the economic impact of trade unions, unemployment, social security, human capital formation, manpower policies, and public policy. Prerequisite: 151. *Mr. G. Monsma.*

338 INTERNATIONAL ECONOMICS. S. 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: 151. *Staff.*

339 THEORY OF PUBLIC FINANCE. S. A study of the economics of government expenditures, taxation, and debt, with emphasis on allocation of resources, income distribution, and level of employment and production in the economy. Prerequisite: 151. *Staff.*

342 HISTORY OF ECONOMIC THOUGHT. S. An examination of the development of economics ideas, mainly in the last two hundred years, in the context of the philosophical and historical conditions in which they emerged. Prerequisite: 151 or the permission of the instructor. *Staff.*

390 READINGS AND RESEARCH. F, I, S. Prerequisite: permission of the chairman.

395 ECONOMICS SEMINAR. F. A concentrated study of one or more significant problems in economics, designed primarily for majors planning to pursue graduate studies. Emphasis on oral and written reports and on extensive reading in current economic journals. Prerequisites: senior rank and consent of the instructor.

1974-75 INTERIM

The full description of interim courses is given on pages 125-142.

10⁺ FEDERAL INCOME TAXES, *Mr. K. Kuipers, Mr. D. Pruis.*

31 INTERNSHIP IN BUSINESS, *Mr. D. Pruis and Mr. K. Kuipers.*

Education

Professors G. Besselsen, N. Beversluis, J. De Beer, P. De Boer, D. Oppewal (chairman), J. Wiersma

Associate Professor P. Lucasse

Assistant Professors K. Blok, W. Hendricks, *D. Westra

Director of Teacher Certification and Field Services M. Strikwerda

THE VARIOUS TEACHER EDUCATION PROGRAMS are described in detail on pages 47-53. Prospective secondary teachers should consult with an adviser in the department in which they expect to major. The coordinator of secondary education is Mr. Philip Lucasse. Prospective elementary teachers should consult with Mr. William Hendriks, coordinator of elementary education.

The elementary teacher education program requires nine courses: 301, 303, 304, 305, 322; and, during the internship semester, 345 and 355. The secondary teacher education program requires seven courses: 301, 303, 304, and, during the internship semester, 346, and 356.

204 HISTORY OF AMERICAN EDUCATION. F and S. 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. Not offered 1974-75.

220 TEACHING ARITHMETIC IN ELEMENTARY SCHOOLS. Both content and methods in arithmetic as it is taught in the grades will be considered. Prerequisite: 301 or the equivalent. Not offered 1974-75.

301 PSYCHOLOGY OF EDUCATION. F and S, core. Orientation to the field of psychology. A study of the learner, the learning process, and the kinds of learning. Should be taken during the junior or senior year. Staff.

303 INTRODUCTION TO TEACHING. F and S. An analysis of the teaching-learning process in the classroom. Includes observation and participation in school activities. Prerequisite: concurrent registration 301. Staff.

304 PHILOSOPHY OF EDUCATION. F, S. An analysis of the assumptions, aims, and practices of two major educational

philosophies—experimentalism and essentialism—followed by an analysis of the theory and practice of Christian education. Readings in typical writers from all three perspectives. Study of how educational changes tend to reflect changed social and philosophical climates and of how to evaluate these changes in the light of a biblical perspective of man, society, and human calling in the world. Students will work out a biblical approach to the theory and practice of Christian education. Prerequisite: 301, 303, and Philosophy 153. Mr. H. Beversluis, Mr. D. Oppewal.

305 ELEMENTARY TEACHING METHODS. F and S. A study of the methods of teaching the various subjects taught in the elementary school. Prerequisite: 303. Staff.

307 TEACHING READING SKILLS IN CONTENT AREAS. F and S, one half course. An analysis of the problems encountered by students reading in typical expository texts; a presentation of the responsibilities and qualifications of teachers in content fields for applying principles of reading in daily assignments; demonstrations of techniques that can be used to meet the wide range of reading levels found in the average class-

room. Optional tutoring experiences. A recommended elective for students in secondary teacher education and any student interested in refining college-level reading skills. *Mrs. K. Blok, Miss N. Vander Ark.*

322 METHODS OF TEACHING READING IN THE ELEMENTARY GRADES. F and S. A study of the nature of the reading process and of the basic skills needed in learning to read; diagnostic reading tests; preparation of systematic instructional episodes. Reading research and field experience options. Prerequisites: Education 301 and 303; Speech 214 is recommended. *Mrs. K. Blok, Mrs. J. Kool.*

345 TEACHING INTERNSHIP FOR ELEMENTARY TEACHERS. F and S, three courses. Includes classes and seminars in teaching the various subjects offered in the elementary school. Prerequisites: approval of the department and a cumulative grade point average of C (2.0). *Staff.*

346 TEACHING INTERNSHIP FOR SECONDARY TEACHERS. F and S, three courses. Includes classes and seminars in teaching the various disciplines. Prerequisites: approval of the department, approval of the major department, cumulative grade point average of C (2.0). *Staff.*

355 SEMINAR IN ELEMENTARY TEACHING METHODS. F and S. Sections are taught in each area of elementary education. Each student will bring to the seminar his experiences and problems of relating education theory to classroom practice. Prerequisite: concurrent registration in 345. *Staff.*

356 SEMINAR IN SECONDARY TEACHING METHODS. F and S. Sections are taught in the academic disciplines and will focus on effective methods of teaching. Prerequisite: concurrent registration in 346. *Staff.*

1974-75 INTERIM

The full description of interim courses is given on pages 125-142.

- 10 INFORMAL CLASSROOMS, *Mr. G. Besselsen.*
- 11 WHAT'S CHRISTIAN ABOUT CHRISTIAN SCHOOLS, *Mr. H. Beversluis.*
- 12 PRACTICUM IN EDUCATION FOR UNDER ACHIEVERS, *Mrs. K. Blok.*
- 390 INDEPENDENT STUDY, *Staff.*

The following interdisciplinary interim courses are offered by members of this department.

- 136 PEELING THE ONION WHICH IS YOU, *Mr. D. Oppewal.*
- 150 SEQUEL TO CPOL, *Mr. P. De Boer.*

Engineering

*Professor J. Bosscher (chairman)
Associate Professor L. Van Poolen*

CALVIN COLLEGE offers a basic engineering program which, after subsequent study of approximately three semesters in an accredited school of engineering, can result in a bachelor's degree from each school attended. For details see pages 47 and 48.

101 GRAPHICAL COMMUNICATION AND CONCEPT DESIGN. F. Graphical techniques for spatial analysis; a study of basic topics in engineering and architectural drawing to provide facility in the transmission of ideas through accepted graphical means. Areas covered

include orthographic projection, free hand sketching, pictorial representation, auxiliary views, sections and conventions, and basic dimensioning; an introduction to the design process by means of lectures and assigned architectural or engineering projects. Readings are also as-

signed in design related areas of creative thinking, aesthetics, models, economics, and human satisfaction. *Staff.*

102 ENGINEERING COMMUNICATION, ANALYSIS AND DESIGN. S. one-half course. A continuation of 101 in which the graphical presentation culminates in the working drawing. The concept of a tolerance is added to that of dimensioning. Analysis tools such as graphical mathematics and data presentation including graphical algebra and calculus, the determination of empirical equations from experimental data, functional scales, and basic nomography are presented. An introduction to computer graphics is given. An engineering project is assigned to further enhance creative skills in concept design. Prerequisites: Mathematics 111, Engineering 101, and enrollment in Mathematics 108. *Staff.*

202 STATICS AND DYNAMICS. S. 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. Must be preceded or accompanied by Mathematics 211 and Physics 225 or, possibly, 211. *Mr. L. Van Poolen.*

205 PRINCIPLES OF MATERIALS SCIENCE. F. An introductory course in the science of engineering materials. Engineering properties are correlated with internal structures: atomic, crystal, micro, macro, and service environments: mechanical, electrical, thermal, chemical, magnetic and radiation. Laboratory experiments are used to emphasize principles. Prerequisite: Chemistry 103. *Mr. J. Bosscher.*

305 MECHANICS OF MATERIALS. F. Application of principles of mechanics to 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 theories of failure and energy methods.

Laboratory experiments are used to emphasize principles. Prerequisite: 202. *Mr. J. Bosscher.*

308 INTRODUCTION TO CIRCUIT ANALYSIS AND ELECTRONICS. S. An introduction to the theory of electronic circuits and devices and their applications. The following are included: basic A.C. circuit concepts; diode and transistor characteristics and applications; amplifiers; feedback circuits; oscillators; operational amplifiers and their applications; logic elements and digital circuits. This course assumes a prior knowledge of basic D.C. circuit concepts, including node and loop methods and transient circuits, but begins with a brief review of these topics. Individualized laboratory stations are utilized to emphasize basic concepts. Prerequisites: Mathematics 211 and Physics 225. *Staff.*

309 FLUID MECHANICS. F. Basic properties of real and ideal fluids. Fluid statics. Lagrangian and Eulerian descriptions of flow. Continuity, energy, and linear momentum equations in differential and integral forms for compressible and incompressible flows. One dimensional flow analysis. Introduction to boundary layer theory and one dimensional compressible flows. Dimensional analysis and laboratory experiments utilized to determine significant flow parameters. Prerequisites: Mathematics 212 and Physics 225 or, possibly, 222. *Mr. L. Van Poolen.*

310 THERMODYNAMICS. S. An introduction to concepts of work and heat, properties of a pure substance, first law, second law, entropy, thermodynamic relations, mixtures, and an introduction to statistical thermodynamics. Prerequisites: Mathematics 212 and Physics 225 or, possibly, 222. *Mr. L. Van Poolen.*

312 PRINCIPLES OF ANALOG COMPUTATION. F or S. half course. An introduction to the theory and techniques of analog computation, including computer solutions for representative forms of linear and non-linear differential equations. Includes introduction to iterative analog computation using the AD-256 computer. Prerequisites: Mathematics

212 or permission of the instructor. *Mr. J. Bosscher.*

314 **VIBRATION ANALYSIS.** 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: Mathematics 212 and Physics 225. *Mr. J. Bosscher.*

316 **HEAT TRANSFER.** S. An introduction to the analysis of steady and unsteady conduction, of free and forced convection, and of radiation modes of heat transfer. Laboratory experiments are used to emphasize principles. Prerequisite: Mathematics 212 and Physics 225. *Mr. L. Van Poolen.*

318 **CONTROL SYSTEMS ANALYSIS.** S. An introduction to linear feedback control theory, including transient and fre-

quency response; stability; systems performance; control modes and compensation methods. Hydraulic, electrical, pneumatic, and inertial components and systems are investigated and employed. Prerequisites: Mathematics 212 and Physics 225. *Mr. J. Bosscher.*

390 **INDEPENDENT STUDY.** F, I, S. Independent readings and research. Prerequisite: permission of the chairman. *Staff.*

1974-75 INTERIM

The full description of interim courses is given on pages 125-142.

36 **HEAT TRANSFER,** *Mr. L. Van Poolen.*

The following interdisciplinary interim course is offered by a member of this department.

110 **INTERDISCIPLINARY PROBLEM SOLVING,** *Mr. J. Bosscher, Mr. K. Kuipers.*

English

*Professors G. Harper (chairman), I. Kroese, K. Kuiper, P. Oppewall, H. Ten Harm-
sel, R. Tiemersma, J. Timmerman, S. Van Der Weele, C. Walhout, S. Wiersma
Associate Professor W. Holkeboer
Assistant Professors H. Baron, M. Walters, M. Zylstra*

Students may declare a major in English only after completing 100 and 200 with a minimum average of C (2.0). The recommended program is 303, 310, 311, 329 or 330, four other literature courses, and one interim.

Students who wish to be admitted to the teacher education program not only must meet the grade requirement in 100 and 200 but must also pass a screening test, which is given in November, April, and July. The recommended program for secondary education is: 100, 200, 202, 203, 310, 311, 313 or 315, 329, and 336. Students who have begun their concentrations in English are advised to follow this program when possible. The adviser with particular concern for these programs is Mr. K. Kuiper.

The recommended minor is 100, 200, 202, 203, 212, and 313 or 315. Interims may substitute for any course in this program except 100.

English 320 and 321 may be part of the teaching minor in the Academic Study of Religions.

The core requirements in written rhetoric may be met by 100 or by examination. The first core requirement in the fine arts is typically selected from 200, 202, 203, 212, and 303. Any literature course except 225 will satisfy the additional core requirements in the fine arts.

100 WRITTEN RHETORIC. F and S. A study of written English rhetoric, with extensive practice in writing. Certain designated sections emphasize tutorial teaching. *Staff*.

200 INTRODUCTION TO LITERATURE. F and S. A study of the forms and genres of literature, with critical exercises and selected readings. *Staff*.

202 A SURVEY OF ENGLISH LITERATURE. F. A comprehensive study of English literature from Chaucer through Johnson. The course is conducted intensively in the major authors rather than inclusively. *Staff*.

203 A SURVEY OF ENGLISH LITERATURE. S. A continuation of 202. The course proceeds from Wordsworth through Eliot. *Staff*.

212 AMERICAN LITERARY CLASSICS. F and S. A critical study of American masterpieces as the literary embodiment of the evolving minds, ways, and values of the American cultural process. Emphasis upon eight major authors. Not open to students who have had 310 or 311 or to English majors. *Staff*.

214 BLACK AMERICAN WRITERS. An intensive study of the selected works of major Black American writers against the background of the development of Black American writing. *Mr. P. Oppewall*.

225 CHILDREN'S LITERATURE. F and S. Through intensive reading this course develops the history of children's literature, some standards for evaluating children's books, and knowledge of some of the best literature for children. Prerequisite: English 100 or its equivalent. *Mrs. M. Zylstra*.

302 MEDIEVAL ENGLISH LITERATURE. F. A study of Chaucer's *Canterbury Tales* and *Troilus and Criseyde* as reflecting Chaucer's literary genius and the

major cultural phenomena of his time. Supplementary study in translation of *Beowulf*, *Gawain and the Green Knight*, and portions of *Piers Plowman*. *Mr. J. Timmerman*.

303 SHAKESPEARE. F and S. A study of selected works of William Shakespeare. *Staff*.

304 ENGLISH LITERATURE OF THE SIXTEENTH CENTURY. S. A study of the lyricists and sonneteers, the prose writers, and the dramatists (exclusive of Shakespeare). An intensive study of the poetry of Spenser and the drama of Marlowe. *Mr. S. Wiersma*.

305 ENGLISH LITERATURE OF THE SEVENTEENTH CENTURY. F. A study of important poetry and prose in England from Donne to Dryden, with particular emphasis upon the poetry of Donne, Herbert, Vaughan, Traherne, and Herrick, and upon the prose of Donne, Browne, and Taylor. *Mr. S. Wiersma*.

306 MILTON. S. An intensive study of the poetry and prose of John Milton. *Mr. G. Harper*.

307 ENGLISH LITERATURE OF THE EIGHTEENTH CENTURY. S. A study of English poetry and prose in the eighteenth century, with emphasis on the neo-classicists, Pope, Addison, Swift, and Johnson, and a study of the beginnings of the romantic outlook in Gray, Thomson, and Cowper. *Mr. S. Vander Weele*.

308 ENGLISH LITERATURE OF THE NINETEENTH CENTURY. F. A study of the Romantic writers of England in both poetry and prose, with intensive critical work on Blake, Wordsworth, Coleridge, Byron, Shelley, and Keats. *Mr. I. Kroese*.

309 ENGLISH LITERATURE OF THE NINETEENTH CENTURY. S. A continuation of 308. A study of the Victorian writers of England in both poetry and

prose, with intensive critical work on Tennyson, Browning, and Arnold among the poets, and Arnold, Newman, Huxley, and Ruskin among the prose writers. Not offered 1974-75.

310 AMERICAN LITERATURE. F. A study of important writings in the colonial and revolutionary periods, with emphasis upon the culture and writings of the New England group. *Staff*.

311 AMERICAN LITERATURE. S. A continuation of 310. Intensive study of Whitman and Twain. A survey of the realistic movement, the new poetry, and important twentieth-century fiction and criticism. *Staff*.

313 MODERN ENGLISH AND AMERICAN POETRY. S. A study of the lyric and dramatic poetry of England and America from 1890 to the present. *Mr. C. Walhout*.

314 THE ENGLISH NOVEL. S. A survey of the English novel from its beginnings through Conrad, with emphasis upon the art and thought of the major novelists. Special attention is paid to the development of realistic, romantic, epic, and symbolic strains in modern fiction. The course includes the reading of at least twelve novels. Prerequisite: English 200. *Miss H. Ten Harmsel*.

315 CONTEMPORARY ENGLISH AND AMERICAN FICTION. F and S. A study of English and American fiction, with their continental relations, from 1890 to the present. *Mr. P. Oppewall*.

318 STUDIES IN AMERICAN LITERATURE. S. Intensive studies of three or four American writers selected from different periods of American literary history, with the selection changed from year to year. Typical groupings are: Hawthorne, James, Faulkner; Whitman, Dickinson, Frost, Stevens; Thoreau, Twain, Ellison, Baldwin; and Melville, Hemingway, O'Neill. Prerequisites: 310, 311. Not offered 1974-75.

320 WORLD LITERATURE. S. A course of selected readings and lectures in the literature of non-English speaking people, ancient and modern, with special emphasis on the period from Dante to

Solzhenitsyn, and with particular attention to significant forms and themes. *Mr. S. Vander Weele*.

321 MODERN DRAMA. F. Plays by the following authors are read and discussed in relation to the major movements in modern drama: Ibsen, Shaw, Giraudoux, Pirandello, Brecht, Ionesco, Beckett, Behan, Delaney, Gelber, Genêt, Pinter. *Miss M. A. Walters*.

329 LINGUISTICS. F and S. A course that requires previous mastery of a traditional grammar as background to assigned readings in scholarly non-structural, structural, and transformational grammars. The course gives attention to assumptions informing the nomenclature, methodology, and scope of the assigned grammars. The course incidentally considers the relationship of these grammars to the study of composition and literature. *Staff*.

330 HISTORY OF THE ENGLISH LANGUAGE. 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. S. Wiersma*.

331 LITERARY CRITICISM. S. A course in critical theory, historically and normatively pursued. Analysis of the principal contributions to Western literary criticism, as well as some practice of criticism on very recent literature. Not offered 1974-75.

332 ADVANCED COMPOSITION AND RHETORIC. F. A practical course in advanced expository writing. Readings in the formal essay, with much systematic writing in such types of composition as description, the formal and informal essay, the informative and feature article, the editorial, and the book review. Open to students who have a B (3.0) in 100 and permission of the instructor. *Mr. S. Vander Weele*.

333 THE WRITING OF PLAYS, POEMS, AND STORIES. S. A course in the principles of composition of plays, poems, and stories. Works by contemporary authors

are analyzed in the light of these principles. Students will practice writing in all three forms. Admittance to the class may be granted by the instructor on the recommendation of the student's instructor in 100. Prerequisite: a grade of B (3.0) in 100. Staff.

336 TEACHING OF WRITING. F and S. An introduction to the variety of secondary school curricula in English with pedagogical assistance in the teaching of writing. Frequent exercises in composition and revision. Mr. H. Baron, Mr. R. Tiemersma.

390 READING AND RESEARCH. F, I, S. Prerequisite: permission of the chairman.

395 SEMINAR IN AMERICAN POETRY. F. A study of the poetry of William Carlos Williams and Wallace Stevens. Prerequisite: permission of the instructor. Mr. C. Walhout.

1974-75 INTERIM

The full description of interim courses is given on pages 125-142.

10 EPISODES IN FOUR POETIC TRADITIONS: THE SONNET, THE PAS-

TORAL ELEGY, THE ODE, AND THE BALLAD, Mr. I. Kroese.

11 C. S. LEWIS, Mr. S. Vander Weele.

12 WILLIAM FAULKNER, Mr. C. Walhout.

13 T. S. ELIOT, Mr. S. Wiersma.

14 EXPLORATIONS INTO RUSSIAN AND SLAVIC LITERATURE, Mrs. W. Holkeboer.

30 PROFESSIONAL JOURNALS IN ENGLISH LANGUAGES AND LITERATURE, Miss H. Ten Harmsel.

31 IMAGES OF WOMEN IN LITERATURE, Miss M. Walters, Mrs. M. Zylstra.

390 READING AND RESEARCH. F, I, S.

The following interdisciplinary interim courses are offered by members of this department.

103 NATURE LITERATURE, Mr. G. Harper, Mr. G. Van Harn.

108 TEACHING THE LANGUAGE ARTS, Mr. H. Baron, Mr. K. Kuiper.

115 TRAVEL ACCOUNTS AS LITERATURE, Miss E. Borger, Mr. R. Tiemersma.

French

Professor A. Otten (chairman, Department of Romance Languages)

Instructor E. Borger

Assistant C.-M. Baldwin

STUDENTS may declare for a program of concentration in French after having completed two units of college French with a minimum average grade of C (2.0). The program of concentration includes 201, 202, 217, 218, 311, 312, 313, 314, 321, and 322. The major program for prospective secondary teachers requires 201, 202, 217, 218, 321, 322, and three from the following: 311, 312, 313, 314, 372. The minor program for prospective secondary teachers requires 201, 202, 217, 218, 321, 322. Programs for students beginning French in college, including prospective secondary teachers, should be worked out with the chairman. Cognates in a second foreign language, art (231, 232), and English or American literature (202, 203, 212, 303) are recommended. A year-abroad program is available in Paris. All courses above 102 meet core requirements: 217, 218, 311, 312, 313, 371, and 372 meet core requirements in the fine arts.

LANGUAGE

101 **ELEMENTARY FRENCH. F.** An introductory course in the comprehension and use of spoken and written French. *Mrs. C.-M. Baldwin.*

102 **ELEMENTARY FRENCH. S.** Continuation of 101. Prerequisite to a program of concentration are 101 and 102. *Mrs. C.-M. Baldwin.*

201 **INTERMEDIATE FRENCH. F,** honor section. Further training in spoken and written French, study of the structure of the language, and reading of important literary texts. Conducting almost exclusively in French. *Staff.*

202 **INTERMEDIATE FRENCH. S.** Continuation of French 201. *Staff.*

205-206(Interim)-207 **INTERMEDIATE FRENCH. F, I, S.** A three-semester course intended for students who have completed two years of high school French with less than a C average or who have studied French in the tenth and eleventh grades. Admission to this course is by placement test administered at the time of fall registration. *Staff.*

321 **ADVANCED FRENCH. F,** half or full course. For the advanced student who wishes to improve his facility in the language to an exceptional degree, or who is preparing for graduate study or for the teaching of French. The student may register for either or both of the two sections offered, according to his need. He may thus complete the entire two-course sequence (321-322) over a two-year period. Section A stresses fluency in spoken French, through the use of a variety of oral activities such as topical discussions based on selected readings by contemporary authors, basic and idiomatic vocabulary drills, and pronunciation drills in the laboratory. Section B stresses competence in written French through the systematic study of vocabulary, grammatical structures, and a progression of written assignments designed to develop the student's capacity to write in the different genres, including the *dissertation*. Prerequisite: 202. *Mrs. C.-M. Baldwin.*

322 **ADVANCED FRENCH. S,** half or full course. Continuation of 321. *Mrs. C.-M. Baldwin.*

LITERATURE

French 217 or 218 is prerequisite to all other courses in literature.

217 **INTRODUCTION TO FRENCH LITERATURE. F.** An introduction to the major writers and movements in the history of French literature from the Middle Ages through the eighteenth century. Extensive reading, lectures, *explanations de texte*, reports, and papers. Conducted in French. *Mr. A. Otten.*

218 **INTRODUCTION TO FRENCH LITERATURE. S.** Continuation of 217. Study of the nineteenth and twentieth centuries. French 217 and 218 are designed to give the student an acquaintance with a large number of important works in French literature as well as the basic knowledge and historical framework necessary for further literary study. *Mr. A. Otten.*

311 **FRENCH DRAMA. F** odd years. A study of dramatic literature from the Middle Ages to the present day, with emphasis on classical and contemporary drama. Conducted in French. *Miss E. Borger.* Not offered 1974-75.

312 **THE FRENCH NOVEL. S** odd years. A study of fiction from the Middle Ages to the present day with special emphasis on the nineteenth and twentieth centuries. Conducted in French. *Mrs. E. Borger.* Not offered 1974-75.

313 **FRENCH POETRY. F** even years. A study of the history and nature of French poetry by means of extensive reading and intensive examination of major poets, with special attention to the themes, forms, and techniques of poets of the modern period, beginning with Baudelaire. Conducted in French. *Mr. A. Otten.*

314 **FRENCH PROSE. S** even years. A study of major writers expressing French thought, spirit, and sensibility in non-fiction from Montaigne to Sartre. Special attention is paid to Calvin, Pascal, *les philosophes*, and the existentialists. Conducted in French. *Mr. A. Otten.*

371 **LITERARY DOCTRINES AND PROBLEMS. F** odd years. An advanced course devoted largely to literary theory, using as its point of departure a selection of

such significant documents in the history of French literature as Du Bellay's *Défense et illustration de la langue française*, the various statements relating to the *Querelle des anciens et des modernes*, Hugo's *Préface de Cromwell*, the transcript of Flaubert's trial, and others. This course includes an examination of the situations and writings which elicited these documents. Normally this course should be taken after completion of the genre courses. Conducted in French. *Mr. A. Otten*. Not offered 1974-75.

390 INDEPENDENT STUDY. I. Introduction to the materials and methods of research. In consultation with the instructor, the student will define a problem in literary history, criticism, or theory, will do research in it, and present the results of his study in an organized *dissertation*; written in French. Limited to the senior prospective graduate student. *Staff*.

395 SEMINAR.

CIVILIZATION

372 FRENCH CIVILIZATION. F odd years. A study of examples of non-

literary artistic expressions of the French mind in painting, architecture, and music, and of French religious, political, and social institutions. Designed to enhance the student's knowledge of French culture and to enrich his literary studies, this course is a complement to, rather than a substitute for, literary studies. Conducted in French. *Mr. A. Otten*. Not offered 1974-75.

1974-75 INTERIM

The full description of interim courses is given on pages 125-142.

- 10 FROM BAUDELAIRE TO SURREALISM, *Mr. A. Otten*.
- 11 MODERN FRENCH WOMEN WRITERS, *Mrs. C-M. Baldwin*.
- 206 INTERMEDIATE FRENCH, *Mrs. L. Read*.
- 390 INDEPENDENT STUDY, *Staff*.

The following interdisciplinary course is also offered by a member of this department.

