

CATALOG
Calvin College
1971-72

THE COLLEGE OF THE CHRISTIAN REFORMED CHURCH

GRAND RAPIDS, MICHIGAN



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1971-72

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CALENDAR

The Fall Semester 1971

SEPTEMBER	7	Tuesday
	8	Wednesday
	9-11	Thursday-Saturday
	9	Thursday
	13	Monday
OCTOBER	25-26	Monday-Tuesday
NOVEMBER	24	Wednesday
	29	Monday
DECEMBER	16	Thursday
	17	Friday
	22	Wednesday

Faculty-Board conference
Residence halls open
Orientation and registration

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

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 1972

JANUARY	11	Tuesday
FEBRUARY	2	Wednesday

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

The Spring Semester 1972

	7-8	Monday-Tuesday
	9	Wednesday
MARCH	24	Friday
APRIL	4	Tuesday
MAY	10	Wednesday
	19	Friday
	22	Monday
	27	Saturday

Registration

Second semester classes begin 8 a.m.
Spring vacation begins 5 p.m.
Spring vacation ends 8 a.m.
Honors convocation 3 p.m.
Classes end 5 p.m.
Final examinations begin 10:30 a.m.
Commencement 2 p.m.

The Summer Semester 1972

	30	Tuesday
JUNE	20	Tuesday
	21	Wednesday
JULY	14	Friday
	17	Monday
AUGUST	8	Tuesday
	9	Wednesday
	31	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 1972

SEPTEMBER	5	Tuesday
	6	Wednesday
	7	Thursday
	11	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 pre-theological students were admitted to an expanded curriculum, and thus the school became a type of preparatory school or academy. In 1900 the curriculum was further broadened and made more attractive to students interested in teaching or in preparing for preprofessional courses in the universities. By 1906 the Literary Department, which provided the four years of preparatory and two years of college work, be-

came 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 3,437.

In 1961 the college began the development of a new campus site. The college still occupies the Franklin Street campus for use by some of the upper division classes, but the center of academic activity is gradually shifting to the new Knollcrest campus. Most student housing is there. The Library and Hiemenga Hall, the Fine Arts Center, the Physical Education Building, the Science Building, and the Student Commons are at the heart of the new campus. A major addition to complete the Library Building has just been constructed. Approximately 220,000 books and bound periodicals are held in the open stacks distributed over a three floor area. Individual study carrels, tables, and lounge furniture accommodate the various needs of students and faculty in the carpeted, air conditioned building. Over 1,500 serials are currently received and displayed in the periodicals area.

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 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 fellow man, 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 calling.

The faculty members subscribe to the creedal 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 but other evangelical Protestants and 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 fellow man 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, and the American Mathematical Society.

CALENDAR, SUMMER SCHOOL

In September, 1967, a revised college calendar and revised graduation requirements were introduced. The calendar was changed from the traditional two-semester plan to the 4-1-4 plan, consisting of two semesters,

each approximately four months in length, plus a one-month interim term. Typically, during each of the two semesters a student takes four courses, each of equal academic value, and during the interim he takes one. 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 calendar has also been revised. Four consecutive three and a half week sessions with one course each session permit a student to complete a full semester's program during the summer or to attend any of the separate sessions. Evening classes have also been introduced.

THE CALVIN ALUMNI ASSOCIATION

The Calvin Alumni Association is composed of all students who have studied one year or more, or have completed at least twenty-four hours of course credits at Calvin College or at Calvin Seminary, and all faculty members of these institutions. The purpose of this association is to provide an avenue whereby the alumni can indicate their attitude of continued loyalty to Calvin College and Seminary, and to demonstrate this loyalty concretely by performing appropriate services in response to the needs of the school.

The Calvin Alumni Association is governed by a council composed of the executive board and representatives of the alumni chapters. The council meets during the first week in June. The executive board meets five times a year to review the work of the full-time coordinator of alumni relations, make suggestions for the alumni program, and make final decisions on activities suggested by the coordinator.

The Alumni Association maintains an office in the administration building on the Franklin campus where all records are maintained and the business of the association is conducted.

Among other activities both the Alumni Association and some of its local chapters provide scholarships for students of the college.

BROENE CENTER FOR COLLEGE AND COMMUNITY SERVICES

The Johannes Broene Center for College and Community Services was established in 1964 to provide facilities for the expansion of instructional activities, particularly for the departments of psychology and education, and for research by faculty members and advanced students. The center provides psychological, educational, and occupational guidance services to the Calvin College student body, to Christian schools, and to individual clients.

The staff of the center is composed of members of the Psychology and Education departments and certified educational and psychological specialists. The services of consultants from the professions of medicine, psychology, and education are utilized.

The center does not aim at long-term treatment for severely emotionally disturbed or retarded individuals. Rather, the main task of the various guidance services is conceived to be guidance in milder emotional and social problems, learning problems, and vocational problems.

TEACHING-LEARNING MATERIALS CENTER

The college maintains a Teaching-Learning Materials Center in the former library building on the Franklin Campus. This center, which serves the instructional program of the entire college, includes the audio-visual services, the audio-visual laboratory, the curriculum center, a graphics production center, and two 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. Within the first two months of their residence at the college, out-of-town students are expected to affiliate with a local congregation either by a transfer of membership or by affiliation through student certificate. Sunday worship services are also 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 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 required 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 Council 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 ideals and standards of the college.

HOUSING

The general policy is to require all students except seniors to live in college residence halls or at home.

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 as students. Seniors and all students who are 21 or older by October 1 of the college year may live in apartments. 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 presented at an annual Fine Arts Festival in the spring.

For students less interested in participation than in appreciation the student council 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. The four-thousand-seat physical education building, the

thousand-seat auditorium in the Fine Arts Center, and the hundred-seat Swets Choral Room have become centers for these activities.

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.

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 student activities budget and concerns itself with student publications, homecoming, the film arts council, 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 Faculty Evaluation 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 from depressed areas.

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. The 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. Detailed information is available in the Business Office.

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 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.

FACULTY ADVISING

At his first registration, a student will be assigned a faculty adviser, generally from the department or area of his greatest interest. This adviser will assist him in planning his academic program and must be consulted before he changes his program or drops a course. A student typically stays with his adviser until he officially determines his major at the end of his sophomore year, when an adviser is assigned from the department, but, if the student's interests change or if for any other reason he wishes another adviser, a different assignment is made by the Registrar's Office.

Faculty members are ready to counsel with students about personal and spiritual matters. In addition, however, general and specialized counseling services are available to all students. The college chaplain, the dean of men, the dean of women, and the dean of student activities welcome conversations with students. Designated faculty members are assigned to the Broene Center and are always available for general counseling and will recommend any personality or vocational testing that seems appropriate. Broene Center is available to any student who judges that he needs specialized counseling.

ORIENTATION FOR NEW STUDENTS

All new students are required to participate in a program of orientation held just prior to each 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 schedule and information are 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 on both campuses, 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 material is made available to any interested school.

The Student Personnel 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.

Various graduate school and graduate fellowship programs are supervised by the coordinator of graduate fellowships. The broadest of these is the Michigan Scholars in College Teaching program which attempts to identify early and encourage students of promise who are interested in college teaching. 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 Woodrow Wilson fellowships, 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 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.

All application forms received by the Office of Admissions later than May 1 must be accompanied by a \$10 late fee. (The late admission fee must accompany second semester applications received after November 15.)

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

2. **REPORT OF THE COLLEGE ENTRANCE EXAMINATION BOARD TESTS** The Scholastic Aptitude Test of the College Entrance Examination Board is required of all freshman candidates. The test is given, normally, six times a year throughout the world—November 6, 1971; December 4, 1971; January

8, 1972; March 4, 1972; April 15, 1972; and July 8, 1972. Application forms are generally available from high school principals, but may be secured by students living east of the Rocky Mountains from the College Entrance Examination Board, Box 592, Princeton, New Jersey 08540. Application should be made at least four weeks prior to the date of the test. Those who live in the Rocky Mountain states or farther West, including students in Western Canada and in foreign countries of the Pacific areas, should apply a month in advance to the College Entrance Examination Board, Box 1025, Berkeley, California 94701.

Applicants for scholarships should take the test in November or December in order that the results may be available for the Scholarship Committee early in January. All candidates for September admission are strongly urged to take the test at the earliest convenient date.

3. APPLICATION FOR ADMISSION

4. PERSONAL RECORD

5. PASTOR'S RECOMMENDATION

6. HEALTH RECORD All candidates must present a health examination report prior to the time of entrance. Chronic physical or psychological problems should be clearly indicated to enable the College Health Service to function intelligently on the basis of full information. However, the college cannot be responsible for the continuing treatment of injuries or disabilities incurred by a student prior to matriculation.

A student will be notified concerning admission as soon as the application documents have been received by the college and, if he is admitted, he will be sent an admission card with his permanent student number, which must be presented at registration. Information concerning housing will be sent shortly afterwards. Scholastic Aptitude Test results are usually reported three to four weeks after the tests are taken.

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. Applications for the fall semester after July 1 and for the spring semester after December 1 must be accompanied by a late application fee.

ADVANCED STANDING

Students transferring from other colleges or universities must follow the same procedures of applying for admission as freshmen, but they are not required to sit for the Scholastic Aptitude Test 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 at an accredited junior college. Furthermore, no matter how much work at other institutions may be accepted, in order to graduate from Calvin a student must complete a full academic year in residence.

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 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, at the time of admission, may be given limited advanced college credit for certain courses. The candidate must formally apply for advanced credit and may justify his request in any of four ways: he may submit satisfactory scores on any one of the Subject Examinations of the College-Level Examination Program administered by the College Entrance Examination Board; he may submit a grade of 3 or higher on an Advanced Placement Examination of the College Entrance Examination

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 37-41). 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	
	—	
	16 units	Additional units are desirable for students with special interests.

Board; he may submit up to two course units (or six credit hours of credit) from an accredited high school for college-level work completed after graduation; or he may pass special departmental examinations at Calvin College.

In some cases students may be given advanced standing in some particular field of study, with perhaps an excuse from a given 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.

ADMISSION UNDER SPECIAL CONDITIONS

The college is eager to serve any prospective student, including those with irregular academic histories, who show promise of benefiting 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 the Scholastic Aptitude Test.

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 Summer Developmental Program aims to assist students who have not yet met the academic admission requirements of the college. The program features two concurrent six-week courses. The psychology course is designed to train the students in effective study habits and techniques of learning. The English course is designed to help the student develop writing skills in preparation for college-level courses. All students will receive individual and group counseling intended to help them explore their aptitudes for vocations and for higher education. Those students who demonstrate ability to do college level work will be recommended for admission to Calvin College.

ADMISSION OF FOREIGN STUDENTS

Calvin College is approved by the U.S. 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. Such prospective students should apply for admission early in the fall of their last year in high school, following the general procedures given above. The Scholastic Aptitude Test is given in foreign countries but is not required of students presenting a Senior Matriculation Certificate or who transfer from another college or university having earned at least one semester of credit.

When such an applicant is accepted for admission he will be sent a formal letter of admission by the coordinator of admissions and a copy of the required I-20 form. The prospective student should make application immediately with the American 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. Completed forms for both applications should be submitted during the junior or the early part of the candidate's senior year in high school. The candidate must be accepted by both the college and by the admissions committee of the School of Nursing.

ENROLLMENT IN SEMINARY CLASSES

College students may, as part of a program worked out with their departmental advisors, 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 the 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.

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 credit hours.

GRADING SYSTEMS

Grades during the regular semesters are designated by the letters A, excellent; B, good; C, average; D, just passable; and F, failure. Provisional grades of I, incomplete, and X, absent from examination, are temporarily averaged as F and become F permanently, for students in residence, if not removed within a calendar year. The initiative for the removal of I and X grades rests with the student. Courses with grades of D or F may be repeated once with only the second grade considered when computing the student's cumulative grade point average.

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 used when computing the student's average at Calvin.

Ordinarily grades for the interim are H, honors; S, satisfactory; and U, unsatisfactory. They 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. The provisional grades of I and X become U automatically in a calendar year if they are not removed. A few courses normally offered during either semester when taught during the interim will be graded in the traditional letter system and will be included in the student's average.

A grade of W, withdrawn, will be recorded if a student leaves a course for any reason with the official approval of his faculty adviser, his in-

structor, 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 41, 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. He must have completed a year's residence at Calvin during the year preceding his graduation. 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 formal application to graduate 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 42-44 should apply for this certificate at the Department of Education at the end of the semester during which they have completed the requirements and must apply within one calendar year after their completion.



EXPENSES and financial aid

TUITION AND RELATED FEES

TUITION AND related fees are \$1,500 for the year and \$750 for a semester. This includes a total of \$20 a semester in fees for student organizations including *Prism*, the student center, the health service, class dues, and laboratory fees. Although the tuition for the interim is covered by the tuition of the regular semesters, there will be no reduction in the semester tuition if a student does not enroll for the interim. If a student registers for the interim alone, he will be charged at the one-course rate.

Calvin has always considered it a privilege and an obligation to provide financial assistance to 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. On the basis of distance from the college, it has provided the funds for 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 will be able to apply for an institutional grant-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 his campus at 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 maximum grant-in-aid is:

	per year	per semester
Within ten miles of the student's campus	\$200	\$100
From ten to three hundred miles	280	140
From three hundred to a thousand miles	360	180
More than a thousand miles	440	220
Manitoba, Ontario, and Quebec provinces of Canada	360	180
Alberta, British Columbia, and Saskatchewan provinces	440	220

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

The tuition rate for part-time students is \$200 for each course, with a \$25 institutional grant-in-aid for those who are members of the Christian Reformed Church. Part-time tuition for students carrying fewer than three courses does not cover any of the related fees for such things as health service, student organizations including the *Prism*, and the student center. 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.*	\$750.00	Late application fee	\$10.00
Tuition, part-time, per course*	200.00	Late registration fee	10.00
Auditing, per course	100.00	Late payment fee	3.00
Room and board, per year	880.00	Physical education deposit	5.00
Teaching internship fee, per sem.	10.00	Graduation fee	10.00
Individual music instruction, per sem.	45.00	Second diploma fee, combined curriculum programs	5.00
Organ rental, per sem.	15.00	Vehicle registration fee	5.00
Residence hall social fee	16.00	Transcripts, after first copy	1.00
		Copies with one paid	.25
		Exemption examination fee	5.00
		Course credit by examination fee	20.00

*See information above concerning grants-in-aid for members of the Christian Reformed Church.

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

Tuition and fees should be paid in full at the time of registration; however, in no case should the initial payment be less than \$200. The balance must be paid by November 10 of the first semester and by April 1 of the second. Accounts not paid by these dates are subject to a \$3 late payment fee.

A minimum of one-fourth of the total charges for room and board, when these are to be paid to the college, must be paid at the beginning of the semester and the remainder in quarterly payments, at dates published subsequently. Accounts not paid on this schedule will be subject to a \$3 late payment fee.

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 25, 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, 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 Student Financial Aid or request an application form. The office is located in the Library-Classroom building. 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 regular status. Except for emergency aid programs, applications should be made by April 1.

The office also operates the Student Employment Service, which serves as a clearing house for part-time and seasonal employment. Students wishing such work should apply at the office at any time.

Educational Opportunity Grants. This federal government-sponsored program is intended to make possible college education for exceptionally needy students with average or better-than-average academic promise. Up to one half of a U.S. citizen's financial need — grants range from \$200 to \$1,000 a year — may be supplied; the other half must come from other grants, loans, or employment.

College Work-Study Program. Students who need employment to help pay for college expenses are potentially 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 from low-income families.

National Defense Student Loan Program. A maximum loan of \$1,000 is possible for U.S. citizens. Preference is given to

needy students and to those entering the teaching profession. These loans bear no interest charge until nine months after graduation. At that time, a ten-year repayment schedule commences with a 3 per cent interest charge. If the borrower becomes a full-time teacher or serves in the armed forces after April 30, 1970, 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.

Cuban Loans. This program, with the same features as the National Defense Student Loan Program, is available to Cuban nationals who are refugees in the United States.

Guaranteed Loan Programs. Loans from private banks generally up to \$1,000 are

guaranteed and subsidized by the federal government through various state and private agencies such as the Student Aid Fund, Inc. Financial need is not stressed.

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.

Royce Ulferts Memorial Loan Fund. This \$100 emergency loan fund has been established in memory of Royce Ulferts.

Emergency Loans. Amounts up to \$50 are available from the Kiwanis Club funds.

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 granted annually. All scholarships are awarded as recognition for academic excellence and are renewable on a competitive basis. Cash stipends given to scholarship winners vary in amount, depending on the student's need, and such stipends can be supplemented by loans and work opportunities provided by the college. All students holding scholarships awarded by the college are expected to meet part of their own expenses.

Calvin College participates in the College Scholarship Service of the College Entrance Examination Board. All scholarship winners who apply for scholarship amounts beyond the minimum stipend must submit a Parents' Confidential Statement for processing by the College Scholarship Service.

Prior to January 1, freshman applicants will be mailed application forms with their admission forms. A freshman scholarship candidate must not only complete application forms but must also complete the scholarship forms and arrange for two letters of recommendation in their support. Because all freshman applications and supporting documents must be in the hands of the Scholarship Committee by January 1, the Scholastic Aptitude Test must be taken not later than the scheduled December date. Applications for all other scholarships must be completed by March 1, with the exception of those designated.

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 Certificate of Merit Scholarships. Calvin College offers Freshman Scholarships to each high school graduate who has received a National Merit Scholarship Corporation Certificate of Merit, provided he or she has satisfied the other conditions for receiving a College Scholarship described above, and provided he has not already been granted another freshman scholarship. The winner of such a certificate who seeks to qualify

for the scholarship must notify the chairman of the Scholarship Committee not later than April 1 of the year in which he is applying for admission and must present a copy of the certificate to the Scholarship Committee. Winners of Letters of Commendation are not eligible.

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 25 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.

Freshman Pre-Nursing Scholarships. Each year Calvin College offers a number of scholarships for students who plan to enter the one-year pre-nursing course. The stipends and the other conditions are like those for the Calvin College Scholarships described above, except that applicants are not expected to complete a three- or four-year program.

Calvin College National Merit Scholarship. Calvin College annually sponsors one four-year scholarship for a National Merit Finalist. The selection procedure and the amount of the scholarship 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 criteria used in the selection of candidates 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.

Steelcase Foundation Scholarship. The Steelcase Foundation of Grand Rapids, Michigan, offers two scholarships annually of \$250 each to applicants for children of employees of Steelcase, Incorporated. The scholarships are renewable for three years. Continuation of the scholarship shall require maintenance of at least a C+ average. The winners are to be 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 shall be open to other Michigan residents.

Kent Medical Foundation Grants. Each year the Kent Medical Foundation makes available two tuition grants to qualified students at Calvin College. 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. Upperclassmen, as well as freshmen, are eligible to apply for this grant; the deadline for application is March 1.

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 \$800. Scholarship winners must demonstrate college potential and financial need. To be eligible for con-

sideration for a state scholarship, each applicant must: (1) qualify as a result of his performance on the State Competitive Examination, (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, Eight Arlington Street, Boston, Massachusetts 02116.

Classis Muskegon Young Calvinist Alliance Scholarship. The Young Calvinist Alliance of Classis Muskegon of the Christian Reformed Church offers a scholarship or grant-in-aid of \$300 to a Christian or public high school graduate who is or was a member of the alliance, for study at Calvin College. The award is given to a prospective freshman or to a current undergraduate student. It is renewable for one year. Applications are received by the executive committee of the Young Calvinist Alliance and a nomination of two or three is presented to the delegate board, which in turn selects one for the award.

Regulations: (1) The recipient must be a member of the Christian Reformed

Church and a member or former member of the Muskegon Young Calvinist Alliance. (2) If in the opinion of the executive committee of the alliance no suitable candidate is available, no award will be made that year. (3) Selection is made on the basis of Christian character and life, loyalty to the church and societies, financial need, intellectual ability and leadership. (4) A freshman receiving this scholarship or grant-in-aid must have fulfilled regular college admission requirements. (5) Application for this scholarship must be made by March 1. The applicant should inform the pastor of his church of his interest. Application forms will be forwarded to the applicant. (6) This scholarship or grant-in-aid may be for either freshmen or upperclassmen. (7) The recipient of this scholarship should expect to complete his course at Calvin College.

Du Pont Chemistry Scholarship for Freshmen. Calvin College offers two chemistry scholarships of \$500 each to entering freshmen. These scholarships are funded by a grant from the du Pont Company and are offered to entering freshmen who have done excellent work in high school and who are interested in the study of chemistry.

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 applicant'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-residents 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.

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 25 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.

Associated Women Students Scholarship. Each year the Associated Women Students of Calvin College, of which every woman student is a member, offers a scholarship of \$200. To be eligible a woman student must be maintaining a cumulative average of at least a B (3.0) and attend Calvin the following year. The selection of a candidate for the scholarship is made by the Executive

Applications are accepted from entering freshmen and from current undergraduate 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.

Board of the Associated Women Students, subject to the approval of the faculty scholarship committee. Recommendations shall be on the basis of scholarship, Christian character, personality, promise of growth, and need.

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.

Du Pont Chemistry Scholarships for Upperclassmen. Calvin College offers two chemistry scholarships of \$250 each to students who have completed at least one year at Calvin. These scholarships are made possible by a grant from the

du Pont Company. To qualify for this scholarship a student must be pursuing a major in chemistry and must have shown superior ability and achievement.

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 provides Calvin College with an annual scholarship grant to cover an amount approximately equal to the institution's cost of educating a student during the year immediately preceding the year in which the grant is given. The grant will cover the student's tuition as well as the additional cost to the school.

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 so elects, 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 makes available two tuition grants to qualified students at Calvin College. 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.

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 1972. 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,

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 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, a cappella 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.

Application blanks for the Oratorio Society and Vander Heide awards may be secured from the Music Department after March 1, and must be returned on or before April 1, 1972. Auditions by tape recording will be held April 4, 1972.

