

CALVIN COLLEGE

**The college of the Christian Reformed Church
Grand Rapids, Michigan**

Catalog for 1978-79

Contents

<i>The college year of 1978-79</i>	3
I <i>The history of the college and its objectives</i>	5
II <i>Student life and services</i>	10
III <i>Admission and academic regulations</i>	16
IV <i>Expenses and financial aid</i>	25
V <i>The academic programs</i>	37
<i>Bachelor of Arts, Bachelor of Science degrees</i>	38
<i>Bachelor of Fine Arts degree</i>	41
<i>Master of Arts in Teaching degree</i>	42
<i>Honors programs</i>	43
<i>Teacher education</i>	45
<i>Professional and preprofessional programs</i>	49
<i>Departmental programs and courses</i>	59
IV <i>The directories</i>	
<i>The board of trustees</i>	144
<i>The administration</i>	145
<i>Faculty committees</i>	146
<i>The faculty</i>	149
<i>The index</i>	161

Calendar

The Fall Semester 1978

SEPTEMBER	6	<i>Wednesday</i>	Faculty-Board conference Residence halls open Orientation and registration
	7-9	<i>Thursday-Saturday</i>	
	11	<i>Monday</i>	First semester classes begin 8 a.m. Convocation 9:40-10:45 a.m.
OCTOBER	23	<i>Monday</i>	Reading recess
NOVEMBER	10-22	<i>Friday-Wednesday</i>	Registration for Interim and spring semester
	22	<i>Wednesday</i>	Thanksgiving recess 5 p.m.
	27	<i>Monday</i>	Classes resume 8 a.m.
DECEMBER	13	<i>Wednesday</i>	Classes end 10 p.m.
	14	<i>Thursday</i>	Reading Recess
	15	<i>Friday</i>	Examinations begin 9:00 a.m.
	20	<i>Wednesday</i>	Fall semester ends 9:30 p.m. Christmas vacation begins

The Interim 1979

JANUARY	10	<i>Wednesday</i>	Interim term begins 8 a.m.
	31	<i>Wednesday</i>	Interim term ends 5 p.m.

The Spring Semester 1979

	5	<i>Monday</i>	Second semester classes begin 8 a.m.
MARCH	30	<i>Friday</i>	Spring vacation begins 10 p.m.
APRIL	10	<i>Tuesday</i>	Spring vacation ends 8 a.m.
	13	<i>Friday</i>	Good Friday, classes dismissed 12:20 p.m.
MAY	3	<i>Thursday</i>	Honor Convocation 8:15 p.m.
	16	<i>Wednesday</i>	Reading Recess
	17	<i>Thursday</i>	Examinations begin 9 a.m.
	22	<i>Tuesday</i>	Examinations end 9:30 p.m.
	23	<i>Wednesday</i>	Commencement 5 p.m.

The Summer Semester 1979

	29	<i>Tuesday</i>	First session begins 8:30 a.m.
JUNE	20	<i>Wednesday</i>	First session ends
	21	<i>Thursday</i>	Second session begins 8:30 a.m.
JULY	13	<i>Friday</i>	Second session ends
	16	<i>Monday</i>	Third session begins 8:30 a.m.
AUGUST	7	<i>Tuesday</i>	Third session ends
	8	<i>Wednesday</i>	Fourth session begins 8:30 a.m.
	30	<i>Thursday</i>	Fourth session ends

The Fall Semester 1979

SEPTEMBER	5	<i>Wednesday</i>	Faculty-Board conference Residence halls open Orientation and registration begins
	6	<i>Thursday</i>	
	10	<i>Monday</i>	Fall semester classes begin 8 a.m.



History

The history of the college and its objectives

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

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

The Christian Reformed Church subscribes to three statements of faith (in addition to the early Christian 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 learning and the arts.

The founding date of Calvin College and Seminary is 1876. In that year the Christian Reformed Church adopted a six-year curriculum for ministerial training. The first four of these years were spent in the Literary Department and the last two in the Theological Department. In 1894 students who were not pre-

theological students were admitted to an expanded curriculum, and thus the school became a type of preparatory school or academy. In 1900 the curriculum was further broadened and made more attractive to students interested in teaching or in preparing for preprofessional courses in the universities. By 1906 the Literary Department, which provided the four years of preparatory and two years of college work, became known officially as the John Calvin Junior College. The two-year college in time became a four-year college, and the preparatory department was discontinued. In 1921 Calvin College awarded its first Bachelor of Arts degree.

The school, which had started with seven students, grew slowly during the early years, but by 1930 it had reached its pre-World War II size of 350-450 students. By 1950 the enrollment had climbed to 1270 and last year was 4075.

In 1956, when it became obvious that the college could expand no further on its Franklin Street campus, the trustees purchased the 165-acre Knollcrest Estate on the edge of the city. The new campus was planned as a unit before the first buildings, the seminary complex, were completed in 1960. Two years later the college constructed four residence halls and a dining hall, thus beginning what was to be the decade of the divided campus. In the same year the first section of the library combined with Heritage Hall, and a classroom wing, Hiemenga Hall, were opened. Other buildings followed: the Physical Education Building in 1965, the Fine Arts Center and four more residence halls in 1966, a new student Commons in 1967, and a Science Building and two more residence halls in 1968. In 1970 the Library was expanded and two additional residence halls were opened, to bring the total to twelve with a capacity of 1500 students. The William Spoelhof College Center, the Bergsma Natatorium, the Knollcrest East apartment complex, and the recent addition to Hiemenga Hall complete the campus development, thereby providing for the potential of 4000 students and a reunited campus.

LIBRARY

The Calvin Library, at the center of the campus, serves students of both the college and the seminary. Its 280,000-volume collection of books and bound periodicals is distributed over three floors of open stacks, which are arranged according to the Library of Congress classification. More than 1800 current periodicals are available for use in the library. Two major microfiche collections, The Library of American Civilization and The Library of English Literature, are part of the 17,000-item collection of microfilm, microfiche, and microcards. The library, which is air conditioned, can seat 1100 persons, mainly in individual study carrels and at tables. There are also seminar rooms and a spacious lounge.

Several special collections are housed in the library. The H. H. Meeter Calvinism Research Collection, located on the balcony of Heritage Hall, is one of the most extensive collections of books and articles on John Calvin and Calvinism available anywhere. The lower level of Heritage Hall houses the Colonial Origins Collection, which consists of manuscripts, archives, and other records of the Christian Reformed Church, its leaders, its Dutch origins, and closely related institutions. The Calvin Library is a partial depository of government documents, holding approximately 60,000 items. The Cayvan Room with its many recordings and tapes is available for both the study and enjoyment of music.

AIM AND PURPOSE

Calvin College aims to give young people an education that is Christian and is governed by the Christian faith as reflected in the Reformed standards. The arts and sciences cultivate in the student value-judgments which are grounded in a thorough knowledge of facts about man's relationship to God, to himself, to his fellowman, and to the world. The college encourages each student to offer all his talents—creative, imaginative, intellectual, and social—eagerly and earnestly in the service of God and his fellowmen. Thereby students are taught to acknowledge the Lordship of Christ over all things. Thus, the college seeks to promote in the student sound scholarship, earnest effort, and a sense of obligation to use his talents fully, in response to a divine calling.

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

The college admits students not only from the Christian Reformed Church and from other evangelical protestant churches, but also others who are interested in the benefit of the Christian atmosphere and Reformed character of the academic programs of the college and 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, integrity, and social responsibility. It recognizes that service to God and to fellowman is possible and necessary in all professions and all walks of life. It asserts that the life of Christian service must be lived now. Accordingly, at Calvin College many opportunities are provided for students to apply their learning to Christian action and service. Some of these are in the formal academic setting, some are voluntary in the broad urban community which surrounds the college, others include involvement in the churches of the area.

GOVERNMENT

The corporate name of the college is CALVIN COLLEGE AND SEMINARY. It is governed by a single board of trustees which represents the ecclesiastical divisions of the church, arranged on geographical lines. Internally, the administration, the staff, the student body, and the physical facilities of the college and seminary are completely separate and independent. The membership of the board is constituted of representatives elected by the various classes and approved by synod, and regional trustees 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 VI of the Civil Rights Act of 1964, operates in a non-discriminatory manner with regard to race, color, or national origin. Furthermore, as required by Title IX of the 1972 Education Amendments, Calvin College does not discriminate on the basis of sex in its educational programs, activities, or employment policies. Calvin College also provides equal opportunity for qualified handicapped persons in accordance with the requirements of Section 504 of the Rehabilitation Act of 1973. Inquiries regarding com-

pliance with these federal requirements should be directed to Mr. Henry De Wit, Vice President, Calvin College Business Office, as Civil Rights, Title IX, and Section 504 coordinator.

ACCREDITATION

Calvin College is fully accredited by the North Central Association of Colleges and Secondary Schools. It is also accredited by the American Chemical Society and by the National Council for Accreditation of Teacher Education. It is on the American Association of University Women list of institutions qualified for membership in the association. It maintains membership in the American Council on Education, the Association of American Colleges, American Association of Colleges for Teacher Education, College Entrance Examination Board, National Education Association, the Mathematical Association of America, and the American Mathematical Society.

CALENDAR, SUMMER SCHOOL

The academic calendar at Calvin College follows the typical 4-1-4 plan, consisting of two semesters, each approximately four months in length, plus a one-month interim term in January. Normally, during each of the two semesters a student takes four courses, each of equal academic value, and during the interim he takes one. A reading recess during the first semester and the spring vacation during the second provide an opportunity for students to do research and to complete major projects. As part of the 4-1-4 program an honors program has been established for the superior student as well as a special program of assistance for students admitted on probation.

The summer school consists of four consecutive three and a half week sessions; a student is permitted to register for one regular course during each session. A student who attends all four sessions may complete a full semester's program.

THE CALVIN ALUMNI ASSOCIATION

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

The purpose of this association is to provide an avenue for the exchange of ideas between the alumni and Calvin, to undertake projects which advance the college and seminary, to unite all alumni in support of their alma mater, and to be of service to the 26,000 alumni through a variety of contacts.

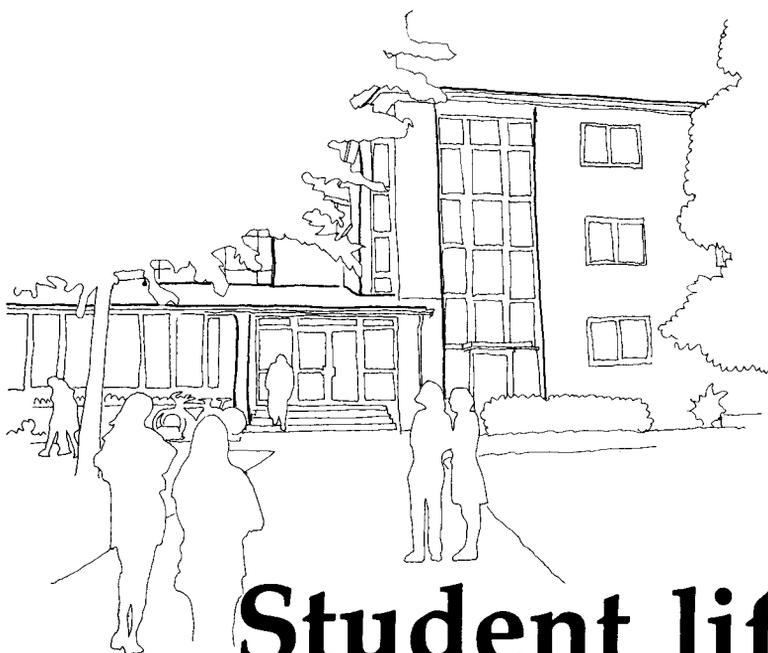
The Calvin Alumni Association is governed by a board of fifteen members who serve for three years upon election by ballot from all alumni. The board meets four times during the year, and the annual business meeting is held during the last week in May. Board meetings are open to all alumni, and alumni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

The work of the association is supervised by a full-time director of alumni relations. The alumni-financed program of upperclassmen scholarships and

freshmen grants is of special interest to students. Information concerning these may be obtained from the Alumni Office.

INSTRUCTIONAL RESOURCES CENTER

The college maintains an Instructional Resources Center in the recent addition to Heimenga Hall, which serves the instructional programs of the entire college. It includes audio-visual services, the audio-visual laboratory, a graphics production center, a television studio, the language laboratory, and the Curriculum Center, which contains a wide variety of textbooks and demonstration teaching material useful to teachers and prospective teachers.



Student life and services

The student life on campus and its regulation

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

WORSHIP AND CHRISTIAN SERVICE

All students are expected to worship regularly at a church of their choice.

Sunday worship services are held on the Knollcrest campus under the auspices of four local consistories. Students are encouraged to avail themselves of the counseling services of the local pastors or of the college chaplains.

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

STUDENT CONDUCT AND REGULATIONS

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 also may refuse admission to, may discipline, or may expel any student who in its judgment displays conduct or attitudes unworthy of the standards of the college. The *Student Handbook* and *Residence Hall Living* booklets describe the regulations and their implementation.

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

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

The judicial processes require a hearing before the Dean of Men or Women or before the All-Campus Discipline Committee, guarantee student rights to testify, to examine evidence, and to enlist counsel at the hearings, and provide for appeal to higher judicial bodies.

HOUSING

Freshman and sophomore students under 21 years of age not living at home with their parents are required to stay in the Calvin College Residence Halls. Juniors and seniors (students who have successfully completed sixteen or more courses) and students 21 or older as of October 1 of the fall semester may choose their own type of housing and are permitted to reside off campus.

The college requires all students to register their place of residence with the

Housing Office and to notify that office of all changes in residence during the period of their enrollment. Upperclass students may also arrange to work for their room and board. Information on available housing costs and further interpretation of these rules are 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 seeks to arouse interest in the various graphic and plastic arts.

The student senate, through several of its committees, provides a program of speakers, films, and entertainment for the entire campus. Other public performances sponsored by various academic departments, by the alumni association, and by community groups are presented on campus.

ATHLETICS

The core 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 recreation are conveniently and freely available. The intramural program is extensive throughout the entire year, with competition organized by sports clubs which may be based on residence units or independent groups. Calvin participates in eighteen intercollegiate sports and is a member of the Michigan Intercollegiate Athletic Association (MIAA) which is composed of Albion, Alma, Adrian, Calvin, Hope, Kalamazoo, and Olivet colleges. It is also a member of the State of Michigan Association for Inter-collegiate Athletics for Women (SMAIAW) and the National Collegiate Athletic Association (NCAA).

STUDENT SENATE AND OTHER ORGANIZATIONS

The seventeen-member student senate plays an important role in the life of the college. Not only does it serve as the official voice of the student body, but it also supervises most student activities. It oversees the budgets of student organizations and concerns itself with student publications, homecoming, the film arts, the campus radio station, and similar groups. Student members serve on most faculty committees.

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. In addition, the Student Senate sponsors KIDS (Kindling Intellectual Desire in Students), a volunteer service group rooted in Christian social responsibility, which provides assistance to local schools and social service agencies. Through it students tutor children and adults, assist in special education situations, serve as big brothers and sisters, support art and recreational therapy programs, and provide home maintenance and furniture moving help for those who need it. All organized clubs or similar groups must have a faculty sponsor and must secure formal approval through the dean of student life.

HEALTH SERVICES

The college provides limited medical service 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 team of college physicians who hold office hours each morning. This service is limited to out-patient treatment. All serious medical problems will be referred to the student's family physician, in the case of local students, or to a physician of the student's choice.

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

The Calvin College Blood Donor Club, sponsored by the KIDS program and chartered by the Grand Valley Blood Program, conducts four blood drives each academic year in the college community. Through it any member of this community is entitled to receive blood free of charge.

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

BROENE COUNSELING CENTER

The Broene Counseling Center, a part of the Student Affairs Division, provides professional personal and career counseling for students. It offers individual and group counseling as well as workshops and other programs of general interest for students with needs in interpersonal relationships, self understanding, setting and achieving goals, marriage preparation, test-anxiety, and in understanding and developing values. It also provides guidance for those students searching for life careers, helping students to recognize their own resources and talent, and to explore the variety of careers and vocations available and appropriate for them. The center maintains a library of career resource materials.

COUNSELING AND ADVISING

Shortly after arriving on campus each freshman is assigned to a faculty member or to a member of the college staff as his adviser. This faculty or staff member will keep in regular contact with him during his freshman year, and will review his grades and progress to assure a satisfactory transition from high school to college.

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

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

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

USE OF MOTOR VEHICLES

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

GRADUATE PLACEMENT AND FELLOWSHIPS

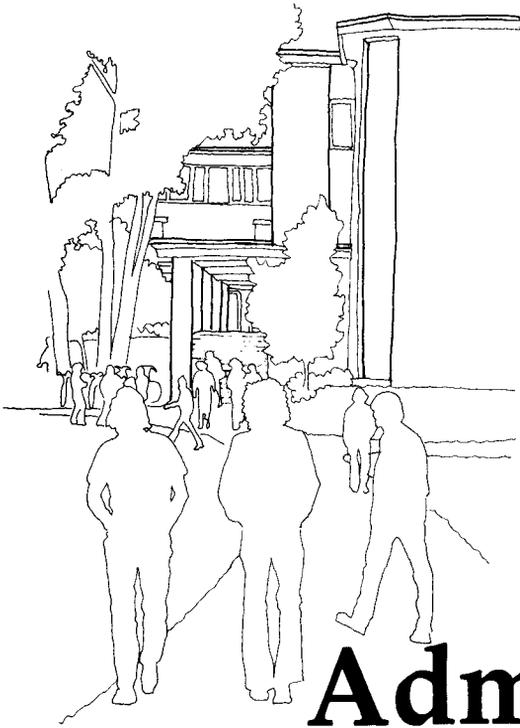
The college maintains a series of services for graduating students to assist them in securing fellowships to graduate school, teaching positions, and career placement.