- 115 TRAVEL ACCOUNTS AS LITERATURE, *Miss E. Borger, Mr. R. Tiemersma*.

Geography and geology

See the section, EARTH SCIENCE, GEOGRAPHY, AND GEOLOGY for information on geography and geology.

German

Professor W. Bratt (chairman, Department of Germanic Languages)
Associate Professors C. Hegewald, B. Kreuzer, J. Lamse

STUDENTS should complete their first college year of German with a minimum average of C (2.0) before applying for admission to the major program. This concentration normally includes 201, 202, 215, 217, 218, and four additional courses, one of which in the case of students enrolled in the teacher education program must be 216. A teaching minor consists of a sequence of six courses including 201, 202, 215, and three additional courses. The teacher education adviser is Mr. B. Kreuzer. Students con-

templating either a German major or minor are encouraged to consult with a departmental adviser early in their programs. A year-abroad program is available in Austria and Germany.

All courses numbered 217 and above, including 361, may be applied toward the fulfillment of the fine arts core requirement.

101 ELEMENTARY GERMAN. F. A beginners' course stressing both written and spoken German and including an introduction to German culture. *Staff.*

102 ELEMENTARY GERMAN. I and S. Continuation of 101. *Staff.*

201 INTERMEDIATE GERMAN. F, core. Selected readings, with a continued emphasis on the development of spoken and written German. Prerequisites: 101-102, or four units (two years) of high school German. *Staff.*

202 INTERMEDIATE GERMAN. S, core. Continuation of 201. Prerequisite: 201. *Staff.*

203 INTERMEDIATE GERMAN. 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. *Staff.*

205-206 (Interim)-207 INTERMEDIATE GERMAN. F, I, S. A three-semester course intended for students who have completed two years of high school German with less than a C average. Intensive language review, composition, and selected readings. Upon successful completion of this course the student will have met his college foreign language requirement. Prerequisite: two years of high school German. *Staff.*

215 INTERMEDIATE ORAL AND WRITTEN COMPOSITION. F. Exercises, compositions, and drills designed to develop in the student advanced competence in speaking and writing idiomatic German. Prerequisite: 202. *Mr. J. Lamse.*

216 ADVANCED ORAL AND WRITTEN COMPOSITION. S. Continuation of 215. *Mr. B. Kreuzer.*

217 READINGS IN MAJOR GERMAN AUTHORS. F, core. Basic introduction to German literature. Selected readings

in major German authors from 1750 to 1850. Assigned readings and papers. Prerequisite: 202. *Mr. W. Bratt.*

218 READINGS IN MAJOR GERMAN AUTHORS. S, core. Continuation of 217. Readings in major German authors from 1850 to the present. Prerequisite: 202. *Mr. W. Bratt.*

250 GERMAN CIVILIZATION. F, odd years, fine arts 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: 202. *Mr. C. Hegewald.*

301 CLASSICISM. F even years, core. The origins of the classical ideal during the seventeenth and early eighteenth centuries. Readings from Klopstock, Lessing, Goethe, and Schiller. Prerequisite: 202. *Mr. J. Lamse.*

303 ROMANTICISM. S, odd years, core. The literary theory and philosophical-religious basis of the German romantic movement as reflected in representative works of both earlier and later Romantics. Prerequisite: 202. *Mr. J. Lamse.*

304 REALISM. S even years, core. Readings in the literary prose of the latter half of the nineteenth century. A survey of the intellectual and cultural changes immediately preceding this era and an analysis of some literary works characteristic of the period. Prerequisite: 202. *Mr. C. Hegewald.*

305 NINETEENTH CENTURY DRAMA. F even years, core. A comprehensive study of the lives and works of leading German dramatists of the nineteenth century. Assigned readings and papers. Prerequisite: 202. *Mr. W. Bratt.*

307 EARLY TWENTIETH CENTURY LITERATURE. F, odd years, core. Selected readings in German and Austrian literature from 1890 to 1940, with special

emphasis on the works of Hofmannsthal, Mann, Kafka, Brecht, and Hesse. Lectures, discussions, and assigned papers. Prerequisite: 202. Mrs. M. J. Lamse.

308 **POSTWAR LITERATURE.** S, odd years, core. Readings in German literature from 1945 to the present from such writers as Andersch, Frisch, Böll, and Grass. Seminar papers are required. Prerequisite: 202. Mrs. M. J. Lamse.

390 **INDEPENDENT STUDY.** This course is tailored to meet the needs of the individual student, to enable him to broaden his familiarity with the more important German literary works, and to deepen his understanding of them in tutorial discussions. Prerequisite: approval of the chairman. Staff.

395 **SEMINAR.**

COURSES IN ENGLISH

361 **AN INTRODUCTION TO GERMAN CULTURE.** S, fine arts core. A chronological survey of the German cultural

tradition as it finds expression in the arts, especially in representative works of literature in translation. Open to all students, but designed particularly for students in designated preprofessional courses whose programs include the "foreign culture" option. No knowledge of German is required. Mr. W. Bratt.

1974-75 INTERIM

The full description of interim courses is given on pages 125-142.

- 10 GERMAN INTERIM ABROAD, Mr. W. Bratt.
- 206 INTERMEDIATE GERMAN, Mr. J. Lamse.
- 390 INDEPENDENT STUDY, Staff.

The following interdisciplinary interim courses are offered by members of this department.

- 110 BASIC AFRIKAANS, Mr. W. Lagerwey.
- 135 FOLKLORE OF FOREIGN LANDS, Mr. C. Hegewald.

Greek

SEE THE DEPARTMENT OF CLASSICAL LANGUAGES for a description of courses and programs of concentration in Greek.

History

Professors R. Bolt, H. Brinks, H. Ippel (chairman), D. Jellema, G. Marsden, H. Rienstra, E. Strikwerda, E. Van Kley
Associate Professors B. De Vries, F. Roberts, D. Van Kley, R. Wells
Assistant Professor S. Greydanus

PROGRAMS for students majoring in history will be worked out for them by departmental advisers. Such programs will reflect the student's interests both within the field of history and in related departments, his anticipated vocational goal, and the demands of the historical discipline. A minimum grade of C (2.0) in 101 or 102 is required for admission to major programs. For most programs a proficiency in either French or German is advised. Students are asked to consult with departmental advisers 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.

The minimum requirements for a major concentration are nine courses in history including 101, 102, or 102 Honors, one third level interim course in history or a departmentally-approved substitute, the departmental seminar (395), and a program emphasizing either American or European interests. The same programs satisfy teacher education majors. The European concentration requires at least three courses from 301-305, at least one course from 310-312, and at least one additional course from 310-312 or from 355 and 356. The American concentration requires at least three courses from 310, 311, 312, 355, and 356 and at least two courses from 301-305. The ideal teaching minor should include the designated courses in both programs. Students seeking special advice on teacher education programs, including group majors for middle school teaching, should consult Mr. S. Greydanus.

The core requirement in history must be met by 101, 102, or 102 Honors; any other regular course in the department will satisfy the additional requirements in the contextual disciplines. History 201, 202, 203, and 204 may be part of a teaching minor in the academic study of religions.

AREA SURVEYS

101 WESTERN CIVILIZATION. F and S, core. A study of the main cultural currents of Western Civilization with primary emphasis on the period from antiquity through the sixteenth century. *Staff.*

102 WESTERN CIVILIZATION. F and S, core. A study of the main cultural currents of Western Civilization with primary emphasis on the period since the Reformation. *Staff.*

102 HONORS WESTERN CIVILIZATION. F and S, core. An intensive study of particular masterpiece of historical literature, such as Alexis de Tocqueville's *The Old Regime and the French Revolution* or Carl Becker's *The Heavenly City of the Eighteenth-Century Philosophers*. Not a Western Civilization survey in the traditional sense but rather an attempt to communicate an ability to understand, appreciate, and critically evaluate pieces of historical literature. The course requires two or three papers, but no examinations. Enrollment limited to students with 3.3 grade point average or higher. *Staff.*

201 ANCIENT NEAR EAST. F. A cultural history of the ancient Near East from prehistory to the rise of Islam. 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.*

202 MODERN NEAR EAST. S. A study of the transformation of the Near East from the rise of Islam through the establishment of independent national states following World War II. Particular attention is given to the institutionalization of Islam, the classical Arab Caliphates, the Crusades, the Ottoman Turkish and Safavid Persian states, the Near East Question, the modernist movements in Islam, and the problems of the contemporary states. *Mr. B. De Vries.*

203 TRADITIONAL EAST ASIA. F. An introduction to the history of East Asian civilizations from the earliest times to the nineteenth century. Primary em-

phasis 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. *Mr. E. Van Kley.*

204 **MODERN EAST ASIA.** 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. *Mr. E. Van Kley.*

NATIONAL HISTORIES

211 **SURVEY OF AMERICAN HISTORY.** F and S. 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. R. Bolt.*

212 **ENGLAND.** F. 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. H. Ippel.*

215 **CANADA.** S. A tracing of the founding and character of New France and a more careful examination of nineteenth and twentieth century Canada. *Mr. E. Strikwerda.*

218 **RUSSIA.** F. A study of Russian and East European history from Byzantine and Slavic origins through the Russian Revolution of 1917 and the development of the contemporary Soviet state. *Mr. D. Jellema.*

220 **THE HISTORY OF FRANCE.** A survey of the history of France from the "new monarchy" of Louis XI to the present. Particular attention is given to the religious wars of the sixteenth century, the growth of the French monarchy at the expense of other institutions, the character and influence of the French

Enlightenment, the nature and repercussions of the French Revolution, and the causes of France's political decline in the late nineteenth century. Not offered 1974-75.

221 **THE NETHERLANDS.** S. An introduction to the history of the Netherlands; the medieval times; the Burgundian period; the Reformation; the Dutch "Golden Age"; the French Revolution; the revival of Calvinism during the later nineteenth century; the changing role of the Netherlands in the twentieth century. *Mr. D. Jellema.*

223 **THE HISTORY OF GERMANY.** 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 Weimar Republic, the rise of the Nazi movement. *Mr. F. Roberts.*

STUDIES OF HISTORICAL PERIODS

301 **CLASSICAL HISTORY.** 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. The two units of Greek 311 and Latin 312 may be substituted in history concentrations for this one-unit course. *Mr. B. De Vries.*

302 **MEDIEVAL EUROPE.** F and S. 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. Roberts.*

303 RENAISSANCE AND REFORMATION EUROPE. F Studies in topics in European history from 1300 to 1650. Attention 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. H. Rienstra.*

304 EARLY MODERN EUROPE. F and S. A history of Europe from 1600 to 1815, from the Thirty Years War through the French Revolution, with considerable emphasis on the Age of Reason and Enlightenment. *Mr. E. Van Kley.*

305 MODERN EUROPE. F and S. Western Europe from 1815 to 1914. A study of the political and economic phenomena of this century; and examinations of nationalism, liberalism, Darwinism, imperialism, and militarism. *Mr. E. Strikwerda.*

310 COLONIAL UNITED STATES. F and S. A study of the colonial origins of the United States from the first settlements to about 1790, with primary emphasis on the intellectual, social, and religious developments and on the European origins of American thought. Attention is given to political, imperial, military, and economic changes. This course is designed to serve as one of the American sequence and as an introduction to History 355, Intellectual History of the United States. *Mr. H. Brinks, Mr. G. Marsden.*

311 NINETEENTH CENTURY UNITED STATES. F and S. An examination of United States history from the end of the revolutionary era to 1901. Attention is given to the Federalist period, the origins of political parties, Jeffersonian and Jacksonian democracy, sectionalism, slavery, the Civil War and reconstruction, economic expansion and the rise of big business, political corruption and reform, and imperialism. *Mr. R. Wells.*

312 TWENTIETH CENTURY UNITED STATES. F and S. A study of politics, diplomacy, labor, industry, and scientific achievement since the 1890's with emphasis on such developments as the

Progressive movement, World War I, the retreat from international responsibility; the roaring twenties, the Great Depression, the New Deal, World War II, and domestic and foreign developments since World War II. *Mr. R. Bolt.*

320 CONTEMPORARY WORLD. F. Western Europe from World War I to the present; the breakdown of colonialism and the resulting emergence of non-European powers; World War II and its role of changing the balance of power; the Cold War and the era of little wars. Topical studies include: the changing character of world economics; the conflict of ideologies; cultural relativism; the new age of conservatism. *Mr. S. Greydanus.*

TOPICAL STUDIES

334 UNITED STATES CONSTITUTIONAL HISTORY. F. A study of the development of American legal and political traditions using the constitution as the focal point. Emphasis is on such themes as the inter-relationship among the three branches of government and the relationship between legal education and the decisions of the courts. Particular attention is given to the Supreme Court decisions as they have reflected or molded social, intellectual, economic, and political change. *Mr. H. Brinks.*

351 ENGLISH CONSTITUTIONAL HISTORY. S. A study of the origins and subsequent developments of English law, legal institutions and constitutional usages from 1066 to the present. Major topics considered are: the nature of English constitutional monarchy, the growth of Parliament, the development of English Common Law, the Tudor and Stuart revolutions, the Whig oligarchy, and the significant reforms of modern Britain. *Mr. H. Ippel.*

355 INTELLECTUAL HISTORY OF THE UNITED STATES. F and S. An analysis of the changing intellectual patterns in American society from about 1790 to the present as exemplified in religious, philosophical, political, social, and scientific thought. Emphasis is placed on the interaction of thought and society and some attention is given to European in-

fluence on American thought. A general knowledge of American history is assumed. *Mr. G. Marsden.*

356 **SOCIAL HISTORY OF THE UNITED STATES.** S. 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. *Mr. R. Wells.*

360 **AFRO-AMERICAN HISTORY.** S. 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. S. Greydanus.*

390 **INDEPENDENT STUDY.** F, I, S. *Staff.*

395 **SEMINAR IN HISTORY.** F and S, honor sections. A course taught by the staff in historiography, the philosophy of history, historical bibliography, and the writing of history. *Staff.*

1974-75 INTERIM

The full description of interim courses is given on pages 125-142.

- 10 RELIGIONS OF THE AMERICAN PRESIDENTS, *Mr. R. Bolt.*
- 11 THE USE OF OIL AS A POLITICAL WEAPON, *Mr. B. De Vries.*
- 13 AFRICA TODAY: AN OVERVIEW OF CONTEMPORARY AFRICA WITH AN EMPHASIS ON A COMPARATIVE STUDY OF WEST-AFRICAN SOCIETIES, *Mr. S. Greydanus.*
- 14 REVOLUTIONARY CHINA; MAO-TSE-TUNG AND THE PEOPLE'S REPUBLIC, *Mr. E. Van Key.*
- 20 WORLD WAR I AND ITS TITANS, *Mr. E. Strikwerda.*
- 21 DUTCH-AMERICAN FOLKLORE, *Mr. H. Brinks.*
- 30 JONATHAN EDWARDS: A NEW DIRECTION IN REFORMED THEOLOGY, *Mr. G. Marsden.*
- 31 GREAT BOOKS OF SOCIAL CRITICISM IN AMERICAN HISTORY, *Mr. R. Wells.*
- 32 THE MONASTARY IN HISTORY, *Mr. F. Roberts.*
- 390 INDEPENDENT STUDY, *Staff.*

The following interdisciplinary interim courses are offered by a member of this department.

- 111 THE MIDDLE AGES IN MODERN NOVELS, *Mr. H. Rienstra.*

Latin

SEE THE DEPARTMENT OF CLASSICAL LANGUAGES for a description of courses and programs of concentration in Latin.

Mathematics

Professors B. Boonstra, L. Nyhoff, C. Sinke, G. Van Zwalenberg (chairman), P. Zwiier

*Associate Professors J. Kuipers, *S. Leestma*

Assistant Professors D. Brink, T. Jager

FRESHMEN DESIRING TO MAJOR in the department should have completed four years of high school mathematics; those with deficiencies in al-

gebra or trigonometry should complete 101 or 102. A minimum grade of C (2.0) in 211 is required of all students applying for a program of concentration in the department. The program includes 111, 112, 211, 212, 351, three additional courses numbered 300 or above, and one junior-senior level interim course. Students preparing to teach mathematics in secondary schools should complete a nine-course program including the five courses designated above in the general program plus 321, 331, 343 and one junior- or senior-level interim course. Cognate courses in physics and/or philosophy are strongly recommended as is a reading knowledge of German and French.

A teaching group major in physics and mathematics consists of Mathematics 111, 112, 211, 212, 321, and 351; Physics 123, 124, 225, 226, 381, and 382. A group minor in the same fields consist of Mathematics 111, 112, and 211; Physics 123, 124, 225, and 226. The elementary teacher education adviser is Mr. Vernon Ehlers.

Group concentrations combining mathematics with biology, economics, philosophy, or physics are available. Interested students should consult the department chairman.

The core requirements in mathematics may be met by Senior Mathematics in high school or by 109, 111, or 205.

101 ALGEBRA. F and S, half course. Review of elementary algebra; topics in college algebra including inequalities, linear and quadratic functions, and mathematical induction. Intended for those with an inadequate background in high school algebra. Prerequisite: one year of high school algebra. May be taken concurrently with 102. *Staff.*

102 TRIGONOMETRY. F and S, half course. Review of elementary trigonometry, with emphasis on introduction to the trigonometric functions and their properties; trigonometric identities, inverse trigonometric functions. Intended for those who have not had trigonometry in high school or those who wish to review the subject. Prerequisites: one year of high school geometry and one year of high school algebra. May be taken concurrently with 101. *Staff.*

107 COMPUTER PROGRAMMING FOR SOCIAL SCIENCE. F and S, half course. Introduction to computer programming using BASIC and FORTRAN languages. Intended for students majoring in areas other than mathematics and science. No mathematics prerequisite. Topics include

computer-orientated solutions of problems in elementary numerical methods, computational algorithms, systems simulation, statistical calculations, and string variable manipulation. *Mr. L. Nyhoff.*

108 COMPUTER PROGRAMMING FOR SCIENCES AND MATHEMATICS. F and S, half course. Instruction in BASIC and FORTRAN languages, with applications of numerical methods to problems in biology, chemistry, engineering, mathematics, and physics. Intended for students majoring in mathematics and science. Prerequisite: Mathematics 111, which may be taken concurrently. *Mr. L. Nyhoff.*

109 ELEMENTS OF MODERN MATHEMATICS. F and S, core. Set algebra, cardinal numbers, the arithmetic of counting numbers, logic, axiomatic systems, construction of rational and real number systems, groups and fields, relations and functions, polynomials. Prerequisites: one year of algebra in high school. *Staff.*

111 CALCULUS AND ANALYTIC GEOMETRY. F and S, honor sections, core. Rates of change, limits, derivatives of

algebraic functions, applications of the derivative, integration, applications of the integral. *Staff*.

112 CALCULUS AND ANALYTIC GEOMETRY. S, honor sections. Transcendental and hyperbolic functions, formal integration, analytic geometry, polar coordinates, vectors, parametric equations. Prerequisite: 111. *Staff*.

205 MATHEMATICS FOR SOCIAL SCIENCE. F, core. Real number system, field properties, functions and graphs, elementary linear programming, minimum and maximum problems, matrix algebra, systems of equations, sequences, applications to business mathematics, elementary probability theory. Prerequisite: Two years of high school mathematics. *Mr. D. Brink, Mr. C. Sinke*.

206 MATHEMATICS FOR SOCIAL SCIENCE. S. Description of sample data, binomial and normal distributions, distributions of sample statistics, statistical inference, regression analysis. Prerequisite: 205 or 111. *Mr. C. Sinke*.

211 CALCULUS AND ANALYTIC GEOMETRY. F, honors sections. Solid analytic geometry, vectors in three dimensions, infinite series, partial derivatives, multiple integrals. Prerequisite: 112. *Staff*.

212 LINEAR ALGEBRA AND DIFFERENTIAL EQUATIONS. S. Vector spaces, linear transformations, matrices, determinants, other topics from linear algebra; introduction to differential equations. Prerequisite 112. *Staff*.

243 INTRODUCTION TO COMPUTER SCIENCE. S. An introduction to the fundamental ideas in the operation and the organization of a computing system. Topics to be considered include: compilers; basic structure of operating systems; organization of computer systems, addressing schemes, introduction to symbolic coding and assembly systems; and digital representation of data. Prerequisite: 108 or 107 with the consent of the department. *Staff*.

313 TOPICS IN ADVANCED ANALYSIS. F. Fourier series, Laplace transform, series methods in ordinary differential equations, orthogonal functions, vector

field theory, and partial differential equations. Intended for engineers, physicists, and others interested in applications of analysis. Prerequisite: 211. *Mr. J. Kuipers*.

314 COMPLEX VARIABLES. S. Complex numbers, complex functions, integration and the Cauchy integral formula, power series, residues and poles, conformal mapping. Prerequisite: 211. *Mr. G. Van Zwalenberg*.

321 FOUNDATIONS OF GEOMETRY. F. Consideration of Euclidean geometry as an axiomatic system, introduction to non-Euclidean geometry, the Poincaré model. Prerequisite: 112. *Mr. P. Boonstra*.

323 LINEAR AND PROJECTIVE GEOMETRY. S. Transformations in the Euclidean plane, review of algebra of vector spaces, affine spaces, projective space, projectives and their groups, cross ratio, theorems of Desargues and Pappus. Prerequisite: 352. *Mr. C. Sinke*.

331 HISTORY OF MATHEMATICS. S. A study of the historical development of certain basic mathematical concepts from early times to the present, with consideration of the problems that mathematicians have faced in each age. Prerequisite: 211. *Mr. T. Jager*.

341 NUMERICAL ANALYSIS. S. Analysis of errors in numerical methods, real roots of equations, approximations using polynomials, calculus of finite differences, numerical methods for differentiation and integration, applications to differential equations, applications to matrix algebra, inversion of matrices, characteristic values. Prerequisites: 107 or 108 and 212. *Mr. D. Brink*.

343 PROBABILITY AND STATISTICS. F. Probability, probability density functions; binomial, Poisson, and normal distributions; central limit theorem, limiting distributions, sample statistics, hypothesis tests, estimators. Prerequisite: 212. *Mr. C. Sinke*.

351 ABSTRACT ALGEBRA. F. Set theory, relations and functions, equivalence relations; the integers, mathematical induction, and elementary number theory;

groups, rings, fields, and polynomials. Prerequisite: 211. Mr. T. Jager.

352 ADVANCED LINEAR ALGEBRA. S. Vector spaces, matrices, linear equations, linear transformations, determinants, polynomial algebras, eigenvalues and eigenvectors, inner-product spaces, spectral decompositions, canonical forms for matrices. Prerequisites: 211. Mr. L. Nyhoff.

361 GENERAL TOPOLOGY. S. 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: 211. Mr. P. Zwier.

362 REAL ANALYSIS. F. The real number system, Lebesgue measure and integration, differentiation and integration of real functions, classical Banach spaces, abstract measure theory. Prerequisite: 212. Mr. P. Zwier.

390 READINGS IN MATHEMATICS. 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 chairman. 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 chairman. Staff.

1974-75 INTERIM

The full description of interim courses is given on pages 125-142.

- 10 NUMBER THEORY, Mr. L. Nyhoff.
- 11 WHAT ARE THE CHANCES? PROBABILITY AT WORK, Mr. C. Sinke.
- 12 MATHEMATICS IN THE MODERN WORLD, Mr. G. Van Zwalenberg.
- 13 COMBINATORICS, Mr. P. Zwier.
- 20 STABILITY OF SYSTEMS, Mr. J. Kuipers.
- 390 INDEPENDENT STUDY, Staff.

Music

Professors J. Hamersma (chairman), H. Slenk
Associate Professors J. De Jonge, H. Geerdes, †D. Topp
Assistant Professors G. Huisman, C. Stapert, J. Worst
Professional Staff T. Knol, R. Rus

STUDENTS must complete 103, 104, 121, and 123 with a minimum average of C (2.0) before applying for admission to a major concentration in music. In addition, those interested in teacher certification must consult Mr. Topp.

The recommended program for students preparing for graduate study is 103, 104, 121, 122, 123, 124, 131, 132, 203, 204, 223, 224, 303, 304, 199-200 each semester, participation each semester in some faculty-directed ensemble, and four courses from one of the following areas: *music theory*—205, 206, 305, 306, or approved interim courses; *theory and composition*—205, 206, and any two from 315, 316, 407, 408, or approved interim courses; *applied music*—four courses of individual instruction in a single instrument or voice culminating in a solo recital.

Students desiring a certificate to teach music from the kindergarten through the secondary level should complete the following fifteen-course

concentration: 103, 104, 121, 122, 123, 124, 203, 204, 223, 224, 303, 304, 313, 199-200 each semester, participation each semester in some faculty-directed ensemble, and the completion of one of the following programs in either instrumental or vocal music, *Instrumental music* requires 315, 329, 330; one elective from 205, 206, 220, 305, 306, 316, or 407; four semesters of instruction in a single string or wind instrument; and the completion of the ensemble requirement by 213-214 or 215-216. *Vocal music* requires 117, 118, 131, 132, 217; 109-110 or 141-142; 218, or 209, or 241; 205 or 206; 305 or 306; and one additional course from advanced courses (205, 206, 220, 305, 306, 315, 407) or from advanced interim courses; and the completion of the ensemble requirement by 107-108 or 207-208. The liberal arts core automatically provides a humanities minor for students in these programs. The professional education requirements are met by Psychology 204 and Music 331 instead of Education 301 and 303.

A nine-course major for students in the elementary education program consists of 103, 104, 121, 122, 123, 124, 203, 331, 302, 313, 199-200 each semester and completion of one of the following programs in either vocal or instrumental music. *Vocal music* requires two semesters of participation in 107-108 or 207-208, 117, 118, 141, 142, and one elective from 205, 206, 220, 305, 306, 315, 407, or an advanced interim. *Instrumental music* requires 329, 330, and two semesters study on a single wind or string instrument. In addition, 213, 214, 215, and 216 are highly recommended. For group majors involving music, see page 48. If a student does at least part of his teaching internship at the junior high school level, his teaching certificate will indicate that he is certified to teach music at both the elementary and secondary levels.

A minor in music education requires 103, 104, 203, 302, 313, 331, and two semesters of individual lessons in piano, organ, or voice, or two semesters of participation in some faculty-directed ensemble.

A nine-course major concentration is possible for students not expecting to teach or to enter graduate school. The recommended program is 103, 104, 121, 122, 123, 124, 203, 302 (or 204, 303, and 304 in lieu of 302), the total of one course credit in applied music (excluding 329 and 330), 199-200 each semester, with electives chosen from 131, 132, 205, 206, 219 or 220, 223, 224, 305, 306, 313, 316, 407, 408, an approved interim, or additional work in individual lessons not to exceed one course.