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 Contest 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.

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.

POST-GRADUATE FELLOWSHIPS

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.

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.

The Edward D. VanderBrug Memorial Award. In memory of Mr. Edward D. VanderBrug, the VanderBrug family has provided two awards to be made annually to students who have done excellent work in their course in education. The awards, consisting of fifty dollars' worth of books, are given, without application, to those two students who, in the judgment of the Department of Education, have shown particular application to their training as teachers and who show strong intention to teach in the Christian schools.

Applications should be in the hands of the chairman 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 Woodrow Wilson fellowship, 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 coordinator of graduate fellowships.

University of Michigan State College Fellowships. These competitive, prestige fellowships to the Graduate School of the University of Michigan, totalling \$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 coordinator of graduate fellowships.

University of Michigan Scholarships for Graduates of the Three-Year Engineering Course. The University of Michi-

gan 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 course at Calvin College, demonstration of active 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.

The academic programs established on the basis of the philosophy of education set forth above are given in detail in the next section.

GENERAL GRADUATION REQUIREMENTS

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 over all and in an approved program of concentration.

Upon the satisfactory completion of these requirements, the student is eligible for a Bachelor of Arts degree. If he has completed at least seventeen 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 fulfil the requirements of some approved departmental or inter-departmental program of concentration. Although such majors are not officially designated until the end of the sophomore year certain programs do specify some of the freshman and sophomore courses including certain core 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, 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 courses in his program, and he must present at least this minimum 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 a single semester on probation. The programs of concentration are described in the section of the catalog presenting departmental programs and course offerings beginning on page 54.

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 to fulfil this requirement.) The grade for an interim course except when decided otherwise by the faculty, shall be honors, satisfactory or unsatisfactory. Interim courses are taught at four levels: Level I, open to freshmen and sophomores; Level II, open to sophomores and juniors; Level III, open to juniors and seniors; and Level IV, open to any student. 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. Dennis Hoekstra, 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 Christian Perspectives on Learning. 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

0-3

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 a semester of Senior Mathematics in high school or by Mathematics 109, 111, or 206. 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), or by 123. The requirement in biological science may be met by a second

year of high school biology (Advanced Biology) or by Biology 111 or 151. These requirements in the sciences may also be met by completing a two-course sequence in Biology 151-152, Chemistry 103-104, Earth Science 251-252 (geology), 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, or 300 and one course chosen from Education 301, which is required in teacher education programs, Psychology 151, 212, Sociology 203 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. Any course in the English Department except for 100, 225, or 321 satisfies this requirement. At least one course must be taken in another department. Students in elementary education should take Art 151 or 206.

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 or, if in elementary education, 214.

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

Dutch, French, German, Greek, Latin, Spanish

1-4

A student must study one foreign language through the second-year college level. At least one course in foreign language must be completed in college. 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 in elementary education without high school foreign language preparation may meet this requirement with a special three-course sequence which is offered this year in German.

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.

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 18.

THE HONORS PROGRAMS

The General Honors Program provides greater flexibility and independence for the superior or 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 may be admitted to the General Honors Program either on the basis of high school excellence and admissions test scores or, if already registered in the college, on the maintenance of a cumulative grade point average of 3.3 or higher. Incoming freshmen eligible for honors sections will be notified by mail during the summer. Exceptions may be made by the Honors Program Committee upon the recommendation of the student's academic adviser or his 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 depart-

ment. To graduate with this designation he must complete the department's honor program with a minimum average grade of B (3.0), must complete both an independent reading or research course and a seminar in the department, and must pass a senior comprehensive. 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. Dennis Hoekstra, assistant dean for academic affairs.

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 Prospective secondary school teachers who plan to teach in Canada should in most cases take the general college course at Calvin College and should reserve their teacher preparation courses for a fifth year to be taken in Canada. Prospective elementary teachers, however, should complete the programs listed below which lead to a Michigan State Provisional Teacher's Certificate. This will entitle them to receive an official Letter of Standing permitting them to teach in Canadian schools. Students should consult the director of teacher certification for information regarding specific provinces.

Graduates who have earned a Michigan Provisional Certificate since July, 1970, must complete an eighteen hour planned program to qualify for a Continuing Certificate. Candidates should consult the chairman of the Department of Education.

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.

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.

Students interested in special education should consult with Mr. J. Wiersma. Such a student should complete a certification program, typically in elementary education, while meeting the requirements for an initial certification in special education. Presently the college is developing a special education program for the emotionally disturbed. Anyone planning to remain in the field of special education should also plan to have a master's degree.

Elementary education. The minimum elementary education program requires the completion of the general education requirements (See pages 37-41 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. Although recommended programs may exceed these minimums, including the minimum of twelve courses in general education, no program may require more than thirty-seven and a half courses. Programs should be worked out with Miss Gertrude Vander Ark, coordinator of elementary education, and have the written approval of an adviser in the department or area of concentration.

An eight and a half course departmental concentration may be selected from the following subjects: art, biology, English, foreign language (French, 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; a three-course sequence in Library Science is possible with 251, 301, and English 225. 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 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, 300, 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 151; Earth Science 101 (Geography) or 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 151, 152, 251, 252, plus one elective; Chemistry 103, 104, plus three electives; Mathematics 111, 112, plus three electives; Physics 126, 225, 226, plus two electives; biological science, Biology 111, 205, 206, plus two electives; physical science: Physics 112, Earth Science 113, Chemistry 113, plus two electives. The recommended three-course sequences are: Chemistry 103, 104, plus one elective; Earth Science 113, 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 clinical or statistical psychology; biological science: Biology 111 or 151, 205, 206; physical science: Physics 112, Chemistry 113, plus one elective in physics. The adviser for these programs is Mr. Leonard Vander Lugt.

FINE ARTS STUDIES. Required are Art 207 (or 206, 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, 206, 207, 208, and one elective; in Drama, Speech 203, 214, 219, 317, and are elective from 304, 318, or an approved interim; in Music, 103, 104, 203, 302, and 331. The recommended three-course sequences are: in Art, 151, 206, and 207; in Drama, 203, 214, and 219; in Music, 301, 302, and 331. 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, 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. Courses in excess of the minimum required for a major concentration may also be applied to this program.

Secondary and middle school education. The minimum secondary program requires the completion of the general graduation requirements (See pages 37-41 for the courses recommended for students in teacher education); a departmental concentration of eight and a 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. Although recommended programs may exceed these minimums, including the minimum of twelve courses in general education, no program may require more than thirty-seven and a half courses. Programs should be worked out with the appropriate departmental adviser. Students interested in junior high or middle school teaching should consult Mr. Frederic Walker and the adviser in the department of their greatest interest. For specific problems concerning professional education, a student should consult the Department of Education.

The programs of concentration shall be selected from the following subject areas: art, biology, chemistry, 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 library science, psychology, religion and theology (history and literature of religion), 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 concentrations 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, political science, psychology, and sociology). 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, and speech.)

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

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 first two years of an architecture program 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	1½
Mathematics 111, 112	2
Christian Perspectives 100 (interim)	1
Economics 151	1
Philosophy 153	1
Speech	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
Physical education	½

BUSINESS ADMINISTRATION

Balanced preparation for a business career is provided by meeting the general degree requirements (page 37) and the Business Economics concentration in the Department of Economics and Business (page 66). 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 provide 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, which may be required for specialization in such areas as accounting.

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

<i>First year</i>	COURSES
Christian Perspectives 100	1
Economics 151	1
English 100	1
History 101 or 102	1
Foreign Language	2
Mathematics 205-206 or 111-112	2
Physical education	½
Religion and Theology	1
Speech 100	½

<i>Second year</i>	COURSES
Art, music, speech	1
Biology 111	1
Economics 207, 212	2
Mathematics 207	1/4
Philosophy 151-152 or 153 and 205 or 207	2
Physical education	1/2
Physical Science 110	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 on the combined curriculum plan in science and engineering.

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. Half courses Engineering 312 and Physics 381 are also recommended.

<i>First year</i>	COURSES
Chemistry 103	1
Engineering 101	1½
Mathematics 111, 112	2
Physics 126	1
CPOL 100 or religion and theology	1
Economics 151	1
English 100	1
Speech 100	½
Physical education	½
 <i>Second year</i>	
Engineering 205	1
Engineering 202 or an engineering elective	1
Mathematics 211, 212	2
Physics 225, 226	2
Mathematics 107	¼
Economics or English	1
Philosophy 153	1
Non-technical interim	1
Physical education	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	1
Non-technical elective	1
Elective	1

FORESTRY

Students 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 and one-half course, 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.

At the conclusion of the second year at the university the student will receive the five-year professional degree, Bachelor of Science in Forestry, from the University of Michigan if he has met the requirements for the degree. Students wishing to consider the combined-curriculum program in forestry, should consult Mr. Alan Gebben.

The science requirements for the program are: Biology 151, 152, 251, 252, 313, 341, and 346; Mathematics 111 and 112; Earth Science 251 (geology); and Chemistry 103-104, Physics 221-222, or Physics 112 and

Chemistry 113. The liberal arts requirements are: one course each in history, philosophy, and religion with an additional course from any one of the three; two courses in economics, political science, psychology, or sociology (By the end of the fifth year a student must have completed four courses in this area with two recommended in economics); four courses in art, literature, foreign language beyond the first-year level, music, or speech with at least one of these in English or American literature; English 100, and four semesters of basic physical education.

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 37-41. 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 any one of the premedical or predental courses should consult Mr. Henry Bengelink, faculty director of the premedical and predental programs. Students should also note the premedical entrance requirements on page 19.

The minimum requirements are Chemistry 103-104, 201, 204, and 301-302; Biology 151, 152, 251, 252, and 321; and Physics 221-222 or their equivalent. Mathematics 111 and 112 are strongly recommended.

Most medical and dental schools strongly advise students to take a four-year college course. Those students, however, who wish to secure a baccalaureate degree from Calvin College on the combined curriculum plan should complete twenty-seven courses with a minimum grade point average of C (2.0), including the programs prescribed above, and as much of the required 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 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 151, 152, 251, 252, and 336; Chemistry 103, 104, and three electives from among 201, 204, 253, 254, 301, 302, and approved interim courses; English 100 plus a course in English or American literature; two courses in foreign language (the number of courses in foreign language may be reduced by one for each year of foreign language taken in high school); one course in each of the following subjects: history; mathematics; music or art; political science or economics; philosophy, psychology, or sociology; two courses in religion and theology; one elective; and three interim courses, one of which should be a course designed for the premedical technology student offered by the Biology Department; and four semesters of physical education.

A typical student program is as follows:

<i>First year</i>	COURSES
Biology 151, 152	2
Chemistry 103, 104	2
English 100	1
Foreign language (See paragraph above)	2
History 101 or 102	1
Interim	1
Physical education	½
<i>Second year</i>	
Biology 251, 252	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

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 of 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 provided in the college curriculum. Ideally the major should provide a background for theological study. In either program a minimum of seven courses must be presented in a single department.

Calvin Seminary requires the following courses for admission:

	COURSES
Economics, political science, and/or sociology	2
English	3
Greek	4
History	3
Latin (May be met by two years in high school)	2
Modern language (See paragraph below)	
Science	2
Philosophy	3
Psychology and/or education	2
Religion and theology	2
Speech	1½

Reading competence in Dutch, French, or German is required. This competence may be demonstrated either by taking three years of course work or by sustaining the seminary's admission reading test.

In fulfilling the course requirements listed above, the student is advised to include the study of New Testament Greek, a sequence in the history of philosophy (Philosophy 153 and two from 210, 220, and 230), and a course in the history of classical civilization. In view of its importance to Reformed theological scholarship, the study of Dutch is recommended as the first choice in fulfilling the modern language requirement; and in view of its general usefulness for the study of theology, the study of German is recommended as the second choice.

In selecting the courses for his pre-seminary program, the student should consult with the chairman of the department of his primary concentration or Mr. Roderick Youngs, chairman of the Pre-Seminary Advisory Committee.

NURSING

Students interested in nursing may complete their program in several different ways.

Blodgett Memorial Hospital School of Nursing and Calvin College cooperate in offering a diploma in nursing program. During the first nine months of the thirty-month program, courses are taken both at the college and the school of nursing. The first semester courses at the college are Biology 105 and 107, English 100, 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 officer 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 21.) Admission to this nursing program is determined by the admissions committee of the school of nursing.

Although Calvin College does not now offer a Bachelor of Science in Nursing Degree, students working for the degree may spend one, two, or four years at Calvin, depending upon the particular program of the school to which they transfer. Such students should work out their programs with the nursing adviser, Miss Beverly Klooster.

For example, a student transferring to the University of Michigan school of nursing could spend one year at Calvin taking the following courses which are integral to the program: English 100, Chemistry 103-104, Psychology 151, Sociology 203, and three electives in the humanities and social sciences.

A student transferring to a school of nursing such as those at Cornell or Columbia universities in New York or at Case Western Reserve in Ohio may spend two or four years at Calvin. The basic two-year program would include: English 100, Biology 151-152, Chemistry 103-104, Psychology 151 plus one other course, Speech 100, and Sociology 203 plus one other course. The remainder of the student's program, involving a minimum of thirteen to sixteen courses, should include electives from the humanities.

The student who elects to spend four years at Calvin would earn a Bachelor of Science degree from Calvin prior to transferring to the school of nursing for two years of nursing courses.

WILDLIFE MANAGEMENT AND NATURAL RESOURCES

Calvin College in cooperation with the University of Michigan provides a five-year program leading to a Bachelor of Science degree in wildlife management from the university, requiring three years at Calvin and two at the university. Students with superior academic records may complete some of their work toward a master's degree during the fifth year. At present there is no commonly accepted professional degree in this field but this is the usual preparation. The adviser for these programs is Mr. A. Bratt.

The science requirements for this program are: Biology 151, 152, 206, 251, 252, 313, 321, 346; Chemistry 103-104; Physics 221-222; and Mathematics 111-112. The liberal arts core requirements are the same as those specified for forestry.

A two-year curriculum preparing for transfer to the wildlife management program at the university is also possible. Such students should complete: Biology 151, 152, 206, 251, 252, 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 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.



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 are open to freshmen and sophomores; those numbered 20-29 are open to sophomores and juniors; those numbered 30 or higher are open to juniors and seniors; and those numbered 40 or higher are open to any student.

Faculty members on leave of absence for the 1971-72 academic year are indicated by an asterik (*), those on leave for the first semester by a dagger (†), and those on leave the second semester by double asteriks (**).

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. Mrs. Boevé, Mr. Boevé, Mr. P. De Boer, Mr. W. De Boer, Mr. Miller, Mr. W. Monsma, Mr. Vroon, Mr. Zwier.

1971-72 INTERIM

The full description of interim courses is given on pages 113-123.

- 10 CLASSICAL MYTHOLOGY
- 20 TEACHING RELIGIOUS AND MORAL VALUES IN PUBLIC SCHOOLS
- 21 ANALOG AND DIGITAL ELECTRONICS
- 22 THE WORD AND THE WORLD
- 40 INTRODUCTION TO NETHERLANDIC CIVILIZATION: Dutch Interim Abroad
- 41 GERMAN INTERIM ABROAD
- 42 CREATIVE TEACHING
- 43 GREEK INTERIM ABROAD
- 44 ALCHEMY
- 45 TEACHING LITERATURE IN THE MIDDLE SCHOOL
- 46 PARAPSYCHOLOGY
- 47 INTRODUCTION TO THE FILM
- 48 THE WORLD OF PASCAL

- 49 JACQUES ELLUL: CHRISTIAN PERSPECTIVE ON TECHNOLOGICAL SOCIETY
- 50 THE RAILROAD IN AMERICAN HISTORY
- 51 SPACE EXPLORATION AND CELESTIAL MECHANICS
- 52 MUSIC IN POPULAR CULTURE
- 53 INTERNATIONAL PHYSICAL EDUCATION
- 54 MOTOR BEHAVIOR AND HUMAN DEVELOPMENT
- 55 INTRODUCTION TO ASTRONOMY
- 56 WHAT'S UP IN THE AIR?
- 57 HUMAN ECOLOGY
- 58 NAZI GERMANY
- 59 POLITICAL NOVEL
- 60 PSYCHOLOGY OF MASS PERSUASION
- 61 SPACE EXPLORATION AND CELESTIAL MECHANICS
- 62 HELLO, MY NAME IS OTTØ
- 100 CHRISTIAN PERSPECTIVES ON LEARNING



Art

Associate Professor E. Boevé (chairman)

Assistant Professors H. Bonzelaar, R. Jensen, N. Matheis, C. Overvoorde

Instructor C. Huisman

THE ART PROGRAM at Calvin has been conceived within the framework of the liberal arts tradition with 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, 220, 231, 232, 301, one course from 302, 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: 206, 207, 208, 209, 210, 220, 231, 232, and 301; the minor concentration is: 206, 207, 208, 209, 210, and 232. Advisers for these programs are Mr. Boevé, Mrs. Bonzelaar, and Mr. Jensen.

The core requirements in the fine arts may be met by 151, 231, 232, 332, or 340.

151 INTRODUCTION TO ART. F and S, core, honor sections. 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.*

206 PRINCIPLES OF ART EDUCATION. F and S. A course emphasizing methods and techniques of organizing and motivating art instruction. It includes lectures, demonstrations, and art teaching experiences in the school situation. Research paper required. *Mr. Boevé, Mrs. Bonzelaar, Mr. Jensen.*

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

208. DESIGN II. F and S. Continuation of 207. Expressive use of design with special emphasis on color. Prerequisite: 207. *Mrs. Bonzelaar, Mr. Jensen, Mr. Huisman.*

209 DRAWING. F and S. Various media are used to explore the possibilities and problems in drawing from a creative, personal 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. Huisman, Mr. Matheis.*

210 THREE-DIMENSIONAL DESIGN. 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. Prerequisites: 207, 208, 209. *Mr. Huisman.*

220 PRINTMAKING. F. 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. *Mr. Overvoorde.*

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. This course will be concluded with an introduction to the art of the Renaissance in Italy to 1500. A major research paper will be required. *Mr. Boevé.*

232 AN INTRODUCTION TO THE HISTORY OF THE FINE ARTS. S, core. Continuation of 231. The study of painting and architecture from 1500 to the present. Art gallery reports will be required. *Mr. Boevé.*

301 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. *Mr. Overvoorde.*

302 PAINTING II. F and S. Continuation of 301. Prerequisites: 207, 208, 209, 301. *Mr. Overvoorde.*

310 SCULPTURE. S. Exploration of traditional and contemporary sculpture material. Application of their use and control for personal expression. Prerequisite: 210. Not offered 1971-72. *Mr. 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. Prerequisite: 210. *Mr. Huisman.*

332 DUTCH PAINTING. F, core. A course in Dutch painting from the Renaissance to Modern times. Emphasis will be on the seventeenth century. *Mr. 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 Expressionism. 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. 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 by December 10.

400 SEMINAR.

1971-72 INTERIM

The full description of interim courses is given on pages 113-123.

22 ART TEACHING EXPERIENCE IN THE ELEMENTARY SCHOOL

30 CREATIVE CASTING

40 CREATIVE FILM MAKING

390 INDEPENDENT STUDY

The following Interdisciplinary interim course is also offered by a member of this department:

40 INTRODUCTION TO NETHERLANDIC CIVILIZATION: Dutch Interim Abroad



Astronomy

STUDENTS INTERESTED in graduate work in astronomy should major in mathematics and physics and should confer with the chairman of the Physics Department. The sixteen-inch telescope in the observatory and portable telescopes are available for student use through the chairman of the Physics Department.

Biology

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

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 a student must have a minimum average of C (2.0) in 151 and 152 or in an equivalent program approved by the department.

The major program requires 151, 152, 251, 252, 261, 262; three additional courses selected from any three of the following biological sub-disciplines: developmental biology (303), ecology (313), morphology (321, 326), physiology (331, 336), and systematics (341, 346); and the senior seminar. Required cognates include mathematics through the level of calculus and analytical geometry (Math. 111-112) or a year of college physics, and the completion of a second year of college chemistry.

The secondary school teaching major is essentially the same and the required cognates will constitute a minor in the physical sciences. The elementary teacher education adviser is Mr. Leonard Vander Lugt.

The core requirement in biology may be met by a year of Advanced Biology in high school, by 111, or by any course numbered 151 or higher, except for 205-206.

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. *Mr. Karsten.*

106 INTRODUCTORY HUMAN ANATOMY AND PHYSIOLOGY. S. Continuation of 105. Prerequisite: 105. *Mr. Karsten.*

107 MICROBIOLOGY. F. An introduction to the principles and techniques of microbiology, with emphasis on the bacteria. *Miss Klooster.*

GENERAL COLLEGE COURSES

111 BIOLOGICAL SCIENCE. F and S, core. An introduction to the principles and concepts of biology and the history and philosophy of biological thought for the general college student. Prerequisites: Mathematics 109, Physics 110. *Staff.*

205 HUMAN ANATOMY AND PHYSIOLOGY. S. A study of the normal biological structure and function of man. Prerequisite: Biology 111 or 151. *Mr. Van Harn.*

206 NATURAL HISTORY. F. An introduction to the study of plants and animals in their natural environment with emphasis upon the conspicuous components of the local flora and fauna. The course will provide acquaintance with major concepts and methods used in field biology and will provide experience in identification of plants and animals. Prerequisite: Biology 111. *Mr. Bengelink.*

PROGRAM OF CONCENTRATION COURSES

Any of the following courses may be used to fulfill the general college core

requirement in biology. Biology 151, 152, 251, and 252, or their equivalents are prerequisite to all other courses.