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

The Placement Office assists seniors in finding post-graduation employ-

ment in fields other than teaching. It posts job opportunities and through the *Intra-Campus Bulletin* and other means will publicize information that is of interest to those seeking employment, including announcements of times when prospective employers will conduct interviews on campus. Personal counsel is given in job-search techniques such as resumé writing and interviewing skills. The Placement Office maintains information on employment and employers in various parts of the United States, in Canada, and in foreign countries as well as in federal and state governments. Seniors who will be seeking the assistance of the office are asked to register for placement services early in their final year at Calvin.

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



Admission

Regulations concerning admission, grading, etc.

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. The college admits students of any race, color, and national or ethnic origin.

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

The following documents must support each application:

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

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

The American College Test is given, normally, five times a year throughout the world. Application forms are generally available from high school principals and counselors but may be requested from the American College Testing Program, Box 168, Iowa City, Iowa 52240. This test is required by the State of Michigan for its competitive scholarship program. Testing dates for the next academic year are October 21, December 9, February 10, April 7, and June 23.

The Scholastic Aptitude Test will be given this academic year on November 4, December 2, January 27, March 31, May 5, and June 2. Application forms are generally available from high school principals and counselors but may be secured by students living east of the Rocky Mountains from the College Entrance Examination Board, Box 592, Princeton, New Jersey 08540. Those who live in the Rocky Mountain states or farther west, including those from Western Canada and foreign countries of the Pacific areas, should apply to the College Entrance Examination Board, Box 1025, Berkeley, California 94701.

3. **APPLICATION FOR ADMISSION**

4. **PASTOR'S RECOMMENDATION**

READMISSION

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

TRANSFER STUDENTS, 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 entrance examinations and should have a cumulative grade point average of C (2.0) or higher. They will receive credit for work done in accredited institutions provided the courses were of an academic nature and the students have received an honorable dismissal. However, not more than sixteen credit hours for each semester in attendance will be accepted. No more than seventy semester hours of advanced credit will be allowed for work completed at an accredited junior college. Furthermore, no matter how much work done at other institutions may be accepted, a student must complete his last year in residence and at least one upper-level course in his major to graduate from Calvin.

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

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

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

Completion of certain high school courses will excuse a student from specific college graduation requirements. Most high schools offer such courses in literature, foreign language, mathematics, and the various sciences. Students are encouraged to take such courses and in this way, as well as in others, to enter college with the strongest possible academic preparation. Consult pages 39 and 40 for a description of the ways high school courses satisfy specific college requirements.

ADMISSION UNDER SPECIAL CONDITIONS

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

Applicants who have not met the requirements as to prescribed high school work or as to the distribution of that work may be admitted with conditions. If possible the applicants should make up any deficiencies during the summer preceding their enrollment as freshmen. If the deficiencies have not been re-

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 39-41). 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, or 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.

moved before the student begins his first semester as a student the director of admissions will determine how they must be satisfied.

Some applicants with weak high school records and low ACT or SAT test scores 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 three regular courses, are required to participate in the Academic Success Program, and are advised to restrict sharply their involvement in employment, in social life, and in campus activities. Applicants who meet all of the requirements for admission but who do not desire to become candidates for an academic degree may be enrolled as special students for such studies as their preparation qualifies them.

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

ADMISSION OF FOREIGN STUDENTS

Calvin College welcomes foreign students who can demonstrate their potential ability to meet the academic standards of the college, who are prepared to do college-level work in English, whose application is supported by the results of the American College Test (ACT) or the Scholastic Aptitude Test (SAT), and who can show evidence of their ability to pay most of the cost of their education. The ACT and SAT are given in foreign countries but are not required of students presenting a Senior Matriculation Certificate or who transfer from another college or university where they have earned at least one semester of credit. Such

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

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

Applicants from non-English-speaking countries must demonstrate an adequate command of the English language. This can be done by passing either the English Test administered by the English Language Institute of the University of Michigan, Ann Arbor, Michigan 48104, or the Test of English as a Foreign Language administered periodically throughout the world by the Educational Testing Service of Princeton, New Jersey 08540.

ADMISSION TO THE NURSING PROGRAM

Candidates for the joint nursing program of Calvin College and the School of Nursing at the Blodgett Memorial Medical Center must apply for admission to the college as outlined above and must also apply to the school of nursing. The candidate must be accepted by both the college and the school of nursing. Address inquiries to the Director, Blodgett Memorial Medical Center School of Nursing, 1840 Wealthy Street, S.E., Grand Rapids, Michigan 49506, phone: (616) 774-7898. Application forms with further directions are available beginning in August for entry the following year. Since the number of admissions is limited, application early in the fall is urged.

Required high school courses are: English, three or four years; science, two years (biology, physics, and physiology recommended; one year of chemistry with laboratory required); mathematics, two years of algebra and/or geometry; social sciences, two or three years.

ENROLLMENT IN SEMINARY CLASSES

Full-time college students may, as a part of a program worked out with their departmental advisers, carry up to two courses in the seminary in any one semester. Approval by the registrar of the seminary and the registrar of the college is required, and under no circumstances may credit for a single course be counted toward degree programs in both college and seminary. Full-time 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 course units a semester. The normal load, however, may range from three to four and a half course units; courses in applied music, drama, and speech, and in required physical education are not included in the maximum. A semester's participation in an applied arts course carries one-quarter course credit, but not more than two course units thus ac-

quired may be applied toward graduation, except for music majors in certain applied music concentrations. Not more than four semesters of basic physical education courses (one course unit) may be applied toward graduation. In exceptional cases a student may apply to carry more than four and a half course units; such an application requires the recommendation of his academic adviser or department chairman and the approval of the registrar.

Students with a minimum of seven course units of credit 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 unit is considered to be equivalent to 3.5 semester hours or 5.25 quarter hours.

GRADING SYSTEMS

Grades given during the regular semester are designated by letters A, excellent; B, good; C, average; D, just passing; and F, failure. When a student in the honors program takes a fifth course, it may be graded on the basis of satisfactory or unsatisfactory.

For purposes of averaging grades the following numerical values or grade points are assigned to each of the above grades: A, four points per course; B, three; C, two; D, one. A plus-grade is computed at three-tenths of a point above these figures and a minus-grade at three-tenths below. Grades for courses completed at other colleges and universities, including those earned at other institutions such as Grand Valley State Colleges in cooperative programs, are recorded on the student's record but are not included in the compilation of his average at Calvin.

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

A student who wishes to learn the content of a course without receiving academic credit may register as an auditor, unless that course is declared open to credit-seeking students only. He is expected to attend the classes and participate in all the assigned activities of that class. He may take all tests and submit any assigned papers but is not required to do so. However, if he fails to attend class, the instructor will give him a grade of W. A student may change his registration from audit to credit or from credit to audit but only during the first four weeks of the semester.

A student may alter his schedule during the first week of classes without the permission of the instructor whose course he is dropping and without a grade of W being recorded on his record. After that time, a grade of W, withdrawn, will be recorded if he leaves a course for any reason with the written approval of his instructor before December 1 of the first semester or May 1 of the second. He may not withdraw from a course after these dates. A student may withdraw from school at any time with the approval of the dean of women or the dean of men and the registrar. He will be given a grade of W in all courses. A student

who discontinues classes without notification or permission is not entitled to this grade but will be given an F in each course.

A student may repeat any course by properly registering for it. He shall inform his instructor that he is repeating it. Only the latest grade, whether higher or lower, shall be included in the compilation of the student's cumulative grade point average. It shall be entered on the record preceded by an R. The original grade is not expunged from the record.

If a student fails to complete all the required work for a course or to sit for the final examination, the instructor may, if he considers that student's reasons valid, give him a grade of I—incomplete, rather than an F. The grade of I shall be computed as an F in determining the student's grade point average. A student given an I in the fall semester or in the interim must make up the deficiency prior to May 1 of the next spring semester; if given an I during the spring semester or summer session, he must make up the deficiency prior to December 1 of the next fall semester. If he fails to do so, the I will be changed to an F, which he can alter only by reregistering and retaking the course. The grade of I is never expunged from the record, but when the passing grade is submitted, the grade, credit, and honor points earned become a new and separate entry. If because of extended illness a student is unable to complete the work necessary to remove the I, he may petition the Registrar for an extension. He must do so in writing at least one week prior to the deadline.

STUDENT RIGHTS AND STUDENT RECORDS

The Family Educational Rights and Privacy Act of 1974 declares that "institutions must provide . . . student access to official records directly related to students and an opportunity for a hearing to challenge such records on the grounds that they are inaccurate, misleading, or otherwise inappropriate; that institutions must obtain the written consent . . . before releasing personally identifiable data about students from records to other than specified lists of exceptions; that . . . students must be notified of these rights. . . ."

Calvin College assures the safekeeping and confidentiality of student records and files. It also recognizes the rights of students and the responsibilities incumbent on the college because of this legislation. The guidelines for the implementation of this legislation, intended to preserve confidentiality and to assure students access to their records, are available in the Office of the Registrar.

At the end of each term a grade report will be mailed to the home address of each student unless he files a written request with the Registrar that this not be done. A student may obtain a copy of his complete academic record at any time.

Official transcripts are released only when requested by the student. The first transcript is free, but each additional copy costs \$1.00. Transcripts will not be released for students who have failed to meet their financial obligations to the college.

Any student found guilty of dishonesty in any examination or test or in written work of any character is subject to disciplinary action. The normal sanction is a failing grade on the piece of work involved but a failing grade in the course is also a permissible sanction.

HONORS, ELIGIBILITY

Full-time students with an average grade of A – (3.50) or higher for any semester and a cumulative average of 3.1 or higher will be placed on the Dean's List. 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 43 for details.

ACADEMIC PROBATION AND DISMISSAL

Each student admitted to Calvin College is assumed to have the training, the desire, and the ability to make satisfactory progress toward a degree. In practice, some students do not make the expected progress, either because they are not willing to devote the necessary time to their studies or because they are unable to make up for deficiencies in their previous academic training. Whatever the reasons, such students are best served if given the opportunity to overcome past mistakes but, failing in that, to be dismissed or dissuaded from pursuing an unattainable objective.

Students admitted on probation or those permitted to continue on probation are expected to limit extra-curricular activities and part-time employment and to seek help in developing their academic skills either through a faculty adviser or through the Academic Success Program.

After the first semester the registrar makes a study of all freshmen admitted on probation and of all freshmen and sophomores who have a cumulative grade point average (the total honor points divided by the number of registered units) below 1.3. Freshmen admitted on probation whose grade point average is below 1.0 are subject to dismissal; those whose average is between 1.0 and 1.5 are permitted to take no more than 3.5 course units and are required to remain in the Academic Success Program. Freshmen granted regular admission are placed on probation if their grade point average is below 1.0, and they are required to participate in the Academic Success Program. Sophomores whose cumulative average is below 1.3 are subject to dismissal.

In June of each year the registrar makes a study of the progress which all students have made. The following action is taken at that time:

- A. Those on academic probation who have earned a cumulative grade point average of 2.00 or higher are removed from probation.
- B. Those who were granted regular admission but who, after one or two semesters in residence, have earned a grade point average between 1.00 and 1.67 and those who were granted regular admission but who, after three or more semesters in residence, have a cumulative grade point average below 2.00 are placed on probation.
- C. Those who were admitted on probation or permitted to return on probation and who have not yet earned a grade point average of 2.00 but whose current work warrants their continuation at Calvin College are continued on probation.

- D. Those who, after having completed two semesters, have a grade point average below 1.00, and those who, after having completed three or more semesters, have a total number of honor points which is 10.0 points below the number required for a cumulative grade point average of 2.00 are dismissed.

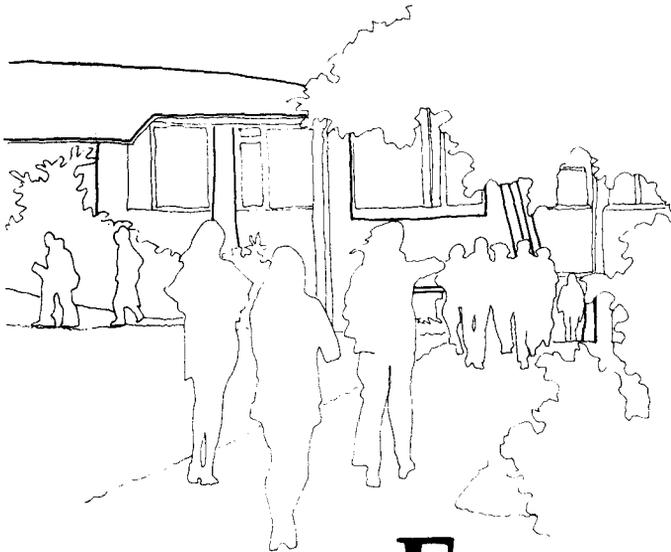
A student may appeal his academic dismissal to the Academic Standards Committee, whose decision is final. One year must elapse before a student dismissed for poor academic performance is eligible to petition for readmission. His request for readmission will be reviewed by the Admissions Committee; readmission following academic dismissal will be based upon evidence that the difficulties previously encountered can be overcome and that eventual completion of degree requirements can be reasonably expected.

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

Students who meet the conditions for teacher certification in Michigan, as explained on pages 45-49, should apply for this certificate at the Office of Teacher Certification and Placement at the end of the semester during which they have completed the requirements. They must apply within one calendar year after the completion of these requirements.

Students desiring to graduate with an honors designation must participate in the honors programs. Consult page 43 for details.



Expenses

Expenses, scholarships, and other financial aid

TUITION AND RELATED FEES

TUITION AND related fees are \$2460 for the year and \$1230 for a semester. This includes fees for student activities such as *Prism* and *Chimes*. The interim is considered an extra course which a student may take without an additional charge if he pays full tuition for either semester; if he does not, he will be charged at the one-course rate.

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

scholarship assistance for such students is limited to \$200. The institutional grant-in-aid for Michigan students whose need is not met by a State of Michigan Scholarship or Tuition Grant is:

	per semester	per year
Within 10 miles of the campus	\$100	\$200
From 10 to 150 miles	140	280
More than 150 miles	180	360
The institutional grant-in-aid for out-of-state students is:		
Within 300 miles	220	440
From 300 to 1000 miles	260	520
More than 1000 miles	300	600
Manitoba, Ontario, Quebec provinces of Canada	260	520
Alberta, British Columbia, and Saskatchewan provinces	300	600

The tuition rate for part-time students is \$310 for each course, with a \$25 institutional grant-in-aid for those who are members of the Christian Reformed Church. 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.*	\$1230.00	Late application fee	\$10.00
Tuition, part-time, per course*	310.00	Late registration fee	10.00
Auditing, per course	155.00	Late payment fee	5.00
Room and board, per year	1270.00	Physical education deposit	5.00
Teaching internship fee, per sem.	10.00	Vehicle registration fee	10.00
Individual music instruction, per sem.	75.00	Transcripts	1.00
Residence hall social fee	16.00	Exemption examination fee	5.00
		Course credit by examination fee	20.00

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

In addition to these direct charges, the student should allow about \$150 per year for the purchase of textbooks and classroom supplies. An annual budget for personal items such as clothing, transportation, entertainment, toilet articles, and miscellaneous supplies varies widely among students.

PAYMENT OF FINANCIAL OBLIGATIONS

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

The minimum down payment required at registration for resident students is \$650 for tuition, room, and board; and the minimum down payment for non-resident students is \$450 for tuition.

Accounts that are not paid on time will be subject to a \$5 late payment fee. A fee of 1 percent per month is charged on all balances unpaid at the end of the

term. If a student discontinues, the charge for tuition and for room and board will be prorated in proportion to the time the student has been officially in attendance.

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

SCHOLARSHIPS AND FINANCIAL AID

Calvin College administers scholarship programs designed to recognize academic excellence and financial aid programs designed to assist those who together with their family are not able to meet their educational expenses. The scholarship programs provide a minimum stipend to all scholarship recipients and additional money to those who have financial need. The financial aid programs provide assistance in the form of grants, loans, and part-time jobs to those who have financial need.

Scholarships

A number of scholarships are available for undergraduates of all classes, and each applicant should determine his own eligibility. Approximately three hundred scholarships are awarded annually to prospective freshmen and a like number to upperclassmen. Students who are selected to receive one of the special scholarships awarded by the college are usually not considered for the general scholarships of \$100 awarded to freshmen and upperclassmen.

Scholarships are awarded on the basis of academic achievement, character, promise of growth, and, in some cases, financial need. Any application for a scholarship based on financial need must be accompanied by an application for financial aid.

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

All students who are admitted to the college are considered for a scholarship. Generally, the students selected to receive scholarships are those with a previous grade point average of 3.5 or higher on a 4.0 scale. Scholarship review begins in December and students who are selected to receive a scholarship are notified immediately. Students who wish to be considered for the Freshman Honor Scholarships or other special scholarships awarded by the college must be admitted by February 1 to be guaranteed consideration. The SAT or ACT scores must also be received by that date, if these scores are to be used in the evaluation. (Test scores are required for Honor Scholarship consideration, and are helpful but not required in the selection of other scholarship recipients.)

The general freshman and upperclassman scholarships of \$100 are renewable for up to 4 years (until the student earns a bachelor's degree) for students who maintain a cumulative grade point average of 3.5 or higher at Calvin. Other scholarships are awarded on an annual basis and require a new application each year unless specified otherwise.

Freshman Scholarships and Awards

Freshman Honor Scholarships. Each year the college awards approximately thirty Honor Scholarships to students of superior academic achievement and potential. The minimum stipend of this scholarship is \$300 for direct educational expenses plus \$50 for books other than textbooks.

Valedictorian Freshman Scholarships. Scholarships of \$200 each are awarded to incoming freshman who rank first in their high school class.

National Merit Freshman Scholarships. Calvin College awards a scholarship of \$200 to each prospective freshman who has been selected as a Semi-Finalist in the National Merit Scholarship Program.