All music majors must complete the Princeton Comprehensive Music Examination during the April of the spring in which they enroll for 302 or 304. The test is administered by Mr. J. Worst.

The fine arts core requirement is normally met by 211 or 212 but may be met by any of the following courses: 103, 211, 212, 219, 301, 302, and 326.

BASIC COURSES

103 THE VOCABULARY, LITERATURE, AND MATERIALS OF MUSIC. F, core. An introduction to the art of music by means of a consideration of the elements of music as observed in a select repertory of works from the Middle Ages to the present. The fine arts core requirement is usually met by 211 or 212. Students intending to major in music must take 121 and 123 concurrently. *Miss T. Huisman, Mr. H. Slenk, Mr. C. Stapert.*

104 THE LITERATURE AND MATERIALS OF MUSIC. S. A continuation of 103. A coordinated study of the historical, theoretical, and practical aspects of music by means of lectures, score study, written exercises, listening, performance, and reading. A study of the music of the Middle Ages. Students intending to major in music must take 122 and 124 concurrently. Prerequisite: 103. *Miss T. Huisman, Mr. C. Stapert.*

121-122 KEYBOARD HARMONY, ELEMENTARY. F and S, quarter course. Class instruction in piano will be required concurrently for students failing to meet departmental piano requirements. To be taken simultaneously with Music 103-104. *Mrs. T. Knol.*

123-124 AURAL PERCEPTION, ELEMENTARY. F and S, quarter course. A course in the development of the ability to hear and grasp the rhythmic, melodic, and harmonic elements of music. To be taken simultaneously with Music 103-104. *Mr. H. Slenk.*

131-132 KEYBOARD HARMONY, ADVANCED. F and S, quarter course. Continuation of 121-122. To be taken simultaneously with music 203-204. Prerequisite: 121-122. *Mrs. T. Knol.*

203 THE LITERATURE AND MATERIALS OF MUSIC. F. A continuation of 104. An introduction to tonal counterpoint. A study of the music of the Baroque era. Students intending to major in music, excepting concentrators in instrumental music education, must take 131 and 223 concurrently. Prerequisite: 104. *Mr. C. Stapert.*

204 THE LITERATURE AND MATERIALS OF MUSIC. S. A continuation of 203.

A study of the materials of traditional harmony. The study of the music of the Classic period. Students intending to major in music, excepting concentrators in instrumental music education, must take 132 and 224 concurrently. Prerequisite: 203. *Miss T. Huisman.*

223-224 AURAL PERCEPTION, ADVANCED. F and S, quarter course. Continuation of 123-124. To be taken simultaneously with Music 203-204. Prerequisite: 123-124. *Mr. H. Slenk.*

303 THE LITERATURE AND MATERIALS OF MUSIC. F. A continuation of 204. Completion of the study of the materials of traditional harmony. A study of the music of the Romantic period. Prerequisite: 204. *Mr. J. Worst.*

304 THE LITERATURE AND MATERIALS OF MUSIC. S. A continuation of 303. A study of post-romantic and contemporary music. The class presents a concert of contemporary and *avant garde* music in early May. Prerequisite: 303. *Mr. J. Worst.*

ADVANCED COURSES

205 VOCAL POLYPHONY OF THE RENAISSANCE. F even years. A study of the vocal works of sixteenth century composers, especially Josquin, Lassus, Palestrina, Victoria, Byrd, Hassler, and Gibbons. Exercises in modal counterpoint. Singing and drill in aural perception. Listening repertory of compositions. Prerequisite: 104. *Mr. C. Stapert.*

206 INSTRUMENTAL AND VOCAL POLYPHONY OF THE LATE BAROQUE. S odd years. A study of contrapuntal practice of late Baroque composers, principally J. S. Bach. Exercises in tonal counterpoint. Listening repertory of compositions. Prerequisite: 203. Not offered 1974-75.

220 CHURCH MUSIC. I, S odd years. A study of the worship music of the major Christian traditions in relation to their liturgies. Principles of appropriate worship music are discussed in the light of the history of church music. Prerequisite: 204. Not offered 1974-75.

305 MUSIC OF THE CLASSICAL PERIOD. F odd years. A study of the principal

forms of the Classic period from the keyboard music of Couperin, K.P.E. Bach, and Scarlatti through the major works of Haydn and Mozart to the late works of Beethoven. Analytic score studies of representative works. Listening repertory of compositions from the period. Several short papers. Prerequisite: 204 or 203 and 302 or permission of instructor. Not offered 1974-75.

306 **MUSIC OF THE ROMANTIC PERIOD.** S even years. A study of the principal forms of the Romantic period from Schubert and Schumann through Wagner. Analytic score studies of representative works. Listening repertory of compositions. Several short papers. Prerequisite: 303 or 203 and 302 or permission of instructor. *Mr. C. Stapert.*

315 **ARRANGING, ORCHESTRATION, AND SCORING.** F. Survey of the history of the orchestra and orchestration, and problems involved in writing for orchestra, band, and stage band. A survey of the technical limitations of each instrument and the human voice. Projects written by class members will be performed by department organizations whenever practicable. Prerequisite: 104. *Mr. J. Worst.*

316 **ARRANGING, ORCHESTRATION, AND SCORING.** S. Continuation of 315, which is prerequisite. *Mr. J. Worst.*

407 **COMPOSITION.** F. Writing in contemporary forms and according to contemporary practice. Prerequisite: 104 or permission of the instructor. *Mr. J. Worst.*

408 **COMPOSITION.** S. A continuation of 407. Prerequisites: 407 and permission of the instructor. *Mr. J. Worst.*

GENERAL COURSES

211 **AN INTRODUCTION TO MUSIC LITERATURE.** F, core. For students with limited musical background who are interested in increasing their knowledge and enjoyment of music. The emphasis is on intelligent and perceptive listening. This year the course will concentrate on music from the Baroque and Classical periods. Listening, term paper, concert attendance. No prerequisite. *Mr. J. De Jonge.*

212 **AN INTRODUCTION TO MUSIC LITERATURE.** S, core. A course similar to 211 but with different content. Includes the music of representative composers of the Romantic and Modern-Contemporary Periods. Listening, term paper, concert attendance. No prerequisite. *Mr. J. De Jonge.*

219 **CHURCH MUSIC.** I, F odd years, core. A historical survey of the worship music of the Hebrews, early Christian church, the Roman church, and the churches of the Reformation. Principles of appropriate worship music are discussed in the light of the history of church music. No prerequisite. Recommended for pre-seminary students. Not offered 1974-75.

301 **HISTORY OF MUSIC.** F, core. A study of the art of music from its origins through the Baroque. Score studies, listening repertory, and reading. Not offered 1974-75.

302 **HISTORY OF MUSIC.** S, core. A study of the art of music from Bach to the present. Score studies, listening repertory, and reading. *Mr. C. Stapert.*

313 **CONDUCTING.** S, half course. A course in basic, general conducting leading to the conducting of either instrumental or choral literature. Two hours of class and two hours of conducting laboratory per week. Should be taken by instrumental music education majors, nine-course majors, and music minors during the spring semester of their sophomore year and by fifteen-course vocal music education majors during the fall semester of their junior year. Prerequisite: 104. *Mr. H. Geerdes, Mr. H. Slenk.*

326 **CHAMBER MUSIC.** F odd years, core. A general course designed to provide the historical and musical background necessary for perceptive listening to music for small ensembles. The Cayvan Collection of recordings and scores will be used to give the student an insight into music written for trios, quartets, and quintets of string or wind instruments. Not offered 1974-75.

MUSIC EDUCATION

222 **ELEMENTARY SCHOOL MUSIC.** F and S. A study of the content and meth-

ods for teaching music in the elementary school classroom. Includes consideration of philosophy and materials. This course or 331 is recommended for elementary education students. (Music 331 is required of elementary music education majors). *Miss T. Huisman, Mr. D. Topp.*

331 SCHOOL MUSIC. S. A study of the philosophy, methods, and materials for teaching elementary and secondary school music with emphasis upon research, planning, and simulated teaching. This course is required of secondary music education majors (who substitute this course and Psychology 204 for Education 301 and 303), music minors, and elementary music education majors, but is also open to any elementary education major. *Mr. D. Topp.*

APPLIED MUSIC

INDIVIDUAL LESSONS

Students enrolling in any course in this section must also register for 199-200.

109-110, 209-210, 309-310, 409-410 ORGAN. Quarter course. Individual lessons in organ. *Staff.*

109c-110c, 209c-210c, 309c-310c, 409c-410c ORGAN. Half course. Individual lessons for the music major concentrating in organ. *Staff.*

117-118, 217-218, 317-318, 417-418 VOICE. Quarter course. Individual lessons in voice. *Mr. J. De Jonge.*

117c-118c, 217c-218c, 317c-318c, 417c-418c VOICE. Half course. Individual lessons for the music major concentrating in voice. *Mr. J. De Jonge.*

141-142, 241-242, 341-342, 441-442 PIANO. Quarter course. Individual lessons in piano. *Mrs. R. Rus, Mrs. T. Knol.*

141c-142c, 241c-242c, 341c-342c, 441c-442c PIANO. Half course. Individual lessons for the music major concentrating in piano. *Mrs. R. Rus, Mrs. T. Knol.*
161-162, 261-262, 361-362, 461-462 STRINGS. Quarter course. Individual lessons in violin, viola, violoncello, or bass viol.

161c-162c, 261c-262c, 361c-362c, 461c-462c STRINGS. Half course Individual

lessons for the music major concentrating in violin, viola, violoncello, bass viol, or classical guitar.

171-172, 271-272, 371-372, 471-472 WOODWINDS. Quarter course. Individual lessons in flute, oboe, clarinet, bassoon, or saxophone.

171c-172c, 271c-272c, 371c-372c, 471c-472c WOODWINDS. Half course. Individual lessons for the music major concentrating in flute, oboe, clarinet, bassoon, or saxophone.

181-182, 281-282, 381-382, 481-482 BRASSES. Quarter course. Individual lessons in cornet, horn, baritone, trombone, or bass horn.

181c-182c, 281c-282c, 381c-382c, 481c-482c BRASSES. Half course. Individual lessons for the music major concentrating in cornet, horn, baritone, trombone, or bass horn

191-192, 291-292 PERCUSSION. Quarter course. Individual lessons in snare drum, tympani, and other percussion instruments.

CLASS LESSONS

199-200 REPERTORY CLASS AND STUDIO CLASSES. F and S, 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.*

329 STRINGS AND BRASSES. F odd years. Class lessons in string and brass instruments for the music major concentrating in instrumental music education and others wishing to learn a secondary instrument. May be repeated. *Mr H. Geerdes.*

330 WOODWINDS AND PERCUSSION. F even years. Class lessons in woodwind and percussion instruments for the music major concentrating in instrumental music education and others wishing to learn a secondary instrument. May be repeated. *Mr. H. Geerdes,* Not offered 1974-75.

ENSEMBLES

101-102 **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. One rehearsal a week. *Mr. H. Geerdes.*

107-108 **CAMPUS CHOIR.** Quarter course. Representative works in the field of choral literature are studied and sung. Emphasis given to the development of singing and sight-reading skills as well as to regular performances. Open to music majors and others who meet the requirements of voice and musicianship. *Mr. M. Mustert.*

113-114 **STUDIO LAB BAND.** No credit. Representative works from traditional, contemporary, and experimental jazz and rock music are studied and prepared for public performance. Open to a limited number of instrumentalists who meet the demands of musicianship. Does not meet the music major ensemble requirement. *Mr. J. Worst.*

207-208 **CAPELLA.** Quarter course. Representative works in the field of choral literature are studied and a limited number of selections are 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. *Mr. H. Slenk.*

213-214 **CONCERT BAND.** Quarter course. Representative works in the field

of band literature are studied and prepared for concert performance. Open to all students who met the demands of musicianship. Three rehearsals a week. *Mr. J. Worst.*

215-216 **ORCHESTRA.** Quarter course. 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. One full orchestra rehearsal per week, plus one string orchestra rehearsal. *Mr. H. Geerdes.*

307-308 **COLLEGIUM MUSICUM.** Quarter course. Music for small instrumental and/or vocal ensembles from all periods is studied and performed. This is an honors ensemble open to singers and instrumentalists who also participate in the choir, band, or orchestra. It is also open to keyboard, woodwind, and brass instrumentalists who are interested in performing on old wind and keyboard instruments and who meet the demands of musicianship. *Staff.*

1974-75 INTERIM

The full description of interim courses is given on pages 125-142.

- 10 PIANO PEDAGOGY, *Mrs. T. Knol.*
- 11 BACH, THE PREACHER; THE ORGAN HYMNS, *Mr. J. Hamersma.*
- 12 A SINGING SCHOOL, *Mr. J. De Jonge.*
- 13 THE CATHEDRAL MUSIC OF ENGLAND, *Mr. H. Slenk, Mr. J. Worst.*
- 14 MUSIC IN MEDIEVAL LIFE AND THOUGHT, *Mr. C. Stapert.*
- 390 INDEPENDENT STUDY, *Staff.*

Philosophy

*Professors **P. De Vos, C. Orlebeke (chairman), R. Mouw, A. Plantinga, E. Runner, *N. Wolterstorff*

Associate Professor K. Konyndyk

Assistant D. Hoekema

BEFORE APPLYING for admission to a major program a student must have completed either 151 or 153 with a minimum grade of C (2.0). The

program of concentration requires eight courses including one course in logic, two courses in Perspective in Philosophy (151-152), two historical period courses (210, 220, 230, 240), one historical figure or movement course, and two courses in systematics, including one from the advanced level. Students may also meet the departmental requirements by completing Introduction to Philosophy (153) and an intermediate-level systematics course instead of 151-152, provided the historical period courses are chosen from 210, 220, and 230. A four-unit cognate sequence approved by the student's adviser is required in another department.

Philosophy 205, 207, and 385 may be a part of the teaching minor in the academic study of religions.

If a student wishes to present one course toward the core requirement in philosophy, it should be 153. If he wishes to present two courses, they should be: 151 and 152; 153 and either 171 or 173; 153 and any intermediate level course; or, if he is in teacher education, 153 and Education 304.

ELEMENTARY COURSES

151 and 152 PERSPECTIVES IN PHILOSOPHY. F and S. A year-long introduction to philosophy which aims to give the student a Christian philosophical framework for his thinking, along with some awareness of important alternative philosophical frameworks (philosophical perspectives), and of important alternative answers to some of the fundamental problems. It also claims to give the student some sense of the history of philosophy. 151 is a prerequisite to 152. *Staff.*

152 INTRODUCTION TO PHILOSOPHY. F and S. A one-semester introduction to philosophy, with fundamentally the same aims as the Perspective in Philosophy course, except that it will not aim to acquaint the student with the history of philosophy. *Staff.*

171 INTRODUCTION TO LOGIC. S. A course in elementary deductive and inductive logic with emphasis upon the use of logic in evaluating arguments. Suitable for freshmen; not recommended for students majoring in philosophy. *Mr. D. Hoekema.*

173 INTRODUCTION TO SYMBOLIC LOGIC. F. A course in elementary symbolic logic, including some modal logic. This course is designed for students majoring in phi-

losophy, science, and mathematics. Open to qualified freshmen. *Mr. D. Hoekema.*

INTERMEDIATE SYSTEMATIC COURSES

All intermediate courses presuppose one course in philosophy.

203 PHILOSOPHY OF SCIENCE. F. A study of philosophical problems arising out of the methods and results of modern science. *Mr. C. Orlebeke.*

204 PHILOSOPHY OF RELIGION. F. A study of some philosophical questions arising from religious belief. *Mr. A. Plantinga.*

205 ETHICS. F and S. A course designed to deal both historically and situationally with the persistent problems of the moral life. *Mr. R. Mouw, Mr. T. Prins.*

206 PHILOSOPHY OF HISTORY. S. An examination of several topics in both the speculative and analytical philosophy of history. Some consideration will be given to individual thinkers such as St. Augustine, Hegel, and Collingwood, but the course will be structured around questions of the nature and meaning of historical knowledge. *Mr. M. H. Rienstra.*

207 POLITICAL AND SOCIAL PHILOSOPHY. S. A systematic study of the problems of social and political thought, his-

torically oriented, with emphasis on political and social ideals, such as political and social justice; equality and the law; the basis of social and political authority; rights and obligations. *Mr. R. Mouw.*

208 AESTHETICS. F. A study of the nature of art and aesthetic judgments. *Mr. N. Wolterstorff.*

209 PHILOSOPHY OF EDUCATION. A study of the nature, aims, and principles of education. Not offered 1974-75.

INTERMEDIATE HISTORICAL COURSES

All intermediate courses presuppose one course in philosophy.

210 HISTORY OF ANCIENT PHILOSOPHY. F. A history of philosophy in the Greek and Hellenistic periods. *Mr. H. E. Runner.*

220 HISTORY OF MEDIEVAL PHILOSOPHY. F. A history of philosophy from Augustine to the Renaissance. *Mr. A. Plantinga.*

230 HISTORY OF MODERN PHILOSOPHY. S. A study of selected philosophies of the seventeenth and eighteenth centuries. *Mr. K. Konyndyk.*

240 HISTORY OF CONTEMPORARY PHILOSOPHY. F. A study of major movements in recent and contemporary philosophy. Preparation in the history of philosophy is strongly recommended. *Mr. P. De Vos.*

243 AMERICAN PHILOSOPHY. S. A critical study of major movements in the history of American philosophy with special emphasis on the pragmatism of Peirce, James, and Dewey. *Mr. C. Orlebeke.*

ADVANCED HISTORICAL COURSES

All advanced courses presuppose at least two courses in philosophy, normally two courses from the intermediate historical group including 230.

312 PLATO AND ARISTOTLE. S. Advanced study of Plato and Aristotle. *Mr. E. Runner.*

322 HEGEL. F. *Mr. Prins.*

331 KANT. S. A study of the *Critique of Pure Reason*. *Mr. A. Plantinga.*

335 NINETEENTH CENTURY PHILOSOPHY. S. A study of the major figures in nineteenth century continental European philosophy. Not offered 1974-75.

ADVANCED SYSTEMATIC COURSES

All advanced courses presuppose at least two courses in philosophy, normally two courses from the intermediate historical group.

371 EPISTEMOLOGY. F. A study of the nature, sources, types, and limits of human knowledge. *Mr. K. Konyndyk.*

375 PHILOSOPHICAL ANTHROPOLOGY. A critical examination of major philosophical discussions of the nature of man, with special attention to the concepts of mind, body, action, soul, and immortality. *Mr. R. Mouw.*

381 ADVANCED LOGIC. S. Topics include the formalization of propositional and quantificational logic. Not offered 1974-75.

390 READINGS AND RESEARCH. F, I, S. Prerequisite: permission of chairman. *Staff.*

395 ONTOLOGY. S. A study of selected topics of ontology. *Mr. A. Plantinga.*

1974-75 INTERIM

The full description of interim courses is given on pages 125-142.

10 ASIAN PHILOSOPHY, *Mr. C. Orlebeke.*

11 NEO-KUYPERIANISM, *Mr. H. E. Runner.*

30 SKEPTICISM, OR CAN WE KNOW THAT WE KNOW WHAT WE KNOW, IF WE KNOW ANYTHING AT ALL? *Mr. K. Konyndyk.*

390 INDEPENDENT STUDY, *Staff.*

Physical education

Professors B. Steen, M. Zuidema (chairman)

Assistant Professors R. Honderd, J. Timmer, D. Tuuk, D. Vroon, D. Zuidema

Assistant Instructor L. Hageman

The department serves dual functions — it provides a required but flexible two-year sequence of physical education for all students; it also offers professional training for physical education teachers and coaches.

Admission to the professional concentration, which also satisfies the certification requirements for teaching at both the elementary and secondary level, requires the approval of the department chairman. The nine-course program includes 201, 212, 215, four courses from the 230 series, 301, 302, 380, and Biology 205. Physical Education 221 is also required and may be substituted for one quarter-course in basic physical education or for one of the 230 courses. The six-course teaching minor includes three quarter-courses from 100-199, 201, 221, 380 as a half course, and Biology 205.

BASIC PHYSICAL EDUCATION COURSES

The Basic Physical Education program is part of the liberal arts core and consists of an initial personal inventory (101) followed by four quarter courses (normally three from 120-198 plus 199). Veterans with two or more years of military experience will be exempted from the core requirements in physical education if they present discharge papers at the Registrar's Office.

All students must register for PE 101 (Diagnosis-Classification) as their first physical education course. The first four weeks of this course are devoted to a diagnostic inventory to determine fitness, skills, understanding of physical education, psycho-social needs, and recreational goals. On the basis of the results, the student and his instructor plan an appropriate sequential program of courses including fitness and skill developmental activities, aquatics, and recreational sports. Older or handicapped students typically satisfy the requirements with courses from the Adaptive Program (110). All students must register for Physical Fitness (199) as the fourth quarter course in the sequence.

Physical Education majors and minors and elementary education students may substitute 221 for one quarter course in basic physical education (110-198).

101 DIAGNOSIS-CLASSIFICATION. F and I, non-credit. This course substitutes for the first four weeks of the student's first basic physical education course. Each student undergoes a thorough diagnostic inventory to assist him and his instructor in planning an appropriate program of college physical education for the student. *Staff.*

110 ADAPTIVE PROGRAM. F, I, and S, quarter course. This is a specialized program for older students and those with physical handicaps whose needs cannot

be met in the regular programs (120-198). Adaptive and corrective activities are developed for each student. Students are assigned to regular activities or special programs. The college physician is consulted in the cases of physically handicapped students. Students who are eligible for this course should consult the departmental representative at registration. The course may be repeated. *Mr. M. Zuidema.*

120-159 GUIDED INSTRUCTIONAL PROGRAM. F, I, and S, quarter courses. Vari-

ous developmental and recreational courses planned to develop one or more aspect of personal efficiency are offered. Examples of such courses are: physical conditioning, weight training, motor training, rhythmic, wrestling, gymnastics, badminton, bowling, tennis, golf, handball, paddleball, and volleyball. Up to three quarter courses may be taken in this program. *Staff.*

160-198 **SPECIALIZED INSTRUCTIONAL PROGRAM.** F, I, and S, quarter course. Specific courses are developed with a departmental representative and may include, among others, aerobic fitness, individual and group experience in creative movement expression, and programmed learning in self-defense, skiing, cycling, or mountain climbing. Such programs may be arranged by individuals or groups and for more advanced students may include instructional clubs in various leisure time sports. Up to three quarter courses may be taken in this program. *Staff.*

199 **PHYSICAL FITNESS.** F, I, and S, quarter course. This course is the final one in the basic physical education sequence and, accompanied by a review of the results of the student's initial personal inventory, aims to give him a basis for maintaining life-long physical fitness. Students must meet programmed fitness standards or engage in fitness building programs until they can meet such standards. *Staff.*

221 **ELEMENTARY SCHOOL ACTIVITIES AND PROGRAMS.** See description under Professional Courses.

PROFESSIONAL COURSES

201 **HISTORY AND PERSPECTIVE.** F. The course deals with two areas—the history of physical education in the civilized world, and the problems, purposes, and philosophical implications of physical education as they affect man in general and educational institutions in particular. *Mr. B. Steen.*

212 **KINESIOLOGY.** F. A study of human motion from the scientific standpoint. Particular attention is given to a mechanical analysis of musculoskeletal movements as applied to games, sports,

and daily living. Prerequisite: Biology 205. *Mr. R. Honderd.*

215 **PHYSIOLOGY OF PHYSICAL ACTIVITY.** 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 205. *Mr. J. Timmer.*

221 **ELEMENTARY SCHOOL ACTIVITIES AND PROGRAMS.** F and S, half course. The course provides a working knowledge of the fundamentals of physical education planning for elementary school children. It substitutes for one quarter course in basic physical education (110-198) for physical education majors and minors, and for elementary teacher education students. *Staff.*

230-239 **THE TEACHING AND COACHING OF ACTIVITIES.** Half course. Students with a major concentration in physical education must combine various courses to total the required two-course credit. Prerequisite: a record of participation in skill performance or completion of the same activity in 380.

230 Field Hockey/Soccer (for women). Miss D. Hageman.

231 Basketball/Softball (for women). F. Miss D. Zuidema, Miss D. Hageman.

232 Individual and Dual Sports, Volleyball/Gymnastics. F. Miss D. Zuidema.

233 Track and Field. S. Mr. D. Tuuk.

234 Basketball (for men). F. Mr. R. Honderd.

235 Soccer (for men). F. Mr. M. Zuidema.

236 Football (for men). F. Mr. B. Holwerda.

237 Baseball (for men). S. Mr. M. Zuidema.

301 **MEASUREMENT AND EVALUATION IN PHYSICAL EDUCATION.** S. A study of the evaluation techniques in physical education. Emphasis 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 gives opportunity for practical experience in administering tests. *Mr. M. Zuidema.*

302 ORGANIZATION OF THE CURRICULUM AND PROGRAMS OF PHYSICAL EDUCATION. 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. Opportunity is given to construct total programs of physical education for selected schools. *Mr. B. Steen.*

303 LEADERSHIP IN RECREATION PROGRAMS. S, half course. 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. Tuuk.*

312 PHYSIOLOGY OF CONDITIONING AND INJURIES. F, half course. The study of physiological principles as they apply to physical training and rehabilitation from injury. Specific types of training programs are studied. Laboratory topics will include athletic injury treatment, taping techniques, and first aid procedures. Prerequisite: Biology 205. *Mr. J. Timmer.*

380 INDIVIDUAL COMPETENCES. F, I, and S, full or half course. This course

offers opportunity for physical education majors and minors to develop the physical condition and skill necessary to be beginning teachers in physical education. It requires active participation and competence in a variety of physical education skills. Students should register for this course when they are admitted to a major or minor in the department and remain registered for it until they have completed the other departmental requirements. Majors, who need a full course credit, must earn 210 points and minors, who receive a half course credit, must earn 105. Periodic competency examinations are given. Elements of this course are prerequisites for 230 courses. *Mr. D. Vroon and staff.*

1974-75 INTERIM

The full description of interim courses is given on pages 125-142.

12 THE DYNAMICS OF MOTOR SKILL ACQUISITION, *Mr. M. Zuidema.*
390 INDEPENDENT STUDY, *Staff.*

The following course in the Sociology Department is jointly offered by a member of this department.