151 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 of biology. *Staff.*

152 GENETICS AND EVOLUTION. S. A study of the development of contemporary concepts of the gene and of organic evolution. The gene theory and the theory of organic evolution are developed as bases for study in other areas of biology. Prerequisite: Biology 151. *Staff.*

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 151-152. *Staff.*

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, 251. *Staff.*

261 ANIMAL DIVERSITY. F, quarter course. A systematic study of the classification, morphological patterns, and adaptations of vertebrates and invertebrates. Prerequisites: 152 or its equivalent; concurrent enrollment in 251 is recommended. *Mr. Bratt.*

262 PLANT DIVERSITY. S, quarter course. A systematic study of the classification, morphological patterns, and adaptations of vascular and non-vascular plants. Prerequisites: 152 or its equivalent.

lent; concurrent enrollment in 252 is recommended. *Mr. Gebben.*

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 equivalent. *Mr. Beebe, Mr. Ten Broek.*

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. 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. Bengelink.*

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

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

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

341 **ENTOMOLOGY.** F. The biology of insects, with emphasis on systematics. *Mr. Bratt.*

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

390 **INDEPENDENT STUDY.** I. Prerequisites: 400 and permission of the chairman. *Staff.*

400-401 **SENIOR SEMINAR.** F. and S, half course per semester. The reading, discussion, and evaluation of journal literature in biology and the investigation of an assigned laboratory, field, or library research problem in biology. Prerequisite: senior status in biology program of concentration. *Staff.*

1971-72 INTERIM

The full description of interim courses is given on pages 113-123.

- 20 PARASITISM AND OTHER SYMBIOSES
- 21 MAMMALIAN ANATOMY
- 30 CHEMICAL REGULATION IN ANIMALS
- 40 STUDIES IN ANIMAL BEHAVIOR
- 41 SPRING FLORA: A FIELD COURSE
- 42 PLANTS AND CIVILIZATION
- 390 INDEPENDENT STUDY

The following Interdisciplinary interim course is also offered by a member of this department:

- 57 HUMAN ECOLOGY

Chemistry

Professors H. Broene, T. Dirkse, E. Wolthuis (chairman)
Associate Professor W. Van Doorne
Assistant Professors K. Piers, L. Vander Lugt

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 courses: 103-104, 201, 277-278, 301-302, 305, 309, 310, 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. Mr. Vander Lugt is the elementary teacher education adviser.

The core requirement in the physical sciences may be met by completing both 103 and 104 or any one course numbered higher.

101 CHEMISTRY FOR NURSES. S. A one-semester survey of inorganic, organic, and biological chemistry as applied in the field of medicine. A course specifically for students in the regular pre-nursing curriculum. *Mr. 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. The fundamental concepts of chemical science are presented together with selected topics in descriptive chemistry. Emphasis will be placed on the language of chemistry, the mole concept, chemical bonding, stoichiometry, equilibrium processes, periodicity, and on selected topics from descriptive inorganic and organic chemistry. Laboratory. Prerequisite: Physics 110, 112, or high school physics. *Mr. Vander Lugt.*

201 QUANTITATIVE ANALYSIS. F. A study of the theory and practice of titrimetric and gravimetric methods of analysis. Laboratory. Prerequisite: 104. *Mr. 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: 201. *Mr. Broene.*

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

277 PHYSICAL CHEMISTRY. F. A study of the kinetic theory as applied to gases, liquids, and solids; introduction to thermodynamics. Prerequisite: 104, Mathematics 112, and a high school physics course. *Mr. Broene.*

278 PHYSICAL CHEMISTRY. S. A continuation of 277, with a study of electrochemistry, chemical thermodynamics, and

kinetics. Laboratory. Prerequisite: 277. *Mr. 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. Piers.*

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

305 ORGANIC ANALYSIS. F. A study of qualitative and quantitative chemical and instrumental methods useful for the separation and identification of organic compounds. Selected reactions are considered in detail with respect to their mechanisms and the experimental basis for these mechanisms. Laboratory. Prerequisite: 302. *Mr. 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. 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. Van Doorne.*

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

400 SEMINAR.

1971-72 INTERIM

The full description of interim courses is given on pages 113-123.

- 10 INTRODUCTORY RADIOCHEMISTRY
- 11 COLLOID AND SURFACE CHEMISTRY
- 40 ORGANIC CHEMISTRY IN DAILY LIFE
- 41 FOUNDATIONS AND DEVELOPMENT OF THE NATURAL SCIENCES
- 42 CHEMISTRY AND COMPUTERS

The following Interdisciplinary interim course is also offered by a member of this department:

- 44 ALCHEMY



Classical languages

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

THE DEPARTMENT OFFERS THREE programs of concentration: Classics, Greek, and Latin. The Classics program is followed by those preparing for graduate studies, the Greek by pre-seminarians, the Latin by those intending to teach the language at the secondary school level.

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 301-302, any Latin course numbered 202 through 304, and designated interims.

GREEK

101 ELEMENTARY GREEK. F. Text: Crosby and Schaeffer, *An Introduction to Greek*. Mr. Radius, Mr. 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. Radius, Mr. 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. Mr. Otten.

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. Mr. Otten.

203 INTERMEDIATE GREEK B. F. Readings of selections from Herodotus. Special emphasis is put on gaining reading proficiency in Greek prose, with some attention to the characteristics of Herodotus as historian. Further readings from the Attic orators. Prerequisite: 102. Not offered 1971-72.

204 INTERMEDIATE GREEK B. S, core. Continued readings in the Attic orators. Attention is given to certain matters of style. The orators are viewed in relation to, and as documentation for, the history of fourth-century Athens. The course concludes with selected readings from Thucydides. Here, too, special attention is given to his style as well as to his characteristics as historian. Prerequisite: 203 or 201. Not offered 1971-72.

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. Otten, Mr. Radius.*

206 NEW TESTAMENT GREEK: THE EPISTLES. S. A study is made of some of the Pauline Epistles. Prerequisite: 205. *Mr. R. Otten, Mr. Radius.*

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. 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. Harris.*

311 GREEK HISTORY. F. The political, social, and cultural history of the Greek city-states up to the time of the Roman conquest. Some attention is also given to the history of the Near and Middle East. Not offered 1971-72.

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. *Staff.*

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. *Mr. Harris, Mr. Van Vugt.*

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. *Mr. Harris, Mr. Van Vugt.*

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. Van Vugt.*

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. *Mr. Van Vugt.*

301 LATIN PHILOSOPHICAL LITERATURE: LUCRETIUS 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. *Mr. Otten.*

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. *Mr. Otten.*

303 LATIN LYRIC POETRY. F, core. A study of Latin lyric poetry from Catullus through the elegiac poets, with some attention to early Christian and medieval poetry. Collateral reading and reports.

Prerequisite: Latin 205 or 206. Alternates with Latin 301. Not offered 1971-1972.

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. Not offered 1971-1972.

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 ex-

pansion 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 1971-72.

1971-72 INTERIM

The full description of interim courses is given on pages 113-123.

11 ELEMENTARY GREEK GRAMMAR REVIEW

21 DIRECTED READING: GREEK

The following Interdisciplinary interim courses are also offered by members of this department:

10 CLASSICAL MYTHOLOGY

43 GREEK INTERIM ABROAD

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. Lagerwey.*

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

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

202 INTERMEDIATE DUTCH. S. Continuation of 201. *Mr. 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 NETHERLANDIC CIVILIZATION. A study conducted in the Dutch language of several important aspects of Nether-

landic civilization: language, literature, history, religion, art, architecture, social structure, and education.

1971-72 INTERIM

The following Interdisciplinary interim course is offered by a member of this department:

40 INTRODUCTION TO NETHERLANDIC CIVILIZATION: Dutch Interim Abroad

Earth science, geography, geology

Associate Professor C. Menninga

Assistant Professor J. Van Zytveld (chairman, pro tem, Department of Physics)

Students preparing for an elementary school certificate in general science studies should 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 201, 251-252, and an approved elective. Earth Science 251-252 satisfies the natural science core requirement.

101 PRINCIPLES OF GEOGRAPHY. F and S. A study of the principles of geography, including the geographer's tools and techniques, the physical earth as man's habitat, and some consideration of man's interaction with that environment. *Staff.*

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. Physics 110 or 112 are recommended as a prerequisite. *Mr. Menninga.*

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. *Staff.*

210 GEOGRAPHY OF NORTH AMERICA. S. A study of physical and cultural geography of the continent of North America. Prerequisite: 201 or the equivalent. *Staff.*

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: one year of high school chemistry, Chemistry 103, or concurrent enrollment in Chemistry 103. *Mr. Menninga.*

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.*

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

Economics and business



*Professors *T. Brouwer, D. Pruis (acting chairman)
Associate Professor G. Monsma
Assistant Professors R. Bosscher, *R. Vander Weele*

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 through coverage of economy 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 mathematic 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 400 (one other course from 331-339 and 400 for teacher education) and the mathematics cognate.

Economics Group concentration requirements are 151, 207, 321 or 322, three other economics 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 requirement, 111 may be substituted for 205, and 343 may be substituted for 206.

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 sciences is met by 151.

151 **PRINCIPLES OF ECONOMICS.** F and S, core, honor section S only. A study of the principles of resource allocation, income distribution, prices, production, income levels, and economic growth. The course is designed to prepare the student for further work in economics, history, government, and sociology, and to help him to an understanding of basic domestic and international problems. *Staff.*

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

309 **LAW IN BUSINESS.** An introduction to American business law: origins, development, legal institutions, and processes. The legal environment of business: Uniform Commercial Code and case law of business transactions; other topics selected from agency, property, partnership, corporation, regulatory, and administrative law. *Mr. Pruis.*

312 **COST ACCOUNTING.** S. Principles and methods of accounting for manufacturing and operating costs, with emphasis on analysis and reporting to management to facilitate planning, control, and decision-making. Prerequisite: 212. *Mr. 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. Prerequisite: 151. *Staff.*

316 **FINANCIAL PRINCIPLES.** F. 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. *Staff.*

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. *Staff.*

321 **THE NATIONAL INCOME.** F. An intermediate course in macro-economic theory which studies the theory of aggregate demand, the degree of utilization of productive capacity, economic growth, and the general levels of prices. Prerequisite: 151. *Mr. Bosscher.*

322 **THE PRICE SYSTEM.** S. An intermediate course in micro-economic theory, emphasizing the role of the price system in organizing economic activity and an evaluation of its effectiveness. Prerequisite: 151. *Mr. Bosscher.*

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. *Mr. Bosscher.*

334 **INDUSTRIAL MARKETS AND PUBLIC CONTROL.** S. A study of the structure, control, and market behavior of American industry, and the public policy of preserving competition to control economic power. Prerequisite: 151. *Mr. Monsma.*

335 **LABOR ECONOMICS.** F. 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. 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.

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. *Mr. Monsma.*

342 **HISTORY OF ECONOMIC THOUGHT.** S. An examination of the development of economic ideas, mainly in the last

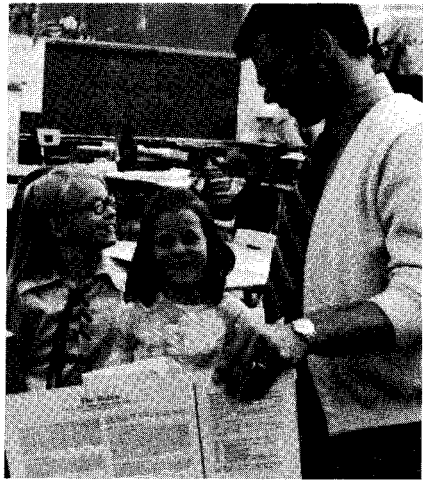
two hundred years, in the context of the philosophical and historical conditions in which they emerged. Prerequisite: 151 or the permission of the instructor.

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

400 **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. *Staff.*

The following Interdisciplinary interim courses are offered by members of this department:

30 **FEDERAL INCOME TAXES**
390 **INDEPENDENT STUDY**



Education

Professors N. Beversluis, J. De Beer, P. De Boer, D. Oppewal, M. Snapper (chairman)

Associate Professors G. Besselsen, P. Lucasse, J. Wiersma

*Assistant Professors K. Blok, W. Hendricks, *H. Hoeks, G. Vander Ark, D. Westra, F. Walker*

Administrative Coordinator M. Strikwerda

Coordinator of the Curriculum Center S. Wolthuis

THE VARIOUS TEACHER TRAINING PROGRAMS are described in detail on pages 42-45. Prospective secondary teachers should consult with an adviser in the department in which they expect to major. The coordinator

of secondary education is the chairman, Mr. Marion Snapper. Prospective elementary teachers should consult with Miss Gertrude Vander Ark, coordinator of elementary education.

All students must take 301, 303, 304; and, if in secondary education, 346 and 356; or, if in elementary education, 305, 345, and 355. Substitutions for these courses may be made by the chairman of the department and are recommended in music programs.

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 required for the certification programs. Not offered 1971-72.

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 required for certification programs. *Staff*.

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 in 301. *Staff*.

304 PHILOSOPHY OF EDUCATION. F, I, 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 Phi-

losophy 153. *Mr. Beversluis, Mr. De Boer, Mr. Oppewal.*

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

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*.

1971-72 INTERIM

The full description of interim courses is given on pages 113-123.

20 PRACTICUM IN SPECIAL EDUCATION
22 WORKSHOP IN INSTRUCTIONAL MEDIA: ELEMENTARY LEVEL

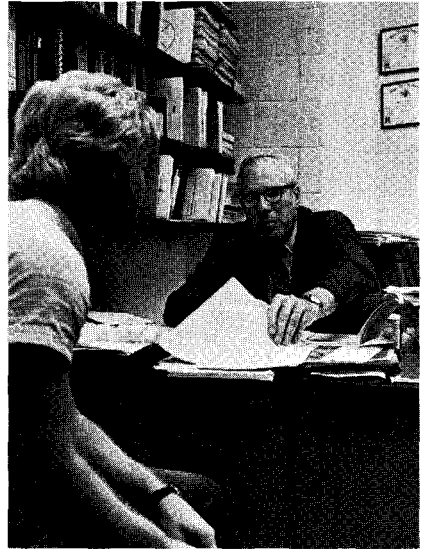
- 30 EDUCATION IN THE INNER CITY
- 31 PRACTICUM IN PRESCRIPTIVE TEACHING
- 304 PHILOSOPHY OF EDUCATION

The following Interdisciplinary interim courses are also offered by members of this department:

- 20 TEACHING RELIGIOUS AND MORAL VALUES IN PUBLIC SCHOOLS
- 42 CREATIVE TEACHING
- 45 TEACHING LITERATURE IN THE MIDDLE SCHOOL
- 46 PARAPSYCHOLOGY

Engineering

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



CALVIN COLLEGE does not offer a degree program in engineering, but rather presents a basic engineering program which, after subsequent study 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 ENGINEERING COMMUNICATION AND CONCEPT DESIGN. F, one and a half courses. A study of (1) basic topics in engineering drawing to provide facility in the transmission of ideas through accepted graphical means. Areas covered include orthographic projection, freehand sketching, pictorial representation, auxiliary views, sections and conventions, basic dimensioning, and fasteners, culminating in the production of the working drawing; (2) selected techniques in graphical mathematics and data presentation including graphical algebra and calculus, the determination of empirical equations from experimental data, functional scales, and basic nomography; (3) basic graphical techniques for the solution of the spatial relationships involved in the solution of point, line, plane, and surface problems in three dimensions; (4) and involvement in the engineering design process at the concept level through the medium of lectures and assigned design projects. *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. Must be preceded or accompanied by Mathematics 211 and Physics 225 or, possibly, 211. *Mr. 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. Prerequisite: Chemistry 103. *Mr. 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, compound-

ing of simple stresses, introduction to theories of failure and energy methods. Prerequisite: 202. *Mr. Bosscher.*

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 226 or, possibly, 222. *Mr. 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 226 or, possibly, 222. *Mr. Van Poolen.*

312 **PRINCIPLES OF ANALOG COMPUTATION.** S, half course. An introduction to the theory and techniques of analog computation, including computer solutions for representative systems of linear and non-linear differential equations. Computer solutions contrasted with mathematical solutions where applicable. Prerequisite: Mathematics 212 or permission of the instructor. *Mr. 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 226. *Mr. Bosscher.*

1971-72 INTERIM

The full description of interim courses is given on pages 113-123.

30 CONTROL SYSTEM ANALYSIS

31 HEAT TRANSFER

English

*Professors G. Harper (chairman), K. Kuiper, *P. Oppewall, H. Ten Harmsel, R. Tiemersma, J. Timmerman, S. Van Der Weele, S. Wiersma*
Associate Professors W. Holkeboer, I. Kroese, C. Walhout
*Assistant Professors *H. Baron, H. Hook, *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, in addition to 100 and 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. 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.

The core requirement in written rhetoric may be met by 100, 100 honors, or by examination; the core requirement in the fine arts is typically met by 200 or 212 but may also be met by any other course in the department except 100, 225, or 321.

100 WRITTEN RHETORIC. F and S, core, honor sections. A study of written English rhetoric, with extensive practice in writing. *Staff*.

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

202 A SURVEY OF ENGLISH LITERATURE. F, core. 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, core. A continuation of 202. The course proceeds from Wordsworth through Eliot. *Staff*.

212 AMERICAN LITERARY CLASSICS. F and S, core. 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. *Mrs. Holkeboer*.

214 BLACK AMERICAN WRITERS. The major works of Richard Wright, Langston Hughes, James Baldwin, Ralph Ellison, Claude McKay, Countee Cullen, Leroi Jones, and others in the background of the development of literature by Black American writers. Not offered 1971-72.

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. *Mrs. Zylstra*.

302 MEDIEVAL ENGLISH LITERATURE. F, core. 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*. Not offered 1971-72.

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

304 ENGLISH LITERATURE OF THE SIXTEENTH CENTURY. S, core. 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. Wiersma*.

305 ENGLISH LITERATURE OF THE SEVENTEENTH CENTURY. F, core. 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. Wiersma*.

306 MILTON. S, core. An intensive study of the poetry and prose of John Milton. Not offered 1971-72.

307 ENGLISH LITERATURE OF THE EIGHTEENTH CENTURY. S, core. 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. Vander Weele*.

308 ENGLISH LITERATURE OF THE NINETEENTH CENTURY. F, core. 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. Kroese*.

309 ENGLISH LITERATURE OF THE NINETEENTH CENTURY. S, core. A continuation of 308. A study of the Vic-

torian 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. *Mr. Harper.*

310 AMERICAN LITERATURE. F, core, honors sections. 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, core, honors sections. 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, core. A study of the lyric and dramatic poetry of England and America from 1890 to the present. *Mr. Walhout.*

314 THE ENGLISH NOVEL. S, core. 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. *Miss Ten Harm-sel.*

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

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. *Mr. Walhout.*

320 WORLD LITERATURE. S, core. A course of selected readings and lectures in the literature of non-English speaking peoples, ancient and modern, with spe-

cial emphasis on the period from Dante to Thomas Mann, and with particular attention to significant forms and themes. *Mr. Vander Weele.*

321 MODERN DRAMA. 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. Not offered 1971-72.

329 LINGUISTICS. F and S, core. 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. *Mr. Hook.*

330 HISTORY OF THE ENGLISH LANGUAGE. F, core. 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. Not offered 1971-72.

331 LITERARY CRITICISM. S, core. 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. *Mr. Harper.*

332 ADVANCED COMPOSITION AND RHETORIC. F, core. 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. Vander Weele.*

333 THE WRITING OF PLAYS, POEMS, AND STORIES. S, core. 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. Not offered 1971-72.

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. Tiemersma.*

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

400 SEMINAR.

1971-72 INTERIM

The full description of interim courses is given on pages 113-123.

- 20 EXPLORATIONS INTO RUSSIAN AND SLAVIC LITERATURE
- 21 THE VICTORIAN DILEMMA: POETRY OF FAITH AND DOUBT
- 22 RENAISSANCE LITERARY CLASSICS
- 23 RECENT AMERICAN POETRY
- 24 CHRISTOPHER FRY
- 30 TWENTIETH CENTURY AMERICAN PLAYS
- 40 MARK TWAIN
- 41 SCIENCE FICTION
- 390 INDEPENDENT STUDY

The following Interdisciplinary interim course is also offered by members of this department:

- 47 INTRODUCTION TO THE FILM



French

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

*Assistant Professor *L. Read*

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 (212, 300, 301, 303) are recommended. 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. *Staff.*

102 **ELEMENTARY FRENCH. S.** Continuation of 101. Prerequisite to a program of concentration are 101 and 102. *Staff.*

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

202 **INTERMEDIATE FRENCH. S,** honor sections. 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. *Mrs. Baldwin.*

321 **ADVANCED FRENCH. F.** A 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. A wide variety of exercises, compositions, and drills is designed to develop in the student a high degree of competence in speaking, reading, and writing idiomatic French. Conducted in French. *Mrs. Baldwin.*

322 **ADVANCED FRENCH. S.** Continuation of 321, with training in the writing of the *dissertation*. *Mrs. Baldwin.*

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, *explications de texte*, reports, and papers. Conducted in French. *Mr. 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. 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 Berger.*

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.

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. 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. 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. Otten.*

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.*

400 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. Otten.*

1971-72 INTERIM

The full description of interim courses is given on pages 113-123.

20 FRENCH INTERIM ABROAD

40 L'AMÉRIQUE VUE PAR LES FRANÇAIS

206 INTERMEDIATE FRENCH

390 INDEPENDENT STUDY

Geography and geology

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

German

*Professors C. Boersma, W. Bratt (chairman, Department of Germanic Languages)
Associate Professor B. Kreuzer
Assistant Professor C. Hegewald, 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, three additional literature courses, one of which must be 301 or 302, and a

senior level interim involving independent study. A German minor consists of a sequence of six courses including 201, 202, 215, and three literature courses. The teacher education adviser is Mr. Kreuzer. Students contemplating either a German major or minor are encouraged to consult with a departmental adviser early in their program.