Freshman Scholarships. These scholarships are awarded to entering freshman who have done excellent work (3.5 or higher) in high school and provide a minimum stipend of \$100.

Calvin College National Merit Scholarship. Calvin College annually sponsors one four-year scholarship of \$250 or more per year for a National Merit Finalist. Prospective students who indicate to National Merit that Calvin College is their first choice institution will be considered for this award.

Kent Medical Foundation Grants. Each year the Kent Medical Foundation provides the college with funds to be awarded to students pursuing a career in medicine or in an allied health field. The grants are designated for students who are residents of Kent County or counties bordering thereon and who have financial need.

Leonard M. Krull Scholarship Aid Fund. As a result of a bequest to Calvin College by the late Leonard M. Krull of Westborough, Massachusetts, three scholarships are available each year to prospective freshmen from the Whitinsville, Massachusetts, area. Two of the scholarships are one-year awards of \$200 each; the third scholarship is a \$500 award based on financial need and is renewable for up to four years of study. Selection is made by the Scholarship Committee in consultation with a representative committee from the Whitinsville area.

Steelcase Foundation Scholarships. The Steelcase Foundation of Grand Rapids, Michi-

gan, offers eight scholarships annually of \$250 each to applicants who are children of Steelcase employees. The recipients are selected by the Scholarship Committee of the college, and the applicants are judged on the basis of scholastic ability, character, and need. If scholarships are not filled by children of Steelcase employees, for whatever reason, the scholarships are available to other Michigan residents.

Stephen D. Lankester Scholarship Program. As a result of a bequest by the late Stephen D. Lankester to the Grand Rapids Foundation, a number of \$500 scholarships are available each year to students from Kent County. The primary purpose of this program is to provide assistance to students with good academic records (B or better) who have financial need. Recipients of this scholarship who wish to be considered for renewal must reapply each year.

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 have records of superior achievement in high school music activities, who give evidence of outstanding talent and musicianship in audition, and who will participate in the scheduled rehearsals and performances of at least one of the following: concert band, varsity band, orchestra, choir, oratorio chorus. For application procedure, see award below.

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

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

Freshman Scholarships and Grants Not Administered by the College

Michigan Competitive Scholarships and Tuition Grants. Each year the Michigan Department of Education awards a number of scholarships and grants to beginning freshman who are Michigan residents. These awards are to be used for tuition and fees and are not to exceed \$1200. Scholarship recipients are selected solely on the basis of need. Additional information can be obtained from the counselor's office of any Michigan high school.

Michigan Tuition Differential Grants. The State of Michigan has established a new program of grants for Michigan students at private Michigan colleges to begin in 1978-79. The grants are awarded to students regardless of grades or family income and will be phased in over a four year period. Only freshmen will be eligible in 1978-79; freshmen and sophomores in 1979-80; freshmen, sophomores, and juniors in 1980-81; and all undergraduates in 1981-82. Although the program calls for maximum grants of \$600, it is expected that grants for 1978-79 will be approximately \$400 to \$500.

Freshman Alumni Grants. Since 1966 the Calvin Alumni Association has given a large number of freshman grants of \$150 or \$200 each to qualified high school seniors who are in need of special financial assistance. Candidates for these awards are nominated by local alumni chapters or by high school principals and counselors.

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

The Atlantic Monthly Scholarship. The Atlantic Monthly offers a \$500 scholarship each year to the winner of its Creative Writing Contest for high school students. Calvin College participates in this program by offering a supplementary grant based upon the needs of the winner, if he enrolls at Calvin College. The selection is made by The Atlantic Monthly Company. Complete details concerning this contest can be secured by writing to the Atlantic High

School and Private School Contest, 8 Arlington Street, Boston, Massachusetts 02116.

Henry Beets Mission Society Scholarship. The Henry Beets Mission Society of the La Grave Avenue Christian Reformed Church provides an annual grant to promote the ministry of the Church to the American Indian. Initial funds for this grant were given by the Herrick Foundation of Detroit, Michigan. Those eligible are American Indians who intend, preferably, to minister as pastors or teachers to members of their own race. The amount of the grant is determined by the needs of the student. The student should 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.

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.

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.

Sophomore, Junior, and Senior Scholarships and Awards

Upperclassman Scholarships. Freshman and Upperclassman Scholarships from Calvin

are renewed each year as Upperclassman Scholarships of \$100 for those who have a

cumulative grade point average of 3.5 or higher and have not yet received a bachelor's degree. Current Calvin students who are not receiving a scholarship from Calvin and who want to apply can obtain an application from the Office of Scholarships and Financial Aid. Transfer students will be considered for an Upperclassman Scholarship on the basis of their application for admission.

Alumni-Faculty Memorial Scholarships. The Calvin Alumni Association each year provides the college, in memory of deceased college faculty members, with annual scholarship grants. Candidates for these scholarships are selected by the Scholarship Committee and are interviewed by the Alumni Board. There are usually six scholarships of \$500 each awarded each year.

Bere Memorial Scholarship. The college has received a gift from Mrs. Jeanne L. Bere in memory of her late husband, Paul Bere, the income from which is used to award one scholarship of \$300 each year. The scholarship is awarded to a pre-law student entering the junior or senior year, with primary emphasis on an evaluation of academic performance and potential. Financial need is a secondary factor in the selection.

Dr. John W. Brink Memorial Scholarship. One scholarship of \$300 is awarded each year in memory of Dr. John W. Brink to a premedical student for use in the junior or senior year at Calvin College. Selection shall be on the basis of character, academic performance, and potential without regard to need.

Dr. Harry Kok Memorial Scholarship. A scholarship of \$400 is presented each year, in memory of Dr. Harry Kok, to a junior student for use in the senior year at Calvin College. The award is given primarily for achievement in scholarship, although other factors, such as financial need, will be taken into account. 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 the junior or senior year. In making the award, the scholarship committee will give consideration to the applicant's scholarship, Christian character, financial need, personality, and promise of growth.

Edward D. Vander Brug Memorial Scholarship. Calvin College has received gifts from the Vander Brug family of Detroit, Michigan, the income of which is used to provide grant assistance to students of minority races. These gifts are in memory of the late Mr. Edward D. Vander Brug. Each year the college awards one grant of \$1000 or two grants of \$500 each to minority students who are selected on the basis of academic ability, character, promise of growth, and financial need. Recipients may apply for renewal.

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

Dow-Employees Scholarship Fund. The Dow-Employees Scholarship Fund provides Calvin College with an annual scholarship of \$500.

The stipend is to be given preferably to an outstanding science or engineering major in the junior year, or to a major in another department, if the college so elects, for use in the senior year. The recipient must have the ability, initiative, and personality to contribute to the student's 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 the student's need. The selection of candidates is made by the Scholarship Committee.

Farmers' Insurance Group Scholarship. Each year the Farmers Insurance Group of Los Angeles, California, provides the college with a gift of \$500. This is to be used to award one or two scholarships to second, third, or fourth year students in mathematics or business administration. Financial need is a primary factor in selecting a recipient; however, an academic record of C+ or better is also required.

Spalink Memorial Missions Scholarship. An annual 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 student of either sex who shows a definite interest in a missionary vocation. The award is given primarily for academic achievement, although other factors, such as financial need, will be taken into account. Generally, members of the Christian Reformed Church who aspire to a career with that church's missions will be shown preference. The Scholarship Committee makes final determination of the award.

Kent Medical Foundation Grants. Each year the Kent Medical Foundation provides the college with funds to be awarded to students pursuing a career in medicine or in an allied health field. The grants are designated for students who are residents of Kent County or counties bordering thereon and who have financial need.

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

Stephen D. Lankester Scholarship Program. As a result of a bequest by the late Stephen D. Lankester to the Grand Rapids Foundation, a number of \$500 scholarships are available each year to students from Kent County. The primary purpose of this program is to provide assistance to students with good academic records (B or better) who have financial need. Recipients of this scholarship who wish to be considered for renewal must reapply each year.

Talen Scholarship Program. Each year Mr. Clare Talen of Menomonie, Wisconsin, provides the college with \$600 to be used for two scholarships for upperclassmen. One scholarship is awarded to a junior pre-seminary student for use in the senior year; the other is awarded to a top student in any other area. Selection is made on the basis of academic achievement, potential, character, and financial need.

Ralph Gelmer Vander Laan Memorial Scholarship. Mr. and Mrs. Joseph W. Van-

der Laan, in honor of Mr. Vander Laan's brother, have provided the college with a fund, the income from which is used to award two scholarships of \$500 each year. One of the scholarships is awarded to a prospective junior or senior who is pursuing a program in the health professions, with preference given to those interested in missions or some other type of Christian service. The other scholarship is awarded to a top student in any area. Selection criteria include the student's academic record, character, and need.

Shell Companies Foundation Scholarship. Each year Calvin College receives a \$500 gift through the Shell Assists Program to be awarded to outstanding students majoring in science. The intent of the program is to provide assistance to U.S. citizens who do not qualify for government grants but who do have financial need.

Ruth Zylstra Memorial Scholarship. Each year Calvin College awards one scholarship of \$150 to a student in a nursing program who is entering the sophomore, junior, or senior year at Calvin. Selection is made by the Scholarship Committee on the basis of the student's academic record, potential, character, and financial need.

Music Department Upperclassman Award. One or more annual awards of \$200 is offered to outstanding sophomore or junior music majors for use during their junior or senior years. The recipient will be judged by the following criteria in this order: academic achievement; evidence of sound musical understanding as demonstrated by such things as class papers, other creative achievements such as composition, performance ability and contribution, and the nature of the student's program.

The Cayvan Award in Strings. An annual award of \$200 is offered to an outstanding sophomore or junior player of violin, viola, cello, or bass viol for use during the junior or senior year. Selection shall be made on the basis of proficiency in performance on the instrument, evidence of sound musicianship, grade point average, especially in music, and participation in the college orchestra and in a chamber music ensemble.

Alumni Players Upperclassmen Music Award. The Alumni Players of Calvin College have provided the Department of Music with funds to make one or more annual awards of \$200 each to an outstanding sophomore or junior music major for use in the junior

or senior year. Applicants shall be judged by the following criteria: proficiency in performance, overall contribution to the musical life of the college, grade point average, particularly in music, and active participation in college ensembles.

Helene Hekman Gezon Voice Award. Contributions have been received by the college in memory of Mrs. Gezon which will provide the Department of Music with funds to make an annual award of \$300 to an outstanding sophomore or junior voice student for use in the junior or senior year. Applicants shall be judged on the basis of proficiency in performance as a singer, evidence of sound overall musicianship, and grade point average, especially in music.

Calvin Oratorio Society Special Awards. To meet special needs which may arise due to the purchase of an instrument or music or to provide lesson expenses which may be an undue financial burden, the Calvin College Oratorio Society makes available a grant or grants not to exceed \$500 per school year. These grants may be made at any time during either semester in response to a need identified by a member of the music faculty or by the student himself, who may call this to the attention of the conductor of the Oratorio Society, Professor H. Geerdes. All decisions relative to these grants are made by the Board of Directors of the Oratorio Society.

Music Department Upperclassman Keyboard Award. An annual award of \$200 is offered to an outstanding sophomore or junior pianist or organist to be used during the junior or senior year. Applicants will be judged on the basis of proficiency in performance at the keyboard, evidence of

sound overall musicianship, and grade point average, especially in music.

Summer School Scholarships. Twelve scholarships in the amount of \$250 each, one for each National Union of Christian Schools district, will be available to Christian school teachers for study at Calvin College during the summer of 1979. The National Union and Calvin College each contributes \$1500 for this 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 two years of successful teaching in the Christian schools.
2. Must be able to produce satisfactory evidence of possessing:
 - a. Ability to pursue academic work successfully.
 - b. Qualities of personality, character, and conviction that are assets to a Christian teacher.
 - c. Loyalty to the Reformed faith.
 - d. Superior teaching ability.
3. Must agree to serve a National Union member school at least one year after receiving a scholarship.
4. Must submit a statement of 250 words or less on the reason(s) for applying for a scholarship.

For details and applications for these scholarships and for grants-in-aid write directly to the Director of Scholarships, National Union of Christian Schools, 865-28th Street, S.E., Grand Rapids, Michigan 49508.

Application must be made by March 15.

Financial Aid

Calvin participates in a variety of financial aid programs sponsored by the state and federal governments or by private agencies, and sponsors a number of its own programs as well in attempting to provide a broad program of financial assistance for its students. These include the Institutional Grant-In-Aid Program described on page 25, the scholarship, grant, and loan programs described on the following pages, and a placement service for part-time employment. The Office of Scholarships and Financial Aid places students in on-campus jobs and uses the services of the Michigan Employment Security Commission to place students in part-time off-campus jobs. The college urges each applicant to explore local or state sources of financial assistance as well.

A prospective student should not deny himself a Calvin College education because of cost without first exploring the possibilities of financial aid; however, financial arrangements should be made prior to registration. At that time a student should have in hand a substantial portion of the semester's expenses from his own resources, scholarships, grants, and loans, and if intending to carry a full academic load, should not plan to work more than twelve to fifteen hours per week.

Applications for need-based financial aid must be made each academic year. Any student with financial need who feels he is eligible for any student aid program may request additional information from the Office of Scholarships and Financial Aid or request an application form. The office is located in the College Center. As a matter of policy, to be fair to all students, applications for financial assistance must be supported by a financial 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 wishing to receive need-based financial aid must have completed a certain number of courses for each semester they received aid. (These standards do not apply to Michigan Competitive Scholarships and Tuition Grants or to Calvin's Institutional Grants-in-Aid.) For instance, at the end of two semesters of need-based financial aid a student must have completed five course units, including interim courses, and at the end of four semesters of aid a student must have completed twelve course units. In no circumstance will a student be given aid for more than ten semesters of undergraduate aid. Students who become ineligible for aid become eligible when they have completed sufficient courses without financial aid to meet the required standards. Furthermore, under extenuating circumstances exceptions can be made to these requirements.

<i>Semesters on aid</i>	1	2	3	4	5	6	7	8	9	10
<i>Course units required</i>	2	5	8	12	15½	20	23½	28	31½	36

Freshman applications for financial aid must be received by February 1 and upperclassman applications must be received by March 1. Late applications will be considered if funds are available. Applications for financial aid are enclosed with all admission forms.

Basic Education Opportunity Grant. The BEOG, funded by the federal government, is designed to provide grant assistance of up to \$1800 per year to students whose parents' ability to contribute is very limited. The amount of the grant is reduced proportionately if there are not sufficient funds to aid all eligible students.

Supplemental Educational Opportunity Grant. This program, funded by the federal government, is for students with exceptional financial need. The maximum award a student can receive is \$4000 in four years or, in special circumstances, \$5000 in five years. The program is open to students at all undergraduate class levels.

Calvin College Grants. The college has estab-

lished a program of grant assistance for students who have financial need but are not eligible for other grant programs or whose need cannot be met with other grant programs. The maximum grant for 1978-79 is \$1300.

SCORR Grants. The Christian Reformed Church has authorized the Synodical Committee on Race Relations (SCORR) to provide grants of up to \$1000 per year to students of minority races who are within the fellowship of the Christian Reformed Church. The student may receive this award for four years if he continues to demonstrate financial need.

Minority Grants. The Student Senate of Calvin College has provided a limited

amount of money to be used to assist students of minority races. A qualified student may receive up to \$500 in this program.

College Work-Study Program. Students who need employment to help pay for college expenses are eligible for employment by Calvin College or in approved off-campus agencies under this federally-supported program for U.S. citizens. The student's eligibility depends on need, with preference being given to applicants with greatest need.

National Direct Student Loan Program. This program, sponsored by the federal government for U.S. citizens, provides long term loans to students with financial need. There is no interest charge on this loan while the student is attending college, and repayments can be deferred as long as the student continues to be enrolled at least half-time, or serves in the armed forces, in VISTA, or in the Peace Corps. After the borrower completes his service with one of the above mentioned organizations, or nine months after he ceases to be at least a half-time student, a ten-year repayment schedule commences with a 3 percent interest charge. If the borrower becomes a full-time teacher of handicapped children or teaches in a school "with a high concentration of low income families", part of the loan can be cancelled. If the borrower serves in the armed forces in an "area of hostilities" up to 50 percent of the loan may be cancelled.

Guaranteed Loan Program. Loans from pri-

vate banks, guaranteed and subsidized by the federal government through various state and private agencies, are available from many banks and other lending institutions in amounts up to \$2500 per year. Repayment of the loan is deferred as long as the student is enrolled at least half-time and until nine months after leaving school. The repayment period can be as long as ten years, if needed, although a minimum payment of \$30 per month is usually required. The loan can be interest-free until repayment if the adjusted gross income of the family is less than \$25,000 or if recommended by the college on the basis of financial need. Applications for these loans are available from local lending institutions.

Canada Student Loans. The Canadian Government sponsors an interest-free loan program for Canadian citizens similar to the Guaranteed Student Loan Program described above with a maximum loan of \$1800 per year. Application forms are available from provincial offices of education.

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

Emergency Loans. Short-term loans of up to \$70 are available from funds provided by the *Royce Ulferts Memorial Loan Fund*, the *Eben Mumford Scholarship / Loan Program*, and the Kiwanis Club.

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.

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 the college at the Junior Division of the Annual Interpretative Reading Festival.
4. \$10 awards to each of the two students selected to represent the college at the Junior Division of the Annual Interpretative Reading Festival.

Harmon D. Hook Memorial Award in English. An award of \$50 is offered each spring to an English major who has indicated a serious interest in English or American language and literature and whose work in the discipline gives evidence of personal enrichment and promise of future service. To be considered, a student should have demonstrated not only academic competence but also such qualities as humane interest in letters and Christian concern for cultural and spiritual growth through literature. The English Department selects the person to receive the award.

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, character, and personality. The Speech Department selects the nominee to receive the award.