13 SOCIOLOGY OF SPORT, *Mr. Steen.*

Physics

*Professors V. Ehlers (chairman), R. Griffioen, A. Kromminga, *C. Menninga, †H. Van Till*

*Associate Professor *J. Van Zytveld*

Assistant Professors D. Ramaker, M. Vanderhill

STUDENTS intending to major in physics are advised to enter college with four years of mathematics and to take their basic courses in mathematics (Mathematics 111, 112, 211, 212) and physics (Physics 123, 124, 225, 226) during their freshman and sophomore years. Mathematics 108 is also recommended for the freshman year. Students may apply for admission to the department before completing 226 and Mathematics 212, but they must have completed the designated courses with a minimum average grade of C (2.0) before they can be admitted to the major program.

The major program of concentration in physics includes, in addition to the four introductory courses, 335, 345, 346, 375, 376, 380 or 381, and

382 or an interim course in Modern Physics Laboratory. Students planning to do graduate work in physics should also take 365, 395 and 396 or an interim course in research, and Mathematics 313.

The major program of concentration in physics for secondary education students requires a minimum of nine college courses, including Philosophy 203, Physics 123, 124, 225, 226, 380 or 381, 382 or an interim course in Modern Physics Laboratory, plus two to three electives from the Advanced Courses. The minor program for secondary education students requires 123, 124, 225, 226, 380 or 381, 382 or an interim course in Modern Physics Laboratory, plus electives from Advanced Courses.

The teaching group major in physics and mathematics consists of Mathematics 111, 112, 211, 212, 321, and 351; Physics 123, 124, 225, 226, 381, and 382. A group minor in the same fields consists of Mathematics 111, 112, and 211; Physics 123, 124, 225, and 226. The elementary teacher education adviser is Mr. Vernon Ehlers.

The teaching group major in physics and chemistry consists of Physics 123, 124, 225, 226; Chemistry 103, 104, and either 253-254 or 301-302; and two and a half courses approved by the Science Division Education Coordinator, Mr. Vernon Ehlers. Courses recommended for such electives include Physics 381, 382, Chemistry 201, 277, and 278.

The physical science core requirement may be met by a year of high school physics, by 110, 112, 123, 222, 225, Chemistry 104, Astronomy 110, Geology 252, and interim courses in physics and chemistry which are designated as satisfying the core.

INTRODUCTORY COURSES

110 PHYSICAL SCIENCE. F and S, 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) Physics 112, 123, 126, or 221. Prerequisites: high school algebra and Mathematics 109 or its equivalent. *Staff.*

112 PHYSICAL SCIENCE. F and S, one and a half courses, core. The major objectives of this course are the same as those of 110 except that a laboratory-oriented approach is used to achieve the objectives. Emphasis is placed on the

processes and structure of science. The course is designed for future elementary school teachers and makes use of elementary school science programs and materials. Not open to those who have taken or plan to take 110, 123, 126, or 221. Prerequisites: high school algebra and Mathematics 109 or their equivalent. *Mr. V. Ehlers.*

123 INTRODUCTION TO MODERN AND CLASSICAL PHYSICS. F, core. This course, along with 124, which is its continuation, 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 rather than with 110. Topics in classical physics include mechanics, thermodynamics, and geometrical topics. In the area of modern physics, topics such as special relativity and nuclear properties will be discussed. Related laboratory work will be

performed and the nature of scientific study in general and its place in one's world and life view will be discussed. Concurrent registration in (or completion of) Mathematics 111 is required. *Mr. R. Griffioen.*

124 INTRODUCTION TO MODERN AND CLASSICAL PHYSICS. S. A continuation of 123, which is a prerequisite. Laboratory. Prerequisite: Mathematics 111 and concurrent registration in Mathematics 112. *Mr. R. Griffioen.*

126 INTRODUCTORY PHYSICS: MECHANICS AND HEAT. S. 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 a first semester physics course into their programs. Laboratory. Prerequisite: Mathematics 111 and concurrent registration in Mathematics 112. *Staff.*

221 GENERAL PHYSICS. F. One and one-quarter course. This course is designed for those who do not intend to do further work in physics. The major areas of physics are discussed: mechanics, heat, electricity and magnetism, waves, relativity, quantum, theory, and particle physics. Laboratory. Prerequisites: plane trigonometry and high school algebra. *Mr. A. Kromminga.*

222 GENERAL PHYSICS. S, core. One and one-quarter course. A continuation of 221, which is a prerequisite. Laboratory. *Mr. A. Kromminga.*

225 INTRODUCTORY PHYSICS: ELECTRICITY, MAGNETISM, AND WAVES. F, core. A study of the properties of electric and magnetic fields: a mathematically unified treatment of alternating current circuits, general wave phenomena, and physical optics. Laboratory. Prerequisites: 124 or 126, Mathematics 112 and concurrent registration in Mathematics 211. *Mr. D. Ramaker.*

226 INTRODUCTORY ATOMIC PHYSICS. S. A study of phenomena resulting from the atomicity of matter; an introduction

to quantum effects and the wave-particle duality of matter and radiation: a study of the structure of atoms as described by Schroedinger theory. Prerequisites: 225, Mathematics 211. *Mr. D. Ramaker.*

ADVANCED COURSES

Prerequisite for all of the 300-level physics courses is Mathematics 212.

335 CLASSICAL MECHANICS. F. 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. *Mr. A. Kromminga.*

345 ELECTROMAGNETISM AND GRAVITATION. S. The basic equations of the two classical interaction theories are developed. Applications are made to electromagnetic fields in material media, boundary-value problems, electromagnetic energy, radiation, and physical optics. Relativity with its connection to these theories is studied. The basic theory and some applications are considered in 345, while the remaining applications and relativity are reserved for 346. Prerequisite: 225. *Mr. V. Ehlers.*

346 ELECTROMAGNETISM AND GRAVITATION. F. A continuation of 345, which is a prerequisite. *Mr. V. Ehlers.*

365 THERMODYNAMICS AND STATISTICAL MECHANICS. F. Discussion of the equation of state and the laws of thermodynamics with application to some simple systems; the thermodynamic potentials: kinetic theory. Treatment of statistical mechanics dealing mainly with ensembles and distribution functions, calculation of entropy and the thermodynamic potentials with application to crystals and gases. Quantum statistical mechanics is considered. Prerequisite: 335. *Mr. V. Ehlers.*

375 QUANTUM MECHANICS. F. This course begins with a brief discussion of statistical mechanics and the fundamental experiments leading up to the quan-

tum theory. 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, atomic spectra and structure, and X-rays. Nuclei and the solid state are also considered. Prerequisite: 226. *Mr. D. Ramaker.*

376 QUANTUM MECHANICS. S. A continuation of 375, which is a prerequisite. *Mr. D. Ramaker.*

379 CONTEMPORARY PHYSICS. S. An introduction to the major areas of current research in physics. Primary emphasis is placed upon solid-state, atomic, nuclear, and elementary-particle physics. Prerequisite: Physics 375. *Staff.*

380 ANALOG AND DIGITAL ELECTRONICS. 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: Physics 225. *Staff.*

390 INDEPENDENT STUDY IN PHYSICS. F, I, S, half or full course. Independent readings and research in physics, under the supervision of a member of the departmental staff. Prerequisite: permission of the chairman. *Staff.*

LABORATORY COURSES

381 ELECTRONICS. F, half course. An introduction to, and an analysis of, some

of the basic digital and analog electronic circuits commonly used in science and engineering research. Prerequisites: 225 or a year of college physics and permission of instructor. *Staff.*

382 MODERN PHYSICS LABORATORY. S, half course. 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. Prerequisite: 380, 381, Engineering 308, or a year of college physics and permission of the instructor. *Staff.*

395-396 PHYSICS SEMINAR AND RESEARCH. F, S, half course; I, full course. Library and laboratory research on an approved topic and presentation of the result of the research in a departmental seminar. Prerequisite: 382 and the approval of the department. *Mr. V. Ehlers.*

1974-75 INTERIM

The full description of interim courses is given on pages 125-142.

- 10 ELECTRONICS FOR EVERYONE, *Mr. H. Van Till.*
382 MODERN PHYSICS LABORATORY, *Mr. R. Griffioen.*
390 INDEPENDENT STUDY IN PHYSICS, *Mr. R. Griffioen.*

The following interdisciplinary courses are also offered by members of this department.

- 101 THE ART OF PHOTOGRAPHY, *Mr. V. Ehlers and Mr. C. Overvoorde.*
112 SEMINAR IN ENERGY SOURCES, *Mr. A. Kromminga.*

Political science

Professors J. De Borst, S. Monsma (chairman), J. Westra
Associate Professor P. Henry
Instructor R. De Vries

TO BE ADMITTED to a major program in political science a student must have completed 151 with a minimum grade of C (2.0). In addition to 151 the program requires 201, 203 or 303, 207, 305 or 306, and four

additional courses in the department. Required cognates include Economics 151 and an approved three-course sequence in one of the following departments: economics, history, psychology, or sociology. Students planning to pursue graduate study in political science should take 302 and both 305 and 306.

Students preparing for a secondary teaching certificate should meet the general major requirements in political science and, as far as possible, in the cognate fields. 202 is recommended but not required. A departmental minor requires 151, 201, 202, and any other three courses. Mr. De Vries is the adviser for teacher education.

The core requirements in political science normally are met by 151 or 300. Elementary education students may satisfy the core requirement with 201 and Canadian students with 210.

151 INTRODUCTION TO POLITICS. F and S, core. An introduction to political science. Analyzes the nature of the political process, the methods political scientists use in studying it, and some of the key concepts and terminology they have developed to explain it. *Staff.*

201 AMERICAN POLITICS. F and S. A study of American national politics. Emphasis is on the social context, constitutional foundations, and the major institutions, process, and functions of American politics. *Mr. J. De Borst.*

202 AMERICAN STATE AND LOCAL POLITICS. S. A study of American politics on the state and local levels. A comparative approach is used to analyze existing problems and the differences and similarities in political patterns. *Mr. S. Monsma.*

203 COMPARATIVE GOVERNMENT—EUROPE. F. A study of the government and politics of four major European states: Great Britain, France, Germany, and the Soviet Union. Prerequisite: 151. *Mr. J. Westra.*

207 INTRODUCTION TO INTERNATIONAL POLITICS. F. Analysis and critique of various theoretical approaches to the study of international politics; concepts of power; the nation-state and the doctrine of sovereignty; diplomacy; nationalism; imperialism; war; balance of power; collective security; and world government. Formerly 307. *Mr. J. De Borst.*

209 PUBLIC ADMINISTRATION. S. An introduction to the political process. Principles of administrative organization, methods of administrative control, and budget management. The organizational and administrative problems encountered by government agencies charged with carrying out public policies. *Mr. P. Henry.*

210 CANADIAN GOVERNMENT AND POLITICS. S. A study of the political system of Canada with emphasis on national (federal) government and politics. Major topics covered include: the origins and development of Canada's political institutions; Canada's constitution, the British North American Act; the evolution toward dominion status; Canadian federalism; the operation of the parliamentary-cabinet system in Canada; political parties and elections; social forces and trends in Canadian politics. This course carries core credit for Canadian students only. *Mr. J. Westra.*

300 MODERN POLITICAL IDEOLOGIES. F and S, core. Study of the major ideologies of the twentieth century: communism, fascism, democracy. Does not apply to major. Intended for juniors and seniors who wish to fulfill the political science core. *Mr. J. Westra.*

302 POLITICAL BEHAVIOR. F. Analysis of the political behavior and opinions of the non-office holding citizen. A study of the theory and methods of the behavioral orientation in political science

is included. Emphasis is on the United States. *Mr. S. Monsma.*

303 **COMPARATIVE GOVERNMENT—THE NON-WESTERN WORLD.** S. A study of the politics of Asian and African states. Emphasis is on the issues and problems posed by the modernization process. *Mr. R. De Vries.*

305 **HISTORY OF POLITICAL THOUGHT TO THE REFORMATION.** F. The development of political thought from ancient Greece to the sixteenth century. *Mr. J. Westra.*

306 **HISTORY OF MODERN POLITICAL THOUGHT.** S. Representative political theorists from the Reformation to the present. *Mr. P. Henry.*

308 **PRINCIPLES OF AMERICAN FOREIGN POLICY.** F. An analytical view of American foreign policy; its domestic sources; process of formulating policy; instruments of American diplomacy; the nature of U.S. relations with hostile powers, allies, the emerging nations, and the United Nations; the limitations and potentials of American foreign policy. *Mr. R. De Vries.*

309 **INTERNATIONAL ORGANIZATIONS.** S. An examination of regional and universal international organizations; their processes, functions, and impact on the international system. The United Nations system as well as economic and political integration within the North Atlantic area, among Communist states, and in the Third World. Not offered 1974-75.

310 **THE JUDICIAL PROCESS AND CIVIL LIBERTIES.** S. The judicial process in American politics. Special consideration

of the Supreme Court's interpretations of the Constitution, with emphasis on civil liberties. *Mr. J. De Borst.*

312 **LEGISLATIVE BEHAVIOR.** F. A study of legislators, legislatures, and the legislative process. The impact of institutional structures, political parties, outside forces, and personal norms on the legislative process. The role of legislatures in the democratic process. State and non-American legislatures are considered but the emphasis is on the federal Congress. *Mr. P. Henry.*

313 **POLITICAL PARTIES.** F. The nature of political parties and their role in the political process. The organization of parties, their internal processes, nominations, and election campaigns. An emphasis on the American party system but others are considered. Not offered 1974-1975.

390 **INDEPENDENT STUDY.** F, I, S. Reading or directed projects for majors. Open with the permission of the chairman and the instructor under whom the work will be done. *Staff.*

395 **SEMINAR.**

1974-75 INTERIM

The full description of interim courses is given on pages 125-142.

- 11 **PROBLEMS IN FREEDOM OF EXPRESSION,** *Mr. J. De Borst.*
- 12 **POLITICAL CORRUPTION,** *Mr. J. Westra.*
- 30 **REALISM VS. IDEALISM IN WORLD POLITICS,** *Mr. R. De Vries.*
- 31 **CHRISTIAN POLITICAL OPTIONS,** *Mr. S. Monsma.*
- 390 **INDEPENDENT STUDY,** *Staff.*

Psychology

Professors A. Reynolds (chairman), R. Youngs

Associate Professors M. Bolt, W. Joosse, W. Sanderson, R. Stouwie, R. Terborg

Instructor J. Brink

Assistant C. De Vries

INTRODUCTORY PSYCHOLOGY (151) must be completed with a minimum grade of C (2.0) by students intending to major in the department. The eight course major program includes 151, 212, 250, which should be completed before the junior year, 305 or 306, 311, at least one from 330, 331, 332, one 300-level elective, and one course selected from any departmental offering, including the interim courses.

Students intending to pursue graduate education in psychology or related fields should consult a department member for advice. There are a number of options open which require different types of preparation.

A teaching minor consists of six courses: 151, 212, 306, 311, one from 330, 331, 332, and one elective.

The core requirement in psychology may be met by 151 or, for students in teacher education programs, by Education 301. Psychology 12 and 322 may be a part of the teaching minor in the academic study of religions.

151 INTRODUCTORY PSYCHOLOGY. F and S, core. An introductory course intended to give the beginner some orientation to the field of psychology in general. The psychology core requirements for students in teacher education programs should be met by Education 301 rather than by this course. *Staff*.

204 DEVELOPMENTAL PSYCHOLOGY. F and S. A study of the physical, motor, social, emotional, linguistic, intellectual, and valuational development of the child. An attempt is made to trace these aspects of the human being's development from babyhood through adolescence. Prerequisite: 151 or Education 301. *Mr. J. Daling, Mr. R. Stouwie*.

207 ADOLESCENT PSYCHOLOGY. F and S. A specialized course in developmental psychology directed specifically to the period from puberty to adulthood. Prerequisites: 151 and 204. *Staff*.

211 PERSONALITY AND ADJUSTMENT. F and S. A study of psychological theory and research pertinent to personality dynamics and adjustment. Coverage includes: concepts of mental health, need fulfillment, sources of conflict and stress, the nature and effects of anxiety, the self concept, and principles of emotional and interpersonal competence. Attention will be given to the personal application of these topics. Prerequisite: Psychology 151. *Mr. W. Joosse*.

212 PSYCHOPATHOLOGY. 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: Psychology 151. *Staff*.

216 PSYCHOLOGY OF THE EXCEPTIONAL CHILD. F and S. A study of mental retardation, emotional disturbance, learning problems, speech correction; the physically handicapped and the gifted. Emphasis on adjustmental difficulties and appropriate educational programs. Prerequisite: 151. *Mr. R. Stouwie*.

250 DESCRIPTIVE STATISTICS FOR SOCIAL SCIENCES. F and S. An introduction to the major forms of descriptive statistics (measures of central tendency, variability, linear transformation, area transformation, correlation). Both an understanding of and proficiency in the application of these concepts and techniques in the areas of education, psychology, sociology, etc., will be sought. *Mr. A. Reynolds*.

306 THE GROWTH OF PSYCHOLOGY. F and S. A study of the origins of contemporary psychology within science and within philosophy, and of the development of various systematic approaches to psychology as a separate academic discipline in Europe and the United States. Prerequisites: two courses in psychology. *Mr. W. Sanderson*.

308 INTRODUCTION TO EXPERIMENTAL PSYCHOLOGY. S. A critical study of experimental methods, problems, materials, results, and conclusions, with major emphasis on perception and learning. Laboratory work will be required. Open only to juniors and seniors intending to major in psychology who have either 250 or Mathematics 206. *Mr. R. Terborg.*

310 SOCIAL PSYCHOLOGY. F and S. A critical study of the individual's relationship to other individuals, groups, and cultures. Attention is given to such topics as beliefs, attitudes, and values; social influence and conformity; interpersonal perception and attraction; aggression and social conflict; altruism; and collective behavior. Prerequisite: Psychology 151. *Mr. M. Bolt, Mr. J. Brink.*

311 THEORIES OF PERSONALITY. F and S. An introduction to modern American and European theories concerning the psychological structure and dynamics of the human person. Prerequisites: 151, 212. *Mr. W. Sanderson.*

312 PRINCIPLES OF PSYCHOLOGICAL MEASUREMENT. F and S. This course aims to give the student an introduction to the theoretical and practical issues, viewpoints, and techniques of psychological testing in the areas of both intelligence testing and personality measures. Open only to those who have had 250 of Mathematics 206. *Mr. A. Reynolds.*

314 CLINICAL PSYCHOLOGY. S. An introduction to the science, techniques, and art of employing psychological means to promote the welfare or mental health of a person. Prerequisites: 212, 311, and 312. *Staff.*

322 PERSPECTIVES OF PSYCHOLOGY. S. In this course the purpose is to explore relationships of psychology to (or its involvement in) various issues in our culture, in such areas as literature, religion, art, or morality. Normally, in any given semester, major emphasis will be focused on only one of these areas. Permission of the instructor is necessary to enroll in this course. Not offered 1974-75.

330 PSYCHOLOGY OF EMOTION AND MOTIVATION. S. A thorough discussion

of the psychological study of emotion and motivation. Recent research findings as well as theory formation in the areas of emotion and motivation is included. Prerequisite: Psychology 151. Not offered 1974-75.

331 PSYCHOLOGY OF SENSATION, PERCEPTION, AND COGNITION. S. A detailed examination of the functions of perception and thought in man. Various theories as well as current research trends will be discussed. Prerequisite: Psychology 151. *Mr. W. Sanderson.*

332 PSYCHOLOGY OF LEARNING PROCESSES. F. A presentation of empirical strategies and theory formation in the area of the psychology of learning. The importance of learning theory for psychology in general is stressed. Prerequisite: Psychology 151. *Mr. R. Terborg.*

390 READING AND RESEARCH. F, I, S. Prerequisite: permission of the chairman.

395 SENIOR SEMINAR ON ISSUES IN CONTEMPORARY PSYCHOLOGY. F. The preparation, presentation, and discussion of papers based on current psychological literature and empirical research. Open to seniors majoring in psychology. Prerequisite: statistical competence. *Mr. A. Reynolds.*

1974-75 INTERIM

The full description of interim courses is given on pages 125-142.

- 10 **MOBS, MANIAS, AND MASS MOVEMENTS,** *Mr. M. Bolt.*
- 11 **ADULT PSYCHOLOGY** *Mr. W. Joosse.*
- 12 **SEMINAR IN THE PSYCHOLOGY OF RELIGION,** *Mr. W. Sanderson.*
- 13 **MEASUREMENT - EVALUATION - REPORTING PUPIL PROGRESS,** *Mr. A. Reynolds.*
- 14 **EXPLORING BEHAVIOR,** *Mr. R. Terborg.*
- 390 **INDEPENDENT STUDY,** *Staff.*

The following interdisciplinary course is also offered by a member of this department.

- 113 **WITCHES, WIZARDS, WARLOCKS, WEREWOLVES, AND WHO-OOO?,** *Mr. C. Vos, Mr. R. Youngs.*

Religion and theology

Professors J. Bratt (chairman), W. De Boer, D. Holwerda, T. Minnema, J. Primus, G. Spykman, C. Vos, L. Vos
*Associate Professors H. Hoeks, *L. Sweetman*

THE DEPARTMENT offers a major in Religion and Theology, a major in Religion and Education, and a teaching minor in the Academic Study of Religions. To be eligible for the major programs a student must have completed either 103 or 107 with a minimum grade of C (2.0).

The program for the Religion and Theology concentration requires nine courses including 206, 207, 208, 301, 303, 308, and 395. An approved four-course sequence in another department is also required. The adviser for this program is the chairman.

The training in Religion and Education is for students who expect to serve as director of education in churches, or, in some cases, to serve as Bible teachers in the Christian day school system. The major concentration includes 107, 108, 206, 303, 308, 319, 395, plus three electives in the department and Education 301, 303, 304, 346, and 356. Two of these electives may be satisfied by Greek 205-206 (New Testament Greek) and one by an approved interim course. Students who plan to serve as directors of education in churches should plan to do graduate work in the field of Religion and Education. The adviser for this program is Mr. Louis Vos.

The teaching minor leading to certification in the Academic Study of Religions has been approved by the State of Michigan for a five-year provisional period beginning with the graduates of 1973. The nine-course group minor requires Religion and Theology 151, 234, 305, 319, 390, and 395; two courses from Art 231, 232, English 320, 321, History 201, 202, 203, 204, Interdisciplinary 107, Sociology 210, 217, 311, Psychology 322; and two courses from Philosophy 204, 205, 207, 209 (or Education 304), Religion and Theology 206, 207, 208, 301, 308, 311, and 313 or other appropriate courses selected with the approval of the adviser for this program, Mr. Henry Hoeks.

The core requirements in religion and theology may be met by selecting one from the following courses in Biblical studies: 103, 107, 108, 207, and 208; and one from the following courses in Theological, Historical, and Religio-cultural studies; 206, 301, 303, 304, 308, 311, and 312. Any departmental course except interims may be chosen by students electing a third core course in religion and theology.

151 INTRODUCTION TO RELIGION STUDIES. F. An introductory course appropriate to prospective teachers, and required of those students who wish to minor in

the Academic Study of Religions. This course deals critically with views of the origin, nature, and function of religions as they are found in the disciplines of

cultural anthropology, the history and literature of religion, the phenomenology of religion, the psychology of religion, and the sociology of religion. This course also includes a study of the relevant Supreme Court decisions, a consideration of the problem of objectivity, an introduction to alternative pedagogical approaches to the study of religions, and an exposure to materials and media appropriate to teaching religion studies. *Mr. H. Hosks.*

BIBLICAL STUDIES

103 **BIBLICAL THEOLOGY.** 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, inter-testamentary, and New Testament eras. Biblical books and Apocryphal literature are analyzed and the major themes of Scripture are explicated. Students may not take this course and either 107 or 108. *Staff.*

107 **OLD TESTAMENT BIBLICAL THEOLOGY.** F, core. Biblical theology for Religion and Education majors and for those desiring a more complete coverage of the biblical theology of the Old Testament than can be offered in 103. *Mr. C. Vos.*

108 **NEW TESTAMENT BIBLICAL THEOLOGY.** S, core. A more complete coverage of the biblical theology of the New Testament than can be offered in 103. A continuation of 107 which is not a prerequisite. *Mr. D. Holwerda.*

207 **THE OLD TESTAMENT PROPHETICAL LITERATURE.** S, core. An intensive study of the place and role of the major and minor prophets in the Old Testament, the commentary they offer upon the history of redemption in Old Testament times, together with an exploration of their basic themes and their continuing relevance. Not open to freshmen. *Mr. C. Vos.*

208 **THE NEW TESTAMENT EPISTOLARY LITERATURE.** F, core. An intensive study of the place and role of the epistles in the canon of the New Testament, the doctrinal and ethical interpretations which these epistles give of the redemption portrayed in the Gospels, the light

they shed on the early Christian Church, and their abiding relevance and significance. Not open to freshmen. *Mr. W. De Boer.*

302 **BIBLICAL ARCHAEOLOGY.** S. A study of the pertinent archaeological data which provide a background for or throw light upon the biblical narrative. Prerequisite: one course in Biblical Studies and junior or senior standing. *Mr. B. Van Elderen.*

THEOLOGICAL STUDIES

206 **REFORMATION THEOLOGY.** F and S, core. 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. Not open to freshmen. *Staff.*

308 **CONTEMPORARY THEOLOGY.** F, core. Selected writings of significant contemporary theologians are read and evaluated. Prerequisite: junior or senior standing. *Mr. D. Holwerda.*

312 **EARLY CHRISTIAN THEOLOGY.** S, core. A study of the growth of the church towards self-conscious commitment to an articulation of its faith from the sub-apostolic age through St. Augustine. Development and growth of thought will be emphasized and selected writings of major theologians will be studied. *Mr. G. Spykman.*

313 **ROMAN CATHOLIC THEOLOGY.** S. The development of Roman Catholic Theology from the medieval era to present times, finding its climax in contemporary changes growing out of Vatican II. The Council of Trent, Counter-Reformation Theology, papal encyclicals, Vatican I, and major schools of thought and shifting practices will be examined. *Mr. G. Spykman.*

HISTORICAL STUDIES

303 **GENERAL CHURCH HISTORY.** 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 inter-

play 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 freshmen. *Mr. F. Roberts.*

304 AMERICAN RELIGIOUS HISTORY. S, core. A consideration of the religious history of our country from the immigration period to the present. Attention is paid to the European background, the early church beginnings in their diversity, the colonial era, the westward movement, current ecumenism, and the major social and political developments in their influence upon the American religious scene. Consideration will also be given to the historical antecedents and the development of the Christian Reformed Church in America. *Mr. J. Primus.*

RELIGIO-CULTURAL STUDIES

The following interdisciplinary course is described in that section of the catalog.