All literature courses numbered 217 and above may be applied toward 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 and S, core. Selected readings, with a continued emphasis on the development of spoken and written German. Prerequisites: 101-102, or two units 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 **ADVANCED ORAL AND WRITTEN COMPOSITION.** S. Exercises, compositions, and drills designed to develop in the student advanced competence in speaking and writing idiomatic German. Prerequisite: 202. *Mr. 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. Kreuzer, Mr. Lamse.*

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

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. Boersma.*

302 **CLASSICISM.** S. Continuation of 301. Prerequisite: 202. *Mr. Boersma.*

303 **ROMANTICISM.** F even 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. Kreuzer.*

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. Hegewald.*

305 **NINETEENTH CENTURY DRAMA.** F odd 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. Bratt.*

306 **TWENTIETH CENTURY DRAMA.** S odd years, core. A study of the plays and dramatic theory of Georg Kaiser, Zuckmayer, Brecht, Frisch, and Dürrenmatt. Assigned readings and reports. Prerequisite: 202. *Mr. Hegewald.*

307 EARLY TWENTIETH CENTURY PROSE AND POETRY. F odd years, core. Selected readings in German and Austrian prose and poetry from 1890 to 1940, with special emphasis on the works of Hofmannsthal, Rilke, Schnitzler, Mann, Hesse, and Kafka. Lectures, discussions, and assigned papers. Prerequisite: 202. *Mrs. Lamse.*

308 POSTWAR PROSE AND POETRY. S odd years, core. Readings in German literature from 1945 to the present from such writers as Brecht, Böll, Grass, and Frisch. Seminar papers required. Prerequisite: 202. *Mrs. Lamse.*

390 INDEPENDENT STUDY. I. This course is required of all seniors with a major concentration in German. It will be 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: Department approved program of concentration. *Staff.*

400 SEMINAR.

1971-72 INTERIM

The full description of interim courses is given on pages 113-123.

20 TWENTIETH-CENTURY GERMAN LITERATURE IN ENGLISH TRANSLATION
41 GERMAN INTERIM ABROAD
102 ELEMENTARY GERMAN
206 INTERMEDIATE GERMAN
390 INDEPENDENT STUDY

The following Interdisciplinary interim course is also offered by a member of this department:

58 NAZI GERMANY

Greek

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

History

Professors R. Bolt, H. Ippel (chairman), D. Jellema, C. Miller, H. Rienstra, E. Strikwerda, E. Van Kley

*Associate Professors H. Brinks, B. De Vries, *G. Marsden*

Assistant Professors J. De Bie, S. Greydanus, F. Roberts, D. Van Kley, R. Wells

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 either 101 or 102, one second or third level interim course in history or a departmentally-approved substitute, the departmental

seminar (400), 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 either program. Students seeking special advice on teacher education programs, including group majors for middle school teaching, should consult Mr. De Bie or Mr. Greydanus.

The core requirement in history must be met by either 101 or 102; any other regular course in the department will satisfy the additional requirements in the contextual disciplines.

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, honor sections. A study of the main cultural currents of Western Civilization with primary emphasis on the period since the Reformation. *Staff.*

201 ANCIENT NEAR EAST. F. A cultural history of the ancient Near East from pre-history 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. 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. 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 emphasis is placed on the civilizations 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.*

205 LATIN AMERICA. F. An introduction to Latin American history including: the Iberian background; the conquest of the Aztec, Inca, and Mayan civilizations; the cultural, economic, social, and political developments of the colonial era; the independence movements; social reform, church-state relations, Pan-Americanism, wars and foreign intrusions, and the political changes during the national period. Not offered 1971-72.

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. De Bie, Mr. Strikwerda.*

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. 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. 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. Jellema.*

220 THE HISTORY OF FRANCE. S. 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. *Mr. D. Van Kley.*

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. Jellema.*

STUDIES OF HISTORICAL PERIODS

301 CLASSICAL HISTORY. 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. 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. Rienstra.*

303 RENAISSANCE AND REFORMATION EUROPE. F and S. 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. Roberts.*

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. D. Van Kley, 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. 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. Brinks.*

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. 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. Bolt.*

320 **CONTEMPORARY WORLD. F and S.** 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. Miller.*

TOPICAL STUDIES

334 **UNITED STATES CONSTITUTIONAL HISTORY.** 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. Not offered 1971-72.

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. 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 influence on American thought. A general knowledge of American history is assumed. *Mr. Brinks.*

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. 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 his-

toriography on this subject. *Mr. Grey-danus.*

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

400 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.*

1971-72 INTERIM

The full description of interim courses is given on pages 113-123.

20 THE POST CIVIL WAR DECADE

21 THE "COMMUNIST CONSPIRACY"
THEME IN AMERICAN HISTORY

22 UNITED STATES-SOVIET RELATIONS
30 ASIAN INFLUENCES IN WESTERN
CIVILIZATION
40 ZIONISM
42 RED POWER - THE NEW INDIAN
44 RADICAL CHRISTIANITY PAST AND
PRESENT
390 INDEPENDENT STUDY

The following Interdisciplinary interim courses are also offered by members of this department:

48 THE WORLD OF PASCAL

49 JACQUES ELLUL: CHRISTIAN PERSPECTIVES ON TECHNOLOGICAL SOCIETY

50 THE RAILROAD IN AMERICAN HISTORY

Latin

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

Library science

Assistant Professor M. Monsma (program adviser)

THE STUDENT who meets all the requirements for teacher certification and completes a minor in library science may be certified as a teacher-librarian at either the elementary or secondary school level. Certification of this program is pending.

Training as a professional librarian requires a master's degree in library science (M.A.L.S.). This is required for college and public librarians and is desirable for those in elementary and secondary schools. The undergraduate preparation for such a program may include a major in any field, should be as broad as possible, and should include a reading knowledge of at least one modern foreign language.

201 PRINTING: PAST, PRESENT, AND FUTURE. F. This survey of the history of publication from the clay tablet to modern printing includes cuneiform, papyrus, and the manuscript; the invention of printing, the role of the scholar-printers, and the book in the Renaissance and Reformation; the modern commercial, university, and private press; the microform, the teleprinter, and informa-

tion storage and retrieval. Not offered 1971-72.

211 THE LIBRARY: PAST, PRESENT, AND FUTURE. F. The role of the library in Western culture is studied with a specific reference to the great accumulations of books made in the past and present; the ends to which such libraries have been, are being, and can be put;

and the strengths of great national and academic collections, their catalogs, bibliographics, and use. *Mr. Bult.*

251 **SCHOOL LIBRARY ADMINISTRATION AND MATERIALS.** F and S. A study of the organization and administration of the elementary and secondary school library; the techniques of acquisitions, cataloging, circulation, and reference; relations with publishers, dealers, and jobbers; applications for government grants; fundamentals of relations with faculty, students, and other patrons in the use of books, periodicals, and other materials; the library as instructional materials center. *Ms. Monsma.*

252 **BOOK SELECTION FOR THE SECONDARY SCHOOL LIBRARY.** S. An introduction to the standards of library selection which are applicable to the various secondary school disciplines and to the guides, review media, recommended bibliographies, and other relevant tools. Not offered 1971-72.

301 **FOUNDATIONS OF LIBRARY CLASSIFICATION OF KNOWLEDGE.** S. This is an introduction to the principles of classification of knowledge, their historical development, their application in the emergence of the encyclopedia, and to the ways these are implemented in the contemporary systems of library classification. The systems studied include: Bliss, Colon, Dewey, Library of Congress, Union Seminary, and Universal Decimal. *Mr. Lambers.*

305 **BASIC REFERENCE SOURCES AND SERVICES.** S. An intensive study of the most important and useful reference books and tools used by librarians and students. Practice in the use of these tools. Analysis of reference questions. Preparation of a simple bibliography. Not offered 1971-72.

The following course offered by another department may be included as a part of this program:
ENGLISH 225, CHILDREN'S LITERATURE.

Mathematics

Professors P. Boonstra, C. Sinke (chairman), G. Van Zwalenberg, P. Zwier
Associate Professors J. Kuipers, L. Nyhoff, H. Tuls
Assistant Professor S. Leestma

FRESHMEN DESIRING TO MAJOR in the department should have completed four years of high school mathematics; those with deficiencies in algebra 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, 332, 343 and one junior-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 consists of Mathematics 111, 112, and 211; Physics 123, 124, 225, and 226. The elementary teacher education adviser is Mr. Vander Lugt.

Those interested in a group major in mathematics and physics, mathematics and biology, or mathematics and economics should consult the department chairman.

The core requirements in mathematics may be met by Senior Mathematics in high school or by 109, 111, or 206.

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 INTRODUCTION TO COMPUTING. F and S, quarter course. An introduction to the use of computers, including flow charting, BASIC and FORTRAN programming languages, and applications to specific problems. *Mr. Leestma, Mr. Nyhoff.*

109 ELEMENTS OF MODERN MATHEMATICS. F and S, core, honor sections. 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 geometry and 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. F and S, honor sections. Tran-

scendental and hyperbolic functions, formal integration, analytic geometry, polar coordinates, vectors, parametric equations. Prerequisite: 111. *Staff.*

205 MATHEMATICS FOR SOCIAL SCIENCE. F. 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. Sinke.*

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

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

212 LINEAR ALGEBRA AND DIFFERENTIAL EQUATIONS. F and S. Vector spaces, linear transformations, matrices, determinants, other topics from linear algebra; introduction to differential equations. Prerequisite: 211. *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. Should not be taken by students who have completed former 312. Prerequisite: 212. *Mr. Zwier.*

314 COMPLEX VARIABLES. S. Complex numbers, complex functions, integration and the Cauchy integral formula, power



series, residues and poles, conformal mapping. Should not be taken by students who have completed former 311. Prerequisite: 212. *Mr. 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. Boonstra.*

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

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. Boonstra.*

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 and 212. *Mr. Leestma.*

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. Leestma.*

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. Nyhoff.*

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. Prerequisite: 211. *Mr. 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. Nyhoff.*

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. Van Zwalenberg.*

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. Prerequisite: permission of the department. *Staff.*

400 SEMINAR.

1971-72 INTERIM

The full description of interim courses is given on pages 113-123.

- 20 NUMBER THEORY AND COMPUTERS
- 30 COUNTEREXAMPLES IN ANALYSIS
- 40 LABORATORY METHODS FOR TEACHING ELEMENTARY SCHOOL MATHEMATICS
- 41 FINITE MATHEMATICS
- 390 READINGS IN MATHEMATICS

The following Interdisciplinary interim courses are also offered by members of this department:

- 50 THE RAILROAD IN AMERICAN HISTORY
- 61 SPACE EXPLORATION AND CELESTIAL MECHANICS
- 62 HELLO, MY NAME IS OTTO



Music

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

STUDENTS must complete 103, 104, and 203 with a minimum average of C (2.0) before applying for admission to a major concentration in music. Those interested in teacher certification must have the approval of 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 history*—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, 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 313, 315, 316, 329, 330, four semesters of instruction in a single string or wind instrument,

and the completion of the ensemble requirement by 213-214 or 215-216 (113-114 with special permission). *Vocal music* requires 117, 118, 131, 132, 217; 313; 109-110 or 141-142; 218, 209, or 241; three electives from Advanced Courses (205, 206, 220, 305, 306, 315, 316, 407, 408) or from approved interim courses; and the completion of the ensemble requirement by 207-208 (101-102 with special permission). The liberal arts core automatically provides a humanities minor for students in this program. The professional education requirements are met by Psychology 204, Music 331 and 332 instead of Education 301, 303, and 356.

A nine-course major for students in the elementary education program consists of 103, 104, 121, 122, 123, 124, 203, 222 or 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 a faculty-directed ensemble 117, 118, 141, 142, and one elective, ideally 332. If a student completes 332 and 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 at both the elementary and secondary level. *Instrumental music* requires 329, 330, and two semesters study on a single wind or string instrument and leads to an elementary certificate only. For group majors involving music, see page 44.

A minor in music education requires 103, 104, 203, 302, 313, 332, 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), 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, 315, 316, 407, 408, an approved interim, or additional work in individual lessons not to exceed one course.

The fine arts core requirement 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. Students intending to major in music must take 121 concurrently. *Mr. Hamersma, Miss Huisman.*

104 THE LITERATURE AND MATERIALS OF MUSIC. S. A continuation of 103. A coordinated study of the historical, the-

oretical, 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 concurrently. Prerequisite: 103. *Mr. Hamersma, Miss Huisman, Mr. Stapert.*

121-122 KEYBOARD HARMONY, ELEMENTARY. F and S, quarter course. Class instruction in keyboard harmony. Private instruction in piano will be required concurrently for students failing to meet

departmental piano requirements. To be taken simultaneously with Music 103-104. *Mrs. 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 or Music 203-204. *Mr. Stapert.*

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. 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 concurrently. Prerequisite: 104. *Mr. 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 concurrently. Prerequisite: 203. *Miss Huisman.*

223-224 AURAL PERCEPTION, ADVANCED. F and S. Quarter course. Continuation of 123-124. To be taken simultaneously with Music 203-204 or Music 303-304. Prerequisite: 123-124. *Mr. Stapert.*

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. Worst.*

304 THE LITERATURE AND MATERIALS OF MUSIC. S. A continuation of 303. A study of post-romantic and contemporary music. Comprehensive examination on the program of basic courses in the history and structure of music. Prerequisite: 303. *Mr. Worst.*

ADVANCED COURSES

205 VOCAL POLYPHONY OF THE RENAISSANCE. S 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: 203. Not offered 1971-72. *Mr. Stapert.*

206 INSTRUMENTAL AND VOCAL POLYPHONY OF THE LATE BAROQUE. F even years. A study of contrapuntal practice of late Baroque composers, principally J. S. Bach. Exercises in tonal counterpoint. Singing and drill in aural perception. Listening repertory of compositions. Prerequisite: 204. Not offered 1971-72.

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 1971-72.

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. Music 20 offered during the Interim substitutes for this course.

306 MUSIC OF THE ROMANTIC PERIOD. F odd 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. *Mr. 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 chorus. 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. Worst.*

316 **ARRANGING, ORCHESTRATION, AND SCORING.** S. Continuation of 315, which is prerequisite. *Mr. Worst.*

407 **COMPOSITION.** F. Writing in contemporary forms and according to contemporary practice. Prerequisite: 104 or permission of the instructor. *Mr. Worst.*

408 **COMPOSITION.** S. A continuation of 407. Prerequisites: 407 and permission of the instructor. *Mr. Worst.*

GENERAL COURSES

211 **AN INTRODUCTION TO MUSIC LITERATURE.** F, core. A general course designed to develop intelligent discrimination in the listener. Structural principles and aesthetic content with reference to the various forms and styles of music are considered with emphasis on the Baroque and Romantic periods. Listening, term paper, book reports. No prerequisite. *Mr. 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 Medieval, Renaissance, Classical, and Modern-Contemporary Periods. Listening, term paper, book report. No prerequisite. *Mr. 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 1971-72.

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 1971-72.

302 **HISTORY OF MUSIC.** S, core. A study of the art of music from the Classic period to the present. Score studies, lis-

tening repertory, and reading. *Mr. 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. Prerequisite: 104. Should be taken by music education majors in the sophomore year. *Mr. Geerdes.*

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 1971-72.

MUSIC EDUCATION

222 **ELEMENTARY SCHOOL MUSIC.** F and S. This course is designed to prepare the classroom teacher for teaching music in the elementary grades. It includes the development of personal skills in singing, playing, listening, and teaching; the study of the fundamentals of music and musical styles; consideration of current materials, methods, and philosophy of teaching music. No prerequisite. Music 331 may be elected as a substitute. *Miss Huisman, Mr. Topp.*

331 **ELEMENTARY SCHOOL MUSIC, Advanced.** F. Open to music education majors, elementary education majors with previous musical experience, and music minors. Goals and scope are similar to Music 222, except that less time is spent developing skills in theory, singing, and playing so that more time may be devoted to development of skills in teaching and to a consideration of materials, philosophy, and methods. No prerequisite. Not open to students who have taken Music 222. This course should be substituted for Education 303 by students who major in vocal or instrumental music education. *Mr. Topp.*

332 **SECONDARY SCHOOL MUSIC.** F and S. A seminar devoted to the study of methods, materials, and underlying philosophy for the instrumental, vocal, and

academic music curriculum in junior and senior high schools. Individual research. Open to music minors and elementary music education majors in the fall semester only. Secondary music education majors registering for Education 356 in fact complete this course. *Mr. 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. *Mr. Hamersma.*

109c-110c, 209c-210c, 309c-310c, 409c-410c
ORGAN. Half course. Individual lessons for the music major concentrating in organ. *Mr. Hamersma.*

117-118, 217-218, 317-318, 417-418
VOICE. Quarter course. Individual lessons in voice. *Mr. De Jonge.*

117c-118c, 217c-218c, 317c-318c, 417c-418c
VOICE. Half course. Individual lessons for the music major concentrating in voice. *Mr. De Jonge.*

141-142, 241-242, 341-342, 441-442
PIANO. Quarter course. Individual lessons in piano. *Mrs. Rus, Mrs. Knol.*

141c-142c, 241c-242c, 341c-342c, 441c-442c
PIANO. Half course. Individual lessons for the music major concentrating in piano. *Mrs. Rus, Mrs. 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, or bass viol.

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 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. *Mr. Geerdes.*

330
WOODWINDS AND PERCUSSION. F even years. Class lessons in woodwind and percussion instruments for the music major concentrating in instrumental music education. Not offered 1971-72.

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 rendered annually at Christmas time. Another oratorio is presented in the spring. Open to all who meet the requirements of voice and musicianship. One rehearsal a week. *Mr. Geerdes.*

113-114
VARSITY BAND. Quarter course. Membership in this band is open to all students who have some experience on a wind or percussion instrument. It is designed for students whose schedules or qualifications do not permit their immediate membership in the concert band.

The band plays for athletic events, and other college functions. One rehearsal a week. *Mr. Worst.*

207-208 A CAPPELLA CHOIR. Quarter course. Representative works in the field of choral literature are studied and a limited number of selections are prepared for concert performance. Open only to those who meet the demands of voice and musicianship. *Mr. 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 meet the demands of musicianship. Three rehearsals a week. *Mr. 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. Two full orchestra rehearsals per week, plus a one-hour string sectional rehearsal. *Mr. Geerdes.*

227-228 CHAMBER BAND. No credit. This band offers instrumental music ma-

jors and other qualified players an opportunity to perform works particularly suited to a wind ensemble of about forty members. Open to a select group of players from the Concert Band. One rehearsal per week. Not offered 1970-1971.

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 A Cappella Choir, the Concert Band, or the Orchestra. It is also open to players of old instrument such as recorder and keyboard players who meet the demands of musicianship.

1971-72 INTERIM

The full description of interim courses is given on pages 113-123.

- 20 OPERA IN THE CLASSICAL PERIOD
- 40 MUSIC APPRECIATION CAFETERIA STYLE

The following Interdisciplinary interim course is also offered by a member of this department:

- 52 MUSIC IN POPULAR CULTURE

Philosophy

*Professors C. Orlebeke, *A. Plantinga, T. Prins, E. Runner, N. Wolterstorff (chairman)*

Associate Professor P. De Vos

Assistant Professors K. Konyndyk, R. Mouw

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, 340), 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.

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 PERSPECTIVE IN PHILOSOPHY. F and S, honor sections. 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*.

153 INTRODUCTION TO PHILOSOPHY. F and S, honor sections. 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. Orlebeke*.

173 INTRODUCTION TO SYMBOLIC LOGIC. F. A course in elementary symbolic logic, including some modal logic. This course is designed for students majoring in philosophy, science, and mathematics. Open to qualified freshmen. *Mr. Konyndyk*.

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. Orlebeke*.

205 ETHICS. F and S. A course designed to deal both historically and situationally with the persistent problems of the moral life. *Mr. De Vos, Mr. Mouw*

207 POLITICAL AND SOCIAL PHILOSOPHY. S. A systematic study of the problems of social and political thought, historically 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. Mouw*.

208 AESTHETICS. F. A study of the nature of art and aesthetic judgments. *Mr. Wolterstorff*.

209 PHILOSOPHY OF EDUCATION. A study of the nature, aims, and principles of education. Not offered 1971-72.

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. Runner*.

220 HISTORY OF MEDIEVAL PHILOSOPHY. F. A history of philosophy from Augustine to the Renaissance. *Mr. Prins*.

230 HISTORY OF MODERN PHILOSOPHY. S. A study of selected philosophies of the seventeenth and eighteenth centuries. *Mr. De Vos*.

ADVANCED HISTORICAL COURSES

All advanced courses presuppose two courses in philosophy.

311 PLATO. Study of the later Platonic dialogues.

312 ARISTOTLE. S. Advanced study of Aristotle. *Mr. Runner*.

321 AUGUSTINE. An attempt is made to assess the philosophy of Augustine by studying particularly the Cassiciacum dialogues in the light of the philosophy of the period. Readings of later writings down through the *De Civitate Dei* and the *De Trinitate* in selection.

322 **THOMAS AQUINAS.** A course in Thomistic thought, including analysis of portions of the *Summa Theologica*.

323 **LATE MEDIEVAL PHILOSOPHY.** S. Intensive study of some of the main writings of Duns Scotus and William of Ockham. Lectures and reading on some other figures of this period and also on the development of logic. *Mr. Konyndyk.*

331 **KANT.** F. A study of the *Critique of Pure Reason*. *Mr. Prins.*

332 **HEGEL.** S. A study of Hegel's philosophy. *Mr. Prins.*

333 **THE PHILOSOPHY OF KIERKEGAARD.** An intensive study of the major writings of Kierkegaard, especially *The Philosophical Fragments* and *The Concluding Unscientific Postscript*.

334 **MARXISM.** F. A philosophical study of Marxism and neo-Marxism, with special attention to the early writing of Marx and their relation to Hegel.

340 **CONTEMPORARY PHILOSOPHY.** A study of some important movement,

figure, or topic in recent and contemporary philosophy. Not offered 1971-72.

343 **AMERICAN PHILOSOPHY.** A critical study of major movements in the history of American philosophy, with special emphasis on the pragmatism of Peirce, James, and Dewey.

ADVANCED SYSTEMATIC COURSES

All advanced courses presuppose two courses in philosophy.