F. M. and E. P. ten Hoor Prize. The college has received a bequest from the late Mrs. Marie M. ten Hoor, the income of which is to be awarded to an outstanding student at

the college for use in the junior or senior year. This prize of \$50 will be awarded by the Scholarship Committee to a student with an outstanding record who has not been selected to receive one of the special scholarships awarded by the college.

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 approximately \$1500, the income from which is used to award a prize or prizes for the best research paper or papers on annually specified themes in Calvinism studies, written by Calvin College students, the prize or prizes to be awarded at the discretion of the Department of Religion and Theology.

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, critical and creative writing among Calvin College students. The \$50 award is administered annually by the English Department.

The Rinck Memorial Award. A fund of \$4000 has been subscribed by former students and friends as a memorial to William Rinck, professor of mathematics at Calvin College from 1905 to 1920. The income of this fund is devoted to an award for outstanding work in mathematics. The prize is awarded annually to the senior student majoring in 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.

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 of the Christian Reformed Church.

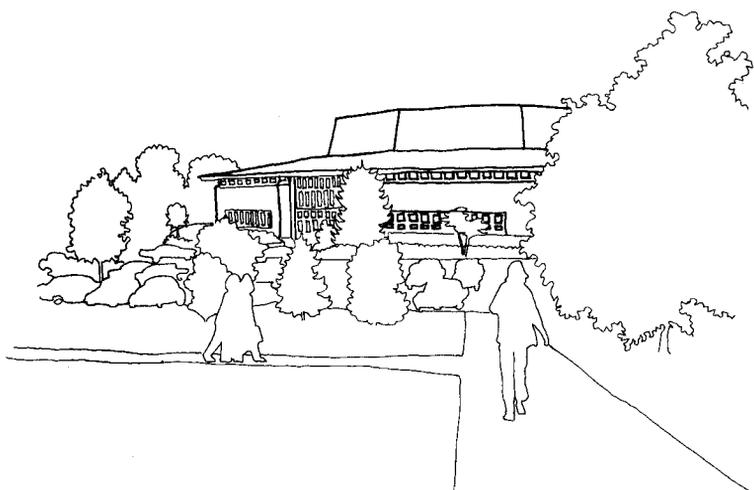
Applications should be in the hands of the Scholarship Committee of the college by March 1.

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

University of Michigan State College Fellowships. These competitive, prestigious fellowships to the Graduate School of the

University of Michigan, totalling \$2400 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 dean for academic program administration.

University of Michigan Scholarships for Graduates of the Three-Year Engineering Course. The University of Michigan offers several 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. Interested students should before March 1 consult with the chairman of the Engineering Department, which makes its recommendation on the following criteria: a minimum grade point average of 3.0, completion of a minimum of twenty-eight courses at Calvin College, demonstration of serious interest in the activities of the department, and intention to apply for a Calvin Bachelor of Science degree upon completion of the engineering degree requirements.



Academic

Requirement for degrees, honors, professional 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. The faculty believes 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, the faculty believes 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 this field of concentration, however, the student can achieve the same aims more fully, more intensively, in more detail.

The Christian liberal arts philosophy permeates all of the degree programs of the college. Traditionally, most students complete the Bachelor of Arts or the Bachelor of Science degree programs, either of which may include a teacher

certification component. A Bachelor of Fine Arts degree with a professional art emphasis was introduced in 1974 and a Master of Arts in Teaching degree in 1976. Calvin College also offers a variety of cooperative bachelor of science degrees in conjunction with other institutions, in engineering, forestry, medical technology, natural resources, nursing, and special education (see pages 49-58) as well as a Bachelor of Science in Education degree in a combined curriculum plan with the Grand Rapids Baptist College.

BACHELOR OF ARTS, BACHELOR OF SCIENCE DEGREES

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

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

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

I. PROGRAMS OF CONCENTRATION

As stated above, every degree-seeking student must fulfill the requirements of a faculty-approved departmental or group concentration. Although such major concentrations are not normally chosen until the second semester of the sophomore year, most programs do presuppose the completion of specific freshman and sophomore courses. Official admission to a major program requires the formal approval of a department or program adviser and the completion of a counseling form which details the student's remaining academic requirements. If at any time a student changes his major, he must again submit a new counseling form for the new major. Teacher education group majors and some departmental majors for teachers may be applied only to teacher certificate programs.

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

The various programs of concentration are specified in the section of the catalog which describes departmental programs and course offerings, beginning on page 59. Group majors designed for teacher certification programs are described in the section on Teacher Education Programs, on pages 45 and following. Students may also initiate interdisciplinary programs of concentration other than those formally approved by the faculty. Requirements for developing such interdisciplinary programs are available from the Registrar's Office. Such programs require the approval of the several departmental chairmen concerned as well as of the registrar.

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.) Interim courses are graded honors (H), satisfactory (S), or unsatisfactory (U), except those course that satisfy core requirements, which are graded in the conventional A-F system. Students should not take more than two interim courses in a single department.

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

III. THE LIBERAL ARTS CORE

The liberal arts core is planned to provide a broad and significant educational foundation in a Christian setting. Strong high school preparation reduces the number of required courses in the core, and the number may be further reduced by examinations in any subject. Each student's high school record is evaluated at the time of admission, and he is informed at his first registration of the requirements which remain to be completed.

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 minimal command 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 various courses in each department which meet the liberal arts core are listed with the departmental offerings.

Six courses are required in history, philosophy, and religion and theology

History 101 or 102.

Philosophy 151-152, or 153.

Religion 103, 108, 207, 208, 327, or 328.

Religion 206, 301, 303, 304, 308, 311, or 312.

The remaining two core courses may be Interdisciplinary 100 (Christian Perspectives on Learning), 234, or other courses from history, philosophy, and

religion; however, not more than two courses in history and philosophy and three in religion may be included in the required six courses. Philosophy 153 and Education 304 or Philosophy 209 are required in teacher education programs.

Three courses are required in the sciences and mathematics

Mathematics 107 (appropriate for elementary teacher education programs), 109, 111, or 205.

Physics 110, 112 (required in elementary teacher education programs), 123, Astronomy 110, or 201.

Biology 111, 116, 121, or any other course in biology (105–106 must be taken as a unit); 115 satisfies the core only for majors and minors in physical education.

The two-course science requirement may also be met by a full year's work in one of the following sciences: Biology 121–122, Chemistry 103–104 or 113–114, Geology 151–152, Physics 123–124 including 181–182, 126–225, 221–222.

Students who have completed Senior Mathematics in high school with a minimum grade of C are excused from the mathematics requirement; those who have completed a year of standard high school physics (not physical science) are excused from the physics requirement; and those who have completed two years of high school biology concluding with Advanced Biology are excused from the requirement in biology. Elementary education students excused from physics must take Physics 113.

One course is required in economics or political science and one in psychology or sociology

Economics 151, Political Science 151, 201 (required in elementary teacher education programs), or 210 (for Canadian students).

Psychology 151, Sociology 151, 217, or Education 301 (which is required in teacher education programs).

A student who has completed a single high school course extending over two semesters in any of these subject areas is excused from the requirement in that area.

Three courses are required in the fine arts

A course in English literature from 200, 202, 203, 212, 303, or any other English course except 225.

A course from Art 151, 231, 232, 332, 340, Classics 221, Music 103, 223, 234, 235, 236, Speech 203, 219, 304, 317, 318, 325, 326, or a foreign language literature course. Art 215 and Music 238 are acceptable only for students in elementary teacher education programs.

A course from any of those listed above plus English 225.

The third course requirement is waived for students who during their last two years in high school have completed a single course extending over two semesters in English or American literature, in art, or in music.

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

English 100 or the passing of a competency examination in written rhetoric.

Speech 100, 200, 214 (recommended for elementary teacher education programs), 240, or the passing of a competency examination in public speaking.

Four quarter courses of basic physical education from Physical Education 101–199. Students in elementary teacher education programs may substitute 221 for one such quarter course.

Competency is required in one foreign language

Competency in one foreign language is usually demonstrated by an examination or by completing a 202-level course. Languages other than those taught at Calvin may be accepted, and students for whom English is a second language may be exempt from this requirement. Students are advised to continue in languages they have studied previously and will be placed in classes at their level of ability.

Special three-course sequences (121-122-123), involving two semesters and an interim, are available in French, German, and Spanish for students whose high school records in the language were below C, who studied the language some time ago, or who are in teacher education programs without having studied a foreign language previously.

A student usually should complete the core requirements in mathematics, history, and written rhetoric by the end of his freshman year and should complete the requirements in physical science, biological science, physical education, spoken rhetoric, and foreign language by the end of the sophomore year. At least one course in religion and theology should be taken in each of the student's first two years at Calvin. However, because of the demands of various programs of concentration, the particular courses chosen to meet the student's core requirements and his schedule for completing them should be worked out early with his academic adviser.

BACHELOR OF FINE ARTS DEGREE

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

The program of concentration requires at least four courses in the history of art; thirteen studio art courses; two interim courses in art; and one course credit for a senior seminar which must include an exhibition. Not more than eighteen courses in art may be applied to the degree.

The liberal arts core must include six courses from the contextual disciplines (History 101 or 102; Philosophy 153 and 208; Religion and Theology 103 and 301; and one course from history, religion and theology, or Interdisciplinary 101, Christian Perspective on Learning); one core course from mathematics and the natural sciences; one core course from economics, political science, psychology, and sociology; either one foreign language through the second-year college level or two courses taught by a foreign language department from foreign culture and foreign literature in translation; the core requirements in written rhetoric (typically English 100), speech (typically Speech 100), and basic physical education; and a course in English or American literature and two additional fine arts core courses from two of the following: literature, music, or speech. This last requirement is reduced to a single course if the student has completed a year's course in high school in literature, music, or speech with a minimum grade of C. This program is not intended for those seeking teacher certification.

MASTER OF ARTS IN TEACHING DEGREE

The Master of Arts in Teaching (M.A.T.) program has been introduced to serve elementary and secondary teachers who wish further professional training and who need to satisfy the requirements for continuing or permanent certification. The program can also serve the needs of college graduates seeking initial certification and of those who wish endorsement in an additional teaching field or at a different level. With planning it can also satisfy the requirements of those states and provinces, such as California and Ontario, which require thirty semester hours of professional education beyond a bachelor's degree.

ADMISSION

The minimum requirements for admission to the program are a commitment to teaching, an appropriate bachelor's degree from an accredited college or university, and appropriate letters of recommendation. Applications for admission should be addressed to the Office of Admissions.

REQUIREMENTS FOR THE DEGREE

Upon acceptance in the program a student is assigned by the director of graduate studies to an adviser in the student's declared area of interest. The student and the adviser will work out an appropriate program, subject to the approval of the director. All programs must include a minimum of nine courses, half of which must be taken in courses numbered 500 or above. The program must be completed within six years with a cumulative average of at least B (3.0 on a scale of 4.0) and only courses with grades of C+ or higher will be applied. Any student receiving a grade lower than C+ in any course is placed on probation. The minimum requirements are:

1. *Context of Education:* At least one designated course must be completed in psychology or sociology and education and another in history or philosophy and education. (Approved courses include Education 510, 512, 513, 535, 581; Philosophy 501, and Sociology 501.)
2. *Concentration:* At least three courses must be completed in an approved group or departmental concentration. Programs of concentration have been developed in art, English, history, mathematics, music, fine arts, language arts, social studies, science studies, biblical and religious studies, and reading. Additional programs and courses are under consideration. Courses designated with an asterisk and those numbered 500 or higher may be applied to M.A.T. programs.
3. *Methods and Materials Course:* A course in curriculum must be completed in an area appropriate to the student's need and concentration.
4. *Project:* The student must complete a half or full course project which is planned to synthesize his graduate experiences.
5. *Electives:* A student must complete additional courses from the categories above or from elective courses to satisfy the nine-course requirement.

A M.A.T. program may be combined with one leading to a Michigan provisional teacher certificate. Such programs include Education 301, 303, Philosophy 501, and two to four course units of teaching internship and seminar or the equivalent. Prospective elementary teachers must also complete Education 322. Major, minor, and general education requirements, usually met by undergraduate programs, must also be met. Such combined programs usually require more than the minimum of nine courses.

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.

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 17.

THE HONORS PROGRAM

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

A student is eligible for the General Honors Program if his cumulative grade point average is 3.3 or higher; incoming freshmen are eligible if their cumulative high school record meets this standard.

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.

To graduate with honors, students must complete at least six honors courses with an average of 3.0, including the structured honors requirements of their major departments, which must include at least two departmental honors courses. Before applying to the department the student must have completed at least two honors courses in any department and must be maintaining a cumulative average of 3.3 or higher. Juniors and seniors in such Departmental Honors Programs may, subject to the approval of their chairman, register for a fifth course, which may be graded on the basis of satisfactory or unsatisfactory.

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

THE ACADEMIC SUCCESS PROGRAM

The Academic Success Program provides support and special training for students who need help in order to succeed in the classes they are taking. Although the heart of the program is training in college-level study and reading skills, specialized tutorial sessions are available in most basic courses and personal academic counseling is provided by faculty members associated with the program and by peer tutors. Special intensive classes are offered in English and mathematics for students whose test scores indicate a serious need for systematic reeducation in these subjects, but remedial help can be provided in most basic subjects for students who recognize their needs. Reading tests and tests in the various subject areas are available to help students understand themselves and recognize what they need to do to compensate for their previous education.

All students on probation are incorporated into the Academic Success Program, but special help is offered to any student who wishes to do better in any class. The program also provides intensive workshops and other public opportunities for general help in the various academic skills. The director of the program is Mrs. Evelyn Diephouse.

YEAR-ABROAD PROGRAMS IN FRANCE, SPAIN, AND AUSTRIA

In cooperation with Central College, Calvin College offers a nine-month study program in London or Wales; and a twelve-month, three-semester study programs in Paris; in Vienna, after a summer in Germany; and in Madrid. To be eligible a student must have completed the study of the appropriate language through the second-year level.

In the three-semester programs an intensive preparatory summer semester assists the student in developing a level of language proficiency which will enable him to enroll in regular university courses and to participate freely in the cultural life of the country. Such courses include not merely those in language and literature but may include those in art, history, music, philosophy, and psychology.

A student may earn up to three course credits during the summer and an additional nine during the regular academic year. The international studies coordinator for these programs is Mr. Charles J. Miller, dean for academic program administration.

CHICAGO METROPOLITAN STUDY CENTER

The Chicago Metropolitan Study Center sponsored by Trinity Christian College in cooperation with Calvin, Central, Dordt, Hope, and Northwestern colleges provides an opportunity for students to receive a semester's credit while studying and being involved in an internship experience in the heart of Chicago. The program can be appropriate for a variety of majors including history, economics, psychology, and sociology. For details consult Mr. Donald Smalligan of the Sociology Department.

WASHINGTON SEMESTER PROGRAM

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

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

TEACHER EDUCATION PROGRAMS

Students wishing to be teachers should apply for admission to a specific teacher education program at the Department of Education by April 1 of their sophomore year. 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 average of C (2.0), overall, in his major concentration, and in his education courses. Students entering the program after the sophomore year may need more than four years to complete their programs.

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

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

Graduates who have earned a Michigan Provisional Certificate since July, 1970, must complete a 5.2 course unit (18 sem. hrs.) planned program or enroll in a master's degree program to qualify for a Continuing Certificate. The Master of Arts in Teaching program at Calvin can be used not only to satisfy the requirements for continuing certification but also to develop additional areas for certification and to qualify for initial, provisional certification. Graduates seeking such certification should consult the coordinator of elementary or of secondary education.

Because the specific requirements for students in the Bachelor of Science in Education degree in the combined curriculum plan with the Grand Rapids Baptist College differ from those given below, students in that program should consult the *Student Program Guide Book*...developed for that program.

School 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 graduate training is permitted. Some concentration in psychology or sociology is desirable but not necessary.

Elementary education. The minimum elementary education program requires the completion of the general education requirements (See pages 39-41 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 at least 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. Students interested in elementary education should secure copies of the *Student Program Guide Book*. . .from the Department of Education. Programs should be worked out with Mr. William Hendricks, coordinator of elementary education, and have the written approval of the adviser in the area of concentration.

An eight and a half course departmental concentration may be selected from the following subjects: biology, English, foreign language (French, Dutch, German, Latin, Spanish), history, mathematics, political science, and speech; and a ten and a half course concentration from art, music, and physical education.

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 in the group, 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 GROUP MAJOR. English 100 and Speech 214 are required. Students majoring in this group must also complete one of the following five-course departmental programs: English 100, 200, 225, and two others; Speech 203, 214, 215, and two others; German 201, 202, 215, and two from 216, 217, 218, 250; French 201, 202, 321, and two other advanced courses; Latin 201, 202, 205, and two others; Spanish 201, 202, 321, and two other advanced courses. In addition students must complete the three designated courses from a second department in this group. The remainder of the ten and a half courses and the electives must be chosen from departments in this group with the approval of Mr. Henry Baron of the English Department.

SOCIAL STUDIES GROUP MAJOR. The four required courses for this major are History 101 or 102; Sociology 151; either Economics 151 or Political Science 201 (United States), 210 (Canada), or 151; and either Geography 101 or, if part of the three-course sequence below, Earth Science 113. Students must also complete one of the following five-course departmental sequences: Economics 151, 321 or 322, and three others; History 101 or 102 and four others; Political Science 151, 201, and three others; Psychology 151, 204, 310, and two others; Sociology 151 and four others. In addition a student must complete three courses from a second department in this group, including any course designated above, or from a sequence in geography consisting of Earth Science 113 and Geography 201 and 210. Students should not take sequences in both psychology and sociology. The remainder of the ten and a half courses and the electives must be chosen from departments in this group with the approval of the social studies advisor, Mr. Samuel Greydanus of the History Department.