234 THE CONTEMPORARY AMERICAN RELIGIOUS SITUATION. F.

301 CHRISTIANITY AND CULTURE (Studies in Calvinism). 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 freshmen. *Staff.*

311 HISTORY OF CHRISTIAN SOCIAL THOUGHT. F, core. A study of the interrelation of Christian teaching and society. From the history of the Christian Church certain periods and movements are selected to demonstrate the interaction of Christian faith and social forces. *Mr. T. Minnema.*

MISSIONS AND WORLD RELIGIONS

203 THEOLOGY OF MISSION. S. A survey of biblical material pertaining to mission. These materials are used in evaluating the contemporary problems of mission: i.e., renescent non-Christian religions, ecumenism, mission in the ferment of social revolution. *Staff.*

204 HISTORY OF MISSIONS. F. The record of missionary history through the ancient, medieval, and modern periods is examined with a view to ascertaining the principles that come to expression, the methods employed, the areas covered, the chief figures, and the measure of success or failure. In the modern period the great missionary conferences of the twentieth century are analyzed and evaluated. Not open to freshmen. *Mr. J. Bratt.*

305 WORLD RELIGIONS. F. An analytical and critical study of the phenomenology and conceptual pattern historically operative in the major non-Christian religions: "Primitivism," Hinduism, Shinto, and Islam. The study approaches each religion as it provides a total perspective of life and is embodied in cult, in ideology, and in inter-personal and communal life. The study, consequently, includes popular expressions of the religions as well as the "official" religion of the sacred texts. *Mr. R. De Ridder.*

RELIGION AND EDUCATION

319 THEOLOGICAL AND HISTORICAL FOUNDATIONS OF RELIGION AND EDUCATION. S. A survey of the educational programs of major Western religions from Old Testament times to the present. By integrating theoretical study with the examination of existing programs in churches and schools, the students are guided in developing a relevant biblical perspective on the relationship of religion to education. Satisfies the Calvin Seminary requirement in psychology and education. *Mr. H. Hoeks.*

390 READING AND RESEARCH. F, I, S, full course or half course. (Minors in the Academic Study of Religion take the half course concurrently with 395). Prerequisite: permission of the chairman. *Staff.*

395 SENIOR SEMINAR. F, full course for majors in Religion and Theology and for majors in Religion and Education; half course when taken concurrently with 390 as a half course for minors in the Academic Study of Religions. *Staff.*

1974-75 INTERIM

The full description of interim courses is given on pages 125-142.

- 10 WOODEN SHOES IN AMERICA, THE CHRISTIAN REFORMED CHURCH IN AMERICAN CULTURE. *Mr. J. Bratt.*
- 11 PROPHECY AND FULFILLMENT, *Mr. D. Holwerda.*
- 12 FIDDLERS ON OUR ROOF: JEWS IN AMERICA, *Mr. J. Primus.*
- 30 SIGHT-SOUND THEOLOGY, *Mr. G. Spykman.*
- 390 INDEPENDENT STUDY, *Staff.*

The following interdisciplinary courses are also offered by members of this department.

- 113 WITCHES, WIZARDS, WARLOCKS, WEREWOLVES, AND WHO-OOO, *Mr. C. Vos, Mr. R. Youngs.*
- 114 MAY GOD GO TO SCHOOL? THE ROLE OF RELIGION IN PUBLIC EDUCATION, *Mr. H. Hoeks.*
- 119 SAINTS OR SINNERS: THE CHRISTIAN'S SELF-IMAGE, *Mr. L. Teit-sma, Mr. L. Vos.*

Sociology

Professors *H. Holstege (chairman), R. Rice, T. Rottman, W. Smit, D. Wilson*
Associate Professors *G. De Blaey, P. De Jong, R. Vander Kooi*
Assistant Professor *D. Smalligan*

STUDENTS MUST COMPLETE 151 with a minimum grade of C (2.0) to be eligible for admission to the major program. A concentration in sociology requires 151, 318, 320, and six additional courses, excluding 210, 300, and 301. One interim course in sociology may be included among the additional courses. If possible, 318 and 320 should be taken during the junior year. The teacher education adviser is Mr. Wilson.

The core requirement in sociology may be met by 151 or 217. Sociology 210, 311, and 217 may be a part of the teaching minor in the academic study of religions.

151 **SOCIOLOGICAL PRINCIPLES AND PERSPECTIVE.** F and S, core. A general introduction to the discipline. Provides a brief theoretical and conceptual grasp of sociology as a body of knowledge dealing with group relationships as these affect both the individual and society. An attempt is made to articulate this knowledge and to demonstrate its use by showing how a sociological perspective offers a rational interpretation of issues current in our society. *Staff.*

210 **PHYSICAL ANTHROPOLOGY.** F and S. A critical analysis and evaluation of the areas of primate paleontology, human variation, and prehistoric archaeology. *Mr. D. Wilson.*

217 **SOCIAL ANTHROPOLOGY.** 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. D. Wilson, Mr. P. De Jong.*

300 **HISTORY AND THEORY OF SOCIAL WORK.** F. An analysis of the trends and issues in major fields of social work. A historical perspective is given of public assistance, family and child welfare, mental health, courts and corrections, and anti-poverty programs and their relationship to social work. *Mr. D. Smalligan.*

301 **SOCIAL CASE WORK AND SOCIAL GROUP WORK.** S. An analysis of social case work and group work principles,

problems, and methods based upon theoretical and case material. Prerequisite: 300. *Mr. D. Smalligan.*

302 URBAN SOCIOLOGY AND COMMUNITY ORGANIZATION. F and S. A descriptive and theoretical analysis of urban society and urban sub-communities. The emphasis is on urban processes and problems and sub-cultures within the city as well as on such contemporary issues as urban renewal and planning. *Mr. H. Holstege, Mr. R. VanderKooi.*

304 THE FAMILY. 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. H. Holstege.*

306 SOCIOLOGY OF DEVIANCE. F and S. 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. *Mr. T. Rottman, Mr. R. VanderKooi.*

308 POPULATION AND SOCIETY. F. 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; 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 analysis of causes and consequences of population size, distribution, and composition for human society. *Mr. R. Rice.*

309 SOCIOLOGY OF EDUCATION. 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 teacher. Prerequisite: 151

or permission of the department. *Mr. G. De Blaey.*

310 SOCIAL PSYCHOLOGY. F and S. Human behavior as a consequence of man's psychological make-up and his 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. Prerequisite: 151, Psychology 151, or permission of the department. *Mr. G. De Blaey.*

311 SOCIOLOGY OF RELIGION. F. A study of the organizational forms of religion, with special attention being given to the influence and effectiveness of the church in its function as a social institution and to the social influences which have, in turn, affected the church. *Mr. W. Smit.*

312 THE SOCIOLOGY OF COMMUNITY. S. A cross-cultural analysis of the changing nature of the community as a human ecological organization and as a structured system of status and power. Man's utopian dreams of ideal communities are contrasted with the types of communities actually found in primitive, agrarian, and industrial societies. *Mr. W. Smit.*

314 CONTEMPORARY SOCIAL PROBLEMS: CULTURAL AND SOCIAL RESPONSES TO DEATH AND DYING. F. This course begins with a discussion of various theoretical orientations to the study of social problems generally. It then relates these theories to the particular problems associated with death and dying from the perspectives of contemporary culture and society, of those close to the dying person, and of the dying person himself. Special attention will be given to the extent to which the conceptions and customs surrounding death and dying are functional in their own terms and compatible with biblical norms. *Mr. T. Rottman.*

318 SOCIOLOGICAL THEORY. 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. *Mr. H. Holstege, Mr. T. Rottman.*

320 **SOCIOLOGICAL RESEARCH.** S. An assessment of the nature of the research process as applied to the study of theoretical problems in social science. Guides the student 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 318. *Mr. R. Rice, Mr. P. De Jong.*

390 **INDEPENDENT STUDY.** F, I, S. Prerequisite: permission of the chairman and of the instructor. *Staff.*

395 **SEMINAR.**

1974-75 INTERIM

The full description of interim courses is given on pages 125-142.

- 10 **MONKEYS AND APES,** *Mr. D. Wilson.*
- 11 **THE PLANNED FAMILY,** *Mr. R. Rice, Mr. W. Smit.*
- 12 **NO PLACE TO LAY HIS HEAD: THE SOCIOLOGY OF HOMELESSNESS,** *Mr. R. Vander Kooi.*
- 13 **SOCIOLOGY OF SPORT,** *Mr. G. De Blaey, Mr. B. Steen.*
- 30 **SOCIOLOGY OF HOUSING,** *Mr. H. Holstege.*
- 31 **WOMEN AS A MINORITY GROUP,** *Mr. P. De Jong.*
- 32 **FIELD WORK IN SOCIAL AND REHABILITATION AGENCIES,** *Mr. D. Smalligan.*
- 390 **INDEPENDENT STUDY,** *Staff.*

Spanish

Professor A. Otten (chairman, Department of Romance languages)

Associate Professor D. Vila (program adviser)

Assistant Professors E. Cortina, B. Siebring

STUDENTS may declare for a program of concentration in Spanish after having completed two units of college Spanish with a minimum grade of C (2.0). The program of concentration includes eight regular courses and an interim. The regular courses are 201-202, 217-218, 303-304 or 307-308, and two courses chosen from 305, 306 or 321. The minor program for prospective secondary teachers requires 201, 202, 217, 218, 321, and one additional advanced course. Programs for students beginning Spanish in college, including prospective secondary teachers, should be worked out with the chairman or the program adviser. Cognates in another foreign language through the 200-level, European history, English literature, philosophy, history of music, or history of art are recommended. A year-abroad program is available in Spain. All courses above 102 meet core requirements in foreign language; all courses above 217 meet core requirements in the fine arts.

101 **ELEMENTARY SPANISH.** F. An introductory course in the use and comprehension of oral and written Spanish. *Staff.*

102 **ELEMENTARY SPANISH.** S. Continuation of Spanish 101. *Staff.*

201 **INTERMEDIATE SPANISH.** F. Review of essential grammatical structures and further training in spoken and written Spanish. Readings from significant Spanish authors. Prerequisites: 101 and 102 or their equivalent. *Staff.*

202 INTERMEDIATE SPANISH. S. Continuation of 201. *Staff*.

205-206 (Interim) -207 INTERMEDIATE SPANISH. F, I, S. A three-semester course intended for students who have completed two years of high school Spanish with less than a C average or who have studied Spanish in the tenth and eleventh grades. Admission to this course is by placement test administered at the time of fall registration. *Mr. B. Siebring*.

321 ADVANCED SPANISH. F. A course designed for the student desiring to pursue graduate studies in Spanish, to engage in the teaching of Spanish, or to achieve a high degree of competence in the language. Conducted in Spanish. Prerequisite: 202 or equivalent. *Mr. D. Vila*.

LITERATURE

217 READINGS IN SPANISH AND LATIN AMERICAN LITERATURE. F. An introduction to the major writers and movements in the history of the Spanish literature from the Middle Ages to the present day. The first semester deals with the literature of Spain, while the second semester deals with the literature of Latin America. Lectures, readings, and reports. Conducted in Spanish. Prerequisite: 202. *Mrs. E. Greenway*.

218 READINGS IN SPANISH AND LATIN AMERICAN LITERATURE. S. Continuation of 217. *Mrs. E. Greenway*.

303 THE SPANISH NOVEL. F. A study of the Spanish novel from *La Celestina* to the present. Reading and interpretation of key chapters in Spain's outstanding novels as well as complete works. A study is made of the chief characteristics of the various types of novels. Prerequisite: 202 or equivalent. Conducted in Spanish. *Mr. D. Vila*. Not offered 1974-1975.

304 THE SPANISH NOVEL. F odd years, core. A continuation of 303. *Mr. D. Vila*. Not offered 1974-75.

305 SPANISH AND LATIN AMERICAN POETRY. F. A study of the history

and characteristics of Spanish poetry by means of extensive readings and detailed examination of major poets. Special emphasis will be placed on the themes, forms, and techniques of poets of the last two centuries. Conducted in Spanish. Not offered 1974-75.

306 SPANISH AND LATIN AMERICAN POETRY. S. A study of the history and characteristics of Latin American poetry, by means of extensive readings and detailed examination of major poets. Special emphasis will be placed on the themes, forms, and techniques of poets from the Modernist generation to the present day. Conducted in Spanish. Not offered 1974-75.

307 THE LATIN-AMERICAN NOVEL. F even years. A study of the novels of Latin America with particular emphasis on the last two centuries. Attention will be paid to the conditions that give rise to the different types of novels, as well as to the intrinsic literary value of the novels themselves. Conducted in Spanish. *Mrs. E. Cortina*.

308 THE LATIN-AMERICAN NOVEL. S even years. A continuation of 307. *Mrs. E. Cortina*.

309 THE SPANISH DRAMA. A even years. A study of the dramatic expression of Spain's Golden Age of literature. Particular emphasis will be placed on the drama of Lope de Vega, Tirso de Molina, Calderón, and Alarcón. Conducted in Spanish. Prerequisite: 202 or equivalent. Not offered 1974-75.

310 THE SPANISH DRAMA. S even years. A study of the dramatic expression of Echegaray, Benavente, Lorca, Casona, and Buere Vallejo. Conducted in Spanish. Prerequisites: Spanish 309. *Mr. D. Vila*. Not offered 1974-75.

390 READINGS AND RESEARCH. F, I, S. Prerequisite: permission of the department.

395 SEMINAR.

1974-75 INTERIM

The full description of interim courses is given on pages 125-142.

- 10 **DISCOVERING LATIN AMERICA**, Mr. D. Vila.
 11 **SPANISH INTERIM IN MEXICO**, Mrs. E. Cortina.
 206 **INTERMEDIATE SPANISH**, Mr. B. Stebring.

390 INDEPENDENT STUDY, Staff.

The following interdisciplinary course is also offered by a member of this department.

- 116 **INTRODUCTION TO BILINGUAL EDUCATION**, Mrs. E. Greenway.

Speech

Professors M. Berghuis, A. Noteboom, T. Ozinga, M. Vande Guchte (chairman)

Associate Professor D. Nykamp.

Assistant Professors E. Boevé, D. Holquist, J. Korf.

PREREQUISITE TO A MAJOR is a minimum average of C (2.0) is one and one-half speech courses, one of which must be from the courses offered in Public Address. The major requires 200, 203, an interim, and five and one-half additional courses selected in consultation with a departmental adviser. Recommended cognates for students interested in oral interpretation and drama include aesthetics, history of art, introduction to musical literature, Shakespeare, and non-Shakespearean drama of the Renaissance; for those interested in speech education or speech correction, child psychology, psychology of exceptional children, descriptive statistics for the social sciences, and anatomy and physiology; for those interested in public address, political behavior, psychology of emotion and motivation, social psychology, and logic.

The departmental honors program requires honors registration in three speech courses other than 100 and 200 and the completion of 390 and 395 beyond the minimum eight and a half course major.

A secondary school teaching major consists of 100, 200, 203, 211, 215, 219, plus three and one-half other courses. The elementary school teaching major includes 203, 214, 215, 219, 240 or 250, plus four other courses. A secondary school teaching minor should include 100, 200, 203, 211, 215, 219, plus one other course.

The core requirements in spoken rhetoric may be met by 100; 214, if the student is in an elementary education program; 240; 200; or by an examination, which presupposes formal and practical speech training in high school. The fine arts core requirement may be met by 203, 219, 304, 317, 318, 325, and 326.

PUBLIC ADDRESS

100 **FUNDAMENTALS OF ORAL RHETORIC**. F and S, half course. The aim of the course is to train students to give

effective oral expression to materials that are logically and psychologically sound and to give reasoned evaluation of speeches given by others. Students in

elementary teacher education programs should take 214. *Staff.*

200 **ADVANCED ORAL RHETORIC.** F and S. Composition and presentation of types of speeches, readings in rhetorical theory and criticism of selected contemporary speeches, types of discussion, and parliamentary law. Prerequisite: 100 or equivalent. *Mr. M. Berghuis.*

211 **DEBATE.** F, half course. The forms and procedures of academic debate. Knowledge and competence in debating, judging, and coaching are course goals. Designed for debaters and prospective coaches. *Mr. D. Nykamp.*

230 **MASS COMMUNICATION.** F. Examination of television, radio, film, newspapers, magazines, and books. Emphasis on why and how mass media report events and the resultant effects on public attitude formation and change. Major topics include history of mass media; control and method of control of media; competition for the mass market; extent and quality of news coverage; and effects of mass media on society. *Mr. T. Ozinga.*

240 **GROUP COMMUNICATION.** F and S. Communication in the small group. Major topics include role development, cohesiveness, and group norms. Emphasis is on the task oriented small group. Participation in experimental group situations, reading in group communication theory, and analysis of group communication are required. *Mr. D. Nykamp, Mr. T. Ozinga.*

250 **SEMANTICS.** S. Study of verbal and nonverbal symbols used in communication. Primary emphasis is on the effect of symbols. Major topics include relationships between symbols and referents, and problems in human communication. *Mrs. A. Noteboom, Mr. D. Nykamp.*

305 **PERSUASION.** S. Communication as an influence at intrapersonal, interpersonal, group, mass, and cultural communication levels. Emphasis on increased understanding and competence. Prerequisite: 100 or equivalent. *Mr. T. Ozinga.*

311 **ARGUMENTATION.** F. Study of rational discourse and its uses. Methods of

investigation, analysis, and the use of evidence and logic. Regular application of theory to the student's own communication is required. *Mr. D. Nykamp.*

325 **HISTORY OF RHETORICAL THEORY.** S, core. Major issues in the history of oral rhetoric and communication. Classical, medieval, and early modern theories will be compared to twentieth century approaches. Theorists studied include Plato, Aristotle, Bacon, McLuhan, Burke, Goffman, and representatives of various contemporary schools. Seminar papers and discussions. *Staff.*

326 **HISTORY OF PUBLIC ADDRESS.** Core. Significant speeches are analyzed as communication arising out of a dynamic historical context. The role of speakers in the movements and controversies of their day. Included are orators of the Bible such as Moses and Paul; speakers of Greece and Rome, such as Demosthenes and Cicero; preachers such as Chrysostom, Luther, Calvin, Beecher, Fosdick, Marshall, and Graham; political spokesmen such as Webster, Lincoln, Roosevelt, Hitler, and Churchill; and speakers for social reform such as Susan B. Anthony and Martin Luther King, Jr. Not offered 1974-75.

SPEECH EDUCATION AND SPEECH CORRECTION

214 **SPEECH FOR THE ELEMENTARY TEACHER.** F and S. Designed to familiarize the prospective teacher with the speech arts used in the elementary classroom and to improve the prospective teacher's use of voice and articulation. *Staff.*

215 **PRINCIPLES OF SPEECH CORRECTION.** F. 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 will also serve to introduce the student to the profession of speech pathology and audiology. *Mr. M. Vande Guchte.*

307 **FUNDAMENTALS OF SPEECH SCIENCE.** F. A study of the anatomy and physiology of the speech organs, the

acoustic characteristics of speech production, speech sound formation, and phonetic transcription utilizing the International Phonetic Alphabet. Prerequisite: 215. *Mr. M. Vande Guchte.*

308 BASIC AUDIOLOGY AND AUDIOMETRY. S. A study of the fundamental aspects of hearing: the physics of sound, the anatomy of the ear, the nature of hearing and hearing impairment, and the testing of hearing. Prerequisite: 307 or permission of instructor. *Mr. M. Van de Guchte.*

ORAL INTERPRETATION AND DRAMA

203 INTERPRETATIVE READING. F and S, core. A study of the history, principles, and techniques of interpretation. Analysis and oral interpretation of prose, poetry, and drama. *Mr. D. Holquist, Mrs. A. Noteboom.*

219 PRINCIPLES OF DRAMATIC PRODUCTIONS. F, core. A study of the theory and principles of drama as revealed in representative plays from the Greek through the modern period. With a view to training the prospective coach, attention will be given to the technical aspects of production. Students will be trained in acting and in directing by means of classroom presentations of dramatic scenes. *Mr. J. Korf.*

220 THESPIAN PRODUCTIONS. Half course for the year. Membership in the Thespian group is limited and is determined annually by tryout. The members will be given training in the various practical aspects of the production of drama. Students may participate more than one year. *Mrs. E. Boevé.*

304 ADVANCED INTERPRETATION. S, core. Continuation of 203. Application of its principles to the novel and drama. Intensive study in preparation for a

reading program. Prerequisite: 203. *Mrs. A. Noteboom.*

317 HISTORY OF THEATER AND DRAMA. S, core. A historical and analytical study of theater and drama from its origins to 1800. *Mrs. E. Boevé.*

318 HISTORY OF THEATER AND DRAMA. S, core. A continuation of 317. An historical and analytical study of theater and drama from 1800 to the present. Not offered 1974-75.

390 READINGS AND RESEARCH. 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 department. *Staff.*

395 SEMINAR. Research of an approved topic or topics under the supervision of a member of the department, and presentation of the results in a departmental seminar. Prerequisite: permission of the department. *Staff.*

1974-75 INTERIM

The full description of interim courses is given on pages 125-142.

- 10 SPEECH AND HEARING REHABILITATION: THE PROFESSION, *Mr. M. Vande Guchte.*
- 11 ORAL INTERPRETATION OF THE BIBLE, *Mrs. A. Noteboom.*
- 12 THEATRE INTERIM ABROAD, *Mr. J. Korf.*

The following interdisciplinary courses are also offered by members of this department.

- 117 WORKSHOP IN OPEN EDUCATION, *Mr. D. Holquist.*
- 118 JOURNALISM WORKSHOP, *Mr. P. Oppewall, Mr. T. Ozinga.*
- 390 INDEPENDENT STUDY, *Staff.*



The INTERIM courses

The interim courses in this section are listed alphabetically; they are listed by title alone with the departmental offerings. Courses number 1-19 and 110- are open to any student; 20-29, to sophomores and juniors; and 30-39, to juniors and seniors.

ADULT PSYCHOLOGY. In brief, our goal will be to better understand what it's like to be an adult. Using rough stages (ages 20-35, 35-50, 50-65, 65+), we will focus on the challenges and reactions characteristic of each stage. Emphasis on understanding others (esp. your own parents), anticipating these years in your own life, and recognizing how the human experience differs for the committed, nominal, and non-Christian. Special attention on values and life-styles. Extensive small group experiences, films, guests, lectures, considerable interaction and discussion. Daily reading and *thinking* required as well as personalized logs of your reactions and growth. *Psychology 11, Mr. W. Joesse.*

ADVANCED INTERMEDIARY METABOLISM. This course is intended to describe the biosynthetic pathways for the production of amino acids, common derivatives of amino acids, purines, and pyrimidines, and certain lipids and saccharides. The degradation of these compounds and their integration with the common metabolic pathways will also be covered. Prerequisite: *Chemistry 302. Chemistry 30, Mr. R. Albers.*

AFRICA TODAY: AN OVERVIEW OF CONTEMPORARY AFRICA WITH AN EMPHASIS ON A COMPARATIVE STUDY OF WEST AFRICAN SOCIETIES. A study of the historical and cultural homeland of the majority of Black Americans. An examination of selected nations such as Ghana, Nigeria, Ivory Coast, and Guinea, using their histories since 1880, but

concentrating mainly on their contemporary roles as modern nation states. Readings and films will be used. A research paper will be required. May be applied to group concentrations in the Social Studies. *History 13, Mr. S. Greydanus.*

ASIAN PHILOSOPHY. A study of key ideas and documents in the classical philosophies of India, China, and Japan. An attempt will be made to relate these philosophies to issues in Western philosophy. Lectures by instructor, class reports by students, class discussion, possibly some films, reading from primary and secondary sources. Prerequisite: one course in philosophy. *Philosophy 10, Mr. C. Orlebeke.*

THE ART OF PHOTOGRAPHY. Students will explore photography as an art form, as a means of creating images, and as a means of expressing and interpreting themselves and the world about them. Great photographers and their photographs will be studied, but the emphasis will be upon the work of the students. Daily assignments will be made, and students will be expected to do all their own camera and darkroom work. A portfolio of finished work will be required of each student. A fee of \$10.00 will cover darkroom expenses; students will incur additional expense in purchasing enlarging paper and film. Prerequisites: permission of an instructor; a good camera with a depth-of-field scale and means for manual control of focusing, shutter speed, and aperture; a serious

interest in photography as an art form. Fee. *Interdisciplinary 101*, Mr. V. Ehlers. Mr. C. Overvoorde.

BACH, THE PREACHER; THE ORGAN HYMNS. A study of Bach's interpretations by musical means of the texts or the hymns chosen for the organ settings. Rhythmic devices, melodic figures, and the organ of Bach's day will be discussed as means for the interpretation of the hymns. Background in the Lutheran liturgy and in Bach's life and creative output will also be studied. Record listening (minimum of two hours per day), score study (for those who read music), reading, and discussion. Open only to organ concentrates. *Music 11*, Mr. J. Hamersma.

BIOLOGY AND CHEMISTRY OF HELPFUL AND HARMFUL PLANT PRODUCTS. An investigation of plant products from the perspectives of both biology and chemistry. The study of plant products will be approached partly in terms of their biological role as antibiotics (e.g., penicillin), as ecological inhibitors (the allelopathy phenomenon), or as growth regulators (e.g. gibberellic acid). In terms of pharmacognosy, plant products will be looked at as sources of both medicinal (e.g., quinine) and non-medicinal drugs (e.g., hallucinogens) and as toxic substances. In addition, the utility of plant products as commercial chemical substances and as sources of information for decision-making in plant classification will be discussed. Lectures, assigned readings, and completion of a library and/or laboratory project. Students interested primarily in the biological aspects of plant products will be expected to complete a project appropriate to his background and interests in biology. Prerequisites: Chemistry 253 or 301. Background in biology is helpful but not required. *Biology 31*, Mr. A. Gebben and Mr. K. Piers.

THE CATHEDRAL MUSIC OF ENGLAND. The study in England of its Protestant church music, from the time of the Reformation to the present. This course will consist of approximately fifteen lectures which will expose the student to the birth and development of the Angli-

can liturgy, and to the music that was composed for it by men like Merbecke, Byrd, Purcell, Handel, Vaughn Williams, Herbert Howells, and Benjamin Britten. The students will attend morning prayer and/or evensong each day at Westminster Abbey (London), King's College Chapel (Cambridge), and other great centers of cathedral music in England. This interim offering is being created for the members of The Capella of Calvin College, who will sing three or four concerts of American and British church music in England. Other music students interested in a music interim abroad may also participate. The course will be taught on two levels. Professor John Worst will teach the course to those who wish general education credit. Professor Howard Slenk will teach the course in more detail to music majors. Prerequisite: membership in the Capella, or music major status. Fee of approximately \$610. *Music 13*, Mr. H. Slenk, Mr. J. Worst.