371 **EPISTEMOLOGY.** F. A study of the nature, sources, types, and limits of human knowledge. *Mr. De Vos.*

375 **PHILOSOPHY OF MIND.** F. An examination of recent discussions of the traditional problem of the mind-body relationship, with special attention to such issues as the nature of consciousness, mental acts, volition, intention, and the "mind-body identity" thesis. Not offered 1971-72.

381 **ADVANCED LOGIC.** S. Topics include the formalization of propositional and quantificational logic. *Mr. Konyndyk.*

385 **PHILOSOPHY OF RELIGION.** A study of the rational justifiability of certain beliefs central to Christianity. Not offered 1971-72.

395 **ONTOLOGY.** A study of selected topics in ontology. *Mr. Wolterstorff.*

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

400 **SEMINAR.**

1971-72 INTERIM

The full description of interim courses is given on pages 113-123.

20 **THE CHRISTIAN AND WAR**

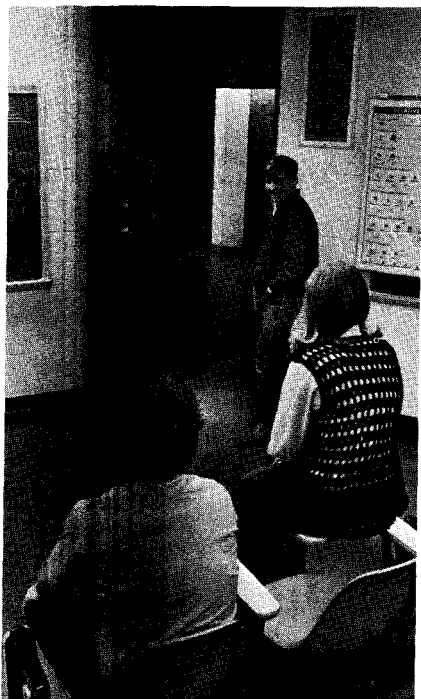
30 **THE PHILOSOPHY OF SCHELLING**

40 **PHILOSOPHY OF MARTIN BUBER**

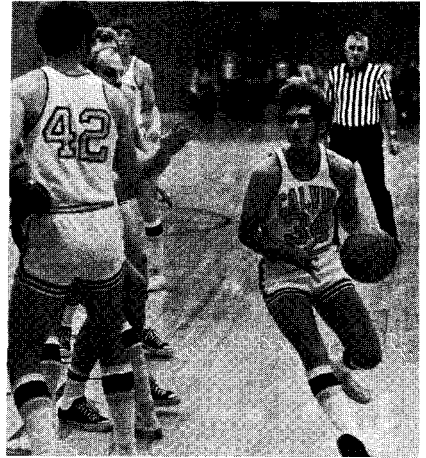
390 **INDEPENDENT STUDY**

The following Interdisciplinary interim course is offered by a member of this department:

48 **THE WORLD OF PASCAL**



Physical education



Professor B. Steen (chairman)

Associate Professor M. Zuidema

Assistant Professors R. Honderd, J. Timmer, D. Tuuk, D. Vroon, D. Zuidema

*Instructors A. Knoppers, *J. Vander Berg*

Assistant Instructor D. 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. The nine-course program includes 201, 212, four courses from the 230 series, 301, 302, 312, 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, and Biology 205.

BASIC PHYSICAL EDUCATION COURSES

The Basic Physical Education program is part of the liberal arts core and consists of four quarter-courses. An introductory diagnostic process serves to define the program of each student. The intent is to inventory individual fitness, skills, understandings, and psycho-social needs and goals and to select various learning experiences in light of these needs and goals.

The four courses are selected by the student and his instructor following the diagnostic process. Learning experiences in physical efficiency, basic understanding, aquatics, developmental activities, team sport activities, and recreational sport activities are built into a sequential program. All students must take 100 and then some combination of three additional courses from 120-159, 160-199, or, if older or handicapped, 110, where the program is modified to fit particular needs. Veterans with two or more years of military experience are exempt from the core requirements in physical education if they submit their discharge papers to the Registrar's Office.

Physical Education majors and minors may substitute 221 for one quarter-course in Basic Physical Education.

100 **PHYSICAL FITNESS.** F, quarter course. An introductory diagnosis of each new student is followed by a guidance session and scheduled periodic checks of physical fitness. The aim of the course is to aid each student in acquiring a realistic **self-image** concerning physical conditioning and in maintaining an acceptable level of fitness. *Staff.*

110 **ADAPTIVE PROGRAM** F, I, and S, quarter course. This is a specialized program for students who have needs which cannot be met in the regular program (e.g. older students or students with physical handicaps). Adaptive and corrective activities will be programmed. Students will be assigned to regular activities or special programs, where appropriate. The college physician is consulted in the case of physically handicapped students. Students who are eligible for this course should consult a departmental representative at registration. *Miss Knoppers, Mr. Zuidema.*

120-159 **GUIDED INSTRUCTIONAL PROGRAM.** F, I, and S, quarter courses. Various development and recreational activities designed to develop one or more aspects of personal efficiency are offered in this program. Selection is made by the student and his instructor following individual diagnosis. *Staff.*

160-199 **SPECIALIZED INSTRUCTIONAL PROGRAM.** F, I, and S, quarter courses. Activities are offered that give an individual or group an opportunity to continue to develop or to maintain an optimal level of physical condition or to continue developing training skills in recreational activities. Older or handicapped students may be assigned to activities in this program. *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. 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. Honderd.*

221 **ELEMENTARY SCHOOL ACTIVITIES AND PROGRAMS.** F and S, half-course. Designed primarily to give a working knowledge of the fundamentals of physical education planning for elementary school children (Primary, k-3; Intermediate, 4-6). Substitutes for one semester of basic physical education in the core for majors and minors. *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). F. Miss Knoppers.

231 Basketball/Softball (for women). F. Mr. Tuuk, Miss Zuidema.

232 Individual and Dual Sports, Volleyball/Gymnastics. F. Miss Knoppers, Mr. Tuuk, Miss Zuidema.

233 Track and Field. S. Mr. Tuuk.

234 Basketball (for men). S. Mr. Vroon.

235 Soccer (for men). F. Mr. Zuidema.

236 Football (for men). F. Staff.

237 Baseball (for men) F. Mr. 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. Zuidema.*

302 **ORGANIZATION OF THE CURRICULUM AND PROGRAM 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. 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. Tuuk.*

312 PHYSIOLOGY OF CONDITIONING AND INJURIES. F, one 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. *Mr. Timmer.*

380 INDIVIDUAL COMPETENCES. The course will offer opportunity for physical education majors to develop the physical condition and skill necessary for the beginning teacher of physical education. It will require active participation and com-

petence in a variety of skills. The course will run for the entire period of a student's work in his concentration. Students should apply for admission to this course as soon as they have decided to enter the field of physical education. Credit will be given only for skills acquired after admission. Students are required to have 210 hours of participation. A comprehensive examination will be given during the senior interim. Elements of this course are prerequisites for 230 courses. *Mr. Vroon, Miss Knoppers.*

1971-72 INTERIM

The full description of interim courses is given on pages 113-123.

- 40 ADAPTED AND DEVELOPMENTAL PHYSICAL EDUCATION
- 100-199 BASIC PHYSICAL EDUCATION
- 390 INDEPENDENT STUDY

The following Interdisciplinary interim courses are also offered by members of this department:

- 53 INTERNATIONAL PHYSICAL EDUCATION
- 54 MOTOR BEHAVIOR AND HUMAN DEVELOPMENT

Physics

*Professors *V. Ehlers, *R. Griffioen (chairman), A. Kromminga*
Associate Professors C. Menninga, H. Van Till
Assistant Professors W. Monsma, J. Van Zytveld (chairman, pro tem)

STUDENTS intending to major in physics are advised to enter college with four years of mathematics and to take their basic courses in mathematics (Math. 111, 112, 211, 212) and physics (Physics 123, 124, 225, 226) during their freshman and sophomore years. A student may apply for admission to the department before completing 226 and Mathematics 212, but he must have completed the designated courses with a minimum average grade of C (2.0) before he can be admitted for the major.

For those students who entered college prior to the fall of 1970 and took the three-semester introductory sequence, the program of concentration includes, in addition, 335, 336, 345, 346, 375, 376, 381 or an interim course in Electronics, and 382 or an interim course in Modern Physics Laboratory. Students planning to do graduate work in physics should also take 365, 400 and 401 or an interim course in research, and Mathematics 311, 312.

Students who entered college since August, 1970, and who take the four-semester introductory physics sequence are not required to complete 336.

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, 381 or an interim course in Electronics, 382 or an interim course in Modern Physics Laboratory, plus two to three electives from the Advanced Courses. The minor program in physics for secondary education students requires 123, 124, 225, 226, 381 or an interim course in Electronics, 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. Leonard Vander Lugt.

The physical science core requirement may be met by a year of high school physics, by 110, 112, 123, 222, 225, Chemistry 104, and by 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. Its purpose is to acquaint students with the fundamental laws of physics and chemistry and to explain 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 lecture portion of this course is primarily the same as Physics 110. A laboratory is designed to emphasize the experimental aspects of the scientific method, and generally involves in-depth study of elementary topics, rather than the performance of standard experiments or the precise measurement of physical quantities. Not open to those who have taken or plan to take Physics 110, 123, 126, or 221.

Prerequisites: high school algebra and Mathematics 109, or its equivalent. *Staff.*

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 optics. 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. Van Till.*

124 **INTRODUCTION TO MODERN AND CLASSICAL PHYSICS. S.** A continuation of 123, which is a prerequisite. Prerequisite: Mathematics 111 and concurrent registration in Mathematics 112. *Mr. Van Till.*

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 the 225-226 courses and is intended primarily for engineering students and others who cannot fit a first semester physics course into their programs. Prerequisite: Mathematics 111 and concurrent registration in Mathematics 112. *Mr. Van Zytveld.*

221 GENERAL PHYSICS. F. 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. Prerequisites: plane trigonometry and high school algebra. *Mr. Monsma.*

222 GENERAL PHYSICS. S, core. A continuation of 221, which is a prerequisite. *Mr. Monsma.*

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. Prerequisites: 124 or 126, Mathematics 112, and concurrent registration in Mathematics 211. *Mr. Kromminga.*

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. Kromminga.*

ADVANCED COURSES

Prerequisites for all of the 300-level physics courses are 226 and 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. *Mr. Van Till.*

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. Students are encouraged to complete 335 before enrolling in this course. *Mr. Monsma.*

346 ELECTROMAGNETISM AND GRAVITATION. F. A continuation of 345, which is a prerequisite. *Mr. Monsma.* Not offered 1971-72.

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. Prerequisites: 335 and 346. *Mr. Kromminga.*

375 MODERN PHYSICS. F. This course begins with a brief discussion of statistical mechanics and the fundamental experiments leading up to the quantum 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 electron spin, atomic spectra and structure, and x-rays. Nuclei and the solid state are also considered. Students are encouraged to take 335 before enrolling in this course. *Mr. Kromminga.*

376 MODERN PHYSICS. S. A continuation of 375, which is a prerequisite. *Mr. Kromminga.*

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.*

390 **INDEPENDENT STUDY IN PHYSICS.** F, I, S. Independent readings and research in physics, under the supervision of a member of the departmental staff. Prerequisite: permission of the chairman. *Staff.*

LABORATORY COURSES

381 **ELECTRONICS.** F, half course. An introduction to, and an analysis of, some of the basic electronic circuits commonly used in science and engineering research. Prerequisites: 226 or a year of college physics and permission of instructor. *Mr. Van Zytveld.*

382 **MODERN PHYSICS LABORATORY.** S, half course. An introduction to the basic laboratory techniques in atomic and nuclear physics and a study of some of the more important experiments on which modern physical theory is based. Prerequisite: 381 or a year of college physics and permission of the instructor. *Mr. Van Zytveld.*

400-401 **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. Van Till.*

Political science

Associate Professors J. De Borst, S. Monsma (acting chairman), J. Westra
Assistant 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). The program requires, in addition to 151, 201, 203 or 303, 207, 305 or 306, and four additional courses in the department. Required cognates include Economics

1971-72 INTERIM

The full description of interim courses is given on pages 113-123.

21 **ANALOG AND DIGITAL ELECTRONICS**
390 **INDEPENDENT STUDY**

The following Interdisciplinary interim courses are also offered by members of this department:

22 **THE WORD AND THE WORLD**
55 **INTRODUCTION TO ASTRONOMY**
56 **WHAT'S UP . . . IN THE AIR?**
61 **SPACE EXPLORATION AND CELESTIAL MECHANICS**
62 **HELLØ, MY NAME IS ØTTØ**



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 may be met by 151, 201, or 300.

151 INTRODUCTION TO POLITICS. F and S, core, honor sections. 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, core. 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. 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. 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. 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. De Vries.*

209 PUBLIC ADMINISTRATION. S. An introduction to the political process. Prin-

ciples 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. Henry.*

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. 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. 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. Not offered 1971-72.

305 HISTORY OF POLITICAL THOUGHT TO THE REFORMATION. F. The development of political thought from ancient Greece to the sixteenth century. *Mr. Henry.*

306 HISTORY OF MODERN POLITICAL THOUGHT. S. Representative political theorists from the Reformation to the present. *Mr. Henry.*

308 PRINCIPLES OF AMERICAN FOREIGN POLICY. F. An analytical view of Amer-

ican 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. De Borst.*

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. *Mr. De Vries.*

310 CONSTITUTIONAL LAW. S. The American constitution as interpreted by the Supreme Court; analysis of leading cases, with special emphasis on constitutional limitations on government, problems of civil liberties. *Mr. De Borst.*

312 LEGISLATIVE BEHAVIOR. S. 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 legislature are considered but the emphasis is on the federal Congress. Not offered 1971-72.

313 POLITICAL PARTIES. S. 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. *Mr. Monsma.*

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.*

400 SEMINAR.

1971-72 INTERIM

The full description of interim courses is given on pages 113-123.

20 ABM, MIRV, FOBS, AND SALT - THE ABC'S OF NUCLEAR STRATEGY

21 WASHINGTON WORK-STUDY INTERIM
390 INDEPENDENT STUDY

The following Interdisciplinary interim course is also offered by a member of this department:

59 THE POLITICAL NOVEL

Psychology

Professor J. Daling (chairman), C. Plantinga, R. Youngs

Associate Professor A. Reynolds

*Assistant Professors M. Bolt, W. Sanderson, D. Smalligan, R. Terborg,
C. Van Opynen*

INTRODUCTORY PSYCHOLOGY (151) must be completed with a minimum grade of C (2.0) by students intending to major in the department. The recommended major programs include 151, 212, 250, which should be completed before the junior year, 305 or 306, 311, and at least one from 330, 331, 332. Students who have begun their major programs are advised to follow this program when possible, but may satisfy requirements previously published.

An eight-course terminal major requires the designated courses plus two electives, one of which must be from the 300 level. Students intending to enter graduate school should complete the designated courses plus 308, 312, and 400. Cognates in anatomy, philosophy of science, and sociology

are recommended. A teaching minor includes the basic courses, except for 250, plus one elective in the department. Mr. Reynolds is the teacher education adviser.

A psychology major is one preparation for graduate work in social work or guidance and counseling.

Core requirements in psychology may be met by 151, 204, 212, or, for students in teacher education programs, by Education 301.

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, core. 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. *Mr. Daling.*

212 PSYCHOPATHOLOGY. F and S, core. The wide range of ways in which personality may become disordered. The importance of psychopathology for the understanding of normal development (mental hygiene) is discussed. Problems concerning origin and treatment are also considered. *Mr. Plantinga, Mr. Youngs.*

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. Smalligan.*

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. Reynolds.*

305 HISTORY OF IDEAS IN PSYCHOLOGY. F. An introduction to the theories and movements in psychology, both historical and contemporary. Philosophical implications will also be treated. Prerequisites: two courses in psychology. *Mr. Plantinga.*

306 THE GROWTH OF AMERICAN PSYCHOLOGY. S. An account of the origin and development of psychology in America with emphasis upon recent contributions. Prerequisite: two courses in psychology. *Mr. Plantinga.*

308 INTRODUCTION TO EXPERIMENTAL PSYCHOLOGY. F. A critical survey of experimental methods, problems, materials, results, and conclusions, with major emphasis on perception and learning, but also some attention to broader problems of personality investigation. Laboratory work will be required. Open only to juniors and seniors intending to major in psychology who have had either 250 or Mathematics 206. *Mr. Terborg.*

310 SOCIAL PSYCHOLOGY. F and S. A study of individual human behavior in reaction to social environment, of the consequences of such social interaction for human personality, and of the behavior and consciousness of groups. Prerequisites: 151 and Sociology 203. *Mr. Bolt.*

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. Prerequisite: 212. *Mr. Plantinga, Mr. Sanderson.*

312 PRINCIPLES OF PSYCHOLOGICAL MEASUREMENT. F. 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 juniors and seniors who have had 250 or Mathematics 206. *Mr. 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.

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. *Mr. Plantinga.*

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. *Mr. Plantinga.*

331 PSYCHOLOGY OF SENSATION, PERCEPTION, AND COGNITION. F. 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. Sanderson.*

332 PSYCHOLOGY OF LEARNING PROCESSES. S. 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. Terborg.*

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

400 SENIOR SEMINAR ON ISSUES IN CONTEMPORARY PSYCHOLOGY. S. A presentation and discussion of papers based on current psychological literature and empirical research. Either modern foreign language competence or special statistical proficiency will be employed by the students. Open to seniors majoring in psychology. Prerequisite: statistical competence. *Staff.*

1971-72 INTERIM

The full description of interim courses is given on pages 113-123.

- 20 ORGANIZATIONAL PSYCHOLOGY
- 30 PHENOMENOLOGICAL PSYCHOLOGY
- 31 SEMINAR IN THE PSYCHOLOGY OF RELIGIOUS EXPERIENCE
- 40 PSYCHOLOGY OF HUMAN CONFLICT
- 390 READINGS AND RESEARCH

Religion and theology

*Professors **J. Bratt (chairman), W. De Boer, D. Holwerda, T. Minnema, †J. Primus, G. Spykman*

Associate Professors L. Sweetman, C. Vos, L. Vos

The department offers a major in Religion and Theology and a major in Religious Education (History and Literature of Religion). To be eligible for either major 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, and 308. An approved four-course sequence in another department is also required.

The training in religious education is for students who expect to teach religion courses in the Christian schools or to serve as directors of religious education in churches. The major concentration includes 107, 108, 206,

303, 308, 319, 400, plus three electives in the department and completion of the course requirements for teacher education. Two of these electives may be satisfied by Greek 205-206 (New Testament Greek) and one by an approved interim course. A six-course minor in religious education is also available. Students interested in any program in religious education should consult Mr. Louis Vos, the Director of Religious Education.

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.

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 religious 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. 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. *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. *Mr. 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.

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. 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. Spykman.*

313 **ROMAN CATHOLIC THEOLOGY.** The development of Roman Catholic theology from the medieval era to present times, finding its climax in Vatican II. The Council of Trent, the Counter-Reformation theology, papal encyclicals, and major schools of thought will be examined. Not offered 1971-72.

HISTORICAL STUDIES

303 **GENERAL CHURCH HISTORY.** F, core. A survey of the history of the Christian Church from its beginnings to the present time, noting deviations from apostolic faith and practice, the interplay with the political, the great Church councils, the crises that emerge, divisions and reunions, and the confluence of forces that determine the complexion of the Christian Church today. Not open to freshmen. *Mr. Bratt.*

304 **AMERICAN CHURCH 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. Primus.*

RELIGIO-CULTURAL STUDIES

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. Minnema.*

MISSIONS AND WORLD RELIGIONS

203 **THEOLOGY OF MISSION.** 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. Not offered 1971-72.

204 **HISTORY OF MISSIONS.** 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. Not offered 1971-1972.

205 **WORLD RELIGIONS.** F. An analytical and critical study of the major non-Christian religions of our day: Primitivism, Hinduism, Buddhism, Shinto, and Islam. Attention is given to cultural and religious relationships with Christianity and problems of missionary approach. Open to juniors and seniors only. *Mr. Sweetman.*

RELIGIOUS EDUCATION

319 **THEOLOGICAL AND HISTORICAL FOUNDATIONS OF RELIGIOUS EDUCATION.** F. A survey of the major religious education programs from Old Testament times to the present. Through integrating theoretical study and examination of existing religious education programs, the students are guided in developing a relevant Biblical perspective on religious education. Satisfies Calvin Seminary requirement in psychology and education.

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

400 **SENIOR SEMINAR IN INTERPRETATION OF BIBLICAL LITERATURE.** S, half course. The principles of interpretation relevant to different types of Biblical literature are surveyed. The use of these principles in selected curriculum materials is analyzed and evaluated. Guidance

is given in the practice of interpreting Bible passages for use in specific aspects of the program of religious education.

1971-72 INTERIM

The full description of interim courses is given on pages 113-123.

- 20 FROM THE SOCIAL GOSPEL TO THE SECULAR GOSPEL
- 21 MAHAYANA BUDDHISM
- 30 WORSHIP: 3000 YEARS AGO AND TODAY
- 40 CREATIVE BIBLE TEACHING
- 41 PENTECOSTALISM, NEO-PENTECOSTALISM, AND THE SPIRIT
- 390 READINGS AND RESEARCH

The following Interdisciplinary interim course is also offered by a member of this department:

- 49 JACQUES ELLUL: CHRISTIAN PERSPECTIVES ON TECHNOLOGICAL SOCIETY

Sociology



Professors H. Holstege, T. Rottman (chairman), W. Smit, D. Wilson
*Associate Professors *R. Rice, R. Vander Kooi*
Assistant Professors G. De Blaey, D. Smalligan

STUDENTS MUST COMPLETE 203 with a minimum grade of C (2.0) to be eligible for admission to the major program. A concentration in sociology requires 203, 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 203 or 317.

151 SOCIOLOGICAL PERSPECTIVE ON SOCIETAL ISSUES. F and S, core, honor sections. 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.* Not offered 1971-72.