GENERAL SCIENCE STUDIES GROUP MAJOR. The four required courses for this major are: Biology 111 or 121; Earth Science 113; Mathematics 107, 109, or 111; and Physics 112, 123, 222, or 225. The five-course sequence can be met by either of two broad programs or by narrower departmental ones. The biological science sequence requires Biology 111 or 121, 115, 116, or two others; the physical science sequence requires Physics 112, Earth Science 113, Chemistry 113, Astronomy 110, and one other. The departmental sequences are: Biology 121, 122, 221, 222, and one other; Chemistry 103-104 or 113-114 and three others; Mathematics 111, 112, and three others; Physics 126, 225, 226, and two others or Physics 123, 124, 225, 226, and one other. In addition, a student must complete a three-course departmental sequence of Chemistry 103-104 or 113-114 and one other; Mathematics 109 and two others or Mathematics 111, 112, and one other; Physics 123-124, 126-225, or 221-222 and one other; Earth Science 113 or Geology 151 plus Geography 201 and 210, or Geology 151-152 plus Geography 201 or 210. The remainder of the required ten and a half courses and the electives must be chosen from other departments in this group with the approval of the science adviser, Mr. Clarence Menninga of the Physics Department.

FINE ARTS STUDIES MAJOR. Required are Art 215, Speech 214, and Music 238 or, if the student is completing a sequence in music, Music 239. Students majoring in this group must complete a five-course departmental sequence from: Art 151, 207, 208, 215, and one other; Music 103, 239, 233, 234, 237, and two semesters of 110, 120, 130, 140, 150, 160, 170, 131, 141, 161, or 171, or in drama, Speech 203, 214, 219, 317, and an elective from 304, 318, or an approved interim course. In addition, a student must complete one of the following three-course sequences: Art 151, 207, 215; Music 231 or 233, 232 or 234, 238 or 239; Speech 203, 214, and 219. The remainder of the ten and a half courses and the electives must be chosen from other departments in this group with the approval of Mrs. Helen Bonzelaar of the Art Department.

The appropriate education courses for students in elementary education are 301, 303, 304, 305, 322, 345, and 355. The six-course planned program required for Michigan certification typically is met automatically by students meeting the general graduation requirements. Courses recommended for this dual function include: Art 215, Biology 111, 115, or 116, 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 107, 109, or 111, Music 238 or 239, Physics 112, 113, Psychology 204, Political Science 151, 201, or 210, and Speech 214. Physical Education 221 is recommended as a substitute for one quarter of basic physical education.

Middle school education. The middle school program is planned for students

who wish to teach in grades six, seven, or eight, or who are not ready to choose between elementary (k-8) or secondary (7-12) certification.

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

Secondary education. The minimum secondary program requires the completion of the general graduation requirements (See pages 39-41 for the courses recommended for students in teacher education); a departmental concentration of at least eight and half courses or a group concentration of at least ten and a half courses; a minor of six courses in another department or a group minor of seven; and six professional education courses. Programs should be worked out with the appropriate departmental adviser. For general questions or those involving the professional component of the program a student should consult Mr. Philip Lucasse, coordinator of secondary education.

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

Group concentrations have particular advantages for middle or junior high school programs but must be planned with care to meet the North Central standards defined in the paragraph below. A major group concentration consists of ten and a half courses, at least 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, geography, geology, mathematics, and physics), and the social sciences (economics, history, and political science). Group minors of seven courses with the minimum of three in one subject may be chosen from the same areas and from the humanities (drama, literature in any language, philosophy, and religion and theology).

The North Central Association requires that teachers in the schools they accredit have the following minimum preparation in each of their teaching fields: *art*, seven course units; *English*, seven course units, one half of which may be in speech; *foreign language*, six course units in any language taught; *mathematics*, six course units; *music*, seven course units; *physical education*, six course units; *science*, a total of seven with at least three and a half in any science taught; *social science* (economics, U.S. history, world history, political science, sociology), a

total of seven course units with at least two and a half in any subject taught; *speech*, seven course units, one half of which may be in English.

The appropriate education courses for students in secondary and middle school programs are: 301, 303, 304, 346, and 356; 307 is a recommended elective.

Special education. Calvin College offers a Bachelor of Arts degree in special education, subject to state approval, which leads to teacher certification at the elementary or secondary level as well as to endorsement as a teacher of either the mentally impaired or of the learning disabled. Students in the program must complete the liberal arts core, the professional education requirements for either elementary or secondary education, a ten and a half course concentration in special education, and a six-course planned minor.

Calvin College also offers a Bachelor of Science in Special Education degree in cooperation with Grand Valley State Colleges. This program requires five years and three summers to complete and includes a nine-month paid internship experience. Students completing the program receive teacher certification at the elementary or secondary level as well as endorsement in three disability areas. The alternative programs are:

1. Mentally impaired, emotionally impaired, learning disabled, or
2. Hearing impaired, learning disabled, plus mentally impaired or emotionally impaired or physically impaired.

Students in cooperative programs with Grand Valley must complete a designated core of thirteen liberal arts courses, a departmental or group concentration, a six-course planned minor, six professional education courses, and the additional requirements for endorsement in special education.

Because special education programs vary in length, in type of major, and in type of endorsement, interested students must consult Mr. Thomas Hoeksema, coordinator of special education.

PROFESSIONAL AND PREPROFESSIONAL PROGRAMS

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

ACCOUNTING

An accounting concentration may be added to the Business Economics concentration described under the Economics and Business Department by electing at least five accounting courses in addition to Economics 207 and 212, which are required by that program. The accounting courses offered at Calvin College are:

- Econ 207 *Introduction to Financial Accounting*
- Econ 209 *Income Tax*
- Econ 212 *Financial and Managerial Accounting*

- Econ 307 *Intermediate Accounting I*
- Econ 308 *Intermediate Accounting II*
- Econ 310 *Advanced Accounting*
- Econ 311 *Auditing*
- Econ 312 *Cost Accounting*

The academic requirements needed to qualify as a Certified Public Accountant (C.P.A.) vary among states; Michigan requires at least seven of the above courses including Economics 311.

AGRICULTURE

Students may spend the first two years of their agriculture program at Calvin College before transferring to an agriculture college such as those at Michigan State University or the University of Guelph. Students interested in such programs should consult Mr. Uko Zylstra of the Biology Department.

Students wishing to transfer after two years to the College of Agriculture and Natural Resources at Michigan State University are advised to follow its "non-preference" program, postponing until the third year selecting an area of special interest. Michigan State offers twenty such areas ranging from agricultural engineering, animal husbandry, horticulture, fisheries and wildlife management, to forestry. The science requirements of that "non-preference" program are met by Biology 121, 122, 221, 222; Mathematics 111 or 205-206; and either Chemistry 103-104 plus a laboratory course in organic chemistry such as 253-254, or Physics 221-222 plus an additional course in physics. The liberal arts requirements are met by one course each in history, philosophy, religion and theology, with an additional course from one of the three; Economics 151 plus one additional course from economics, political science, psychology, or sociology; English 100 plus an additional course in English; Speech 100; and one additional course in the fine arts.

A similar program is also possible at the Ontario Agricultural College of the University of Guelph. Students who enroll at Calvin College after Grade XII can apply to transfer after their sophomore year. The program at Guelph leads to a Bachelor of Science Degree in Agriculture after three additional years. The recommended program for such students is Biology 121, 122, 221, 222; Mathematics 111, 112; Chemistry 103, 104, 253, 254; Physics 221, 222; English 100; Economics 151; and other courses chosen from those that meet core requirements.

ARCHITECTURE

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

<i>First year</i>	COURSES
Art 231	1
English 100	1

Engineering 101	1
Computer Science 107	1/2
Mathematics 111, 112	2
Interdisciplinary 100, Christian Perspectives (interim)	1
Economics 151	1
Philosophy 153	1
Speech 100	1/2
Physical Education	1/2

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

BUSINESS ADMINISTRATION

Balanced preparation for a business career is provided by meeting the general degree requirements (page 39) and the Business Economics concentration in the Department of Economics and Business. This program provides a minimum of twelve courses—the equivalent of forty-two semester hours—in business economics and related mathematics courses. See page 78 for a full description of departmental major and cognate requirements. This concentration along with the general graduation requirements provides a substantial undergraduate coverage of the functions of the business firm, an understanding of the environment of business and human behavior, and an opportunity to develop one's personal Christian commitment and ethical sensitivity. Completion of the program provides a proper preparation for entry into a variety of business occupations as well as a foundation for graduate study in business.

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

<i>First year</i>	COURSES
Idis 100 or another elective	1
Economics 151	1
English 100	1
History 101 or 102	1
Foreign Language	2
Mathematics 205-206 or 111-112	2
206 or 343 are required for graduation.	
Physical education	1/2
Religion and theology	1
Speech 100 or 240	1/2 or 1 1/2

<i>Second year</i>	COURSES
Art, music, speech	1
Biology 111	1
Economics, 207, 212	2
Computer Science 106 or 107	1/2
Philosophy 151-152 or 153 and 205 or 207	2
Physical education	1/2
Physics 110, Physical Science	1
Psychology or sociology	1
Elective	1

<i>Third year</i>	COURSES
Economics 309	1
Economics 313	1
Economics 316	1
Economics 322	1
Literature	1
Religion and theology	1
Electives	3

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

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

ENGINEERING

Students planning to enter the engineering program should consult with Mr. James Bosscher, chairman of the Department of Engineering, when arranging their programs. Students wishing to graduate from Calvin College on the combined curriculum plan are advised to complete the twenty-eight and a quarter course program below. (A minimum of twenty-seven courses and a minimum cumulative grade point average of C are 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—Bachelor of Science in Letters and Engineering on the combined curriculum plan.

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

<i>First year</i>	COURSES
Chemistry 103	1
Engineering 101	1
Engineering 102	1/2
Mathematics 111, 112	2
Physics 126 and 186	1 1/4
Interdisciplinary 100, religion and theology, or approved history	1
Economics 151	1
English 100	1
Computer Science 108	1/2
Physical education	1/2

<i>Second year</i>	COURSES
Engineering 205	1
Engineering 202 or an engineering elective	1
Engineering 208 or 308	1
Mathematics 211, 212	2
Physics 225	1
Literature	1
Philosophy 153	1

Social science interim	1
Speech 100	1/2
<i>Third year</i>	COURSES
Engineering elective	1
Technical elective, from 200 or 300 level courses in biology, chemistry, engineering, mathematics, or physics	2
Interim, engineering	1
Philosophy, 200 series course	1
Religion and Theology	1
Literature, if needed for graduation, or a non-technical elective	1
Fine arts elective	1
Elective	1

By special arrangements with the University of Michigan, qualified engineering students in certain fields can elect a five-year program leading to a bachelor's degree from Calvin College and a master's degree in engineering from the university. Group majors involving engineering, mathematics, and the sciences may lead to a bachelor of science degree in four years. Students should discuss these options with Mr. James Bosscher.

FORESTRY

Students planning to become certified foresters may pursue either a combined curriculum program in forestry involving study at Calvin College and at an accredited university school of forestry or they may work out transfer arrangements from Calvin College to a forestry school of their own choosing.

Those students enrolled in the combined curriculum program will receive the degree of Bachelor of Science in Letters and Forestry from Calvin College after the successful completion of three years prescribed work at Calvin College plus one full year of academic work toward a forestry degree at an accredited forestry school. Calvin College is one of several colleges in Michigan having a cooperative arrangement in forestry with the School of Natural Resources at the University of Michigan and the prescribed program below meets the pre-forestry requirements of that program. Students enrolling at the University of Michigan under the combined curriculum plan are expected to attend Camp Filibert Roth during the summer following their academic work at Calvin College.

The science requirements for the program are: Biology 121, 122, 221, 222, and three from Biology 332, 341, 346, 352; Mathematics 111-112 or 205-206; Geology 151; and a two-course sequence in chemistry and/or physics from Chemistry 103-104, 113-114, Physics 221-222, or Chemistry 113 with Physics 223. The non-science requirements are: one course each in history, philosophy, religion and theology with an additional course from one of the three or Interdisciplinary 100 in the interim; Economics 151 plus one additional course from economics, sociology, psychology, or political science; one course in American or English Literature with two additional courses in art, literature, music, speech, or foreign culture; English 100; and Speech 100 plus two semesters of basic physical education, or four semesters of basic physical education.

Forestry schools differ in their program requirements. Students expecting to attend a school other than the University of Michigan are advised to select

courses from among the options listed above which best meet the requirements of the schools they are considering. Students enrolling in the combined curriculum program in forestry and those seeking advice about transfer arrangements in forestry should consult Mr. Alan Gebben, pre-forestry adviser, in the Biology Department.

LAW

There is no structured program specifically designed for the student planning to enter a law school after graduation. Law school applicants must have a college degree (B.A. or B.S.) and must take the Law School Admission Test. But law schools do not require that applicants have taken specific courses or have a particular major concentration. Prospective law students should complete the requirements for a Bachelor of Arts degree as they are listed on page 38. The pre-law adviser, Mr. Johan G. Westra, can advise students on suitable electives and can help them plan programs which provide good preparation for law school. Because admission to law schools has become very competitive, some students may be advised to plan programs that will also prepare them for alternate careers in other fields such as business, social work, or teaching. Pre-law students are advised to consult the pre-law adviser before or during each semester's registration.

MEDICINE AND DENTISTRY

All students planning to enter the premedical or predental programs should consult Mr. Peter Tigchelaar, faculty adviser of the premedical and predental programs. Students should also note the general college admission requirements on page 16.

The minimum science requirements for these programs are Biology 121, 122, 221, and two courses from 323, which is recommended, 222, 331, or 336; Chemistry 103-104, 301-302, and one course from 201, 204, or 303; Physics 221-222 or the equivalent. Mathematics 111-112 is recommended and, ideally, should be taken before the physics course. A student who completes these courses meets the requirements for a group concentration in biology and chemistry, but major concentrations in other departments may also be planned.

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

It is the responsibility of the student who desires to secure a baccalaureate

degree on the combined curriculum plan to notify the registrar's office by April 1 of the year in which he expects to receive the degree.

MEDICAL TECHNOLOGY

To qualify for the degree of Bachelor of Science in Letters and Medical Technology on the combined curriculum plan a student must complete twenty-seven courses plus twelve months of successful work in an accredited school of medical technology. Students wishing to enter the medical-technology program should consult Mr. Gordon Van Harn. The following courses are prescribed: Biology 121, 122, 221, 336, plus one other in biology; Chemistry 103, 104, 253, 254, and one other; one mathematics course from 111 or 205; English 100; Physics 223; History 101 or 102; one course in philosophy; one course in religion and theology; one additional course from history, philosophy, religion and theology, and Interdisciplinary 100; two courses from economics, political science, psychology, and sociology; three courses from art, literature, music, speech, and foreign culture including one from English or American literature; the total of one course unit credit from the core courses in speech and basic physical education; and one foreign language through the first year college level, a requirement which may be fulfilled by two years of high school study.

A typical student program is as follows:

<i>First year</i>	COURSES
Biology 121, 122	2
Chemistry 103, 104	2
English 100	1
Foreign language (See paragraph above)	2
History 101 or 102	1
Interim	1
Physical education	1/2
<i>Second year</i>	COURSES
Biology 221, 222	2
Chemistry 253-254 or 301-302	2
Other required courses	4
Interim	1
Physical education	1/2
<i>Third year</i>	COURSES
Biology 336	1
Chemistry 201, 204, or other chemistry course	1
Other required courses	4
Physics 223	1
Free elective	1
Interim, biology	1
<i>Fourth year</i>	COURSES
Internship in an accredited school of medical technology.	

THE MINISTRY

Calvin College, the college of the Christian Reformed Church, maintains a close relationship with Calvin Theological Seminary, the seminary of the Christian Reformed Church. Calvin Theological Seminary is a fully accredited member of the Association of Theological Schools and is maintained primarily to

provide theological education for those aspiring to the ministry in the Christian Reformed Church. The seminary stands as a representative of the historic Reformed faith, its theological standpoint being formulated in the Belgic Confession, the Heidelberg Catechism, and the Canons of Dordt. Students who may wish to attend other theological seminaries can meet their admission requirements while attending Calvin College. Catalogs of such seminaries are available in the library.

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

Calvin Seminary requires the following courses for admission:

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

The seminary expects that Calvin College students planning to enter the seminary will satisfy the above requirements by including the following courses in their programs: Education 301, Greek 205-206, History 301 or Classics 211, at least two philosophy courses chosen from the Intermediate or Advanced Historical Courses, and Speech 100 and 200. Speech 203 and 240 are recommended and, in exceptional cases, either of these courses may be substituted for Speech 100. The preseminary adviser is Mr. L. Vos.

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

NURSING

Students interested in nursing have several options. They may follow a two and a half year program leading to a nursing diploma without a college degree. (Blodgett Memorial Medical Center and Calvin provide this option.) They may also follow a four-year program leading to a Bachelor of Science in Nursing degree. (Calvin has a cooperative arrangement with Grand Valley State Colleges

to provide this option.) One or two years of such programs typically may be completed at Calvin. Students interested in any of these programs should work out their programs with the nursing adviser, Miss Beverly Klooster.

The diploma program with Blodgett Memorial Medical Center School of Nursing requires thirty months, the first nine months of which involve courses in both the college and the school of nursing (see page 20). The first semester courses at the college are Biology 105 and 107, English 100 or, if that is not required, some other course in English; and Psychology 151 with Fundamentals of 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, Fundamentals of 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 Medical Center School of Nursing and is eligible to write the examinations given by the state board of nursing. After passing these examinations a person is licensed to practice as a registered nurse.

A Bachelor of Science in Nursing degree may be begun at Calvin, but must be completed at another college or university which offers the Bachelor of Science in Nursing degree. Many state colleges and universities offer such programs, which typically are divided into two parts: first, a one to two-year pre-nursing curriculum which may be completed at any approved college, and, second, a two to three-year clinical or professional nursing curriculum which must be completed at the school which grants the degree.