CHEMISTRY AND BIOLOGY OF HELPFUL AND HARMFUL PLANT PRODUCTS. The course will deal with both the chemistry and biology of important medicinal and commercial plant products. A study will be made of the biochemical origin and function of these substances, their isolation and purification, their chemical structures and some of the chemical substances (penicillins, antibiotics, etc.), psychochemical drugs (hashish, ergot, and opium alkaloids), poisons (allelopathic substances), commercially important products (flavor ingredients, perfumes) and plant growth regulators (gibberellins). Some effort will be made to study the feasibility of plant classification using chemical analysis of the plant products. In addition to lectures, the course will include individualized projects, which may either have a laboratory or literature focus, depending on student interest. *Biology 31* or *Chemistry 31*, Mr. A. Gebben and Mr. K. Piers.

CHRISTIAN PERSPECTIVES ON LEARNING. *Interdisciplinary 100*, Staff.

CHRISTIAN PERSPECTIVE ON THE STUDY OF MAN. A course to be organized and/or taught by representatives from the

following departments—Economics, Education, Philosophy, Political Science, Psychology, Religion and Theology, and Sociology—for the purpose of discussing the ways in which a commitment to the Reformed Christian faith can bear on the Christian study of man and can speak to the methodologies of the social sciences. *Interdisciplinary 30. Staff.*

CHRISTIAN POLITICAL OPTIONS. An analysis and evaluation of a variety of ways in which Christians have involved themselves in political action. Emphasis will be on the actual forms of involvement and the theoretical justifications which have been advanced for them. Groups such as the Christian Government Movement, Christian Freedom Foundation, National Association for Christian Political Action, Protestants and Other Americans United, the Evangelical Committee for Urban Ministries, and denominational agencies with political involvements will be considered. As part of the course requirements, each student will intensively analyze and evaluate a particular group or form of involvement. No prerequisite. *Political Science 31, Mr. S. Monsma.*

CINEMATOGRAPHY AS AN ART FORM. An introduction to the creative art of cinematography. The various techniques of filmmaking will be explored as well as produce experimental films while involved in the total filmmaking process—creating a shooting script, learning camera techniques, lighting, editing, and sound synchronization. The course will include lecture/discussion, lab work, out of class individual film production, special resource personnel, example films, and field trips. Prerequisites: Art 207, 208, and one art history course. Fee. *Art 30, Mr. R. Jensen.*

CLASSICAL MYTHOLOGY. This course assumes (what may be questioned by some) that, if one is to study mythology, he must become thoroughly familiar with the major myths. It further assumes that the best way to study the myths of the classical world is to study them in the literature and art of those who gave the best expression to them. Therefore the major authors are Homer, Vergil, Ovid,

and the Greek dramatists—all in translation, of course. Attention is given to various interpretations of these myths and to their influence on Western culture. A course paper or project is required. Slides, lectures, films, and discussions. *Interdisciplinary 107, Mr. E. Van Vugt.*

CLASSROOM DEMONSTRATIONS IN THE TEACHING OF THE PHYSICAL SCIENCES. A discovery of classroom demonstrations available that help make science teaching interesting and understandable, especially on the intermediate or secondary level. Each student will be expected to find demonstrations described in the scientific literature or to develop his own, prepare necessary materials, and present them to the class for review and evaluation. Emphasis will be placed on using demonstrations to convey real understanding of scientific principles, rather than merely providing entertainment. Each student will be expected to work on his own, with the instructor providing help as needed. The instructor will join in the project and also provide a few special lectures and films. Prerequisite: one course in college chemistry or physics. *Interdisciplinary 104, Mr. H. Broene.*

COLLAGE: THE MODERN MEDIUM. Contemporary collage techniques, derived from the French word *coller*, to glue or paste, are now more than a half-century old and artists are still continuing to explore new avenues of expression in this medium. The course will consider, through slide lectures and reading, the history of the medium from its early beginnings around the turn of the century to the present. Time will also be spent in actual production of a number of collages, taking into account only that phase of the medium which is essentially two dimensional and low-relief. Although paper has been the classical material, artists have continually augmented this with any ingredient suitable to the times and purposes. The materials are plentiful and the techniques easy, making the form extremely adaptable. *Art 11, Mr. N. Matheis.*

COMBINATORICS. Combinatorial theory is a rapidly growing, fascinating branch of

mathematics which has only recently established a firm place in the world of mathematics. This theory has applications in engineering, the physical sciences, the social sciences, economics, and operations research. It deals with counting large, complicated sets of objects which arise in probability, in recurrence theory, in graph theory, in network theory, in linear programming, and in block design. Students will be taught the fundamentals of the discipline in the first part of the course and then they will be assigned independent reading so as to be able to make a class presentation of a more advanced topic. There will also be an emphasis upon the solution of several challenging problems. A course paper will be assigned. Prerequisite: Mathematics 112. *Mathematics 13, Mr. P. Zwier.*

DISCOVERING LATIN AMERICA. A study of Latin American culture from a non-literary standpoint. This course seeks to give to the student a better understanding of the origins, life, social institutions, ideas, cultural problems and needs of the Spanish-speaking countries south of our borders. This course is designed for those students who have a special interest in Latin America but who at the same time are not competent to undertake such a study in the Spanish language. The pedagogical approach will consist of lectures, audio-visual presentations, classroom discussions, and a paper. The course will meet twice a day for 75 minute records. Such a course will also contribute to broaden the cultural horizons of students who are not able to pursue the study of Latin American life and culture through literary sources. Constitutes a civilization course in the professional core. *Spanish 10, Mr. D. Vila.*

DUTCH-AMERICAN FOLKLORE. A search for folklore in the form of stories, cures, superstitions, and symbolic characters which have been orally transmitted in Dutch-American cultural centers. An examination of available Dutch-American folklore including an attempt at classification and characterization. A brief introduction to American folklore, primarily for the purpose of locating the

particular position that Dutch-American folklore occupies in the larger setting. This class will meet only when needed to accomplish two goals: establishing the research program for each student; providing an opportunity to share experiences and report findings. It is expected that the students and their instructor will spend considerable periods of time off-campus. *History 21, Mr. H. Brinks.*

THE DYNAMICS OF MOTOR SKILL ACQUISITION. An investigation of the many factors that make for successful motor performance. The nature and basis of motor learning will be explored and available psychological and educational data as applied to the problem of motor performance will be reviewed. Features include: seminar type discussion, applied research, review of current literature, and a contemplated field trip to a Motor Learning Research Laboratory. For education, psychology, and physical education students, particularly those aspiring to teach at the elementary school level, to coach athletic teams at the secondary school level, and who are interested in psychological theory and practice in motivation and human performance. The course satisfies major concentration in physical education. *Physical Education 12, Mr. M. Zuidema.*

ELECTRONICS FOR EVERYONE. An introduction to the fundamentals of electricity, electrical measurement instruments, (e.g. meters, oscilloscope) electronic components (e.g. vacuum tube, transistor, integrated circuits), and the application of these fundamentals to common electronic systems (e.g. radios, hi-fi systems, TV, etc.). There will be some lectures, particularly at the beginning of the course, but the emphasis will be on self-paced laboratory exercises or special projects proposed by individual students. Students with special interests or goals for this course should communicate these to the instructor immediately after enrollment. No prerequisites. Satisfies science concentrations for teachers. *Physics 10, Mr. H. Van Till.*

ELEMENTARY, MY DEAR WATSON; THE SCIENCE OF CRIME DETECTION. Today's criminals face an increasingly complex

and ingenious set of techniques used by law enforcement personnel to detect crimes and collect evidence. This course will survey some of the common scientific techniques for obtaining evidence, such as chemical and physical analysis of drugs and other materials, blood alcohol tests, polygraph tests, fingerprinting, ballistics, voice prints, etc. For each technique we will discuss the capabilities and limitations of the method, proper evaluation of the data, and the legal status of the information obtained. The course work will involve lectures, readings, and some lab work or project work. Visits to forensic laboratories will be scheduled. Prerequisite: at least one course in science. *Interdisciplinary 105, Mr. W. Van Doorne.*

ENVIRONMENTAL SCIENCE. A study of the effects of man on the structure and function of ecosystems. Prerequisite: a course in biology. May be applied to group minor. *Interdisciplinary 102, Mr. A. Bratt.*

EPISODES IN FOUR POETIC TRADITIONS: THE SONNET, THE PASTORAL ELEGY, THE ODE, AND THE BALLAD. A close study of representative poems in four important poetic traditions, from earliest models to contemporary examples (including the study of meter and stanza form as intrinsic to most traditional forms); consideration of what it means to write a poem in some certain form (what a poet tacitly asserts about his place relative to a tradition, his act of allegiance or rebellion, awareness or ignorance, and the play of expectation that is part of the transaction); and the writing of poems in these traditions, or (for students otherwise inclined) writing about poems in these traditions (written, in some instances, by classmates). The course is designed for anyone interested in the formal aspects of poetic practice and the continuity of poetic practice—particularly writers and prospective teachers of literature. Original writing is strongly encouraged but not necessarily required of those who prefer critical exercises. A great number of poets, ancient as well as modern, is represented. The teaching method is entirely informal discussion. Satisfies departmental in-

terim requirement. No prerequisite. *English 10, Mr. I. Kroese.*

EXPLORATIONS INTO RUSSIAN AND SLAVIC LITERATURE. Russian and Slavic literature in translation, dealing with works written after the Revolution and the death of Stalin. Readings include short stories of Babel, Gorky, Pasternak, Sholokhov, and Bulgakov; poetry by Pasternak, Yevtushenko, Rozevich, and Anna Akhmatova; emphasis on the fiction of Solzhenitsyn, including his novel *The First Circle* and other stories and prose poems. *English 14, Mrs. W. Holkeboer.*

EXPLORING BEHAVIOR. Some recent, popularly-written studies in psychology will first be reviewed, and then some of their findings and conclusions will be tested out in student-conducted experiments. Little or no background in psychology or statistics is necessary. A wide range of topics will be considered. What is the relationship between conformity and behavior? Is graphology valid? How does a person memorize? What type of person is prone to steal? This course is not intended for students who plan to take Psychology 308. *Psychology 14, Mr. R. Terborg.*

GERMAN INTERIM ABROAD. The course will be approximately five weeks in length, and will be conducted in West and East Germany. A brief tour through Northern Germany will be followed by ten days of study in Husum, Schleswig-Holstein. A second study-phase of the course (seven days) will be conducted in West Berlin, and will be followed by a three-day tour of East Germany. Course participants will be given five days for independent study and travel prior to returning to the U.S. Prerequisite: German 201 or its equivalent. May be applied to German concentration. Fee of approximately \$625. *German 10, Mr. W. Bratt.*

GETTING TO KNOW THE BIRDS. An introduction to the study of birds—their habits, habitats, behavior, adaptations, migration, identification, etc. Lectures, student reports, laboratory work, museum work. Due to the seasonal limita-

tions not much field work will be done. It is hoped that students will acquire sufficient background information for more advanced study or for developing "bird watching" as a life-long hobby. Outside speakers, films, slides, specimens, records, and tapes will also be used. Field trips may include: John Ball Park, Kellogg Bird Sanctuary, Kalamazoo Nature Center, Blandford Nature Center, Johnson Park. Prerequisites: Biology 111 or 151. May be applied to group minor. *Biology 10, Mr. H. Bengelink.*

GOD, MAN, AND THE HUMAN COMMUNITY. What is the nature of the divine? Of man? What is the nature of the relationship between them? How do the answers to these questions affect one's view of what human political and social institutions ought to be? This course will attempt to study the answers the ancient Greeks gave to these age-old questions, and to present a Christian critique of their unique perspective. Lectures, student reports, classroom and small group discussions and audio-visual materials will all be used. There are no prerequisites. *Greek 10, Mr. G. Harris.*

FEDERAL INCOME TAXES. A study of Federal Income Tax Law to develop competence in the preparation of tax returns and to evaluate the provisions and rate structure of the income tax. The emphasis will be on taxation of individuals, with limited coverage of partnership and corporate taxation. Daily class sessions will require tax readings and problem preparation; some material will be presented by slides or outside speakers. Official tax return forms will be used for some of the problem work. The course grade will be based upon timely submission of homework problems and a satisfactory open-book examination. Honors candidates will also complete a selection of short tax research problems. Volunteers will be solicited for tax preparation assistance at Baxter Community Center. Prerequisite course: Economics 207. *Economics 10, Mr. K. Kuipers, Mr. D. Pruis.*

GREAT BOOKS OF SOCIAL CRITICISM IN AMERICAN HISTORY. A reading seminar which will focus on major books of social

criticism which have appeared throughout American history. Books such as Paine's *Common Sense*, Stowe's *Uncle Tom's Cabin*, and Sinclair's *The Jungle* will be discussed, and, an attempt will be made to assess the impact or social significance of these and approximately ten other books. Each student will write at least one paper and give one oral report. A general knowledge of United States history is assumed although not required. Satisfies interim requirement for majors in history. *History 31, Mr. R. Wells.*

FIDDLERS ON OUR ROOF: JEWS IN AMERICA. A survey and analysis of the American Jewish community. Attention will be given to the origin and development of the three main religious divisions of American Judaism: Orthodox, Conservative, and Reform, as well as to Reconstructionism and Zionism. An attempt will be made to assess the reciprocal influences between Judaism and American culture. Special attention will be given to contemporary problems and trends. Lectures, discussions, books, articles, films, student papers, and guest speakers will be utilized. *Religion 12, Mr. J. Primus.*

FIELD WORK IN SOCIAL AND REHABILITATION AGENCIES. An opportunity for involvement in an agency as a staff member. The student will be assigned to a field work instructor from an agency who will supervise his work. Forty hours a week will be spent at the agency. A weekly seminar is scheduled to look at common elements of agency practice. One such Interim course may be applied to a sociology major. Prerequisite: Sociology 300. *Sociology 32, Mr. D. Smaligan.*

FOLKLORE OF FOREIGN LANDS. A study of tales, local legends, superstitions, traditional customs, and popular beliefs of Germany, Austria, Switzerland, and of parts of Northern Europe, e.g. Denmark and Norway, as they can be found in the past and present times. The study will take you from a visit with the mighty Vikings in the North and the dwarfs of the Rhine river to the monks of the monastery in St. Gallen; it will include

legends of the brothers Grimm and tales of Hans Christian Andersen; it will contrast Dr. Faust's pact with the devil and the pranks of various people; it will invite you to be with the mountain spirits of Silesia and witness the spring celebrations in the Black Forest and the Alps. The course will be conducted in English. The following instructional techniques and media will be employed: slides, movies, demonstrations, records, tape recordings, text books, quizzes, conversations, lectures, presentations of projects, and eyewitness reports. *Interdisciplinary 135, Mr. C. Hegewald.*

FORMS IN FIBERS. The course will encourage the merger of simple textile techniques and artistic images through creating wall hangings and soft sculpture in relief and in the round. Students will study primitive and contemporary art forms and try simple methods of knotting, off-the-loom weaving, twining, tapestry, and crocheting in their work. No prerequisites. Fee. *Art 10, Mrs. H. Bonzelaar.*

FROM BAUDELAIRE TO SURREALISM. A study of nineteenth- and twentieth-century French poetry in translation, for the non-French major. The course will include the study of a number of important poets of the last century and an examination of such movements as symbolism, dadaism, and surrealism. It will attempt to answer such questions as these: How accurate was Matthew Arnold's claim that French is a less poetic language than English? What is the essential nature of French poetry? Why were Poe's ideas so warmly received in France? What was it that Pound and Eliot found in France? Each student will engage in a study project from among the following possibilities: an inquiry into the nature of French influence upon a given foreign writer; a study of a particular poet, movement, or problem; a translation of a selected number of poems into English. A reading knowledge of French is desirable but not required. Satisfies a fine arts core requirement. *French 10, Mr. A. Otten.*

HEAT TRANSFER. An interim approach to a traditional course. Introduction to

the analysis of steady and unsteady conduction, of free and forced convection, and of radiation modes of heat transfer, experiments include conduction, radiation, and free molecular conduction at liquid nitrogen temperatures, heat pipe conduction, and free convection. An emphasis will also be on using the analog and digital computer in solving problems, and operational introduction will be given in numerical analysis and Monte Carlo techniques for solving heat transfer problems. *Engineering 36, Mr. L. Van Poolen.*

IMAGES OF WOMEN IN LITERATURE. The images of women in life and literature are undergoing both analysis and change. In this course there will be discussions about the images of women in literature, since literature reflects and helps to create reality. The course will concentrate upon the primary, stereotypes of women in literature: wife, mother, seductress, sex object, the old maid, and finally, examples of the liberated woman to illustrate the beginning of a new stereotype. Textbook: Mary Anne Ferguson, *Images of Women in Literature*. This anthology contains twenty-six short stories and some poems all on the subject of women, more than half of them written by women. There will be additional reading of novels and essays. *English 31, Miss M. Walters, Mrs. M. Zylstra.*

INDEPENDENT STUDY (all departments). Independent study is available in all departments for qualified juniors and seniors who receive departmental approval. Such courses bear the number 390.

INDEPENDENT STUDY IN BIOLOGY. A course based on a laboratory project resulting from a literature survey. The project will be conducted in consultation with an instructor. Group meetings will include progress reports and a final report session. At the final report session a paper will be presented by each student summarizing the literature on the topic and the accomplishments made on the project during the Interim. Prerequisite: Biology 395 and permission of instructor and departmental chairman. May be applied to group major. *Biology 390, Mr. J. Beebe.*

INDEPENDENT STUDY IN PHYSICS. This course has two basic options. One option is the theoretical study of a particular topic in physics. The second option is to spend the interim in the physics laboratory doing either a series of prescribed experiments (such as the Modern Physics Laboratory course) or an independent research project. Prerequisite: approval of department. *Physics 390, Mr. R. Griffioen.*

INFORMAL CLASSROOMS. A study of education that develops an attitude toward an informal method of learning originating in the British Primary Schools. Instruction for the participants will be through an informal methodology and will attempt to explain the psychological and philosophical roots of the method as its principles are practiced. The writings of Silberman, Joy Taylor, Jean Piaget, E. R. Royce, and others will be basic resources. *Education 10, Mr. G. Besselsen.*

INTENSIVE COURSE IN SPOKEN DUTCH. An advanced course in listening and speaking Dutch for those who wish to develop a comfortable proficiency in the use of the language. Students will listen to recorded programs of Dutch poetry, prose, and drama and will discuss these in the Dutch language. Prerequisite: 201 or an equivalent familiarity with Dutch. *Dutch 30, Mr. W. Lagerwey.*

INTERDISCIPLINARY PROBLEM SOLVING. Problem-solving activities related to real-life social project - planning and implementing, insofar as possible, in a manufacturing enterprise dedicated to the employment of inner-city teenagers. Problem-solving action will involve legal, technical, business administration, sociological, and educative decision-making. General patterns of problem-solving will be explored and applied to project problems using Rubenstein, *Patterns of Problem Solving* as a model. Prerequisite: approval of one of the instructors. *Interdisciplinary 110, Mr. J. Bosscher, Mr. K. Kuipers.*

INTERMEDIATE FRENCH, French 206. This course is the required second course of a three-semester sequence, French

205-206-207. Students who were assigned to French 205 for the first semester are required to take this course during the interim. Satisfies core requirement in foreign language and concentrations in French. Prerequisite: French 205 in preceding semester. *French 206, Mrs. L. Read.*

INTERMEDIATE GERMAN, German 206. This course will include a review of German grammar, the development of basic language skills, and an introduction to German prose literature. Standard basic foreign language learning pedagogy will be employed. This course is the second unit of a three-course sequence intended for students who have completed two years of high school German, but were placed in German 205 for the fall semester. The course will include intensive language review, composition, and the reading of short prose works. *German 206, Mr. J. Lamse.*

INTERMEDIATE SPANISH, Spanish 206. Second course of three-course sequence, Spanish 205-206-207. Prerequisite: Spanish 205. *Spanish 206, Mr. B. Siebring.*

INTERNSHIP IN BUSINESS. Full-time work as a staff member in a cooperating business firm during the Interim Term, and in some cases continuing on a part-time basis into the Spring semester. Participating students are required to submit a paper describing their internship experience and its relationship to their academic studies, and all participants are required to attend a group meeting to discuss and evaluate their experiences. Grades will be based upon the paper, group meeting participation, and a report from the sponsoring employer. Prerequisites are junior or senior business economics major status and departmental approval. Enrollment will, of course, be limited to the number of satisfactory internship positions available, and no student may intern with a prior employer. Application for the internship must be made by September 30 on forms available from the department. *Economics 31, Mr. D. Pruis and Mr. K. Kuipers.*

INTRODUCTION TO BILINGUAL EDUCATION. This course is designed to prepare

education students for bilingual instruction in primary and secondary schools. The goal of this course will be to prepare the student to function as a teacher or as an aid in a bilingual classroom situation. The means to accomplish this goal will be (1) the use of formal lectures in these areas of bilingual education: linguistics, language interference, vocabulary and sentence structure, idioms, the teaching of reading, transfer of skills, placement of the newly-arrived student, textbooks available, audio-visual aids, and the bi-cultural aspect of learning, and (2) observation and practice in local bilingual classrooms. (Hall Elementary and Burton Jr. High.) Prerequisite: Spanish 102 or the equivalent. *Interdisciplinary 116, Mrs. E. Greenway.*

JONATHAN EDWARDS: A NEW DIRECTION IN REFORMED THEOLOGY. This course is intended for anyone seriously interested in exploring the meaning of intense religious experience in the intellectual context of the scientific era—a question to which Edwards proposed creative answers. Major works by and about Edwards will be read, reported upon, and discussed and some attention will be given to the fate of the American Reformed theological tradition that flourished for a century after Edwards' time. Satisfies history and social studies concentrations. *History 30, Mr. G. Marsden.*

LABORATORY EXPERIENCES IN BIOLOGY. Questions arise from laboratory exercises that can be answered experimentally. If you have had such questions in Biology 111, 151, 152, 251, or 252 this is your chance to work at them in a laboratory setting. This course will also be designed to familiarize the student in medical technology programs with some of the diagnostic techniques used in the clinical laboratory (such as hematology, immunology, and microbiology.) *Biology 21, Mr. B. Ten Broek and Staff.*

JOURNALISM WORKSHOP. Writing for both print and the electronic media involving practical experience in reporting. The differences between writing straight news and writing editorial comment. The differences in writing for the eye and

writing for the ear. Investigative reporting of general news and of special events. Interviewing sources using note pad and cassette recorder. Arrangement of written and spoken materials. Simulated visual and aural newscasting. The specialized problems of reporting in education, government, religion, environment, race, labor, business, media, music, drama, consumers affairs, sports, and entertainment. Practice in editing and rewriting stories. Selected readings and discussions with leading journalists from West Michigan. Typing ability is useful. Prerequisites: English 100 and Speech 100. *Interdisciplinary 118, Mr. P. Oppewall, Mr. T. Ozinga.*

MATHEMATICS IN THE MODERN WORLD. This course is based upon mathematical articles that have appeared in the *Scientific American* between 1948 and 1968, which have been compiled in the book used as the text. Then articles (readings) have been arranged in the following five categories: the nature of mathematics, biographies of certain mathematicians, and applied mathematics. The instructor will serve as a mathematical resource person for understanding these readings. They will serve as a basis for studying certain mathematical topics or concepts. There will be an opportunity for the participants to do some independent work. No prerequisites. Core credit. *Mathematics 12, Mr. G. Van Zwalenberg.*

THE MONASTERY IN HISTORY. A study of the development of the monastic ideal from ancient times until the present and the social, intellectual, and political impact of monasticism at different times in history. Participants are expected to attend a retreat at a monastery and to write a research paper. Satisfies requirements for the history major. Fee for field trip. *History 32, Mr. F. Roberts.*

MAY GOD GO TO SCHOOL? THE ROLE OF RELIGION IN PUBLIC EDUCATION. The course is an inquiry into the legal, curricular, practical, and political dimensions of the role of religion in public education. One's education is not complete without a study of comparative religion and its relationship to the advancement

of civilization . . . the Bible is worthy of study for its literary and historic qualities. "Nothing we have said here indicates that such a study of the Bible or of religion, when presented objectively as part of a secular program in education, may not be affected consistent with the First Amendment." So said U.S. Supreme Court Justice Tom C. Clark in the majority opinion of the 1963 Abington vs. Schempp case. What does the First Amendment really say about religion? What was and is the place of religion in public education? What has the Supreme Court permitted, and not permitted, in its crucial decisions *re* education? What did the court mean by "study of the Bible or of religion when presented objectively"? What curriculum materials consistent with the court's intent are available? What is being done with religion in area public schools? What is the Christian's challenge in this endeavor? Readings, films, lectures, interviews, field observations and/or teacher aiding in religion studies in area public schools will be included. Satisfies requirements in the academic study of religions minor. *Interdisciplinary 114, Mr. H. Hoeks.*

MEASUREMENT - EVALUATION - REPORTING PUPIL PROGRESS. This course is designed for individuals who plan to enter teaching or counseling. It will treat the construction, administration, scoring, and use of a variety of both teacher-made and standardized tests. Consideration will be given to both criterion and normative referenced measurement. The course will include lectures, demonstrations, discussion, independent study, and the opportunity to construct a classroom test in the student's field of specialization. May be applied to departmental teaching and group concentrations. *Psychology 13, Mr. A. Reynolds.*

THE MIDDLE AGES IN MODERN NOVELS. Both the reality and the interpretation of medieval history is conveyed in good historical novels. This course will attempt to grasp medieval life through the reading of such novels. Some seven to nine novels will be read depending on their length and their availability. The breadth of the middle ages will be cov-

ered by beginning with Gore Vidal's *Julian* about early Christian-Pagan conflicts and ending with Charles Reade's *Cloister and the Hearth* about Erasmus. *Interdisciplinary 111, Mr. H. Rienstra.*

MOBS, MANIAS, AND MASS MOVEMENTS. A social-psychological analysis of the basic forms of collective behavior. Attention will be given to fads, crazes, panics, riots, lynchings, and social movements. Both historical and fictional portrayals of collective behavior will be used in exploring the psychology of the crowd. Readings, discussions, lectures, and small group projects. Satisfies free elective in major sequence. *Psychology 10, Mr. M. Bolt.*