203 PRINCIPLES OF SOCIOLOGY. F and S, core, honor sections. A general intro-

duction to the discipline. Basic concepts and theoretical emphasis are delineated especially through discussion of society, culture, the socialization process, social groups, and social stratification. The perspective of sociology is used to interpret some current issues and problems in our society. Should not be taken by students who have completed 151. *Staff.*

210 PHYSICAL ANTHROPOLOGY. F and S. A critical analysis and evaluation of the areas of primate paleontology, human variation, and prehistoric archaeology. *Mr. Wilson.*

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. Prerequisite: 151, 203, or permission of the department. *Mr. 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. Smalligan.*

302 URBAN SOCIOLOGY AND COMMUNITY ORGANIZATION. F and S. A descriptive and theoretical analysis of the urban community and urban sub-cultures. The emphasis is on community structure, function, value systems, style of life, urban renewal, and planning. Prerequisite: 203 or permission of the department. *Mr. Holstege, Mr. Vander Kooi.*

304 THE FAMILY. 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. Prerequisite: 203 or permission of the department. *Mr. 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. Implications are drawn for various institutions, particularly the school and the church. Prerequisite: 151, 203, or permission of the department. *Mr. Rottman, Mr. Vander Kooi.*

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. Prerequisite: 203 or permission of the department. Not offered 1971-72.

309 SOCIOLOGY OF EDUCATION. F. 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 social system is also analyzed with special consideration given to the role of teacher. Prerequisite: 151, 203, or permission of the department. *Mr. De Blaey.*

310 SOCIAL PSYCHOLOGY. 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, 203, or permission of the department. *Mr. 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. Prerequisite: 203 or permission of the department. *Mr. Smit.*

317 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. Wilson.*

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 to

be tested in 320. Prerequisite: 151 or 203. *Mr. Holstege, Mr. 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: 203 and 318. *Mr. Rottman, Mr. Smit.*

390 INDEPENDENT STUDY. I. Prerequisite: permission of the chairman and of the instructor. *Staff.*

400 SEMINAR.

1971-72 INTERIM

The full description of interim courses is given on pages 113-123.

- 10 SOCIOLOGY OF HUMOR
- 20 SOCIOLOGY OF THE CHRISTIAN REFORMED CHURCH
- 30 FIELD WORK IN SOCIAL AND REHABILITATION AGENCIES
- 40 ORGANIZED CRIME
- 390 INDEPENDENT STUDY



Spanish

*Professor A. Otten (chairman, Department of Romance languages)
Associate Professor D. Vila (program adviser)
Assistant Professor B. Siebring
Visiting Lecturer E. Cortina*

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 215, 305, or 306. The minor program for prospective secondary teachers requires 201, 202, 215, 217, 218, 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 or Latin American history, English literature, philosophy, history of music, or history of art are recommended. 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,** core. Review of essential grammatical structures and further training in spoken and written Spanish. Readings from significant Spanish authors. Prerequisite: 101 and 102 or their equivalent. *Mrs. Cortina, Mr. Siebring.*

202 **INTERMEDIATE SPANISH. S,** core. Continuation of 201.

205-206 (Interim)-207 **INTERMEDIATE SPANISH. F, I, S,** core. A three-semester course for students who have completed two years of high school Spanish with less than a C average.

215 **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. Vila.*

LITERATURE

217 **READINGS IN SPANISH AND LATIN AMERICAN LITERATURE. F,** core. 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. Cortina.*

218 **READINGS IN SPANISH AND LATIN AMERICAN LITERATURE. S,** core. Continuation of 217. *Mrs. Cortina.*

303 **THE SPANISH NOVEL. F** odd years, core. 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. Not offered 1971-72.

304 **THE SPANISH NOVEL. F** odd years, core. A continuation of 303. Not offered 1971-72.

305 **SPANISH AND LATIN • AMERICAN POETRY. F** odd years, core. 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. *Mr. Vila.*

306 **SPANISH AND LATIN - AMERICAN POETRY. S** odd years, core. 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. *Mr. Vila.*

307 **THE LATIN-AMERICAN NOVEL. F** odd years, core. A study of the novels of Latin America with particular emphasis on the last two centuries. Attention will be paid to the conditions that gave rise to the different types of novels, as well as to the intrinsic literary value of the novels themselves. Conducted in Spanish. Not offered 1971-72. *Mrs. Cortina.*

308 **THE LATIN-AMERICAN NOVEL. S** odd years, core. A continuation of 307. Not offered 1971-72. *Mrs. Cortina.*

309 **THE SPANISH DRAMA. F** even years, core. 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 1971-72.

310 **THE SPANISH DRAMA. S** even years, core. A study of the dramatic expression of Echegaray, Benavente, Lorca, Casona, and Buere Vallejo. Conducted

in Spanish. Prerequisite: Spanish 309.
Not offered 1971-72.

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

400 SEMINAR.

1971-72 INTERIM

The full description of interim courses is given on pages 113-123.

40 READINGS IN UNAMUNO
206 INTERMEDIATE SPANISH
390 INDEPENDENT STUDY

Speech

Professors M. Berghuis, A. Noteboom, M. Vande Guchte (chairman)
Associate Professor T. Ozinga
Director of Drama E. Boevé
Assistant Professor D. Holquist
Instructor D. Nykamp
Assistant Instructor J. Korf

PREREQUISITE TO A MAJOR is a minimum average of C (2.0) in one and one-half speech courses, one of which must be from the courses offered in Public Address. The major requires 100, 200, 203, 215, 219, plus three other courses and an interim in the department. 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 400 beyond the minimum eight and a half course major.

A secondary school teaching major consists of 100, 200, 203, 215, 219, 311, plus three other courses. The elementary school teaching major includes 200, 203, 214, 215, 219, plus four other courses. A secondary school teaching minor should include 100, 200, 203, 215, 219, 311, 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, if approved in advance by the department; 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. *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. Berghuis.*

230 **BROADCAST COMMUNICATION.** F. A course in mass communication which discusses the origin, growth, and impact of radio and television. Broadcasting is seen as paramount among the mass media in terms of effect. Major topics include the radio era, the ascendancy of television, social control and criticism, contemporary uses in politics and religion, and international radio propaganda. *Mr. Ozinga.*

240 **GROUP COMMUNICATION.** S. The dynamics of communication in the small group. Leadership functions, communication patterns, and factors in attitude change. Participation in experimental group situations, readings in group theory, and analysis of group communication behavior are required. *Mr. Nykamp.*

250 **SEMANTICS.** F. The nature and functions of verbal and non-verbal human communication. The relationships between communication symbols (such as words, gestures, and the use of space) and the objects, ideas, and processes they signify; the effects these symbols have on all who communicate; and the necessary and accidental problems in different communication events. *Mr. Nykamp.*

305 **PERSUASION.** S. The goal is to make the student a more perceptive judge of modern persuasion. Sensitive understanding of the effects of psychological appeals (*pathos*) and the image of the persuader (*ethos*) are stressed. Major topics include a brief survey of the history of persuasion; contemporary research and theory; and applications of theory in the selling of products, people (e.g., politicians), and ideas. Prerequisite: 100 or equivalent. *Mr. Ozinga.*

311 **ARGUMENTATION.** F. Study of persuasive rational discourse (argumentation) and its uses. Investigation methods, analysis, and the use of evidence

and informal logic as the primary elements of argumentation. The use of argumentation in various forms of debate. Prerequisite: 100 or permission of instructor. *Mr. Nykamp.*

312 **DEBATE.** Half course for the year. Participation in inter- and intra-collegiate debate. Intercollegiate debate is in the Michigan Intercollegiate Speech League and with other colleges and universities. Intra-collegiate debates may be open to the college community and may be on issues immediately pertaining to Calvin College. Prerequisite: permission of instructor. *Mr. Nykamp.*

325 **HISTORY OF RHETORICAL THEORY.** Core. Contributions of major theorists who studied man as persuader, from antiquity to the age of electronic mass media—Plato, Aristotle, Quintilian, Augustine, Bacon, Sheridan, Hitler, Burke, and McLuhan. Major topics include the conflict between Plato and Aristotle about the role of oral communication, the role of rhetoric in Greek and Roman education, the development of theory about preaching, the elocutionary movement, and the growing twentieth-century emphasis on experimentation. *Mr. Ozinga.*

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 1971-72.

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 and S. A study of the child's speech development and the types of speech defects that may occur. The course is designed to help the classroom teacher understand and correct minor defects and to handle speech improvement in the classroom. The course will also serve to introduce the student to the profession of speech pathology and audiology. *Mr. 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. Not offered 1971-72.

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. Not offered 1971-72.

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 and poetry. *Mr. Holquist, Mrs. 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. 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. 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. Noteboom.*

317 HISTORY OF THEATER AND DRAMA. S, core. A historical and analytical study of theater and drama from its origins to 1800. Not offered 1971-72.

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. *Mrs. Boevé.*

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.*

400 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.*

1971-72 INTERIM

The full description of interim courses given on pages 113-123.

40 ORAL READING OF THE BIBLE

41 CHILDREN'S THEATRE

42 MODERN PARLIAMENTARY PRACTICES

390 READINGS AND RESEARCH

The following Interdisciplinary interim courses are also offered by members of this department:

42 CREATIVE TEACHING

60 PSYCHOLOGY OF MASS PERSUASION

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 are open to freshmen and sophomores; 20-29, to sophomores and junior; 30-39, to juniors and seniors, and 40 or higher, to any student.

ABM, MIRV, FOBS, AND SALT: THE ABC'S OF NUCLEAR STRATEGY. The problems and concepts of nuclear weapons policy; theories of deterrence, arms control, and disarmament as they are embodied in current policies. Nuclear strategy is discussed in the context of ethical issues relating to national security. Satisfies departmental concentrations. *Political Science 20, Mr. R. De Vries.*

ADAPTED AND DEVELOPMENTAL PHYSICAL EDUCATION. The assessment of the needs and fitness levels of normal and exceptional children; developmental and conditioning activities for students with low physical fitness status and coordination problems; adaptation of physical education to the special needs of exceptional children; lectures, laboratory experiences, and observations. Satisfies departmental concentrations. *Physical Education 40, Miss Knoppers.*

ALCHEMY. A study of the concepts of nature held by the alchemists and how these ideas influenced their work. Opportunity will be given to try some of the experiments suggested by the alchemists. *Interdisciplinary 44, Mr. Dirkse.*

L'AMÉRIQUE VUE PAR LES FRANÇAIS. A cultural comparison of the United States and France by means of a study of some works by French authors who have visited the *nouveau monde* and

who have recorded their impressions of American life and civilization, from the hot dog to the space walk. The course will look for answers to such questions as: What does the Frenchman expect to find in the United States? What does he in fact find? How does he react to his experiences? The texts, which will include letters, humor, and essays, will be in French. Lectures and class discussions will be in English. Prerequisite: French 201 or its equivalent. *French 40, Mr. Van der Wekken.*

ANALOG AND DIGITAL ELECTRONICS. A laboratory study of some of the basic electronic circuits commonly used in science, in engineering research, and in computers. The emphasis of the course is on an analysis of these circuits and their usefulness and limitations rather than circuit design. Satisfies concentrations in mathematics and physics. Prerequisites: Physics 222 and 225. Levels II and III. *Interdisciplinary 21, Staff.*

ART TEACHING EXPERIENCE IN THE ELEMENTARY SCHOOL. Philosophy and principles of elementary art education; taught in a local elementary school. Activities include lecture, demonstration, studio, and experimental teaching. Some students should plan to provide transportation. Satisfies fine arts core and group concentrations. Levels II and III. Special fees \$13.70. *Art 22, Mrs. Bonzelaar.*

ASIAN INFLUENCES IN WESTERN CIVILIZATION. A study of the information about Asia available to Europeans, primarily since 1500, and the significance of this information for European culture. Prerequisite: History 101 or 102 and the ability to read one foreign language. Satisfies core requirement beyond designated courses in the contextual disciplines and concentrations in history. *History 32, Mr. E. Van Kley.*

BASIC PHYSICAL EDUCATION. *Physical Education 100-199, Mrs. Hageman, Mr. Honderd, Mr. Steen, Mr. Tuuk, Miss Zuidema.*

CHEMISTRY AND COMPUTERS. A study of the use of analog and digital computers in chemistry. The basic theory of computer use, the collection and interpretation of chemical data, the solution of problems peculiar to the field of chemistry, and the control of laboratory instruments and industrial processes by computer. Prerequisite: Chemistry 103 or high school chemistry. *Chemistry 42, Mr. Van Doorne.*

CHEMICAL REGULATION IN ANIMALS. An introduction to the study of chemical regulation in vertebrate and invertebrate systems. Comparative aspects are emphasized. The anatomical, physiological, and biochemical aspects are investigated. Prerequisites: Biology 151, 152, 251, Chemistry 253 or 301. *Biology 30, Mr. Ten Broek.*

CHILDREN'S THEATRE. The study and presentation of theatre for children with special emphasis on producing a low budget performance. Problems of customing, make-up, lighting, set design and construction, casting, and directing are discussed. Students will do project work in each area and will participate in Children's Theatre. Satisfies core requirement in fine arts. *Speech 41, Mr. Korf.*

THE CHRISTIAN AND WAR. Examination and analysis of arguments for and against the two most widely held Christian positions on war—Pacifism and the Just War Doctrine. The course attempts to help the student articulate his own position on war, with the help of lectures, readings, and class discussion. (Students

may not have taken Philosophy 40 in the 1971 Interim Term.) Prerequisite: one course in philosophy. Satisfies core and concentrations in philosophy. *Philosophy 20, Mr. Konyndyk.*

CHRISTIAN PERSPECTIVES ON LEARNING. See description under Interdisciplinary 100.

CHRISTOPHER FRY. An examination of Fry's major plays in the light of his influences, his ideas, and his place in the history of drama in this century. Prerequisite: English 100. Levels II and III. *English 24, Mr. S. Wiersma.*

CLASSICAL MYTHOLOGY. A study of the major myths of the Greeks and Romans as they appear in classical literature and art and of the influence these myths have had on Western culture. Attention is given to the various interpretations of myth. A course paper or project will be required. Satisfies fine arts core requirement and classics concentrations. Recommended for English and foreign language majors. *Interdisciplinary 10, Mr. Van Vugt.*

COLLOID AND SURFACE CHEMISTRY. A study of colloids and other materials with large surface areas. The investigation of surface energy, absorption, and catalysis at solid and liquid surfaces. Some laboratory work. Prerequisite: Chemistry 103. Satisfies concentrations in chemistry. *Chemistry 11, Mr. Broene.*

THE "COMMUNIST CONSPIRACY" THEME IN AMERICAN HISTORY. Intensive analysis of three decades in American history which have been characterized by a "Red Scare"—1880's, 1920's, 1950's. Each decade is surveyed to determine the nature and extent of "the theat" and the responses of the government and society. Satisfies core beyond designated courses in the contextual disciplines and departmental concentrations. *History 21, Mr. Wells.*

CONTROL SYSTEM ANALYSIS. An introduction to linear feed-back control theory, including transient and frequency response; stability; system performance; control modes and compensation methods. Hydraulic, electrical, pneumatic, and inertial components and systems investi-

gated and employed. Prerequisites: Mathematics 212 and Physics 226. *Engineering 30, Mr. J. Bosscher.*

COUNTEREXAMPLES IN ANALYSIS. A study of counterexamples in real variable analysis, starting at the calculus level, with a review of definitions and important relevant theorems. Prerequisite: Mathematics 211. Satisfies concentrations in mathematics. *Mathematics 30, Mr. George Van Zwahlenberg.*

CREATIVE BIBLE TEACHING. An examination of the various methods of Bible study and of the variety of material available as the background for the development of a creative approach to the teaching of the Bible. Satisfies major concentration in religious education. *Religion and Theology 40, Mr. L. Vos.*

CREATIVE CASTING. Personal expression through sculpting by the replacement method. Sand casting, piece mold, waste mold, investment, and hollow core are some of the techniques explored. Special fees: \$5.00. *Art 30, Mr. Huisman.*

CREATIVE FILM MAKING. A study of the film as an expressive art form. The various techniques of film making are investigated; members of the class produce experimental films in groups and as individuals. Special fees: \$5.00. *Art 40, Mr. Jensen.*

CREATIVE TEACHING. A study of creative teaching in the elementary school classroom. Emphasis on developing a Christian concept of creativity. Satisfies group major and minor concentrations in language arts. *Interdisciplinary 42, Miss Westra and Mr. Holquist.*

DIRECTED READING: GREEK. Readings in authors selected for the particular interest and needs of students. Prerequisite: Permission of instructor. Satisfies departmental concentrations. Levels II and III. *Classics 21, Mr. R. Otten.*

EDUCATION IN THE INNER CITY. A first-hand study of the inner city, its institutions, and its social agencies. The student serves as a student assistant in inner-city schools. Includes study in the sociology of the inner city. Applies to

social studies group major. *Education 30, Mr. Hendricks.*

ELEMENTARY GERMAN. This course is identical to the second semester of first-year German. Admission priority will be given to students enrolled in the Teacher Education program who have begun their study of German in college and who are permitted to elect a three-course sequence in German to satisfy the foreign language requirement. The third course in this sequence is offered during the spring semester. Prerequisite: German 101. Satisfies core requirement. *German 102, Mr. Kreuzer.*

ELEMENTARY GREEK GRAMMAR REVIEW. A non-credit review of Greek 101. *Classics 11, Mr. Radius.*

EXPLORATIONS INTO RUSSIAN AND SLAVIC LITERATURE. Russian and Slavic literature in translation, including Turgenyev's novel, *A Nest of Gentlefolk* and Solzhenitsyn's *The First Circle*; short fiction by Karamzin, Pushkin, Gogol, Dostoevsky, Tolstoy, Kuprin, and Bunin; poetry by modern Polish, Yugoslav, and Russian poets including Yevtushenko, Rozevich, and Anna Akhmatova. Satisfies fine arts core requirement. *English 20, Mrs. Holkeboer.*

FEDERAL INCOME TAXES. A study of the Federal Income Tax Law and its implications for social justice and economic progress. An examination of the tax rate structure on business and personal incentives. Students will learn to compute the tax in both personal and professional contexts. Prerequisite: Economics 207. Satisfies departmental concentrations. *Economics 30, Mr. Pruis.*

FROM THE SOCIAL GOSPEL TO THE SECULAR GOSPEL. A study of the major theological movements in North American Christianity since the turn of this century—Social Gospel, Fundamentalism, Neo-Orthodoxy, Secular Gospel—in their religio-cultural impact upon society. A first-hand study of various organizational responses to cultural challenge in the areas of educational, ecclesiastical, political, legal, artistic, industrial, and journalistic undertakings. Satisfies core in conceptual disciplines beyond specific re-

quirements. Levels II and III. Class will meet in Toronto, Canada. *Religion and Theology 20, Mr. Spykman.*

FIELD WORK IN SOCIAL AND REHABILITATION AGENCIES. Field work placement in a social or rehabilitation agency; also involves selected readings and a paper. For students with a professional interest in social work and special education. Prerequisites: Sociology 203. Satisfies concentrations in sociology. *Sociology 30, Mr. Smalligan.*

FINITE MATHEMATICS. A consideration of topics in finite mathematics including some set theory, partitions and counting formulas, finite probability, and matrix algebra. Prerequisites: three years of high school mathematics. Satisfies core requirement in mathematics or its equivalent. Should not be taken by mathematics majors. *Mathematics 41, Mr. Tuls.*

FOUNDATIONS AND DEVELOPMENT OF THE NATURAL SCIENCES. A survey of the rise of modern science. Examination of the methods and philosophical bases of the natural sciences today. The impact of the sciences in Christianity. Prerequisites: high school physics or chemistry. Satisfies a minor concentration. *Chemistry 41, Mr. Piers.*

FRENCH INTERIM ABROAD. Five weeks in France. Advanced language study, series of lectures at the University of Montpellier, visits to important monuments and to the theater in Paris, excursions to several important cities and cultural sites, visits to French families. Prerequisites: French 201 or equivalent and permission of instructor. Satisfies concentrations in French. Special fees: approximately \$600.00. Levels II and III. *French 20, Mr. A. Otten.*

GERMAN INTERIM ABROAD. Five weeks in West and East Germany. Tour of southern Germany followed by a three-week intensive study of spoken German and German culture at the Goethe Institute in West Berlin. Free travel and study period upon conclusion of the language course. Students develop an insight into the German past and present through visits to important historical and

geographical centers and through participation in a broad range of German cultural life. Prerequisites: German 201 and permission of instructor. Satisfies departmental concentrations. Special fees: approximately \$600.00. *German 41, Mr. Lamse.*

GREEK INTERIM ABROAD. A study tour of Greece. Special attention is given to the epochs in the art history of Greece; the characteristics of the painting, sculpture, and architecture of each era; and the continuity binding the eras within a single tradition. Students will visit all the principal archaeological sites and museums of Greece. Prerequisite: permission of the instructor. Special fees: approximately \$675.00. *Interdisciplinary 43, Mr. Harris.*

HEAT TRANSFER. An introduction to the analysis of steady and unsteady conduction, of free and forced convection, and of radiation modes of heat transfer. Elements of boiling heat transfer, heat exchangers, and mass transfer are presented. Prerequisite: Mathematics 212, Physics 226, and if possible, Engineering 309. Satisfies major concentration. *Engineering 31, Mr. Van Poolen.*

HELLØ, MY NAME IS ØTTØ. The way a computer "thinks" is introduced by some simple algebra and by an introduction to simple switching circuits. Stress is laid on the capabilities and limitations of the computer. Students will assemble simple computers and will learn how to "talk to" large computers. Films, seminars, and independent readings. Satisfies group concentrations in general science studies. *Interdisciplinary 58, Mr. Van Zytveld and Mr. Leestma.*

HUMAN ECOLOGY. A study of man's biological adaptations to natural and man-made environments. Discussion of the adaptation of man to natural environmental factors such as temperature, altitude, seasonal cycles, and diseases; and to some environmental factors developed by man such as population size, radiation, and polluted air. Assigned readings, short essays, and report on a special topic. Prerequisites: Biology 111. *Interdisciplinary 57, Mr. Gebben.*



INDEPENDENT STUDY (all departments). Independent study is available in all departments for qualified juniors and seniors who receive departmental approval. Because specific requirements vary from department to department, students should consult the departmental listings. Such courses bear the number 390.