Most of Calvin's pre-nursing students complete their degree requirements at Grand Valley State Colleges (a state-supported institution about twenty minutes drive from Grand Rapids), but others have transferred to other schools of nursing such as Cornell or Columbia in New York City, University of Illinois, University of Michigan, Colorado State University, Northern Michigan University, Eastern Michigan University, and the University of Michigan.

Because the courses required vary from school to school, students are advised to select the school from which they wish to earn this degree prior to enrolling in courses at Calvin to permit them to complete the proper pre-nursing sequence. Students who do not wish to prepare to transfer to Grand Valley State Colleges are encouraged to communicate, prior to enrolling at Calvin, with schools in their home states which give a degree in nursing to insure that they will be taking the proper courses to fulfill course requirements for transfer into one of these programs.

Students preparing for transfer to the nursing program at Grand Valley State Colleges take the following:

<i>First year</i>	COURSES
Biology 121	1
Biology 122	1
Chemistry 103	1
Chemistry 104	1
English 100	1
Psychology 151	1
Mathematics 101, 102, or appropriate course	1
Fine Arts elective	1
Interim required but not designated	1

<i>Second year</i>	COURSES
Biology 221	1
Biology 336	1
Chemistry 253	1
Chemistry 254	1
Physics 223	1
Psychology 201	1
Psychology 333	1
Humanities elective	1
Interim on anatomy required	1

Other schools in Michigan which offer a Bachelor of Science in Nursing degree are Andrews University, Madonna College, Nazareth College, Mercy College, Michigan State University, Wayne State University, Oakland University, Saginaw Valley State College, and the University of Michigan.

NATURAL RESOURCES

Calvin College, in cooperation with the University of Michigan, provides a five-year program leading to a Bachelor of Science in Letters and Natural Resources. Three years are spent at Calvin and two at the university. At present there is no professional degree in this field. The adviser for all programs in natural resources is Mr. A. Bratt.

The basic courses required are: Biology 121, 122, 221, 222, 341, 346, 352, and Geology 151. Cognate courses typically include Chemistry 103-104; Physics 221-222 or Physics 112 and Chemistry 113; and Mathematics 111-112 or 205-206. Because there are different concentrations possible within the field of natural resources, individual programs must be worked out with the adviser. The liberal arts core requirements are the same as those specified for forestry.

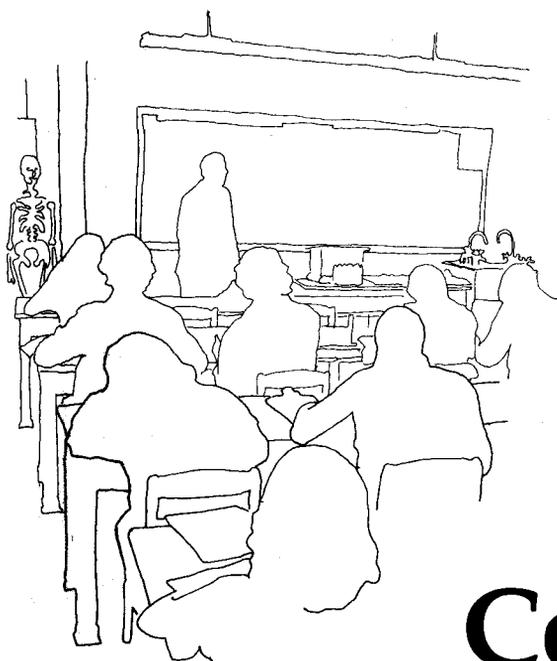
A two-year program preparing for transfer to the wildlife management program at the university is also possible. Such students should complete: Biology 121, 122, 221, 222, and 323; Mathematics 111-112 or 205-206; and as many of the core requirements as possible. The university requires twelve semester hours in the humanities and twelve in the social sciences.

See also the description of the two-year "non-preference" program which will prepare a student to transfer to the various sorts of natural resources programs at Michigan State University. This is described under Agriculture.

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

OTHER PROFESSIONAL PROGRAMS

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



Courses

Description of courses offered in departments and programs

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. Interim courses numbered I-10 – I-49 have no prerequisites; those numbered I-50 – I-99 have either prerequisites or other conditions. Courses numbered 500 and above and those marked with an asterisk may be applied to Master of Arts in Teaching programs.

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

Interdisciplinary

100 **CHRISTIAN PERSPECTIVES ON LEARNING.** 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. *Mr. L. Stegink (chairman).*

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

301 INTRODUCTION TO BILINGUAL EDUCATION.* This course is designed to prepare teachers who will be qualified to teach in classrooms where English is the second language. Students will be concerned with both the theory and the skills necessary to teach speaking, reading, writing, and comprehension in a bilingual situation. The course includes such matters as linguistics, language interference, vocabulary, sentence structure, idioms, teaching English as a second language, placement of the newly-arrived student, choice of learning materials, and the use of specialized audio-visual aids. After the completion of the course each student will observe and then practice in local bilingual classrooms. Prerequisite: completion of a 202-level course in an appropriate modern foreign language. *Staff.*

GRADUATE COURSES

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

JANUARY 1979 INTERIM

I-10 OUR DAILY BREAD. This course deals with various aspects of the production,

processing, distribution, and consumption of food especially as they are related to providing "our daily bread." Topics covered include ecology and agricultural methods of food production; packaging and preservation of food for profit, convenience, and/or nutrition; local, national, and international patterns of food distribution; stewardship of "our daily bread." A choice of a laboratory or literature project is also required. *Mr. K. Piers, Mr. U. Zylstra.*

I-11. SURREALISM IN ART AND LITERATURE. The course covers post-World War I developments in Europe in visual art and literature. The war's senseless slaughter of the masses left a deep despair and feeling of hopelessness on the part of Europe's young intellectuals, and resulted in acts of violent anarchy and a shift of concern to the irrational dimensions of human nature. The course studies artists such as Arp, Ernst, and Duchamp as innovators in the Dada movement and Miro Dali and Magritte in the Surrealist developments that follow. The literary aspect of the course deals with poetry and is predominantly French literature in translation. The automatic writing of Tzara and Breton lays a foundation for a study of other French poets working in the mid-twenties such as Aragon, Desnos, and Soupault. Tests and a paper. Prerequisite: no knowledge of French is required but a course in literature in any language is needed as a background. *Miss B. Van Halsema, Mr. A. Otten.*

I-12. NOISE AND MAN. A study of the physiological and psychological effects of noise on man. A discussion of the processes of hearing and the testing of hearing provides background for a definition of "noise damage" and for the use of a sound level meter and other instrumentation used in making noise surveys. The effects of noise in home and office, in industry, at airports, in agricultural and recreational settings, and in urban areas, with classroom discussion being supplemented with special guest lecturers and class trips to agencies and industries concerned with noise abatement. The Grand Rapids Noise Control Ordinance will be studied and enforcement procedures observed; state and federal legislation and programs will also be studied. Course requirements will include a study of relevant articles about noise, reports on special lectures and class trips, a mid-term test, and participation in a research project related to noise measurement and control. Travel Fees: about \$10. *Mr. H. Geerdes, Mr. M. Vande Guchte.*

I-13. **INTRODUCTION TO PHOTOGRAPHY.** Students will be introduced to various aspects of black and white photography such as camera operation, film choice, film development, and techniques for making an expressive print worthy of display. After demonstration of procedures, students will do their own camera and darkroom work. The first part of the course will deal primarily with basic techniques for all students. During the second part the class will be divided into two sections. One section will explore photography as an art form, while the other will use photography as reportorial tool related to schools, industry, and other institutions. A portfolio of finished photographs will be required at the end of the interim. A fee of \$15 will cover darkroom expense and some initial supplies; students will incur additional expense for other supplies. Each student must have use of an adequate camera, preferably a single lens reflex, with provision for manual control of focus, shutter speed, and aperture. Prerequisite: Written permission by one of the instructors. *Mr. P. Lucasse, Mr. H. Van Till.*

I-14. **MORAL EDUCATION.** This course provides the student with several conceptual tools for handling moral dilemmas and other value questions and will provide insights in how to lead others, as parent or teacher, into greater moral awareness. The course focuses on correlating the developmental learning theory of Lawrence Kohlberg and the values clarification approach of Louis Rath and Sidney Simon. Simulations of ethical situations will be used in the application of each of these two main theories. The moral standards implicit in these systems will be evaluated from a Christian perspective. A paper will be required and an extensive bibliography of reading in this area will be available for individual research. *Mr. D. Holquist, Mrs. C. Mereness.*

I-15. **THE CHRISTIAN LITURGY.** This course explores the history and theology of Christian liturgy, and will also give attention to the role of the arts in the liturgy. Though the focus will be on the history, theology, and artistic dimension of the liturgy of the Reformed churches, this will be set within the context of a consideration of the Christian liturgy generally. The course will consist mainly of lectures, readings, and reports by students; but in addition there will be outside speakers. All members of the course will also be required to attend wor-

ship services in a variety of non-Reformed churches, and will be required to visit a variety of church buildings. *Mr. N. Wolterstorff.*

I-16. **BUSINESS ETHICS.** An examination of moral concepts as they relate specifically to individuals in business organizations. A treatment of basic issues in the theory of normative ethics is followed by lectures and discussions focusing upon a series of specially prepared case studies. The course includes several lectures by distinguished leaders from the Christian business community. *Mr. G. Mellema.*

I-17. **MEDICAL ETHICS.** This course explores a number of ethical problems in contemporary biomedicine from the point of view of ethical theory. Topics include euthanasia, abortion, the allocation of scarce medical resources, truth-telling in the doctor-patient relationship, the right to medical care, and informed consent and human experimentation. Requirements include reading, participation in class discussions and class presentations (such as panel discussions), a short paper, and careful attention to outside speakers and the instructor. *Mr. P. Faber.*

I-18. **CONTEMPORARY PROBLEMS IN ARCHITECTURE, DRAMA, AND PAINTING.** Students will study Abstractionism and the problems related to the arts of reason as displayed in the International Style of architecture of Le Corbusier and Gropius, the drama of Ibsen and Miller, and the paintings of Picasso and Modrian. Students will also study Expressionism and the problems of emotional awareness as displayed by such architects, dramatists, and painters as Wright, Beckett, and Pollock. Slides and discussions precede a one-week experience in New York viewing architectural sites, attending plays, and visiting museums. Fee to cover costs in New York and transportation. *Mr. E. Boevé, Mrs. E. Boevé.*

I-19. **LITERATURE FOR THE PERSON WHO LIKES MUSIC.** An analysis of literary works such as Mann's *Tomio Kröger* and Fry's *A Sleep of Prisoners* based on musical forms such as Mozart's *Symphony 39 in G minor* and Beethoven's *Eroica Symphony*. Students will listen to records, follow scores, analyze musical and literary forms, correlate musical and literary forms, and evaluate the works thus analyzed. Prerequisite: the ability to read music and an interest in literary form. *Mr. S. Wiersma.*

I-21. **THE WONDERFUL WORLD OF AMERICAN RAILROADS.** This course is a survey of the rise and fall of the railroad industry in the United States and Canada. It is not intended primarily to be a rail-fan's delight, but it may well be so. Rather, it is a serious inquiry into the present state of affairs in the industry, with some assessment of future possibilities. The major topics of study are: the history, technology, economics, and political and social aspects of this mode of transportation. The course includes lectures, reading, films, slides, guest lecturers, a field trip, and a short paper. *Mr. C. Sinke.*

I-50. **THE FAMILY IN HISTORY: 1500-PRESENT.** A survey of recent debates concerning the history of the family in Europe and America from both sociological and historical points of view. The course develops a perspective on the modern crisis in the family and its place in Western society today by looking at its development. The course also studies the development of the family and long-term changes in the institution's social patterns. The course is a seminar in which professors and students explore new perspectives together by discussing substantial readings. Tests will be given. Prerequisite: History 101 or 102 or Sociology 151 or 217. *Mr. G. Marsden, Mr. R. Rice.*

I-51. **INVESTIGATIONS IN MATHEMATICAL MODELING OF ECOLOGICAL SYSTEMS.** This course is intended for students with a limited background in mathematics and ecology and begins with a brief introduction to modeling and computer programming. It examines growth models for single species as well as competition and predator-prey models for interacting species. Consideration of a compartment model for energy flow in ecosystems serves as background for discussion of large-scale resource utilization models. Each student will complete a modeling project of his design or prepare a critical evaluation of an existing ecological model. Meets investigations course requirement in biology programs of concentration. Prerequisites: Mathematics 111 or 205, Biology 111 or 222, or permission of the instructors. *Mr. A. Gebben, Mr. S. Leestma.*

I-52. **THE BIBLE IN LITERARY PERSPECTIVE.** The emphasis of this course is on literary study and analyses of selected portions of

biblical literature. The implications of the fact that the Bible is *written* revelation, a book, that it uses language and, therefore, literary structures and patterns, will be explored. The Bible will be the primary text; some recently published textbooks will also be used as secondary sources for exploration of various literary approaches to and interpretations of Biblical narratives. Biblical allusions in fiction, poetry, and drama (some on film) will also be examined. Lectures, readings, discussions, short papers, and critiques. Prerequisite: a college literature course in any language. Satisfies teacher education concentrations in English or the academic study of religion. *Mr. H. Hoeks, Mr. S. Vander Weele.*

I-54. **SPSS: A COMPUTER LANGUAGE FOR SOCIAL SCIENTISTS.** This course is designed for students who have little or no experience with computers or for those who have previously used computer languages but have no knowledge of the SPSS language. The course is divided into three parts. The first concentrates on statistical techniques, the philosophical basis of data analysis, and the logic of measurement. The second focuses on key-punching data cards, accessing existing data sets, and modifying the coding of existing data sets. The last, and largest part of the course concentrates on creating new data files from raw data and on successfully performing various data analytical techniques by means of SPSS. The course considers the different needs of students in different disciplines. Students will complete various data analysis assignments as well as a final exam project based upon their newly acquired skills. A course in statistics would be helpful but is not required. *Mr. C. Smidt.*

I-55. **FAIRY TALES.** This course will investigate the origin, function, and meaning of fairy tales from a literary as well as psychological point of view. Literary analysis will include discussion of fairy tale narrative, plot structure, characters, and themes. Psychological analysis will deal with the portrayal of life themes, prototypical experiences, and the psychic significance of fairy tales for the reader-hearer. Those students with sufficient language experience in German will be encouraged to study the *Märchen* in the original. Prerequisite: a course in German or psychology is desirable. *Mrs. M. Vander Goot.*

Art

Associate Professors **E. Boevé (chairman), C. Huisman, R. Jensen, C. Overvoorde

Assistant Professor H. Bonzelaar

Instructors J. Kuiper, R. Pederson, B. Van Halsema, T. Van Laar

THE ART PROGRAM at Calvin has been conceived within the framework of the liberal arts tradition. The department also offers a program for those who wish to teach art in the elementary and secondary schools. Students intending to major in the field must secure a minimum grade of C (2.0) in 207. The minimum major program is 207, 208, 209, 210, 231, 232, 320, 325, one course from 310, 311, or 326 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 ten and a half course major program for elementary and secondary education includes: 207, 208, 209, 215, 216, 231, 232, 310 or 311, and 320 or 325; the seven-course minor concentration includes: 207, 208, 209, 216, 231, and 232. Advisers for these programs are Mr. Boevé and Mrs. Bonzelaar.

The Bachelor of Fine Arts (B.F.A.) program, with a greater professional emphasis, is fully described on page 41. This is not a preparation for a teacher certificate.

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

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

207 **TWO DIMENSIONAL DESIGN.** F and S. A course that teaches two-dimensional design through the use of basic art elements and principles. Staff.

208 **THREE-DIMENSIONAL DESIGN.** F and S. A course that teaches three-dimensional design through the use of basic art elements and principles. Prerequisite: 207. Staff.

209 **DRAWING I.** F and S. A course teaching basic composition while introducing students to basic drawing media. It includes an introduction to historical development and to drawing terminology. Prerequisites: 207, 208. Mr. R. Jensen, Mr. T. Van Laar.

210 **DRAWING II.** S. Continuation of Drawing I, developing the drawing media and teaching the proportion and volume of the human figure. Mr. R. Jensen.

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

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

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. Miss B. Van Halsema.