MODERN FRENCH WOMEN WRITERS. A study of the contribution of recent literature made by modern women writers in France. The course will include an examination of the consciousness of the modern woman as reflected in these authors. Readings will include excerpts by a variety of authors, and novels by each of the following: Colette, Simone de Beauvoir, Françoise Sagan, Nathalie Sarraute, and Marguerite Duras. Texts will be in French; discussions will also be conducted in French. Prerequisite: French 201 or the equivalent. Satisfies fine arts core requirement. *French 11, Mrs. C.-M. Baldwin.*

MONKEYS AND APES. Primates are increasingly being studied in order to aid our understanding of man, both past and present. The validity and reliability of this type of study will be tested by examining the following major topics: the primate order and their natural history, primate behavior both under naturalistic and laboratory conditions, the use of primates in the reconstruction of human prehistory, the nature and type of primate research, and the history of man's study of the primates. An extensive use of films will be made. *Sociology 10, Mr. D. Wilson.*

MUSIC IN MEDIEVAL LIFE AND THOUGHT. A study of the following topics: (1) speculative thought about music in the Middle Ages, (2) sym-

bolism in medieval music, and (3) the roles and functions of music in medieval society, especially in the church and in the court. These topics will be studied through readings, especially translations of medieval writings, and through listening to representative musical works. Prerequisite: sophomore, junior, or senior standing. *Music 14, Mr. C. Stapert.*

NATURE LITERATURE. The course will study writings about nature from 1500 to the present with some reference to Pliny, Aristotle, and relevant passages in the Bible, and from the perspective of both scientists and poets. The writings will be examined for their biological content as well as for the philosophical assumptions underlying the historical concepts of nature. The impact of important shifts in the relevant sciences (especially biology) will be studied—for example, the influence of Darwin's hypotheses on man's view of nature and himself. In addition to a syllabus of daily readings, related field trips will supplement class discussion. One or two papers are required and each student will participate in a group responsible for developing one section of an anthology. Prerequisites: one English course other than 100 and one course in biology. *Interdisciplinary 103, Mr. G. Harper, Mr. G. Van Harn.*

NEO-KUYPERIANISM. This course provides an opportunity for students of all departments, without philosophical prerequisites, to look at a much-discussed 'mind' at work in the Christian Reformed Church and far beyond. The intention is to try to look at it in the light of the Scripture. Items of discussion: The appropriateness of the 'neo-'; The background in outstanding nineteenth century leaders like Guillaume Groen van Prinsterer and Abraham Kuyper; Sphere-sovereignty, a principle of the Reformed Reformation, in Kuyper, Vollehoven, and Dooyeweerd. (Are school authorities 'in loco parentis'; do we need school creeds in addition to the creeds we already possess?) The various forms of the Word of God. Is revelational truth propositional? The nature of man in his unity. Man and the world; one creation. Creation and history. Religion, philos-

ophy, and the sciences. No prerequisite. *Philosophy 11, Mr. E. Runner.*

NO PLACE TO LAY HIS HEAD: THE SOCIOLOGY OF HOMELESSNESS. An examination of the concepts of home and homelessness treating a variety of homeless situations and culture as well as social and personal problems related to these, especially in the United States but also in other churches. Today homelessness exists among Americans who are young and old, male and female, and it occurs in disaster as well as long-term situations. The course will explore homeless life-styles for skid-rowers, youthful run-aways, victims of broken homes, and other alienated from our culture as well as the cause and cure of such situations. Homeless people will be treated in the urban and other communities in which they exist and social agencies that serve or at least relate to them will be examined. Most work will be in Grand Rapids but there will be an optional three-day visit to Chicago. Fee to cover travel costs. *Sociology 12, Mr. R. Vander Kooi.*

NUMBER THEORY. This course will cover the usual topics of elementary number theory such as: divisibility properties of the integers (primes, GCD, Euclidean algorithm, unique prime factorization theorem); congruences and diophantine equations; distribution of the prime numbers; pythagorean triples; continued fractions. Students will be divided into groups, each group being responsible for finding and presenting in class solutions to problems and proofs. Each group will also be responsible for writing and running computer programs for problems which will illustrate the theory, how the computer is used in number theory to test conjectures, and how a computer investigation may lead to formulation of a conjecture which may then be proved deductively. This course can serve as a good introduction, or application of, abstract algebra, since many of the results are really algebraic in nature. At the same time, many of the problems in number theory are computational in nature and thus lend themselves readily to computer solution and/or investigation. Prerequisites: Mathematics 112 and a

knowledge of BASIC computer language. *Mathematics 10, Mr. L. Nyhoff.*

ORAL INTERPRETATION OF THE BIBLE. A study of various portions of Scripture according to type—parable, letter, poetry, etc.—analyzing them in order to understand both the intellectual and the emotional content within the context of the whole. The purpose of this analysis is that it will form a basis for orally reading the passage in such a way that its total meaning is shared with the listener. A short history of oral reading of the Bible will be included in the course. *Speech 11, Mrs. A. Noteboom.*

PEELING THE ONION WHICH IS YOU. An analysis of personal choice-making and decisions. Designed for those who wish to achieve greater moral self-awareness about the sources of their own decisions about life style, as well as for those who wish to teach others such self-awareness. Much small group work with simulations of value conflict situations. Distinguished from a course in ethics because it examines and practices various models for clarifying and transmitting moral beliefs rather than various theories for validating them. Includes an ongoing Christian critique of the various methods. *Interdisciplinary 136, Mr. D. Oppewal.*

PIANO PEDAGOGY. A course designed to prepare students to give instruction in piano. Emphasis on goals, methods, and materials, class discussions, outside reading, films. The course will be followed second semester with required teaching experiences involving children, under the guidance of the instructor. Prerequisite: permission of the instructor. *Music 10, Mrs. T. Knol.*

THE PLANNED FAMILY. The course begins with an introduction to the notion of the planned family. This involves a look at its historical development, the current family planning movement, survey findings on attitudes toward family planning, and various ethical and religious views. The major part of the course is structured around selected contemporary issues related to family planning, such as, contraception, sex education in the schools, family planning ser-

vices for teenagers and unmarried persons, abortion, sterilization, artificial insemination, genetic consequences, voluntary childlessness, adoption, and foster homes. For each selected issue ethical, religious, legal, social, and psychological considerations are explored. The course is team-taught by two members of the sociology department. Student involvement is emphasized. Considerable reading is required and small-group discussions are held regularly. Films and other media are used and a number of guest speakers from the community are asked to present various sides of the issues. No prerequisite. *Sociology 11, Mr. R. Rice, Mr. W. Smit.*

PLANTS AND CIVILIZATION. The role of economic plants in the establishment and development of world centers of civilization. Sociological and economic effects of plant products on empire building, patronage of the arts, and international affairs. Archeological findings, plant geography, and genetics of early crop plants. The growing, processing, and uses of critical crop plants, the need for increasing yield by hybridization and for the improved use of arable land because of the population explosion and other ecological problems. Lectures, laboratory work, reading reports, library research, term paper, and a field trip to the University of Michigan Botanical Gardens. May be applied to group minor. *Interdisciplinary 125, Mr. M. Karsten.*

POLITICAL CORRUPTION. A study of the phenomenon of political corruption. The approach will be cross-disciplinary and cross-cultural, using readings which point up the differing standards and norms regarding political regimes at different periods of history. Students will be required to do research on some topic related to political corruption in the U.S. Effort will be made to adapt research projects to the students' fields of concentration, e.g. sociology, political science, history, economics. Required readings will be drawn from several different disciplines: political science, history, sociology, anthropology. Credit toward political science departmental concentration or group concentration in social studies. Previous work in economics, political

science, or sociology is desirable, but not required. *Political Science 12, Mr. J. Westra.*

PRACTICUM IN EDUCATION FOR UNDER ACHIEVERS. This course will enable students to work with children in an elementary school who have been identified as not having made progress consistent with expected capacity. In the morning the students will work in both one-to-one and small group activities. The head Reading Consultant of the Grand Rapids Public Schools will assist in making arrangements and selecting children to participate. Each afternoon will be spent in a one-two hour seminar, discussing problems, brainstorming for procedures, and preparing instructional standards. Prerequisite: an interest in children. *Education 12, Mrs. K. Blok.*

PROBLEMS IN FREEDOM OF EXPRESSION. An examination of the historical, constitutional, and political development of freedom of expression in the United States. Emphasis will be on two contemporary issues—freedom of speech and the problem of obscenity. A serious effort will be made toward developing a Christian perspective on these and related issues. Readings, Supreme Court opinions, lectures, discussion, films, and guest lectures; a course paper will be required. *Political Science 11, Mr. J. De Borst.*

PROFESSIONAL JOURNALS IN ENGLISH LANGUAGE AND LITERATURE. A course in the character and function of the literary journal past and present, designed to familiarize the advanced English student with journals and their function, standards, and physical makeup, with some attention to their role in the generation of literary movements and criticism. Trips to libraries will be made, and the student will be expected to prepare both annotated bibliography of journals held in the college library and a specimen paper in accordance with established journal practice. Prerequisite: three courses in English. *English 30, Miss H. Ten Harmse.*

PROPHECY AND FULFILLMENT. A study of the nature of biblical prophecy and its fulfillment. This study will include an

interpretation of the various ways in which the Old Testament is fulfilled in the New Testament. Special attention will be paid to the role of Israel and to some sections of the book of Revelation. In addition, some basic principles for interpreting the Bible will be developed. The course will include readings, student papers, lectures and discussions. *Religion 11, Mr. D. Holwerda.*

REALISM VS. IDEALISM IN WORLD POLITICS. An evaluation of the role of moral principle and ethical considerations in relations among states and in the shaping of foreign policy. The following kinds of issues will be raised and discussed: the nature of the tension between moral choice and the "necessities" of international politics in the decisions and actions of statesmen; the uses and misuses of moral principle as a guide to foreign policy; the relevance of the Christian "love ethic" to international politics; some of the limitations and possibilities for establishing a peaceful world order from a Christian perspective. Class discussions will be based on readings such as Reinhold Niebuhr, and recent utopian schemes for world order. Student papers on some aspect of the issues raised in the course will be required. Prerequisite: one course in either political science or political and social philosophy. *Political Science 30, Mr. R. De Vries.*

RELIGIONS OF THE AMERICAN PRESIDENTS. A study of the religious and moral beliefs of each of the American Presidents. This study will concern itself not only with what the Presidents believed but with the influences that shaped the religious thinking of each President. An attempt will be made to determine how the moral and religious beliefs of each President influenced Presidential policies and behavior. Each student will be expected to choose certain Presidents and present written and oral reports. A student will be expected to spend significant amounts of time in Calvin's library preparing the assigned reports. Satisfies group minors in the social studies. *History 10, Mr. R. Bolt.*

REVOLUTIONARY CHINA; MAO-TSE-TUNG AND THE PEOPLE'S REPUBLIC. A study

of the Chinese revolution of 1949, the Chinese Communist Party, and the politics, society, economics, foreign affairs, religion, art, and literature of the People's Republic, with some emphasis on the role of Chairman Mao Tse-tung. There will be readings in both primary and secondary materials, student reports and papers. Satisfies social studies concentrations. *History 14, Mr. E. Van Kley.*

SAINTS OR SINNERS: THE CHRISTIANS SELF-IMAGE. This course is a study of the self-images of Christians in a variety of traditions and an analysis of the various factors which influence them. The Reformed tradition, for example, taught that "life is nothing but a constant death" and "... for such a worm as I." We will attempt to ascertain what are the typical self-images of Christians in the Reformed and other traditions and what psychological, sociological, and theological factors contribute to these self-images. We shall also try to develop a positive Biblical Christian self-image. *Interdisciplinary 119, Mr. L. Teisma, Mr. L. Vos.*

SCULPTURAL FORMS IN CLAY. Students will explore clay as a sculptural medium for personal expression. The student should have had some experience with the medium so that inadequacies in technical skills will not encumber expression. Art 311 would be good preparation. Approaches will be explored in construction, modeling, mosaics, and modeled ceramic relief in its use as architectural decoration. Although this will be basically a studio course, slide-lectures and films will be used along with assigned readings to supplement studio projects. Prerequisites: Art 311 or 208 with permission of instructor. Fee. *Art 31, Mr. C. Huisman.*

SEMINAR IN ENERGY SOURCES. This course will provide the student with exposure to the following basic ideas: enough physics to understand qualitatively the first and second laws of thermodynamics; those energy transformations ("energy consumption") that are most important economically; power consumption today and its growth in the

recent past; current energy sources, reserves, and the depletion of these reserves; additional energy sources that might feasibly be tapped in the future; the effect of energy consumption on the quality of our environment. Emphasis will be on the situation in America. Seminar and one major paper will be required. No prerequisites. Satisfies science studies concentrations for teachers. *Interdisciplinary 112, Mr. A. Kromminga.*

SEMINAR IN THE PSYCHOLOGY OF RELIGION. The reading and discussion of *Young Man Luther* by Erik Erikson, *The Idea of the Holy* by Rudolph Otto, *Psychology and Religion* by Carl Jung, and supplemental study of Roland Bainton's *Here I Stand*, and Jung's *Memories, Dreams, Reflections*, with the purpose of understanding at least two psychological perspectives regarding religious experience. Brief daily papers will be required. There will be no tests or lectures; the focus is upon discussion in an informal setting. Prerequisite: one course in psychology. *Psychology 12, Mr. W. Sanderson.*

SEQUEL TO CPOL. An informal seminar for those who have had "Christian Perspectives on Learning," expanding and exploring the issues raised in the third section of that course, the section on the Christian perspective in higher education. There will be a serious effort to understand differing and even conflicting points of view through the reading and discussion of books, pamphlets, and essays on the issue and through visits to area colleges whose philosophy and practice of Christian education differ from that of Calvin. Reading will include Averill and Jellema, eds., *Colleges and Comments*; Mayers et al, *Reshaping Evangelical Higher Education*; and *Christian Liberal Arts Education*. Prerequisite: completion of Christian Perspectives on Learning and junior or senior status. *Interdisciplinary 150, Mr. P. De Boer.*

SIGHT-SOUND THEOLOGY. This is a panoramic course in contemporary theology, designed for the interested non-religion major, which will make several

outstanding contemporary theologians come alive by means of tapes and films. Daily meetings of the class will concentrate on hearing (and in some cases, seeing) such prominent theologians as Barth, Tillich, Cullmann, Niebuhr, Altizer, Berkouwer, Schaeffer, Cox, Cone, Pike, etc. articulate their theologies "live" through audio and visual media. These sight-sound encounters will be supported by selected background readings and class lectures. Class discussion will be oriented to reflection on the basic thrust of these contemporary theologians and their theologies, and their impact upon our North American culture. *Religion 30, Mr. G. Spykman.*

A SINGING SCHOOL. An opportunity for a student to have his singing voice appraised, and instruction given for its improvement. Intensive work will be done in developing tone and technique in a class situation, although individual help will be offered. Appropriate song material will be used to match the vocal maturity of the student. Performance, either solo or ensemble, will be encouraged wherever talent justifies it. Simple music theory and sight-singing will be included where necessary. Listening to great solo and ensemble singing of art songs, opera, and oratorio will be assigned, as well as readings of appropriate literature on the history of singing, performance, and technique. Prerequisite: ability to carry a tune. *Music 12, Mr. J. De Jonge.*

SOCIOLOGY OF HOUSING. This course will emphasize the various types of housing; tenement, apartment, public, mobile-homes, cottages, rural, suburban, etc. and their relationship to the social systems associated with them. An emphasis will also be put on the social psychological aspects of housing such as the impact of the various modes of housing on the psychological state of the dwellers. Hence such factors as juvenile delinquency, adult criminality, social status, patterns of inter-action, neighboring, etc. and their relationship to various types of housing will be discussed. There will be guest lecturers, lectures by the instructor, field trips, and individual research projects. *Sociology 30, Mr. H. Holstege.*

SKEPTICISM, OR CAN WE KNOW THAT WE KNOW WHAT WE KNOW, IF WE KNOW ANYTHING AT ALL? A partly historical and partly critical look at philosophical skepticism. We will examine the *Pyrrhonian Scepticism* of Sextus Empiricus, trace the revival of this in the sixteenth century, and consider its influence on some of the modern philosophers. We will also consider some uses of skeptical arguments in disputes about religion. Finally, we will attempt to evaluate critically some of these skeptical arguments. Prerequisite: two courses in philosophy; modern philosophy is helpful. *Philosophy 30, Mr. K. Konyndyk.*

SOCIOLOGY OF SPORT. The phenomenon of organized sport is one of the newer concentrations for study by sociologists. This course will review what social scientists have said about sport and will attempt to make some contributions of its own toward a sociological analysis of sport. There will be lectures, discussion, student research, presentations, and guest speakers. All of this will be geared to suggesting answers to such questions as: What are some important functions and disfunctions of organized sport in our society? in schools? in the world? How is sport and social status related? Is there a Christian athletics? What are the effects of professional sports? No prerequisite. *Sociology 13, Mr. G. De Blaey, Mr. B. Steen.*

SPANISH INTERIM IN MEXICO. Three weeks of intermediate or advanced language study at the *Instituto Mexicano-Norteamericano de Relaciones Culturales* in Mexico City. An initial placement examination will determine on which of three levels the student will engage in intensive language study under the direction of native teachers. Final examinations will be oral or written or both. A supplementary written paper will also be required. Students will also visit sites and monuments of historical and cultural importance. Completion of a reading list must precede departure. Prerequisite: Spanish 201 or the equivalent. Fee: approximately \$550.00 *Spanish 11, Mrs. E. Cortina.*

SPEECH AND HEARING REHABILITATION: THE PROFESSION. An in-depth exploration of the profession which deals with speech and hearing rehabilitation. A discussion of the development and growth of the profession, and of the moral, social, and political issues it faces today will be based on the study of relevant journal articles. Further discussion of these issues and an examination of the nature of speech and hearing rehabilitation in various settings will be enhanced by direct contacts with persons engaged in such profession activities via special class lectures, or via trips to several settings in which such persons are employed. Readings in professional texts and journals; reports. Fee for travel: \$10. *Speech 10, Mr. M. VandeGuchte.*

STABILITY OF SYSTEMS. Mathematical models will be generated for a variety of dynamical systems. Mechanical, electrical, economic, biological, and/or ecological systems will be studied in some detail depending upon particular student interests. Simple hypothetical linear and nonlinear systems will be intuitively derived or postulated as real systems and their behavior studied. For linear systems, the Nyquist stability criterion, the Routh-Hurwitz stability criterion, and the Root Locus methods will be employed in both the analysis and synthesis of these systems. Phase plane methods will be used in the analysis of simple non-linear systems plus some discussion of alternate methods of analysis. A particular system in a category of special interest to each student will be devised with the help of the instructor. Each of these systems will be analyzed in depth by the respective student, using most of the above methods in order to achieve different perspectives of the behavior of the system, and presented briefly to the class. The class atmosphere will be relaxed and informal to maximize the sharing of whatever together we might have learned. Prerequisite: *Mathematics 211. Mathematics 20, Mr. J. Kuiper.*

SUPERVISION OF LABORATORY WORK IN BIOLOGY. An opportunity to gain valuable experience preparing materials for biology exercises while assisting a group of less experienced students to do ex-

periments in biology (*Biology 21*). Students will work closely with the instructors of the course and will be responsible for one or two teams of students. Can be used to fulfill part of senior seminar requirement, especially for secondary education students. Prerequisite: junior or senior biology major status or equivalent. *Biology 30, Mr. B. Ten Broek and Staff.*

TEACHING THE LANGUAGE - ARTS. A study of the methods and material that are useful to language arts and English teachers. The use of stories, plays, poems, films, tapes, recordings, approaches to writing, creative dramatics, and discussion techniques. Each student will work on an individually selected project that will be of future use to him as a teacher, such as the making of a movie, a slide-tape show, a multi-media unit related to language arts teaching, or the preparation of a language arts lesson to be taught in an area school. The student will receive ample assistance in developing his idea and working out his project. All students will read widely in materials appropriate to the chosen grade level. For sophomores, junior, and seniors preparing to teach the language arts and English in the upper elementary grades, junior high school, middle school, or senior high school. Daily class sessions will be supplemented by individual and small-group conferences. *Interdisciplinary 108, Mr. H. Baron, Mr. K. Kuiper.*

THEATER INTERIM ABROAD. London and Paris are two cities which hold a special appeal for students who are interested in the theater. London has over fifty theaters producing plays simultaneously. During twenty days in England, the class will attend twelve performances ranging in style from classical to modern. It will attend lectures by noted British theatrical authorities, discussions, excursions around London and to Oxford, Coventry, Canterbury, and over-night stay in Stratford. To the English-speaking student of theater, Paris is somewhat more limited; it does, however, offer some unique experiences which do not depend on language for communication. The Comédie-Française, the Mime Theatre, and the Opera are such experiences.

While in France, the class will also spend time at the Palace of Versailles and the Cathedral at Chartres. Fee approximately \$700. *Speech 12, Mr. J. Korf.*

TRAVEL ACCOUNTS AS LITERATURE. A study of the use of voyage accounts as a vehicle for commentary on the social scene as found in Voltaire's *Philosophical Stories*, Swift's *Gulliver's Travels*, More's *Utopia*, and others. The students will read approximately eight short stories and novels and will write a course paper based on the reading of these and some additional works. Teaching will be done mainly by lectures on the works studied and on the historical (social, philosophical) background against which the works should be viewed. Semi-weekly discussions during the class hour in smaller groups will be led by both instructors. All students should have successfully completed English 100 or its equivalent. A background in English, American, or French literature will be helpful, but not required. *Interdisciplinary 115, Miss E. Borger, Mr. R. Tiemersma.*

THE USE OF OIL AS A POLITICAL WEAPON. From the first discovery of petroleum in the Middle East, the nations of the world have struggled to control it. President Franklin Roosevelt even courted the obscure king of Saudi Arabia to assure its continued flow during World War II. But the worm has turned. Within the last decade the oil producing countries have successfully used their oil resources to force political concessions from the greatest powers and are changing the world balance of power. Resources are rich for the study of this struggle. Satisfies a social studies group major or minor. *History 11, Mr. B. De Vries.*

WHAT ARE THE CHANCES? PROBABILITY AT WORK. A study of both the basic theory of probability and the testing of the theory by various experiments. The basic theory, beginning with the simplest cases of finite probability, will be presented in short lectures. Students will work in teams to devise experiments which test the theory, to try the experiments in a laboratory situation to see how well they work, and to prepare

written materials describing those experiences which seem to be effective. One objective for the entire class will be to compile these results into "A Laboratory Manual of Statistical Experiments." Some computer methods may be considered for those students with little or no mathematical background and those with considerable mathematical background will be enrolled in the course. There will be some reading in the area of foundations of probability, and the question of a Christian perspective on the fascinating subject will be considered. Prerequisite: Mathematics 109, *Mathematics 11, Mr. C. Sinke.*

WHAT'S CHRISTIAN ABOUT CHRISTIAN SCHOOLS? The course examines some basic theory and practice in Christian schooling, especially the relation between theory and practice. A major aim is to probe beyond slogans to some of the rudimentary commitments that do and/or ought to control Christian schooling. Agreements and disagreements among proponents of such schooling will be noted, and, through processes of inquiry such as reading, interviewing, and discussing, students will be prodded to reach defensible positions of their own. The course is open to all students interested in the above aims and procedures. Course components include prescribed readings, guest lectures, interviewing persons in the community, class reports, and class discussions. Instead of a final examination, a final paper will be required. Major requirement: thoughtful and active participation throughout the Interim. *Education 11, Mr. H. Beversluis.*

WHAT'S IN THE STUFF WE BUY? This course involves analyses of products on the retail market, foods, drugs, or anything interesting to the student. Both organic and inorganic analyses will be performed, as the product requires. The student will select a product, search the literature for the analytical information he needs, and performs the analyses in the laboratory. His findings will be compared with the Federal standards for the product. Upon completion of the project, a comprehensive report will be required in the style dictated by, e.g., *An-*

alytical Chemistry for manuscripts submitted for publication. Prerequisite: Chemistry 301. *Chemistry 10, Mr. T. Dirkse, Mr. E. Wolthuis.*

WILLIAM FAULKNER. A study of six novels and several short stories by the leading American novelist of this century. Discussions, quizzes, films. *English 12, Mr. C. Walhout.*

WITCHES, WIZARDS, WARLOCKS, WEREWOLVES, AND WHOOOO? An investigation of the psychological and religious aspects of the occult utilizing Biblical, historical, and psychological data. An attempt will be made to discover the significance of the infrequent mention of demons (and angels) in the Old Testament as compared to the more frequent reference to them in the Apocrypha and the New Testament. Attention will be given to the Bible's strong proscription of witchcraft and whether and why such proscriptions are still relevant today. Consideration will be given to the problem of whether the Bible teaches that demons are *ontic* creatures or whether this is an example of accommodation; the further question of psychological versus ontological reality will also be examined. The implications of occultic involvement for mental and spiritual health will also be considered. *Interdisciplinary 113, Mr. C. Vos, Mr. R. Youngs.*

WOMEN AS A MINORITY GROUP. A sociological look at the claims of the Women's Liberation Movement. The biological and social basis of the woman's role are examined, as well as the alleged sources and nature of discrimination against adult women. A section of the course is also devoted to the development of a scriptural perspective on the female role. The course is taught by means of student presentations, discussion, guest speakers, and films. *Sociology 31, Mr. P. De Jong.*

WOODEN SHOES IN AMERICA, THE CHRISTIAN REFORMED CHURCH IN

AMERICAN CULTURE. The Christian Reformed Church owes its existence to two Nineteenth Century Calvinistic secession movements in the Netherlands. Although relatively small, its goal, in keeping with its Calvinistic stance, is to lay the claims of Christ on every area of life and make substantial impact upon its environment. This course is designed to examine the responses of the Christian Reformed Church to Twentieth Century problems and challenges—racism; war and pacifism; premillennialism; ecumenicity; and the like. Efforts will be made to ascertain what impact has been made or attempted and what Biblical and confessional bases are claimed for its actions and witness. Students will do research work in synodical acts and in Bible commentaries and will be asked to assess the effectiveness of CRC contributions to problem areas. *Religion 10, Mr. J. Bratt.*

WORKSHOP IN OPEN EDUCATION. Students in this course will have a quick orientation to open education and will then go directly to the teaching areas. The course will be conducted at Rosewood School in Jenison, Michigan. Members of this workshop will become an integral part of the teaching team and will share all the privileges and responsibilities of that team. The school day begins at 8:20 a.m. and ends after the team meetings in the afternoon which usually end by 4:30 p.m. Consultants from Herman Miller Inc. who designed the equipment and other persons who developed the curriculum will conduct sessions for participants in this workshop. *Interdisciplinary 117, Mr. D. Holquist.*

WORLD WAR I AND ITS TITANS. A study of World War I based primarily on the memoirs and biographies of the statesmen, generals, soldiers, and civilians who participated in it and who wrote of their grandeur and their misery. Class reports and a course paper are required. Satisfies social studies concentrations. *History 20, Mr. E. Strikwerda.*



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Communications Board, H. Rienstra (Chimes), R. Jensen (Prism), K. Kuiper (*Dialogue*), S. Wiersma, and five students.