INTERMEDIATE FRENCH. 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. Prerequisites: French 205 in preceding semester. Satisfies core requirement in foreign language and concentrations in French. *French 206, Mrs. Baldwin.*

INTERMEDIATE GERMAN. The second unit of a three-course sequence intended for students who have completed two years of high school German with less than a C average. Intensive language

review, composition, and selected prose readings. Prerequisites: German 205 taken first semester as a part of this three-course sequence. Satisfies core requirement. *German 206, Mr. Boersma.*

INTERMEDIATE SPANISH. This course is the required second course of a three-semester sequence. For students assigned to this sequence, the course satisfies core requirements in foreign language and concentrations in Spanish. *Spanish 206, Mr. Siebring.*

INTERNATIONAL PHYSICAL EDUCATION. A study of physical education programs of Great Britain, Australia, Germany, Russia, and elsewhere. Professional preparation programs, program objectives, facilities, and equipment. *Interdisciplinary 53, Mr. J. Timmer.*

INTRODUCTION TO ASTRONOMY. A study of the basic techniques and discoveries of astronomy; the characteristics of the solar system, various types of stars, galaxies, and other astronomical objects, including those recently discovered; discussion of past and current cosmological theories such as the "steady state" and "big bang" theories. Telescope observations as weather permits. Prerequisites: high school chemistry or physics, or Physics 110 or 112. Satisfies group and minor concentrations in general science studies. *Interdisciplinary 55, Mr. Van Till.*

INTRODUCTION TO NETHERLANDIC CIVILIZATION: Dutch Interim Abroad. A study of the civilization of the Netherlands. Involves travel to the significant cultural centers. Coordination of the plastic arts—painting, architecture, and sculpture—with the historical, political, and social developments of the various periods. Prerequisite: permission of the instructor. Fulfills fine arts core. Special fees: approximately \$600.00. *Interdisciplinary 40, Mr. Overvoorde and Mr. Lagerwey.*

INTRODUCTION TO THE FILM. This course aims to develop the student's understanding of the language of the film and to guide him in assessing its values. Attention centers on the development and structure of the film as an art form

and a cultural medium. Course work emphasizes the viewing and analysis of movies, augmented by readings and written critiques. Satisfies fine arts core requirement. Special fee: approximately \$7.50. *Interdisciplinary 47, Mr. Harper, Mr. Hook, and Mr. Kroese.*

INTRODUCTORY RADIOCHEMISTRY. A study of natural and induced radioactivity and nuclear reactions involving basic theory as well as application of radioisotope technology to chemical systems. Some laboratory work. *Chemistry 10, Mr. Vander Lugt.*

JACQUES ELLUL: CHRISTIAN PERSPECTIVES ON TECHNOLOGICAL SOCIETY. A study of the moral dilemmas of modern man in the radically Christian views of Jacques Ellul. Students will read his books on violence and on the city. His thesis on the technological limits to human freedom is compared to those of other writers; e.g. Lewis Mumford. The focus of the course is on Christian answers to the problems posed by the influence of technology or technique on modern man and modern society. Satisfies history concentration interim requirement. *Interdisciplinary 49, Mr. Rienstra and Mr. Minnema.*

LABORATORY METHODS FOR TEACHING ELEMENTARY SCHOOL MATHEMATICS. Designed for prospective elementary school teachers. Introduces the student to a variety of materials which can be used to teach mathematics. The laboratory approach will be studied and used. Prerequisites: Mathematics 109 or its equivalent, and permission of the instructor. *Mathematics 40, Mr. Boonstra.*

MAHAYANA BUDDHISM. An introduction to Mahayana Buddhism relative to its origin, its objectives, its techniques, and its historical development. Special emphasis placed on the expression of Mahayana Buddhism in two Japanese sects: Nichiren and Zen. Readings, slide-lectures, technique demonstrations, and seminar discussion. Levels II and III. *Religion and Theology 21, Mr. Sweetman.*

MAMMALIAN ANATOMY. Study of the anatomy of the white rat and the rabbit.

Laboratory dissection work and lectures. Satisfies group minor concentrations. *Biology 21, Mr. Bengelink.*

MARK TWAIN. Study of selected writings of Mark Twain with a view to tracing the development of his social, religious, and literary views. Some attention is given to Twain's writing style and his humor. Satisfies fine arts core requirement. *English 40, Mr. K. Kuiper.*

MODERN PARLIAMENTARY PRACTICES. A theoretical and a practical introduction to parliamentary procedure. Class will attend the meetings of various organizations including the city commission, a congregation, a classis, a labor union, the legislative houses in Lansing, and the United States Senate and House in Washington, D.C. Satisfies concentrations in speech. Special transportation fee: approximately: \$15.00. *Speech 42, Mr. Berghuis.*

MOTOR BEHAVIOR AND HUMAN DEVELOPMENT. A study of modern concepts, theories, and programs dealing with movement behavior, perceptual motor experiences, acquisition of motor skills, and behavioral integration. Designed to investigate the nature and basis of motor skill development and the implications of motor learning and behavior for human development. Lectures, readings, discussions, and observations. For physical education, psychology, and elementary education students. Satisfies concentrations in physical education. *Interdisciplinary 45, Mr. Zuidema.*

MUSIC APPRECIATION CAFETERIA STYLE. An introduction to music listening for the general college student in which each student may select four of twelve available units: chamber music, music for wind instruments, art song, opera, symphony, church organ music, church choral music, symphonic poem, oratorio, overview of music history, jazz, descriptive music. Satisfies core requirement in fine arts. *Music 40, Mr. J. De Jonge, Mr. Geerdes, Mr. Hamersma, Mr. Topp, and Miss Huisman.*

MUSIC IN POPULAR CULTURE. An examination of post-World War II popular music (jazz, rhythm-and-blues, country-

western, folk, rock, musical), its relation to and reflection of the social-religious-political-cultural milieu, and its root in the popular music of the post-Civil War era, the Gay 90's, Roaring 20's, and desperate 30's, (ragtime, dixieland, blues, spirituals). *Interdisciplinary 52, Mr. Vander Kooi, Mr. Worst, and guests.*

NAZI GERMANY. A study of Nazi Germany, 1933-1945, concentrating on the origins and growth of Nazism, life in Hitler's Germany, and the last days of the Third Reich. Conducted in English. Satisfies concentrations in history. *Interdisciplinary 58, Mr. Hegewald.*

NUMBER THEORY AND COMPUTERS. This is a course especially suited for the secondary teacher but should also be of interest to the mathematics major. It covers the usual topics of elementary number theory—divisibility properties of integers, theory of congruencies, and continued fractions. There are opportunities to illustrate the algorithms discussed by preparing programs for the computer and running them. Prerequisites: one year of college mathematics. Satisfies concentrations in mathematics. Special fee: \$10.00. Levels II and III. *Mathematics 20, Mr. Nyhoff and Mr. Zwier.*

OPERA IN THE CLASSICAL PERIOD. A survey of opera from Gluck through Beethoven with concentration on five operas: Gluck, *Orfeo ed Euridice*; Mozart, *Don Giovanni, Magic Flute, Marriage of Figaro*; and Beethoven, *Fidelio*. Prerequisite: Music 204. Satisfies concentrations in music. Levels II and III. *Music 20, Mr. Stapert.*

ORAL READING OF THE BIBLE. A study of various types of Biblical literature—parables, poems, letters, and historical accounts—an analysis of this literature in order to communicate its full meaning to an audience through an oral reading. Satisfies concentrations in speech. *Speech 40, Mrs. Noteboom.*

ORGANIC CHEMISTRY IN DAILY LIFE. A survey of the products of the organic chemical industry which are in common use and how they are obtained from simple, natural raw materials. An emphasis upon the historical development

of organic chemistry. Prerequisite: high school chemistry. Substitutes for core requirement in Physics 110. *Chemistry 40, Mr. Wolthuis.*

ORGANIZATIONAL PSYCHOLOGY. Study of communication, decision-making, leadership, and conflict in industrial organizations from a behavioral or social-psychological viewpoint. Some role-playing and games which simulate various organizational circumstances. Levels II and III. Satisfies concentrations in psychology. *Psychology 20, Mr. Terborg.*

ORGANIZED CRIME. A descriptive appraisal of organized crime with a sociological and social-psychological interpretation of its causes. Satisfies concentrations in sociology. *Sociology 40, Mr. Holstege.*

PARAPSYCHOLOGY. A study of evidences of those forces in the mind or in human behavior which cannot be explained by



conventional psychology or other sciences: ESP, telepathy, clairvoyance, mediums, spirit photography. May satisfy group minor concentration with approval of student's academic advisor. *Interdisciplinary 46, Mr. Snapper.*

PARASITISM AND OTHER SYMBIOSES. An introduction to parasitism as a type of symbiosis. Organisms of medical importance as well as morphology and life cycles are emphasized; current status and control methods are covered. Prerequisites: Biology 251. Satisfies major concentration in medical technology program. Levels II and III. *Biology 20, Mr. A. Bratt.*

PENTECOSTALISM, NEO-PENTECOSTALISM, AND THE SPIRIT. A study of the Biblical teaching concerning the work of the Holy Spirit in the life of the Church. The present growth of Pentecostalism, Neo-Pentecostalism, and the accompanying phenomena of tongues, miracles, and prophesy. *Religion and Theology 41, Mr. Holwerda.*

PHENOMENONOLOGICAL PSYCHOLOGY. A study of some primary sources in phenomenological psychology with an emphasis on those by Rollo May, and a historical and theoretical account of the origin of this approach to psychology, which forms a thought-provoking contrast to the prevailing approaches, such as behaviorism. Prerequisite: at least one course in psychology. Satisfies concentrations in psychology. *Psychology 30, Mr. C. Plantinga.*

PHILOSOPHY OF EDUCATION. *Education 304, Mr. Beverluis.*

THE PHILOSOPHY OF MARTIN BUBER. The Philosophy of Martin Buber, with emphasis on *Between Man and Man.* *Philosophy 40, Mr. Prins.*

THE PHILOSOPHY OF SCHELLING. An introduction to the thought of a man who, though still largely unknown to Americans, is of central importance for understanding Karl Jaspers, the theology of Paul Tillich, Ernst Cassirer's renewal of interest in mythical thought, an important movement in aesthetic theory, and more. *Philosophy 30, Mr. Runner.*

PLANTS AND CIVILIZATION. A study of the role of economically important plants in man's economic, ecological, cultural, and political history. Satisfies group and minor concentrations in biology. *Biology 42, Mr. Karsten.*

THE POLITICAL NOVEL. A study of how the novel has been used by various writers to deal with the subject matter of politics. Readings and discussion of several such novels. Emphasis will be on twentieth-century novels. *Interdisciplinary 59. Mr. J. Westra.*

THE POST CIVIL WAR DECADE. An evaluation of the white man's broken promises and the black man's blasted hopes: the motives of the radical Republicans; the political corruption of Grant's administration; the white South's reaction to military rule; the activities of the scalawags, the carpetbaggers, and the Ku Klux Klan; the emergence of "Jim Crow" restrictions and of the Black Codes. Prerequisite: History 101 or 102. Satisfies core beyond designated courses in the contextual disciplines and departmental concentrations. *History 20, Mr. De Bie.*

PRACTICUM IN PRESCRIPTIVE TEACHING. Practice in preparing teaching-learning prescriptions for elementary school pupils. Students will work out a developmental program in reading and mathematics with one or more pupils. Prerequisite: permission of the instructor. Satisfies group minor concentration. *Education 31, Mr. Besselsen.*

PRACTICUM IN SPECIAL EDUCATION. The student will serve as a full-time assistant and observer in special education programs and will become familiar with a variety of community agencies providing services in the special education field. Selected readings, reports, and attendance at seminars are required. Satisfies group minor concentration. *Education 20, Mr. J. Wiersma.*

PSYCHOLOGY OF HUMAN CONFLICT. A psychological analysis of conflict at the interpersonal, intergroup, and international levels. Attention given to the social scientist's use of games in studying conflict phenomena. Discussions, read-

ings, and participation in simulation games. Prerequisite: Psychology 151 or Sociology 151. Satisfies concentrations in psychology. *Psychology 40, Mr. M. Bolt.*

PSYCHOLOGY OF MASS PERSUASION. Description and analysis of attempts at mass persuasion using the electronic and print media, including the propaganda machine of Nazi Germany, international shortwave broadcasts (e.g., "The Voice of Vietnam" from Hanoi, and broadcasts by Radio Moscow, Voice of America) and modern advertising techniques. Satisfies concentrations in speech. *Interdisciplinary 60, Mr. Ozinga.*

RADICAL CHRISTIANITY PAST AND PRESENT. An analysis of anti-institutional radical Christianity from the Protestant Reformation until the present day. The course emphasizes such recent developments as the Underground Church; Radical Theology (e.g. "Death of God"); the ideas of the "Secular Gospel"; and so-called Speaking of Tongues. Satisfies core requirements beyond designated courses in the contextual disciplines. *History 44, Mr. Roberts.*

THE RAILROAD IN AMERICAN HISTORY. A panoramic portrayal of the iron horse and the flanged wheel and their significance on the American cultural and technological landscape. Selected facets on engineering feats and operating achievements; the railroad moguls and tycoons; the brotherhoods and their struggle; sagas, lore, and "hobby-ism", etc.; AMTRACK and the look of the future. Class presentations, selected readings, sound and pictorial features. Satisfies history concentration interim requirement. *Interdisciplinary 50, Mr. Strikwerda and Mr. Sinke.*

RECENT AMERICAN POETRY. A study of representative figures in contemporary American poetry who are currently writing. Levels II and III. *English 23, Mr. Walhout.*

READINGS IN UNAMUNO. The examination of the writings, thoughts, and importance of the modern Spanish author Miguel de Unamuno are the occasion for the student of Spanish to develop his

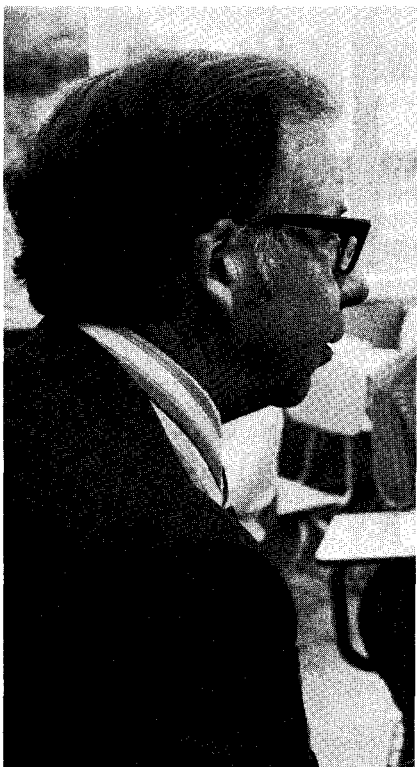
capacity to understand, speak, read, and write the language by means of discussions, exercises, drills, and a course paper. Prerequisites: three semesters of Spanish with grade of C or above. Satisfies concentrations in Spanish. *Spanish 40, Mr. Siebring.*

RED POWER - THE NEW INDIAN. A study and interpretation of the policies, dealings, and white American attitudes toward the Indian in the context of current attitudes and reinterpretations. Satisfies core requirements beyond designated courses in the contextual disciplines. *History 42, Mr. Greydanus.*

RENAISSANCE LITERARY CLASSICS. A wide exposure to the various literary expressions of the Renaissance. Themes explored in these works are the definition of man, attitude towards the Church (and to the Reformation, where applicable), definition of Christian sanctity, importance assigned to transcendence and grace. *Divine Comedy, (Paradise), Pascal's Pensées, Machiavelli's The Prince, Erasmus' Praise of Folly, Montaigne's Essays, Milton's Areopagitica and Samson Agonistes.* Satisfies major concentration except for the teacher education program. Levels II and III. *English 22, Mr. Vander Weele.*

SCIENCE FICTION. Twelve stories by some of the best known science fiction writers are studied to find some criteria for excellence in science fiction writing. Additional science fiction novels will be read by the students. Some of the authors are: H. G. Wells, Isaac Asimov, Arthur C. Clarke, James Blish, Robert A. Heinlein, and Jorge Luis Borges. *English 41, Mrs. Zylstra.*

SEMINAR IN THE PSYCHOLOGY OF RELIGIOUS EXPERIENCE. The reading and discussion of two basic and complementary analyses of the psychology of religious experience—*The Varieties of Religious Experience*, by William James, and *A Dynamic Psychology of Religion* by Paul Pruyser. Brief daily papers are required. Additional readings but no lectures. Prerequisites: junior or senior standing, or instructor's permission. *Psychology 31, Mr. Sanderson.*



SOCIOLOGY OF THE CHRISTIAN REFORMED CHURCH. An analysis of the Christian Reformed denomination as a social institution. Special attention is given to institutional recruitment, decision-making, membership, and leadership. The relative impact it has had on different sectors of society will be assessed in conjunction with an assessment of the influence that broader society has had on the denomination. Satisfies concentrations in sociology. Levels II and III. *Sociology 20, Mr. Smit and Mr. Rottman.*

SOCIOLOGY OF HUMOR. A sociological analysis of humor in contemporary society with a view towards delineating functions and dysfunctions of various forms of humor. Students will become involved in empirical research in the sociology of humor and in analysis of the findings. Prerequisites: Sociology 151 or permission of instructor. Can be used as interim course for sociology major. Levels I and II. *Sociology 10, Mr. De Blaeu.*

SPACE EXPLORATION AND CELESTIAL MECHANICS. A study of the recent accomplishments of space exploration projects. Topics to be investigated will include rockets, artificial satellites, lunar exploration, and interplanetary space travel. Special emphasis on what has been learned and what may be learned by space exploration. Satisfies group concentrations in general science studies. *Interdisciplinary 57, Mr. J. Kuipers.*

SPRING FLORA; A FIELD COURSE. A study in the field of plants in the springtime. Selective herbarium collections are made and the collected plants are classified. Special emphasis on identifying plants in the field using keys. To be taught in Summer Session I, 1972. Satisfies group and minor concentrations in biology. *Biology 41, Mr. Karsten.*

STUDIES IN ANIMAL BEHAVIOR. An introduction to topics in animal behavior. Physiological mechanisms, ontogeny, genetics, and evolution of animal behavior will be studied. Readings, films, and special reports on observations and experiments. Prerequisites: two biology courses, or one biology and one psychology course, or two psychology courses. Satisfies minor concentration in biology or science studies. *Biology 40, Mr. Van Harn.*

TEACHING LITERATURE IN THE MIDDLE SCHOOL. The novels, short stories, and poetry that are of interest to young people. The various procedures for teaching literature to students at the upper elementary and junior high levels. Includes elements of child development and Christian thinking as they relate to the teaching of literature. Some oral reading of both classics and modern literature. Satisfies group minor concentration. *Interdisciplinary 45, Mr. Walker.*

TEACHING RELIGIOUS AND MORAL VALUES IN PUBLIC SCHOOLS. A study and evaluation of both existing and proposed program for teaching the process of valuing in public schools, including the objective study of religion. Includes observation and limited participation in local programs in public schools. Levels II and III. *Interdisciplinary 20, Mr. D. Oppewal.*

TWENTIETH-CENTURY AMERICAN PLAYS. A study of representative American plays with emphasis upon their variety of subject matter: myth, history, social protest, tragic predicament, and comedy. *English 30, Mr. Timmerman.*

UNITED STATES-SOVIET RELATIONS. A study of relations between the United States and the Soviet Union from the time of the communist revolution, November, 1917, to the present. Satisfies core beyond designated courses in the contextual disciplines and departmental concentrations. *History 22, Mr. R. Bolt.*

THE VICTORIAN DILEMMA: POETRY OF FAITH AND DOUBT. An intensive study of the works of leading Victorian poets—Browning, Tennyson, Arnold, Swinburne—that deal with the religious problems raised by such intellectual movements as evolutionism and higher criticism. Daily meetings for discussion and background lectures. Term paper. Prerequisites: English 100 and 200, or equivalent. Levels II and III. *English 21, Mr. Tiemersma.*

WASHINGTON WORK-STUDY INTERIM. An opportunity for students to secure part-time employment in Washington, D.C. either with the government or in a politically-related field. Seminars with public figures and individual research projects will complement practical work experience and will permit first hand observation of the political process. Prerequisites: one political science course and departmental approval. Levels II and III. Special fees: \$150.00. *Political Science 21, Mr. Henry.*

WHAT'S UP IN THE AIR? The air around us, the atmosphere's energy, air motion and circulation patterns, climate, weather forecasting and modification, pollutants in the air and their removal, improvement of air quality. Prerequisites: Physics 110 or 112. Satisfies group concentrations in general science

studies. *Interdisciplinary 56, Mr. A. Kromminga.*

THE WORD AND THE WORLD. The following questions will be considered: What kind of book is the Bible? How do you read it? What knowledge and understanding does it provide? What kind of endeavor is scientific study? How is it pursued? Are science and theology compatible? Satisfies group concentrations in science studies. Levels II and III. *Interdisciplinary 22, Mr. Menninga.*

WORKSHOP IN INSTRUCTIONAL MEDIA: ELEMENTARY LEVEL. Planning, producing, and evaluating of instructional media through independent and group activities. Satisfies group minor requirement. Levels II and III. *Education 22, Mrs. Hoffman, Mrs. Blok.*

THE WORLD OF PASCAL. A study of the life and work of Pascal, his secondary works on the "new science," Jansenism, "robe" or Parliamentary society, the Fronde, seventeenth century rationalism and skepticism, and Christian apologetics. Prerequisite: History 101 or 102. Satisfies history concentration interim requirement. *Interdisciplinary 48, Mr. De Vos, Mr. D. Van Kley.*

WORSHIP: 3000 YEARS AGO AND TODAY. An historical survey of worship in the ancient Near East with a particular emphasis on the Yahweh worship described in the Old Testament. A text-book on Israel's worship will be followed. Visits to Jewish, Roman Catholic, and Greek Orthodox services. Satisfies core requirement beyond designated courses in the contextual disciplines and minor concentration in religion and theology. *Religion and Theology 30, Mr. C. Vos.*

ZIONISM. A history of Zionism from 1850 to the present, stressing Zionism and Anti-Semitism; Zionism and Judaism; Zionism and the State of Israel. *History 40, Bert De Vries.*

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John Rupke, M.D., *College Physician*

Annette Steenwyk, R.N., *College Nurse*

Harry Faber, *Security Officer*

Agnes Joldersma, *Resident Director, Beets-Veenstra Halls*

Gezina Kingma, B.A., *Resident Director, Noordewier-Vander Werp Halls*

Annette Medendorp, *Resident Director, Eldersveld-Schultze Halls*

Marie Spaan, *Resident Director, Rooks-Van Dellen Halls*

Violet Weiant, *Resident Director, Bennink-Boer Halls*

Diane Grace Nykamp and Delwin Gene Nykamp, *Resident Directors, Heyns-Bolt Hall.*

Committees

Athletics Committee, J. Tuls (chairman and faculty representative on the MIAA Board), J. Bratt, G. Harris, M. Karsten, J. Kuipers, L. Vander Lugt, and an advisory member designated by the chairman of the Department of Physical Education.