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

310 SCULPTURE I. F. Exploration of traditional and contemporary sculpture materials. Application of their use and control for personal expression. Prerequisites: 207, 208, 209, 210. *Mr. R. Pederson.*

311 CERAMICS. F and S. Creation and study of ceramic forms. Exploration of the expressive and functional possibilities of the media. History of ceramics from the pre-Columbian times to the present. Prerequisites: 207, 208, 209, 210. *Mr. C. Huisman.*

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

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

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

321 PRINTMAKING II*. F and S. Continued development of the visual ideas and the techniques of relief, intaglio, serigraphy, and planography. Continuation of work in intaglio can lead to exploring various sub-techniques—aquatint, hard ground, soft ground, engraving, mezzotint, and drypoint. Other options are also open. Prerequisite: 320. *Mr. C. Overvoorde, Mr. T. Van Laar.*

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

326 PAINTING II*. F and S. Continuation of 325. Prerequisites: 207, 208, 209, 325. *Staff.*

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

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

340 CONTEMPORARY PAINTING AND ARCHITECTURE.* S, core. A study of painting from Impressionism to the present with emphasis on Expressionism, Abstractionism, Non-Objectivism, and Abstract Expressionism. Architecture is studied in relation to programming, technology, materials, and site, beginning with Sullivan, Eiffel, and Gaudi, and continuing into the twentieth century with Wright, Le Corbusier, Mies vander Rohe, and Saarinen. Outside reading and papers will be required. *Mr. E. Boevé.*

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

395 SEMINAR AND EXHIBITION.* S. An opportunity from a Christian perspective to integrate the study of art history, aesthetics, and the other liberal arts as well as the work in studio art. The seminar will include regular meetings with the faculty, the writing of a scholarly statement of the candidate's philosophy of art, a study of exhibitions in art galleries and museums, and the presentation of a one-man show. Prerequisite: senior status and a concentration in art. *Staff.*

GRADUATE COURSES

580 WORKSHOP IN METHODS, MATERIALS, AND RESEARCH IN THE FINE ARTS. The course will attempt to show the interrelationships of the fine arts—art, music, speech—and to establish a curricular basis for the teaching of the fine arts from a Christian perspective. *Staff.*

590 INDEPENDENT STUDY (graduate). F, I, S. *Staff.*

595 **GRADUATE PROJECT.** F.I.S., full or half course. The prospectus for each Master of Arts in Teaching project must be developed under the supervision of a faculty member and must be approved by the student's graduate adviser. *Staff.*

JANUARY 1979 INTERIM

I-10. **CERAMICS—AN EXPERIENCE WITH CLAY FOR THE NON-ART MAJOR.** Students learn basic handbuilding techniques such as pinch, coil, slab, hump-mold, paddle, and wheel to create functional and sculptural forms. Students will also apply prepared glaze to bisqued forms before final firing. Students should plan on spending a minimum of six hours per day in studio work and one hour per day in non-studio activities. Lectures, demonstrations, critiques, assigned readings. For non-art majors only. *Mr. C. Huisman.*

I-50. **METAL SCULPTURE AND JEWELRY.** The course concentrates on construction in metalsmithing with emphasis on small two and three dimensional forms. Demonstrations in raising, forging, die forming, chasing, reproussé, joining, and surface embellishment lead to the creation of functional and non-functional art forms. Prerequisites: 207, 208. *Mrs. H. Bonzelaar.*

I-51. **WATER COLOR PAINTING.** The water color medium, which is a major form of expression for many artists, developed out of the pen and ink drawings of the seventeenth century. It became very popular in the late eighteenth and nineteenth centuries with the British, French and Dutch schools of painting and interest has continued into the twentieth century, especially under the Oriental influence. This course introduces traditional and contemporary techniques of watercolor by slide presentations, demonstrations, and stu-

dent projects. Prerequisites: 207, 208, 209. *Mr. C. Overvoorde.*

I-52. **CONTEMPORARY APPROACHES TO DRAWING.** This course investigates the wide range of contemporary approaches to drawing. It begins with a study of various non-Western aesthetics including Oriental and Primitive and continues to contemporary artists such as Sol Lewitt and his pure analytic approach, John Cage, and the influence of Zen, etc. The goal is an integration of the various modes of thought concerning the medium and its uses and the development of a more comprehensive view of drawing. This is achieved primarily through drawing projects, but also through reading assignments and slide lectures. Prerequisite: 209. *Mr. T. Van Laar.*

I-53. **ARTISTS WORKING IN NEW YORK CITY.** New York City is an international center for the arts. Its large population, artistic communities, and rapid pace form a fertile creative environment. The large amount of art produced coupled with the marketing machinery enable New York artists and critics to have a profound influence on artists everywhere. This course gives students an opportunity to experience the 'New York City effect' on their art as they live and work in Soho. Their creative activity is supplemented by assigned readings, visits to galleries, museums, and artists' studios, and by discussion with artists, gallery directors, and museum curators. Fee to cover costs in New York and transportation. Prerequisites: at least one advanced studio course (310, 311, 320, or 325) and permission of the instructor. *Mr. R. Pederson.*

Idis I-11. **SURREALISM IN ART AND LITERATURE.** *Miss B. Van Holsema.*

Idis I-18. **CONTEMPORARY PROBLEMS IN ARCHITECTURE, DRAMA, AND PAINTING.** *Mr. E. Boevé.*

Astronomy

Professors V. Ehlers (chairman, Department of Physics), H. Van Till

STUDENTS INTERESTED in graduate work in astronomy should major in physics and should plan their program with the chairman of the Physics Department. The sixteen-inch telescope in the observatory and portable telescopes

are available for student use through the director of the observatory, Mr. Howard Van Till.

110 PLANETS, STARS, AND GALAXIES. F and S, physical science core. A survey of the major astronomical objects, such as planets, stars, and galaxies; a study of their characteristics and their organization into a dynamic, structured universe; an investigation of the processes now occurring in the universe and the methods used to study them. The course includes a presentation of the evidence of the history and development of the universe, a description of cosmological models, and a discussion of possible Christian responses to them. *Mr. H. Van Till.*

201 CONTEMPORARY ASTRONOMY. F, core.

An introduction to modern astronomy and astrophysics for students concentrating in the area of science and mathematics. Major topics include the nature of stars and galaxies, the physical processes occurring in various celestial objects, and the current cosmological theories. The course includes lectures, laboratory exercises, and observing projects. Prerequisites: Mathematics 111 and one course in college physics other than 110 or 112. *Mr. H. Van Till.*

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

Biology

Professors J. Beebe, A. Bratt (chairman), A. Gebben, B. Klooster, B. Ten Broek, G. Van Harn

Associate Professor P. Tigchelaar

Assistant Professors H. Bouma, U. Zylstra

Instructor A. Vander Hart

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

The program of concentration requires 121, 122, 221, 222; at least one investigative course; two additional 300-level courses; and 395. Required cognates include either Mathematics 111-112 or Mathematics 205-206 or a year of college physics, and the completion of a second year of college chemistry.

The secondary school teaching major is the same as the program of concentration except that an additional 300-level course is required; 340 is recommended. The required cognates constitute a minor in the physical sciences. Prior to the internship semester, a student must pass a screening test administered by the department. The advisor for elementary teacher education programs is Mr. Clarence Menninga.

A group major in science and mathematics meets the needs of some students, particularly those in professional programs. These majors, however, are not appropriate for students who anticipate attending a graduate school or who are in teacher education programs. Such group majors require twelve courses in the sciences and mathematics, ten of which must be from two departments with no fewer than four from either, with the remaining two courses chosen from a third department. The courses in biology must be chosen from the "Program of Concentration Courses" and the two-course cognate is 121 and 122. The de-

partmental chairmen of the three departments must approve each such program.

The core requirement in biological science is usually met by 111, 116, or 121, but may also be met by 105-106 when taken as a unit and by any other course in the department; 115 satisfies the core for majors and minors in physical education only. The requirement may also be met by completing two year-long courses in biology in high school with the concluding course being Advanced Biology.

NURSING PROGRAM COURSES

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

106 **INTRODUCTORY HUMAN ANATOMY AND PHYSIOLOGY.** S. Continuation of 105. *Mr. P. Tigchelaar.*

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

GENERAL COLLEGE COURSES

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

115 **HUMAN BIOLOGY.** F and S. A study of the normal biological structure and function of man. Lectures and laboratories. *Staff.*

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

PROGRAM OF CONCENTRATION COURSES

Basic Courses

121 **CELL BIOLOGY.** F. The structure and function of prokaryotic and eukaryotic cells are examined at the molecular, subcellular, and whole cell levels. The plant cell is em-

phasized in the discussion of eukaryotic cells and the laboratory work includes plant cells as units of structure and function within multicellular plants. *Staff.*

122 **ANIMAL STRUCTURE AND FUNCTION.** S. An introduction to the anatomy, development, and physiology of the vertebrate animal. Prerequisite: 121. *Staff.*

221 **GENETICS AND DEVELOPMENT.** F. A study of the development of contemporary concepts of the gene and an introduction to the study of biological development, including both embryonic and post-embryonic systems. Prerequisites: 121 and 122. *Staff.*

222 **ECOLOGY AND EVOLUTION.** S. An introduction to the study of biological populations and communities and contemporary concepts of organic evolution. Prerequisites: 121, 122, 221. *Staff.*

Investigative Courses

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

351 **INVESTIGATIONS IN GENETICS AND DEVELOPMENT.** S. Laboratory studies of genetic and developmental phenomena of selected organisms. *Mr. J. Beebe and Mr. B. Ten Broek.*

352 **INVESTIGATIONS IN ECOLOGY.** F. Laboratory and field studies of biological populations and communities. *Mr. A. Gebben, Mr. A. VanderHart.*

Advanced Courses

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

323 **COMPARATIVE VERTEBRATE ANATOMY.*** F. A study of the comparative anatomy of vertebrates. *Mr. P. Tigchelaar.*

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

332 PLANT PHYSIOLOGY.* S. A study of plant function. Course topics include photosynthesis, photomorphogenesis, plant hormones, and the movement of water and solutes. Additional prerequisite: Chemistry 254 or equivalent. *Mr. J. Beebe.*

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 B. Klooster.*

340 THE DIVERSITY OF ORGANISMS. F. A systematic study of the classifications, morphological patterns, and evolution of plants and animals. *Mr. A. Bratt, Mr. A. Gebben.*

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

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

Seminar and Research Courses

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

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

GRADUATE COURSES

510 BASIC IDEAS IN CONTEMPORARY BIOLOGY. A study of contemporary ideas in biology involving all of the organizational levels (the molecular, cellular, organ, organism, population, species, community, ecosystem). The laboratory work will emphasize the methods of inquiry of biology especially as they pertain to the concepts of biology which are being taught in the elementary and junior high schools. Prerequisite: at least three courses in biology including either Biology 111 or 121. *Staff.*

590 INDEPENDENT STUDY (graduate). F,I,S. *Staff.*

595 GRADUATE PROJECT. F.I.S., full or half course. The prospectus for each Master of Arts in Teaching project must be developed

under the supervision of a faculty member and must be approved by the student's graduate adviser. *Staff.*

JANUARY 1979 INTERIM

I-10. INVESTIGATIONS IN BIOLOGY. Core. A liberal arts core course in biology which emphasizes laboratory investigation. Students will work on laboratory exercises until they get consistent results. They will discuss the results as they relate to the concepts under investigation. They will also attack experimentally any questions raised by their investigations. Background readings will give students the factual and theoretical base they need for the areas of biology being investigated. *Mr. B. Ten Broek.*

I-50. INVESTIGATIONS IN MAMMALIAN ANATOMY. This course in mammalian anatomy includes both lecture and laboratory sessions. The lecture period will be devoted to a discussion of the organ systems of the mammal. The laboratory will include dissection of a cat, comparative study of cat and human anatomy, and an introduction to elements of history. This course is intended for B.S. in Nursing students and others who need credit in gross anatomy. Prerequisite: one course in biology. *Mr. H. Bengelink.*

I-51. SEMINAR IN PLANT DEVELOPMENT. A study of journal articles on principles and problems in plant development. The course includes discussions on the control of growth and development by plant hormones, the role of environmental factors in development, the differentiation of excised organs, and the control of form and differentiation. Seminar participants will prepare and present reviews of biological literature in these subject areas. Prerequisites: 121, 221, 222, and permission of the instructor. *Mr. J. Beebe.*

I-52. INTRODUCTION TO MARINE BIOLOGY. An introduction to marine environments and the biotic and abiotic factors which influence the types and abundance of organisms which inhabit the ocean. Major marine habitats and the typical organisms which inhabit them are analyzed; the ecosystem will be stressed. A research paper or special project is required. Prerequisite: one course in biology. *Mr. A. Bratt.*

I-53. HEALTH. Without sufficient knowledge of the science of health, a person cannot adequately prevent disease or make full use of our health care system. Designed for

the general college student, this course presents the basic components of health. Some of the topics to be discussed are drugs, tobacco, alcohol, nutrition, weight control, epidemiology and disease, accidents and health risks, genetic diseases and counseling, ethics and the law, the delivery of health care, and dilemmas in our health care system. The course includes outside speakers, films, and reading. Prerequisite: 111 or equivalent. *Miss B. Klooster, Mr. P. Tigchelaar.*

I-54. **TEACHING INVESTIGATIONS IN BIOLOGY.** This course will give experience in teaching beginning students in biology in a laboratory setting. Students will be involved in the preparation of laboratory materials, in assisting in the laboratory, in leading discussions, and helping students with their background reading. Members of the class will also be able to try out some of their own ideas concerning the teaching of laboratory work to beginning students.

Satisfies ninth course requirement for secondary education students in biology and the methods course requirement for MAT students in science studies. Prerequisites: junior or senior biology major in secondary education or enrollment in the MAT science studies concentration. *Mr. Ten Broek.*

I-55. **BLOOD.** An introduction to the study of blood cells, blood chemistry, serology, and immunology. The course emphasizes an understanding of the physiological state of organisms by means of blood analysis. Lectures, readings, and laboratory work. Enrollment preference for medical technology students. Prerequisite: 122. *Mr. H. Bouma, Mr. G. Van Harn.*

Idis I-10. **OUR DAILY BREAD.** *Mr. U. Zylstra.*

Idis I-51. **INVESTIGATIONS IN MATHEMATICAL MODELING OF ECOLOGICAL SYSTEMS.** *Mr. A. Gebben.*

Chemistry

Professors R. Albers, H. Broene, T. Dirkse, K. Piers, W. Van Doorne (chairman)
Associate Professors R. Blankespoor, R. DeKock, A. Leegwater

PREREQUISITE TO BEING admitted to a concentration in chemistry is a minimum average of C (2.0) in 103, 104, and 201 or 301.

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

For students preparing for graduate study in chemistry, the certification requirements of the American Chemical Society for professional training in chemistry may be met by completing the eleven courses: 103-104, 201, 277-278, 301-302, 305, 309, 310, and 303, or 306; Mathematics 111-112, 211-212; Physics 126 and 225 or 123, 124, and 225. A reading knowledge of German is required and of French is recommended. Computer Science 108 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, 303, 305, 309, 310, or an approved interim course. The teaching minor is 103-104, 204, 253-254 or 301-302, and either an elective or an approved interim course.

The teaching group major in chemistry and physics consists of Chemistry 103-104 and 253-254 or 301-302; Physics 123, 124, 181, 182, 225, and 226; and two and a half courses in chemistry and/or physics which are approved by the Science Division Education Coordinator. Recommended courses include: Chemistry 201, 277, 278, Physics 381, and 382.

A group major in science and mathematics meets the needs of some students, particularly those in professional programs. These majors are not appropriate for students who anticipate attending graduate school or who are in teacher education programs. Such group majors require twelve courses in the sciences and mathematics, ten of which must be from two departments with no fewer than four from either, with the remaining two courses chosen from a third department. The departmental chairmen of the three departments must approve each such program.

The Science Division Education Coordinator and Elementary Education Adviser is Mr. Clarence Menninga of the Physics Department.

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

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

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

113 FUNDAMENTALS OF CHEMISTRY. F. This course is intended for elementary education students and for those who need only one course in general chemistry to satisfy various paramedical professional requirements. The fundamental concepts of chemical science are presented together with selected topics in descriptive chemistry. Emphasis is placed on the language of chemistry, the mole concept, chemical bonding, stoichiometry equilibrium processes, and periodicity. Laboratory. *Mr. A. Leegwater, Mr. W. Van Doorne.*

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

201 QUANTITATIVE ANALYSIS. F. A study

of the theory and practice of titrimetric and gravimetric methods of analysis. Laboratory. Prerequisite: 104. *Mr. T. Dirkse.*

204 PHYSICAL CHEMISTRY FOR THE BIOLOGICAL SCIENCES. S. A one semester survey of physical chemistry with some applications to biological systems. This course treats the same topics covered in 277 and 278, but a knowledge of calculus is not required. Prerequisite: 104. *Mr. H. Broene.*

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

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. A. Leegwater.*

277 PHYSICAL CHEMISTRY. F. A study of the properties of gases and the kinetic molecular theory; introduction to thermodynamics and phase equilibria. Prerequisites: 201 or concurrent registration, Mathematics 112, and a high school or college physics course. *Mr. H. Broene.*

278 PHYSICAL CHEMISTRY. S. A study of the kinetics of chemical processes and of electrochemistry, including the nature of electrolytic solutions. Electrochemistry is treated from a kinetic as well as a thermodynamic point of view. Laboratory consists of a study of experimental methods used in these areas and their application to analytical chemistry, including work in polarography, potentiometric titrations, and amperometric titrations. Prerequisite: 201 and 277. *Mr. T. Dirkse.*

301 ORGANIC CHEMISTRY. F. A detailed study of organic compounds, their synthesis and reactions, presented within the

framework of modern physico-chemical theory, together with an introduction to modern methods of analysis and identification. Laboratory. Prerequisite: 104 and preferably 201. *Mr. B. Blankespoor, Mr. K. Piers.*

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

303 BIOCHEMISTRY.* F. A study of proteins, carbohydrates, lipids, enzymes, coenzymes, hormones, vitamins, metabolism, biosynthesis, and bioenergetics. Laboratory. Prerequisite: 254 or 302. *Mr. R. Albers.*

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

306 QUANTUM CHEMISTRY. S. An introduction to the principles of quantum mechanics, with special emphasis on their application to a variety of problems in atomic and molecular structure and reaction mechanisms. Prerequisites: 301, Physics 225, and Mathematics 212. Computer Science 108 is recommended. *Mr. R. DeKock.*

309 INTRODUCTION TO SPECTROSCOPY AND INSTRUMENTAL METHODS OF ANALYSIS.* S. A study of various forms of spectroscopy, including visible, ultraviolet, infrared, and NMR. This study will emphasize both the theoretical aspects and their application to analytical procedures. Prerequisite: 277. *Staff.*

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

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

395 SEMINAR.* F and S. Meets one hour per week for discussion of selected topics.

The program features visiting speakers, student reports on projects and senior research, staff presentations of their research, and discussion of topics of general interest. All juniors and seniors in the chemistry program are advised to participate. *Staff.*

JANUARY 1979 INTERIM

I-50 CHEMICAL STRUCTURE AND BONDING. This course begins with an introduction to the electronic structure of atoms and proceeds to the electronic structure and chemical bonding in diatomic and polyatomic molecules. Emphasis is placed on the relationship of molecular properties to the electronic structure of molecules. The use of the photoelectric effect to probe the energy levels of atoms and molecules will be explained. Among the polyatomic molecules to be discussed are several inorganic molecules, organic molecules, and transition metal complexes containing typical and organometallic ligands. The application of some symmetry rules toward understanding simple gas reactions is illustrated. The course also discusses types of bonds that can occur in condensed phases such as van der Waals, ionic, and hydrogen bonds. Open only to freshmen and sophomores. Prerequisite: 103. *Mr. R. De Kock.*

I-51 THE CHEMISTRY OF POLYMERS. Rocks, woods, plastics, human skin, and almost all familiar materials are macromolecular or polymeric in nature. The correlation between the molecular structure, the physical and chemical properties, and the usefulness of materials can be seen more strongly in the study of polymers than anywhere else. The course studies polymers from the points of view of synthesis, structure, and properties with a strong emphasis on the interrelation of these factors. The course involves lectures, selected laboratory experiments, and possibly field trips. Prerequisite: 253 or 301. *Mr. W. Van Doorne.*

I-54 STRUCTURAL DETERMINATION OF COMPOUNDS USING SPECTROMETRIC METHODS. The structures of many compounds can be determined from their NMR, IR, UV, and mass spectra. Although this course introduces the theory and principles underlying proton and carbon-13 NMR spectroscopy, high resolution mass spectrometry and fragmentation patterns, visible and UV spectroscopy, and IR spectroscopy, the main emphasis is on the practical application of these spectral methods

of elucidating molecular structure. If time permits, ESR spectroscopy will also be included. The course involves lectures and problem-working sessions, but no labora-

tory. Prerequisite: 253 or 301. *Mr. R. Blankespoor.*

Idis I-10 OUR DAILY BREAD. *Mr. K. Piers*

Classical languages

Professors G. Harris, R. Otten, R. Wevers (chairman)
Instructor K. Bratt

THE DEPARTMENT OFFERS THREE programs of concentration: in Classical languages, in the Greek language, and in the Latin language. The Classical languages program is designed for graduate studies, the Greek language program is for preseminarians and any others wishing to concentrate in Greek language and literature, and the Latin language program is for those intending to teach the language at the secondary school level. Modified concentrations are available to other students.