Computer Services Committee, R. Griffioen (chairman), L. Ippel, M. Monsma, R. Rice, J. Vanden Berg, R. Wevers (S. Leestma, on leave, and G. Lewis, advisers).

Coordinating Committee on Teacher Education, C. Miller (chairman), D. Oppewal (*ex officio*, as chairman of the Department of Education), W. De Boer, H. Hoeks, G. Huisman, D. Smalligan.

Counseling and Guidance, W. Sanderson (chairman), G. Besselsen, W. Joose, T. Minnema, B. Pekelder, and two students.

Discipline Committees

Discipline Appeals Council, B. Pekelder (chairman), H. Broene, B. Kreuzer, L. Nyhoff, and three students.

All-Campus Discipline Committee, W. Stob (secretary), P. Boonstra, R. Honderd, A. Kromminga, A. Noteboom, B. Ten Broek, M. Zuidema (W. Van Doorne and W. Holkeboer, alternates), and five students, with two student alternates.

Residence Halls Appellate Council, H. Bonzelaar, D. Hageman, R. Terborg (D. Tuuk, R. De Vries, alternates), and three students from residence hall judiciaries and two alternatives. Council names its own chairman.

Residence Hall Judiciaries, one faculty member and six students from each residence unit. H. Bonzelaar (Eldersveld and Schultze Halls), R. De Vries (Heyns and Bolt Halls), B. Klooster (Boer and Bennink Halls), R. Terborg (Noordewier and Vander Werp Halls), D. Tuuk (Rooks and Van Dellen Halls), D. Zuidema (Beets and Veenstra Halls).

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Film Arts Council, H. Baron, I. Kroese, H. Shenk, plus four students, one of whom is chairman.

Honors Program Committee, R. Tiemersma (chairman), H. Holstege, K. Konyndyk, C. Miller, T. Rottman, C. Walhout, M. Zylstra.

Interim Committee, A. Plantinga (chairman), E. Dykema, G. Harper, C. Miller, E. Van Kley, P. Zwier (P. Vande Guchte, adviser).

Lecture Council, P. Henry, R. Mouw, and three students.

Library Committee, College representatives: K. Blok, B. De Vries, M. Monsma, E. Runner, G. Spykman; R. Wevers, consultant.

Pre-Seminary Advisory Committee, R. Youngs (chairman), B. Pekelder, D. Vila, C. Vos.

Professional Status Committee, W. Spoelhof (chairman), N. Beversluis, M. Bolt, J. Bosscher, A. Gebben, C. Orlebeke, J. Vanden Berg.

Scholarship Committee, A. Bratt (chairman), P. De Jong, W. Hubers (secretary), C. Miller, G. Monsma, P. Oppewall.

Student Recruitment Committee, P. Vande Guchte (chairman), S. Greydanus, W. Hendricks, N. Matheis, plus two students.

Student Religious Activities Committee, H. Ten Hârmzel (chairman), J. Beebe, B. Pekelder, K. Piers, B. Siebring, W. Stob, L. Vos, plus four students.

Student Social Activities Committee, R. Bolt (chairman), D. Holquist, B. Pekelder, J. W. Smit, W. Stob, plus seven students.

CONTINUING AD HOC STUDY COMMITTEES

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Discipline Code Study Committee, H. Rienstra (chairman), G. De Blaey, D. Nykamp, E. Van Vugt; two members of the Board of Trustees, L. J. Hofman and J. Vander Ark; and two students.

Faculty Organization Study Committee, V. Ehlers (chairman), C. Miller (secretary), C. Sinke, E. Strikwerda, J. Westra; the Dean of the College, and the President.

FACULTY MENTORS OR ASSOCIATES

Dialogue, faculty editors and associate editors: H. Brinks (campus affairs), K. Kuipers (academic affairs), M. Walters (fine arts), R. Wells (world affairs).

Fine Arts Guilds, M. Walters (mentor), plus student chairman, student business manager, editor of *Dialogue*, and a student representative from each guild.

DEPARTMENTAL AND DIVISIONAL ORGANIZATION

The various departments are related as divisions: Division I, education, physical education, philosophy, and religion and theology; Division II, language, literature, and the arts; Division III, the natural sciences and mathematics; Division IV, the social sciences.

Art (II), Edgar Boevé, *chairman*
Biology (III), Al Bratt, *chairman*
Chemistry (III), Enno Wolthuis, *chairman*
Classical Languages (II), Robert T. Otten, *chairman*
Economics (IV), Donald Pruis, *acting chairman*
Education (I), Donald Oppewal, *chairman*
Engineering (III), James Bosscher, *chairman*
English (II), George Harper, *chairman*
Romance Languages (II), Arthur Otten, *chairman*
Germanic Languages (II), Wallace Bratt, *chairman*
History (IV), Henry Ippel, *chairman*
Mathematics (III), George Van Zwalenberg, *chairman*
Music (II), John Hamersma, *chairman*
Philosophy (I), Clifton Orlebeke, *chairman*
Physical Education (I), Marvin Zuidema, *chairman*
Physics (III), Vernon Ehlers, *chairman*
Political Science (IV), Stephen Monsma, *acting chairman*
Psychology (IV), Alfred Reynolds, *chairman*
Religion and Theology (I), John Bratt, *chairman*
Sociology (IV), Henry Holstege, *chairman*
Speech (II), Marten Vande Guchte, *chairman*



Faculty

Faculty members on leave of absence for the 1974-75 academic year are indicated by an asterisk (*), those on leave for the first semester are indicated by a dagger (†), and those on leave for the second semester are indicated by double asterisks (**).

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Professor of Germanic Languages, Emeritus
- Bert Peter Bos, M.A., Ed.D.
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- John Thomas Daling, M.A., Ph.D.
Professor of Psychology, Emeritus
- John De Bie, M.A.
Assistant Professor of History, Emeritus
- Harry G. Dekker, M.S.
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Professor of Chemistry, Emeritus
- Bernard Jay Fridsma, Sr., M.A., Ph.D.
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- William Harry Jellema, M.A., Ph.D.
Professor of Philosophy, Emeritus
- Albert H. Muyskens, M.A.
Professor of Mathematics, Emeritus
- Cornelius A. Plantinga, M.A., Ed.D., Ph.D.
Professor of Psychology, Emeritus
- Tunis Prins, M.A., Ph.D.
Professor of Philosophy, Emeritus
- William Thomas Radius, M.A., Ph.D.
Professor of Classical Languages, Emeritus
- Henry J. Ryskamp, M.A., Ph.D.
Dean of the College, Emeritus
Professor of Economics and Sociology, Emeritus
- Gertrude Slingerland, M.A.
Assistant Professor of English, Emerita
- Seymour Swets, M.A.
Professor of Music, Emeritus
- John Henry Tuls, M.A.
Associate Professor of Mathematics, Emeritus
- John Andrew Van Bruggen, M.A., Ph.D.
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- Gertrude Vander Ark, M.A., Ed.S.
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- Helen Van Laar, M.A.
Assistant Professor of Education, Emerita
- Henry Van Zyl, M.A., Ph.D.
Professor of Educational Methods, Emeritus
- Harry J. Wassink, B.S.
Professor of Engineering, Emeritus
- John Weidenaar, Th.M.
Associate Professor of Religion and Theology, Emeritus
- Sydney T. Youngsma
Assistant to the President, Emeritus
Consultant, Development Office

- Robert J. Albers, Ph.D. (Connecticut, 1962) ACTIVE
Associate Professor of Chemistry
- Claude-Marie Baldwin, B.A. (Calvin, 1971)
Visiting Assistant in Romance Languages
- Henry James Baron, M.A. (Michigan, 1966), Adv. Cer., Ph.D. (Illinois, 1968, 1972)
Assistant Professor of English
Coordinator of Freshman English
- John D. Beebe, M.A. (South Dakota, 1966), Ph.D. (Chicago, 1970)
Associate Professor of Biology
- Henry Bengelink, M.S. (Michigan, 1940)
Assistant Professor of Biology
- Melvin Earl Berghuis, M.A. (Michigan, 1949), Ph.D. (Michigan State, 1964)
Professor of Speech
- Gilbert Besselsen, M.A., Ph.D. (Michigan, 1963, 1969)
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- Nicholas Henry Beversluis, Th.B. (Calvin Theological Seminary, 1943), Th.M. (Westminster Theological Seminary, 1944), M.A. (Columbia, 1950), Ed.D. (Columbia—Teachers College, 1966)
Professor of Education
- Kathryn Blok, M.A. (Michigan State, 1967)
Visiting Assistant Professor of Education
- Donald L. Boender, M.A. (Michigan, 1965)
Dean of Men
- Edgar Gene Boevé, J. Franklin School of Professional Arts, M.S.D. (Michigan 1954)
Associate Professor of Art
Chairman of the Department of Art
- Ervina Boevé, M.A. (Michigan, 1954)
Assistant Professor of Speech
Director of Drama
- Martin Bolt, M.A., Ph.D. (Michigan State, 1967, 1969)
Associate Professor of Psychology
- Robert Bolt, M.A. (Michigan, 1953), Ph.D. (Michigan State, 1963)
Professor of History
- Helen Bonzelaar, M.A. (Western Michigan, 1964)
Assistant Professor of Art
- Paul H. Boonstra, M.A. (Michigan, 1958), M.S. (Purdue, 1963), Ph.D. (Michigan State, 1970)
Professor of Mathematics
- Ellen D. Borger, M.A. (Indiana, 1968)
Instructor in Romance Languages
- James Peter Bosscher, M.S. (Purdue, 1957), Ph.D. (Michigan, 1968)
Professor of Engineering
Chairman of the Department of Engineering
- Al Dirk Bratt, M.S. (Michigan State, 1957), Ph.D. (Cornell, 1964)
Professor of Biology
Chairman of the Department of Biology
- John Harold Bratt, Th.B. (Calvin Theological Seminary, 1937), Th.M. (Columbia Seminary, Ga., 1938), S.T.M. (Harvard Divinity School, 1939), Th.D. (Union Seminary, Va. 1955)
Professor of Religion and Theology
Chairman of the Department of Religion and Theology
- Wallace Henry Bratt, M.A., Ph.D. (Michigan, 1956, 1966)
Professor of Germanic Languages
Chairman of the Department of Germanic Languages
- Daryl Myron Brink, M.A. (Western Michigan, 1968), Ph.D. (Michigan State, 1972)
Visiting Assistant Professor of Mathematics
- John Harvey Brink, M.S., Ph.D. (Purdue, 1972, 1974)
Assistant Professor of Psychology

- Herbert John Brinks, M.A., Ph.D. (Michigan, 1961, 1965)
Professor of History
Curator, Colonial Origins Collection
- Herman H. Broene, Ph.D. (Purdue, 1947)
Professor of Chemistry
- Conrad John Bult, M.A., M.A.L.S. (Michigan, 1962, 1965)
Librarian
- Elsa Cortina, Doctora en Pedagogia (Universidad Habana, 1951)
Assistant Professor of Romance Languages
- John Lester De Beer, M.A., Ed.D. (Columbia—Teachers College, 1936, 1951)
Professor of Education
Director of Audo-Visual Services
- Gordon Lee De Blaey, M.A., Ph.D. (Western Michigan, 1967, 1970)
Associate Professor of Sociology
- Peter Pousma De Boer, M.A., Social Studies (New Jersey State, 1952), M.A.,
 English-American Civilization (Iowa, 1961), Ph.D. (Chicago, 1968)
Professor of Education
Coordinator for Special College Services
- Willis Peter De Boer, Th.B. (Calvin Theological Seminary, 1951), D.Th. (Vrije Uni-
 versiteit, Amsterdam, 1962)
Professor of Religion and Theology
- James Henry De Borst, M.A., Ph.D. (Michigan, 1965, 1972)
Professor of Political Science
- Jeanette Bult De Jong, M.Ed. (University of Toronto, 1973)
Dean of Women
- Peter Ymen De Jong, M.A., Ph.D. (Western Michigan, 1969, 1972)
Associate Professor of Sociology
- James John De Jonge, M.S., M.Mus. (Michigan, 1935, 1941)
Associate Professor of Music
- **Peter Allen De Vos, M.A., Ph.D. (Brown, 1964, 1972)
Professor of Philosophy
- Bert De Vries, B.D. (Calvin Theological Seminary, 1964), M.A., Ph.D. (Brandeis,
 1965, 1967)
Associate Professor of History
- Claudia Lee De Vries, B.A. (Calvin, 1974)
Assistant in Psychology
- Robert Lee De Vries, M.A., Ph.D. (Michigan, 1964, 1974)
Instructor in Political Science
- Henry De Wit, M.B.A. (C.P.A.) (Michigan, 1948)
Vice President for Business and Finance
- Theodorf P. Dirkse, M.A., Ph.D. (Indiana, 1938, 1939)
Professor of Chemistry
- Eugene Roy Dykema, M.B.A. (Chicago, 1968)
Assistant Professor of Economics
- Vernon James Ehlers, Ph.D. (California, Berkeley, 1960)
Professor of Physics
Chairman of the Department of Physics
- Alan Irwin Gebben, M.A.T. (George Peabody and Vanderbilt, 1955), M.S., Ph.D.
 (Michigan, 1959, 1965)
Professor of Biology
- Harold Paul Gerdes, M.Ed. (Chicago State, 1940)
Associate Professor of Music
- Samuel Everett Greydanus, Jr., M.A. (Edinburgh, 1951),
Assistant Professor of History
- Roger Duane Griffioen, Ph. D. (Purdue, 1960)
Professor of Physics

- Dolores Hageman, B.A. (Calvin, 1971)
Assistant in Physical Education
- John Edward Hamersma, S.M.M., S.M.D. (Union Theological Seminary, New York, 1952, 1961)
Professor of Music
Chairman of the Department of Music
College Organist
- George Graham Harper, Jr., M.A., Ph.D. (Northwestern, 1951, 1959)
Professor of English
Chairman of the Department of English
- George Harris, M.A. (Michigan, 1959), Ph.D. (Northwestern, 1971)
Professor of Classical Languages
- Cornelius Peter Hegewald, M.A., D.A.G. (Michigan State, 1964, 1967)
Associate Professor of Germanic Languages
- William Cornelius Hendricks, M.Ed. (Western Washington State, 1955)
Assistant Professor of Education
Coordinator of Elementary Education
- Paul B. Henry, M.A., Ph.D. (Duke, 1967, 1970)
Associate Professor of Political Science
- David Andrew Hoekema, B.A. (Calvin, 1973)
Assistant in Philosophy
- Henry Jay Hoeks, B.S.A.E. (Purdue, 1958), M.C.E. (Western Theological Seminary, 1966)
Associate Professor of Religion and Theology
Director of the Academic Study of Religions Program
- Winifred H. Holkeboer, M.A. (Iowa Northern University, 1959)
Associate Professor of English
- David Jack Holquist, M.A., Ed.S. (Michigan, 1967, 1974)
Assistant Professor of Speech
- Henry Holstege, Jr., M.A., Ph.D. (Michigan State, 1958, 1966)
Professor of Sociology
Chairman of the Department of Sociology
- David Earl Holwerda, B.D. (Calvin Theological Seminary, 1956), D.Th. (Vrije Universiteit, Amsterdam, 1959)
Professor of Religion and Theology
- Ralph John Honderd, M.A. (Michigan State, 1966)
Assistant Professor of Physical Education
- Carl John Huisman, M.F.A. (Michigan State, 1967)
Assistant Professor of Art
- Gertrude Ann Huisman, M.A. (Ohio State, 1963), M.Mus. (Michigan State, 1969)
Assistant Professor of Music
- Henry Peter Ippel, M.A., Ph.D. (Michigan, 1948, 1957)
Professor of History
Chairman of Department of History
- Thomas Leigh Jager, M.S., Ph.D. (Chicago, 1967, 1971)
Assistant Professor of Mathematics
- Dirk William Jellema, Ph.D. (Wisconsin, 1951)
Professor of History
- Robert Andrew Jensen, M.F.A. (Ohio, 1952)
Associate Professor of Art
- Wayne George Joosse, M.A. (Michigan State, 1965)
Associate Professor of Psychology
- Martin Karsten, M.S. (Michigan, 1942)
Associate Professor of Biology
- Beverly Jane Klooster, M.S., Ph.D. (Michigan State, 1961, 1972)
Associate Professor of Biology
Director of Health Services Programs

- Thelma Knol, M.Mus. (Michigan, 1959)
Professional Staff, Department of Music
- Kenneth J. Konyndyk, Jr., M.A., Ph.D. (Wayne State, 1967, 1970)
Associate Professor of Philosophy
- James Dale Korf, M.A. (Michigan, 1970)
Visiting Assistant Professor in Speech
- Bernard Benjamin Kreuzer, M.A. (Michigan, 1959), Ph.D. (Iowa, 1974)
Associate Professor of Germanic Languages
- Irvin Bertus Kroese, M.A., Ph.D. (Ohio, 1964, 1966)
Professor of English
- Albion Jerome Kromminga, Ph.D. (Minnesota, 1961)
Professor of Physics
- Kenneth Wayne Kuiper, M.A., Educ., M.A., English, Ed.D. (Michigan, 1955, 1959, 1963)
Professor of English
- Jack Kuipers, M.S.E., Info. and Cont. E. (Michigan, 1959, 1966)
Associate Professor of Mathematics
- Kenneth Jay Kuipers, M.B.A., Ph.D. (Michigan State, 1968, 1973)
Assistant Professor of Economics
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Professor of Germanic Languages
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Librarian
- James Lawrence Lamse, M.A. (Michigan, 1963)
Associate Professor of Germanic Languages
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Associate Professor of Mathematics
Director of the Academic Computer Services
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Associate Professor of Education
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Professor of History
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Assistant Professor of Art
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Instructor in Economics
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Professor of Physics
- Charles J. Miller, Ph.D. (Northwestern, 1947)
Assistant Dean for Academic Affairs
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Professor of Religion and Theology
- George Norman Monsma, Jr., M.A., Ph.D. (Princeton, 1965, 1969)
Associate Professor of Economics
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Director of the Library
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Professor of Philosophy
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Professor of Mathematics
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Associate Professor of Speech
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- Peter Oppewal, M.A., Ph.D. (Michigan, 1949, 1961)
Professor of English
- Clifton James Orlebeke, B.S.E., M.A. (Michigan, 1947, 1950), Ph.D. (Harvard, 1963)
Professor of Philosophy
Chairman of the Department of Philosophy
- Arthur James Otten, M.A., D. de l'U. (Laval, 1952, 1969)
Professor of Romance Languages
Chairman of the Department of Romance Languages
- Robert Theodore Otten, M.A., Ph.D. (Michigan, 1951, 1957)
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Chairman of the Department of Classical Languages
- Chris Stoffel Overvoorde, M.F.A. (Michigan, 1966)
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Acting Chairman of the Department of Economics and Business Administration
- David E. Ramaker, M.S., Ph.D. (Iowa, 1968, 1971)
Visiting Assistant Professor of Physics
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Professor of Psychology
Chairman of the Department of Psychology
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Professor of Sociology
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Associate Professor of Sociology
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- H. Evan Runner, Th.B., Th.M. (Westminster Theological Seminary, 1939, 1946)
D.Phil. (Vrije Universiteit, Amsterdam, 1951)
Professor of Philosophy
- Ruth K. Rus, M.Mus. (Eastman School of Music, 1951)
Professional Staff, Department of Music

- William A. Sanderson, B.D., S.T.M. (Faith Theological Seminary, 1950, 1951),
M.A. (Washington, St. Louis, 1965)
Associate Professor of Psychology
- Barton G. Siebring, M.A. (Instituto Tecnológico Y De Estudios Superiores, Mon-
terrey, 1967)
Assistant Professor of Romance Languages
- Carl James Sinke, M.S., Ph.D. (Purdue, 1951, 1954)
Professor of Mathematics
- Howard Jay Slenk, M.A., Ph.D. (Ohio State, 1961, 1965)
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Professor of Sociology
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College, 1972, Western Michigan, 1973, Aquinas, 1974), D.H.L. (Hope, 1974)
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- *Leonard Sweetman, Jr., Th.B. (Calvin Theological Seminary, 1951)
Associate Professor of Religion and Theology
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- Henrietta Ten Harmsel, M.A., Ph.D. (Michigan, 1958, 1962)
Professor of English
- Robert Harold Terborg, M.A., Ph.D. (Michigan State, 1966, 1968)
Associate Professor of Psychology
- Richard Robert Tiemersma, M.A., Ph.D. (Northwestern 1950, 1962)
Professor of English
- James R. Timmer, M.A. (Michigan, 1964), Ph.D. (Utah, 1974)
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- John Johnson Timmerman, M.A. (Michigan, 1932), Ph.D. (Northwestern, 1948)
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Associate Professor of Music
- David Bruce Tuuk, M.A. (Michigan, 1950)
Assistant Professor of Physical Education
- Marten Vande Guchte, M.Ed. (Wayne State, 1954), Ph.D. (Michigan State, 1969)
Professor of Speech
Chairman of the Department of Speech
- Peter Vande Guchte, M.B.A. (Michigan, 1960), Ed.D. (Western Michigan, 1973)
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- John Vanden Berg, M.A., Ph.D. (Michigan, 1947, 1958)
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Professor of Chemistry
- Gordon Lee Van Harn, M.S., Ph.D. (Illinois, 1959, 1961)
Professor of Biology
- Dale Kenneth Van Kley, M.A., Ph.D. (Yale, 1964, 1970)
Associate Professor of History
- Edwin John Van Kley, M.A., Ph.D. (Chicago, 1959, 1964)
Professor of History
- *Catherine Wilhelmina Van Opynen, M.A. (Columbia—Teachers College, 1945), M.Ed. (Michigan, 1957)
- Matthew John Vanderhill, M.S. (Wisconsin, 1971)
Visiting Assistant Professor of Physics
- Lambert John Van Poolen, M.S.M.E., Ph.D. (Illinois Institute of Technology, 1965, 1969), P.E. (State of Illinois, 1971)
Associate Professor of Engineering
- †Howard Jay Van Till, Ph.D. (Michigan State, 1965)
Professor of Physics
- Ernest Van Vugt, M.A. (Michigan, 1958)
Assistant Professor of Classical Languages
Registrar
- George Van Zwalenberg, M.A. (Florida, 1955), Ph.D. (California, Berkeley, 1968)
Professor of Mathematics
Chairman of the Department of Mathematics
- *John Bos Van Zytveld, M.S., Ph.D. (Michigan State, 1964, 1967)
Associate Professor of Physics
- David William Vila, B.D. (Gordon Divinity School, 1957), M.A. (Michigan State, 1960)
Associate Professor of Romance Languages
- Clarence John Vos, Th.B. (Calvin Theological Seminary, 1950), Th.M. (Westminster Theological Seminary, 1951), D.Th. (Vrije Universiteit, Amsterdam, 1968)
Professor of Religion and Theology
- Louis Arthur Vos, B.D. (Calvin Theological Seminary, 1961), D.Th. (Vrije Universiteit, Amsterdam, 1965)
Professor of Religion and Theology
Director of Religion and Education Program
- Anthony Donald Vroon, M.A. (Western Michigan, 1965)
Assistant Professor of Physical Education
- Clarence Peter Walhout, M.A. (Michigan, 1956), Ph.D. (Northwestern, 1964)
Professor of English
- Mary Ann Walters, M.A. (Michigan, 1962)
Assistant Professor of English
- Evelyn June Weidenaar, M.A., M.A.L.S. (Michigan, 1958, 1967)
Librarian
- Ronald Albert Wells, M.A., Ph.D. (Boston, 1964, 1967)
Associate Professor of History
- *Dorothy Westra, M.A. (Michigan, 1952)
Assistant Professor of Education
- Johan Gerard Westra, M.A., Ph.D. (Michigan, 1953, 1972)
Professor of Political Science
- Richard Franklin Wevers, M.A., Ph.D. (Wisconsin, 1959, 1962)
Professor of Classical Languages

- Jack Wiersma, M.S. (Seattle, 1967), Ph.D. (Iowa, 1968)
Professor of Education
- Stanley Marvin Wiersma, M.S., Ph.D. (Wisconsin, 1956, 1961)
Professor of English
- Donald Reid Wilson, M.Div. (Faith Theological Seminary, 1956), M.A. (Chicago, 1962) Ph.D. (Chicago, 1970)
Professor of Sociology
- †Nicholas Paul Wolterstorff, M.A., Ph.D. (Harvard, 1954, 1957)
Professor of Philosophy
- Enno Wolthuis, M.S. (Michigan, 1933), Ph.D. (Illinois, 1937)
Professor of Chemistry
Chairman of the Department of Chemistry
- John William Worst, M.A. (Ohio State, 1964)
Assistant Professor of Music
- G. Roderick Youngs, Th.B. (Calvin Theological Seminary, 1935), M.A. (Michigan State, 1940), Ed.D. (Loyola, 1961)
Professor of Psychology
- Doris Jean Zuidema, M.A. (Columbia—Teachers College, 1963)
Assistant Professor of Physical Education
- Marvin Albert Zuidema, M.A. (Michigan State, 1959), P.E.D. (Indiana, 1971)
Professor of Physical Education
Chairman of the Department of Physical Education
- Paul John Zwier, M.A. (Michigan, 1951), Ph.D. (Purdue, 1960)
Professor of Mathematics
- Mildred Reitsema Zylstra, M.A.L.S. (Michigan, 1959)
Assistant Professor of English



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Administrative offices
College Center

Department of Art
College Center

Department of Biology
Science Building

Department of Chemistry
Science Building

Department of Classical Languages
Hiemenga Hall

Department of Economics and Business
Library, basement

Department of Education
College Center

Department of Engineering
Science Building

Department of English
Fine Arts Center

Department of Romance Languages
Hiemenga Hall

Department of Germanic Languages
Hiemenga Hall

Department of History
Library, basement

Department of Mathematics
Science Building

Department of Music
Fine Arts Center

Department of Philosophy
Science Building

Department of Physical Education
Physical Education Building

Department of Physics
Science Building

Department of Political Science
College Center

Department of Psychology
College Center

Department of Religion and Theology
Hiemenga Hall

Department of Sociology
College Center

Department of Speech
Fine Arts Center