Communications Board, P. De Vos (Chimes), R. Jensen (Prism), T. Ozinga, H. Rienstra (Dialogue), and five students.

Coordinating Committee on Teacher Education, D. Hoekstra (chairman), M. Snapper (ex officio, as chairman of the Department of Education), H. Bengelink, J. De Bie, L. Vos, F. Walker, J. Worst.

Counseling and Guidance, H. Broene (chairman), G. Huisman, C. Menninga, B. Pekelder, B. Siebring, and two students.

Discipline Committees

Discipline Appeals Council, B. Pekelder (chairman), W. Hendricks, S. Leestma, L. Nyhoff, and three students.

All-campus Discipline Committee, W. Stob (secretary), P. Boonstra, W. De Boer, S. Greydanus, F. Roberts, B. Steen, D. Westra (A. Noteboom and J. Wiersma alternates), and five students, with two student alternates.

Residence Halls Appellate Council, D. Hageman, A. Knoppers, R. Terborg, D. Tuuk, R. Honderd, alternates); three students from residence hall judiciaries and two alternates. Council names its own chairman.

Residence Hall Judiciaries, one faculty member and six students from each residence unit. R. Honderd, Heyns and Bolt halls; A. Knoppers, Beets and Veenstra halls; R. Terborg, Noordewier and Vander Werp halls; D. Hageman, Eldersveld and Schultze halls; B. Klooster, Boer and Bennink halls; D. Tuuk, Rooks and Van Dellen halls.

Educational Policy Committee, J. Vanden Berg (chairman), P. De Boer, D. Holwerda, H. Ippel, K. Kuiper, G. Van Harn, P. Zwier.

Examinations Committee, A. Reynolds (chairman), J. Vanden Berg, J. Hamersma, W. Van Doorne, D. Van Kley.

Faculty Evaluation Committee, N. Beversluis, R. Bosscher, J. Lamse, B. Ten Broek, plus four students. The committee shall name a student chairman and a faculty secretary.

Faculty Seminar Committee, A. Kromminga (chairman), M. Bolt, J. De Borst, B. Klooster, L. Van Poolen.

Faculty Social and Special Academic Activities Committee, M. Vande Guchte (chairman), H. Geerdes, C. Huisman, J. Korf, A. Noteboom, D. Nykamp, C. Overvoorde, C. Stapert, H. Van Till, C. Walhout, D. Wilson, D. Zuidema.

Film Arts Council, H. Hook, I. Kroese, M. Zylstra, plus four students, one of whom is chairman.

Honors Program Committee, R. Tiemersma (chairman), D. Hoekstra, D. Holwerda, K. Konyndyk, R. Otten, T. Rottman, M. Zylstra.

Interim Committee, D. Hoekstra (chairman), R. De Vries, H. Hook, A. Otten, H. Rienstra, P. Vande Guchte (adviser), J. Van Zytveld, S. Wiersma.

Lecture Council, G. Marsden, E. Van Kley, and three students.

Library Committee, College representatives: L. Sweetman, C. Boersma, B. De Vries, W. Lagerwey, M. Monsma.

Preseminary Advisory Committee, R. Young (chairman), B. Pekelder, T. Prins, C. Vos.

Professional Status Committee, W. Spoelhof (chairman), M. Bolt, A. Gebben, C. Orlebeke, F. Roberts, J. Vanden Berg, E. Van Vugt.

Scholarship Committee, A. Bratt (chairman), W. Hubers (secretary), C. Miller (for graduate fellowships), J. Daling, T. Dirkse, G. Monsma.

Student Religious Activities Committee, H. Ten Harmsel (chairman), B. Pekelder, J. Beebe, H. Bonzelaar, T. Minnema, K. Piers, W. Stob, plus four students.

Student Social Activities Committee, R. Bolt (chairman), D. Holquist, J. W. Smit, P. Pekelder, W. Stob, plus seven students.

CONTINUING AD HOC STUDY COMMITTEES

Discipline Code Study Committee, H. Rienstra (chairman), 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 (chairman, pro tem), the Dean of the College, and the President.

Professional Programs Study Committee, R. Mouw (chairman), Ed. Boevé, J. Bosscher, A. Gebben, B. Kreuzer, M. Monsma, D. Pruis, G. Van Zwalenberg.

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), Bernard Ten Broek, *chairman*
- Chemistry (III), Enno Wolthuis, *chairman*
- Classical Languages (II), Robert T. Otten, *chairman*
- Economics (IV), Donald Pruis, *acting chairman*
- Education (I), Marion Snapper, *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), Carl Sinke, *chairman*
- Music (II), John Hamersma, *chairman*
- Philosophy (I), Nicholas Wolterstorff, *chairman*
- Physical Education (I), Barney Steen, *chairman*
- Physics (III), John Van Zytveld, *chairman, pro tem*
- Political Science (IV), Stephen Monsma, *acting chairman*
- Psychology (IV), John Daling, *chairman*
- Religion and Theology (I), John Bratt, *chairman*
- Sociology (IV), Theodore Rottman, *chairman*
- Speech (II), Martin Vande Guchte, *chairman*

Faculty

Faculty members on leave of absence for the 1971-72 academic year are indicated by an asterisk (*), those on leave for the first semester are indicated by a dagger (†), and those on leave the second semester are indicated by double asterisks (**).

- Josephine Baker, M.A., M.A.L.S. EMERITA
Librarian, Emerita
- Bert Peter Bos, M.A., Ed.D.
Director of Teacher Certification, Emeritus
- Harry G. Dekker, M.S.
Registrar, Emeritus
Professor of Chemistry, Emeritus
- Richard Drost, M.A., Ph.D.
Professor of History, Emeritus
- Bernard Jay Fridsma, Sr., M.A., Ph.D.
Professor of Germanic Languages, Emeritus
- William Harry Jellema, M.A., Ph.D.
Professor of Philosophy, Emeritus
- Edwin Y. Monsma, M.S., Ph.D.
Professor of Biology, Emeritus
- Albert H. Muyskens, M.A.
Professor of Mathematics, 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 Andrew Van Bruggen, M.A., Ph.D.
Professor of Education, Emeritus
- 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
- Claude-Marie Baldwin, B.A. (Calvin, 1971) ACTIVE
Visiting Assistant in Romance Languages
- *Henry James Baron, M.A. (Michigan, 1966), Adv. Cer. (Illinois, 1968)
Assistant Professor of English
- John D. Beebe, M.A. (South Dakota, 1966), Ph.D. (Chicago, 1970)
Assistant 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)
Associate Professor of Education
- 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
- Clarence Boersma, M.A., German, M.A., French, Ph.D. (Michigan, 1940, 1945, 1949)
Professor of Germanic Languages
- 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)
Director of Drama
- Martin Bolt, M.A., Ph.D. (Michigan State, 1967, 1969)
Assistant 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 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
- Robert Allen Bosscher, M.A. (Michigan, 1962)
Assistant Professor of Economics
- Al Dirk Bratt, M.S. (Michigan State, 1957), Ph.D. (Cornell, 1964)
Professor 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
- Herbert John Brinks, M.A., Ph.D. (Michigan, 1961, 1965)
Associate Professor of History
Curator, Colonial Origins Collection
- Herman H. Broene, Ph.D. (Purdue, 1947)
Professor of Chemistry
- *Tony Brouwer, M.A., Ph.D. (Michigan, 1947, 1957)
Professor of Economics
- Conrad John Bult, M.A., M.A.L.S. (Michigan, 1962, 1965)
Librarian
- Elsa Cortina, Doctora en Pedagogia (Universidad Habana, 1951)
Visiting Lecturer in Romance Languages

- John Thomas Daling, M.A., Ph.D. (Michigan, 1937, 1943)
Professor of Psychology
Chairman, Department of Psychology
- John Lester De Beer, M.A., Ed.D. (Columbia—Teachers College, 1936, 1951)
Professor of Education
Director of Audio-Visual Services
- John De Bic, M.A. (Iowa, 1935)
Assistant Professor of History
Secretary of the Faculty
- Gordon Lee De Blaeys, M.A., Ph.D. (Western Michigan, 1967, 1970)
Visiting Assistant 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
- Willis Peter De Boer, Th.B. (Calvin Theological Seminary, 1951), D.Th. (Vrije Universiteit, Amsterdam, 1962)
Professor of Religion and Theology
- James Henry De Borst, M.A. (Michigan, 1965)
Associate Professor of Political Science
- 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, 1971)
Associate Professor of Philosophy
- Bert De Vries, B.D. (Calvin Theological Seminary, 1964), M.A., Ph.D. (Brandeis, 1965, 1967)
Associate Professor of History
- Robert Lee De Vries, M.A. (Michigan, 1964)
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
- *Vernon James Ehlers, Ph.D. (California, Berkeley, 1960)
Professor 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 Geerdes, 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
Chairman of the Department of Physics
- Delores 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)
Assistant Professor of Germanic Languages
- William Cornelius Hendricks, M.Ed. (Western Washington State, 1955)
Assistant Professor of Education
- Paul B. Henry, M.A., Ph.D. (Duke, 1967, 1970)
Visiting Assistant Professor of Political Science
- *Henry Jay Hoeks, B.S.A.E. (Purdue, 1958), M.C.E. (Western Theological Seminary, 1966)
Assistant Professor of Education
- Dennis Hoekstra, B.D. (Calvin Theological Seminary, 1961), Ed.D. (Columbia-Teachers College, 1963)
Assistant Dean for Academic Affairs
- Winfred H. Holkeboer, M.A. (Iowa Northern University, 1959)
Associate Professor of English
- David Jack Holquist, M.A. (Michigan, 1967)
Assistant Professor of Speech
- Henry Holstege, Jr., M.A., Ph.D. (Michigan State, 1958, 1966)
Professor 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
- Harmon Dirk Hook, M.A., Ph.D. (California, Berkeley, 1964, 1971)
Assistant Professor of English
- Carl John Huisman, M.F.A. (Michigan State, 1967)
Instructor in 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
Director of Upward Bound
- Dirk William Jellema, Ph.D. (Wisconsin, 1951)
Professor of History
- Robert Andrew Jensen, M.F.A. (Ohio, 1952)
Assistant Professor of Art
- Martin Karsten, M.S. (Michigan, 1942)
Associate Professor of Biology
- Beverly Jane Klooster, M.S., Ph.D. (Michigan State, 1961, 1971)
Assistant Professor of Biology
- Thelma Knol, M.Mus. (Michigan, 1959)
Professional Staff, Department of Music
- Annelies Knoppers, M.A. (Texas Woman's, 1968)
Instructor in Physical Education
- Kenneth J. Konyndyk, Jr., M.A., Ph.D. (Wayne State, 1967, 1970)
Assistant Professor of Philosophy
- James Dale Korf, M.A. (Michigan, 1970)
Assistant Instructor in Speech
- Bernard Benjamin Kreuzer, M.A. (Michigan, 1959), Ph.D. (Iowa, 1971)
Associate Professor of Germanic Languages

- Irvin Bertus Kroese, M.A., Ph.D. (Ohio, 1964, 1966)
Associate 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
- Walter Lagerwey, M.A. (Columbia, 1951), Ph.D. (Michigan, 1958)
Professor of Germanic Languages
- Stephen Lambert Lambers, M.A., M.A.L.S. (Michigan, 1958, 1969)
Index Librarian
- James Lawrence Lamse, M.A. (Michigan, 1963)
Assistant Professor of Germanic Languages
- Sanford Clay Leestma, M.A. (Pennsylvania State, 1965), Ph.D. (New Mexico State, 1969)
Assistant Professor of Mathematics
- Philip Roger Lucasse, M.A., Ed.D. (Michigan, 1952, 1971)
Associate Professor of Education
- *George Mish Marsden, B.D. (Westminster Theological Seminary, 1963) M.A., Ph.D. (Yale, 1961, 1965)
Associate Professor of History
- Norman Matheis, M.F.A. (Michigan, 1967)
Assistant Professor of Art.
- Clarence Menninga, M.A. (Western Michigan, 1959), Ph.D. (Purdue, 1966)
Associate Professor of Physics
- Charles J. Miller, Ph.D. (Northwestern, 1947)
Professor of History
Coordinator of Graduate Fellowships
- Theodore Minnema, B.D. (Calvin Theological Seminary, 1953), D.Th. (Vrije Universiteit, Amsterdam, 1958)
Professor of Religion and Theology
- George Norman Monsma, Jr., M.A., Ph.D. (Princeton, 1965, 1969)
Associate Professor of Economics
- Marvin Eugene Monsma, M.A. (Michigan State, 1961), M.A.L.S. (Michigan, 1967)
Assistant Professor of Library Science
Director of the Library
- Stephen Vos Monsma, M.A. (Georgetown, 1961), Ph.D. (Michigan State, 1965)
Associate Professor of Political Science
Acting Chairman, Department of Political Science
- William Brink Monsma, Ph.D. (Colorado, 1970)
Visiting Assistant Professor of Physics
- Richard John Mouw, M.A. (Alberta, 1965), Ph.D. (Chicago, 1971)
Assistant Professor of Philosophy
- Ann Janssen Noteboom, M.A., Ph.D. (Northwestern, 1952, 1957)
Professor of Speech
- Larry Ray Nyhoff, M.S. (Michigan, 1961), Ph.D. (Michigan State, 1969)
Associate Professor of Mathematics
- Delwin Gene Nykamp, M.A. (Northwestern, 1967)
Instructor in Speech
- Donald Oppewal, M.A. (Michigan, 1951), Ph.D. (Illinois, 1961)
Professor of Education

- *Peter Oppewall, 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
- 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)
Professor of Classical Languages
Chairman of the Department of Classical Languages
- Chris Stoffel Overvoorde, M.F.A. (Michigan, 1966)
Assistant Professor of Art
- Thomas J. Ozinga, M.A., Ph.D. (Michigan 1961, 1967)
Associate Professor of Speech
- Bernard Edward Pekelder, Th.B. (Calvin Theological Seminary, 1947), M.A. (Northwestern, 1965)
Vice President for Student Affairs
College Chaplain
- Kenneth Piers, B.Sc. (Hon.), Ph.D. (Alberta, 1963, 1966)
Assistant Professor of Chemistry
- *Alvin Carl Plantinga, M.A. (Michigan, 1955), Ph.D. (Yale, 1958)
Professor of Philosophy
- Cornelius A. Plantinga, M.A. (Michigan, 1933), M.Ed., Ph.D. (Duke, 1942, 1940)
Professor of Psychology
- †John Henry Primus, B.D. (Calvin Theological Seminary, 1957), D.Th. (Vrije Universiteit, Amsterdam, 1960)
Professor of Religion and Theology
- Tunis Prins, M.A. (Michigan, 1937), Ph.D. (Southern California, 1938)
Professor of Philosophy
- Donald E. Pruis, M.B.A. (C.P.A.), (Michigan, 1953)
Professor of Economics and Business Administration
Acting Chairman, Department of Economics and Business Administration
- William Thomas Radius, M.A. (Chicago, 1929), Ph.D. (Michigan, 1943)
Professor of Classical Languages
- *Lois Ann Read, M.A. (Wisconsin, 1964)
Assistant Professor of Romance Languages
- Alfred John Reynolds, M.A. (Michigan, 1951), Ph.D. (Michigan State, 1965)
Associate Professor of Psychology
Acting Director of the Broene Center
Consultant, Educational and Psychological Measurements
- *Rodger Reid Rice, M.A., Ph.D. (Michigan State, 1962, 1968)
Associate Professor of Sociology
- M. Howard Rienstra, M.A., Ph.D. (Michigan, 1954, 1963)
Professor of History
- Frank Carl Roberts, B.D. (Calvin Theological Seminary, 1965) M.A., Vanderbilt, 1969)
Assistant Professor of History
- Theodore Allen Rottman, M.A., Ph.D. (Michigan State, 1955, 1965)
Professor of Sociology
Chairman of the Department of Sociology
- 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)
Assistant Professor of Psychology
- Barton G. Siebring, M.A. (Instituto Tecnológico Y De Estudios Superiores, Monterrey, 1967)
Assistant Professor of Romance Languages
- Carl James Sinke, M.S., Ph.D. (Purdue, 1951, 1954)
Professor of Mathematics
Chairman of the Department of Mathematics
- *Howard Jay Slenk, M.A., Ph.D. (Ohio State, 1961, 1965)
Professor of Music
- Barbara Betty Sluiter, M.A.L.S. (Michigan, 1956)
Librarian
- Donald Henry Smalligan, M.B.A., M.S.W. (Michigan, 1948, 1954)
Assistant Professor of Sociology
- J. William Smit, M.A., Ph.D. (Michigan, 1959, 1964)
Associate Professor of Sociology
- J. Marion Snapper, M.Ed. (Western Washington, 1954), Ed.D. (California, Berkeley, 1958)
Professor of Education
Chairman of the Department of Education
Coordinator of Secondary Teacher Education
- William Spoelhof, M.A., Ph.D. (Michigan, 1937, 1946)
President
- Gordon John Spykman, Th.B. (Calvin Theological Seminary, 1952), D.Th. (Vrije Universiteit, Amsterdam, 1955)
Professor of Religion and Theology
- Calvin Ray Stapert, M.A. (Chicago, 1968)
Instructor in Music
- Barney Steen, M.A., Ed.D. (Columbia—Teachers College, 1947, 1958)
Professor of Physical Education
Chairman of the Department of Physical Education
- William K. Stob, B.D., Th.M. (Calvin Theological Seminary, 1955, 1970)
Dean of Student Activities
- Earl Strikwerda, M.A., Ph.D. (Colorado, 1938, 1942)
Professor of History
- Leonard Sweetman, Jr., Th.B. (Calvin Theological Seminary, 1951),
Associate Professor of Religion and Theology
- Bernard John Ten Brock, M.A., Ph.D. (Colorado, 1955, 1960)
Professor of Biology
Chairman of the Department of Biology
- Henrietta Ten Harmsel, M.A., Ph.D. (Michigan, 1958, 1962)
Professor of English
- Robert Harold Terborg, M.A., Ph.D. (Michigan State, 1966, 1968)
Assistant Professor of Psychology
- Richard Robert Tiemersma, M.A., Ph.D. (Northwestern 1950, 1962)
Professor of English
- James R. Timmer, M.A. (Michigan 1964)
Assistant Professor of Physical Education
- John Johnson Timmerman, M.A. (Michigan, 1932), Ph.D. (Northwestern, 1948)
Professor of English
- G. Dale Topp, M.Mus, Ph.D. (Michigan, 1960, 1967)
Associate Professor of Music

- John Henry Tuls, M.A. (Michigan, 1945)
Associate Professor of Mathematics
- 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)
Vice President for Student Personnel Services
Registrar
- John Vanden Berg, M.A., Ph.D. (Michigan, 1947, 1958)
Vice President for Academic Affairs and Dean of the College
- Gertrude Vander Ark, M.A., Ed.S. (Michigan, 1953, 1964)
Assistant Professor of Education
Coordinator of Elementary Teacher Education
- *Jenniete T. Vander Berg, M.A. (Michigan State, 1966)
Instructor in Physical Education
- Ronald Charles Vander Kooi, M.A. (Western Michigan, 1961), Ph.D. (Michigan State, 1967)
Associate Professor of Sociology
- Leonard Adolph Vander Lugt, M.S. (Michigan State, 1960)
Assistant Professor of Chemistry
- *Ray Vander Weele, M.B.A. (Northwestern, 1961), Ph.D. (Wisconsin, 1971)
Assistant Professor of Economics and Business Administration
- Steve John Van Der Weele, M.S., Ph.D. (Wisconsin, 1950, 1955)
Professor of English
- William Van Doorne, M.S., Ph.D. (Michigan, 1962, 1965)
Associate 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)
Assistant 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)
Assistant Professor of Psychology
- Lambert John Van Poolen, M.S.M.E., Ph.D. (Illinois Institute of Technology, 1965, 1969)
Assistant Professor of Engineering
- Howard Jay Van Till, Ph.D. (Michigan State, 1965)
Associate Professor of Physics
- Ernest Van Vugt, M.A. (Michigan, 1958)
Assistant Professor of Classical Languages
- George Van Zwalenberg, M.A. (Florida, 1955), Ph.D. (California, Berkeley, 1968)
Professor of Mathematics
- John Bos Van Zytveld, M.S., Ph.D. (Michigan State, 1964, 1967)
Assistant Professor of Physics
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