The Classical languages 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 culture and civilization courses selected from: Classics 211, 221, 231, 311, 312, History 301. Reading competence in French and German is strongly recommended.

The Greek language program requires six courses selected from: Greek 101-102, 201-202, 203-204, 205, 206, 301, 302; and two additional courses selected either from this group or from Classics 211, 221, 231, 311, 312, History 301. At least one course must be a 300-level Greek language course. The recommended preseminarian program is: Greek 101-102, 201-202 or 203-204, 205-206, History 301 or Classics 211, and a 300-level Greek language course.

The recommended Latin program, which prepares for a secondary teaching certificate, includes Latin 101-102, 201-202, 205-206, 301-302, 303-304 and three Classics courses or approved interim courses. The specific nine-course program depends on the student's high school preparation. The teacher education adviser is Mr. Ernest Van Vugt.

A Latin teaching minor requires five courses beyond the 100-level and one Classics course.

Students who have completed one year of high school Latin should enroll in Latin 101; two years in 201 (except that the unusually well qualified student, even with only two years of high school Latin, may with department approval enroll directly in Latin 205 and so meet the graduation requirement for language with one college course); those with three years, in either 202 or 205; more than three years, in 205 or 206. Those who have completed one year of college Latin should enroll in 201.

The core requirements in the fine arts may be met by Greek 202, 204, 301, 302, any Latin course numbered 202 through 304, Classics 221, and designated interims. The "foreign culture" requirement of certain designated pre-

professional programs may be met by Classics 211. Classics 231, *Classical Mythology*, may be part of the teaching minor in the Academic Study of Religions.

CLASSICS

211 **GRAECO-ROMAN CULTURE.** F. A survey of Graeco-Roman culture as reflected in various art forms, but with the main emphasis upon works of literature which express distinctive features of the mind of the Greeks and Romans. Slides, films, and other illustrative materials will be used, and students will be expected to read extensively in anthologies of Greek and Roman literature. No knowledge of Greek or Latin will be required. Satisfies the "foreign culture" option of certain preprofessional programs, and can be a substitute for ancient history in the seminary entrance requirements. *Mr. K. Bratt.*

221 **GRAECO-ROMAN ART AND ARCHITECTURE.** S, fine arts core. A study of the major monuments and sites of ancient Greek and Roman civilization from the Bronze Age to the late Empire. Primary attention is devoted to the origins and development of Greek sculpture, painting, and architecture, and to their transformation in the arts of Rome. Ancient literary sources supplement the study of physical remains in this investigation of Graeco-Roman culture. Slide lectures, written reports. *Mr. K. Bratt*

231 **CLASSICAL MYTHOLOGY.** S. A study of the major themes in Classical mythology

via the literature and art of Greece and Rome. Major literary sources (Homer, the Greek Dramatists, Vergil, and Ovid) are read in translation and supplemented by slides of Greek and Roman mythological art. Attention is given to various interpretations of the myths and their influence on Western culture. A course paper or project is required. Lectures, discussions, oral reports, and slides. *Staff.*

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 1978-79.

312 **ROMAN HISTORY.*** S. The history of Rome from the foundation of the city to A.D. 565, the death of Justinian. The emphasis falls on the development of the constitution and its effect upon, and how in turn it was affected by, the expansion of Rome over the Mediterranean. Economic, social, and literary history are 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 1978-79.

GREEK

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

102 **ELEMENTARY GREEK.** S. Continuation of 101. Completion of the text and the reading of the selected prose passages. *Staff.*

201 **INTERMEDIATE GREEK A.** F. Readings in the early dialogues of Plato. Special emphasis is put on gaining reading proficiency in Greek prose. Prerequisite: 102. Not offered 1978-79.

202 **INTERMEDIATE GREEK A.** S, core. Readings in Homer's *Iliad* in translation. Attention is given to the characteristics of Homer's world. Prerequisite: 201 or 203. Not offered 1978-79.

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

204 **INTERMEDIATE GREEK B.** S, core. Readings in the Attic orators and Plato's *Apology*. Attention is given to certain matters of style. The readings are viewed in relation to, and as documentation for, the history of fourth-century Athens. Prerequisite: 203 or 201. *Mr. R. Wevers.*

205 **NEW TESTAMENT GREEK: THE GOSPELS.** F. The Gospel according to St. Mark is read with some notice of the parallel passages in the other Gospels. A study is made

of the special features of Hellenistic Greek. The significance of lexical and syntactical detail for the interpretation of the text is everywhere emphasized. Prerequisite: 102. *Mr. R. Otten, Mr. R. Wevers.*

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

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

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

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 and I. 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. A thorough review of the essentials of grammar will accompany the reading of selected Latin prose. Prerequisite: two units of high school Latin or two courses of college Latin. *Staff.*

202 INTERMEDIATE LATIN. S, core. A study of the *Aeneid* and of selected poetry and prose in Latin. Prerequisite: three units of high school Latin or three courses of college Latin. *Staff.*

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

three years of high school Latin, or approval of instructor. *Mr. R. Otten.*

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

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. Not offered 1978-79.

302 LATIN PHILOSOPHICAL LITERATURE: CICERO AND AUGUSTINE.* S, core. Readings in Cicero and Augustine, selected to complete the survey begun in 301 and to present the first major Christian critique of classical thought. Collateral readings and reports. Prerequisite: 205 or 206. Alternates with 304. Not offered 1978-79.

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. *Mr. K. Bratt.*

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. *Staff.*

JANUARY 1979 INTERIM

I-10 HEROES AND THE IDEAL OF EXCELLENCE. A study of the great epic poems of Greece and Rome—the *Iliad*, the *Odyssey*, and the *Aeneid*—as monuments of art and comprehensive statements on the character of the age and society which produced them. The enduring power of the ancient epics is probed through analysis of selections from Dante, Milton, Joyce, and Kazantzakis. All assigned readings are in English and no prior knowledge of classical civilization is required. Lectures, discussions, and reports. *Mr. K. Bratt.*

I-50 **REVIEW GREEK.** This course is intended for students who have completed Greek 101, and will involve no assignments beyond what can be done in the hours when the class actually meets. An afternoon session will be available for students whose regular interim class meets in the morning,

and a morning session for those with afternoon interim classes. Non-credit. Prerequisite: successful completion of Greek 101. *Mr. G. Harris.*

102 **ELEMENTARY LATIN.** *Mr. R. Otten.*

Computer science

*Professors L. Nyhoff, P. Zwier (chairman, Department of Mathematics)
Associate Professor S. Leestma*

THE DEPARTMENT OF MATHEMATICS OFFERS three programming courses for students who plan to use the computer in their disciplines. An introductory course to computer science (Computer Science 243) and Numerical Analysis (Mathematics 341) are offered for students in applied mathematics or those who plan to do graduate work in computer science.

The Honeywell 636 and the Prime 4000 computers, located in the William Spoelhof College Center, are available for use by the students via teletypes located in various places on campus. Students not enrolled in a computer science course and who wish to use the computer should contact Mr. S. Leestma.

106 **COMPUTER PROGRAMMING FOR BUSINESS.** S, half course. Introduction to computer programming using the COBOL language. Applications will be taken from business data processing including accounting, inventory control, file maintenance, and report generation. *Staff.*

107 **COMPUTER PROGRAMMING FOR SOCIAL SCIENCE.** F and S, half course. Introduction to computer programming using BASIC and FORTRAN languages. Intended for students majoring in areas other than mathematics and science. No mathematics prerequisite. Topics include computer-orientated solutions of problems in elementary numerical methods, computational algorithms, systems simulation, statistical calculations, and string variable manipulation. *Mr. S. Leestma.*

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

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

GRADUATE COURSES

511 **COMPUTING AND COMPUTER SCIENCE FOR TEACHERS.** This course includes a discussion of computer organization and operation and the applications of computing to science and mathematics. Some of the topics to be considered are: nondecimal numeration systems, especially binary, octal, and hexadecimal; digital representation of data; Boolean algebra and its application to design of arithmetic units; machine language and assembly language programming; computer system software. This will provide a basis for an introduction to computer programming using the BASIC language, including flow-charting and de-

velopment of algorithms. Programs will be written for solving problems in areas such as number theory, matrix algebra, and numeric calculus. Special attention will be

given to applications in secondary education. Prerequisite: some knowledge of calculus and linear algebra. *Staff.*

Dutch

Professors J. Lamse (chairman, Department of Germanic Languages), W. Lagerwey, Queen Juliana Chair of Language and Culture of the Netherlands (program coordinator)

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

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

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

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

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

203 INTERMEDIATE 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. *Staff.*

204 INTERMEDIATE DUTCH. S, core. A continuation of 203. *Staff.*

305 DUTCH CLASSICS.* Core. Study and discussion of several Dutch literary texts representative of the classical and modern periods of Dutch literature. Because the literature studied is varied from year to year, the course may be repeated for credit. *Staff.*

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

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. *Staff.*

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

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

JANUARY 1979 INTERIM

I-10 DUTCH CULTURE THROUGH DUTCH LITERATURE. This course, which is conducted in English, is designed for those who do not know the Dutch language as well as for those who do. Students study Netherlandic life and culture through four novels written by one of the greatest Dutch writers, Arthur van Schendel. These novels provide a basis for understanding the social, economic, political, and religious characteristics of nineteenth century Netherlands, for studying tensions that developed, and for observing the technological transformation of Holland into a modern nation. This course satisfies the foreign culture core requirement and, for students who read the novels in Dutch, may be applied to a Dutch major. *Mr. W. Lagerwey.*

I-11 INTRODUCTION TO FRISIAN. A course designed to give the beginning student some elementary facility in the reading, writing, and speaking of Frisian. *Mr. B. Fridsma.*

Earth science, geography, geology

Professors V. Ehlers (chairman, Department of Physics), C. Menninga
Associate Professor D. Young

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

Students preparing to teach science at the junior high level should take 113 or 151-152. Those wishing to qualify for teaching earth science should take Geology 151-152, Astronomy 110, and an approved elective. Geology 151-152 satisfies the natural science core requirement.

101 INTRODUCTION TO GEOGRAPHY. F and S. A study of several aspects of geography—cultural, economic, and physical—in the context of world regional studies. The course seeks to develop a geographic perspective on current ecological and demographic problems using the principles and procedures of the discipline. Mr. G. Oosterman.

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

151 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; and the earth as a representative planetary body in space. Includes laboratory. Mr. C. Menninga.

152 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: 151. Mr. C. Menninga.

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

210 GEOGRAPHY OF NORTH AND SOUTH AMERICA. F alternate years. A comparative study of the physical, cultural, and economic aspects of both North and South America. Ecological and demographic factors will be considered in some detail. Prerequisite: 113. Mr. G. Oosterman. Not offered 1978-79.

261 MINERALOGY. Major topics considered are: the geometric arrangement of atoms within the mineral crystal; the external crystal form; the physical and optical properties of minerals; and the use of the petrographic microscope. Laboratory. Prerequisite: Geology 151 and Chemistry 103. Mr. D. Young.

390 INDEPENDENT STUDY IN GEOLOGY.* Full course or half course. Prerequisite: permission of department. Mr. C. Menninga.

GRADUATE COURSES

520 EARTH SCIENCE FOR ELEMENTARY TEACHERS. This course includes consideration of the main ideas which serve as unifying principles in earth science. Recent discoveries and current research projects are

reviewed. The course highlights ideas resulting from studies in earth sciences which have increased our understanding of the relationships between the earth and its human inhabitants. Topics include applications of geology to environmental problems, contributions of space research to understanding the earth, and the relationship between the results of geological study and teachings of the Bible. Special attention is given to ideas which can be incorporated into elementary school materials and activities. Prerequisite: Earth Science 113 or equivalent. *Staff.*

590 INDEPENDENT STUDY (graduate). F,I,S. *Staff.*

595 GRADUATE PROJECT. F, I, S., full or half course. The prospectus for each Master of

Arts in Teaching project must be developed under the supervision of a faculty member and must be approved by the student's graduate adviser. *Staff.*

JANUARY 1979 INTERIM

I-11 GEOLOGY OF NATIONAL PARKS. A course which studies the geologic structures found in various national parks and the events which formed those structures. The class includes readings, lectures, slide presentations, laboratory activities, and a two-day visit to Mammoth Cave National Park, Kentucky. *Mr. C. Menninga.*

Idis I-20 CREATION AND THE FLOOD. *Mr. D. Young.*

Economics and business

Professors G. Monsma (chairman), D. Pruis

Assistant Professors L. De Lange, E. Dykema, D. Ebels, K. Kuipers, J. Tienstra

Instructors J. De Jong, J. Lesage

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

Economics concentration requirements are 151, 207, 321, 322, six other courses (five for teacher education) including at least four (three for teacher education) from 331-342 and 395, and the mathematics cognate.

Business Economics concentration requirements are 151, 207, 212, 313, 316, 318, 321, 322, two other courses including at least one from 331-339 and 395 (one other course from 331-339 and 395 for teacher education), and the mathematics cognate. An accounting major may be added to this concentration by electing five courses from 209, 307, 308, 310, 311, and 312.

Economics Group concentration requirements are 151, 207, 321 or 322, four other economics courses and four courses in either history, political science, psychology, or sociology in a coordinated program approved by the department. One approved interim course may be included in a program of concentration.

The minimum mathematics cognate requirement is 205 and 206, which should be completed in the sophomore year. In view of the importance of mathematics in the study of economic theory and its applications in economic and

business analysis, Mathematics 111, 112, 211, 212, and 343 are recommended. In the cognate requirements, 111 may be substituted for 205, and 343 may be substituted for 206.

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

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

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

151 **PRINCIPLES OF ECONOMICS.** F and S, core. A study of the principles of resource allocation, income distribution, prices, production, income and employment levels, and economic growth with an emphasis on the market system. The course is planned to help students understand basic domestic and international economic problems and to prepare them for further work in economics, history, and government. *Mr. E. Dykema, Mr. D. Ebels, Mr. J. Lesage, Mr. G. Monsma, Mr. J. Tiemstra.*

207 **INTRODUCTION TO FINANCIAL ACCOUNTING.** F. An introduction to accounting with emphasis on principles of asset valuation and income determination. Prerequisite: completion or concurrent registration in 151. *Mr. L. De Lange, Mr. K. Kuipers, Mr. D. Pruis.*

209 **INCOME TAX.** F. A study of Federal income tax law and of tax cases to provide a basis for an understanding and evaluation of that law and of the rate structure. Includes the implications of income taxation for business decisions. Emphasis on taxation of individuals with limited coverage of partnerships and corporations. Prerequisite: 207. *Mr. L. De Lange.*

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

307 **INTERMEDIATE ACCOUNTING I.*** F. A study of financial accounting theory and generally accepted accounting principles as applied to the measurement and valuation of assets and liabilities. Prerequisite: 212. *Mr. K. Kuipers.*

308 **INTERMEDIATE ACCOUNTING II.*** S. Continuation of 307. A study of financial

accounting theory and generally accepted accounting principles as applied to the measurement and valuation of stockholders' equity, issues related to income determination, and preparation and analysis of corporate financial statements. *Mr. K. Kuipers.*

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

310 **ADVANCED ACCOUNTING.*** S, odd years. Preparation of consolidated financial statements, accounting for partnerships, and accounting for installment and consignment sales. Introduction to governmental or fund accounting. Prerequisite: completion of or concurrent registration in 308. *Staff.*

311 **AUDITING.** The theory and philosophy of auditing, including an examination of the ethical and other professional standards required of the Certified Public Accountant. Prerequisite: completion of or concurrent registration in 307. Not offered 1978-79.

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

313 **BUSINESS ORGANIZATION AND MANAGEMENT.*** F and S. A study of the principles and problems of organization and management for optimal administration of the general management function in the

firm, with emphasis on effective utilization of the human resources of the firm. Prerequisites: 151 and 207. *Mr. J. De Jong.*

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

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

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

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

331 CREDIT AND MONETARY THEORY.* F. A study of the principles of money, banking, and credit with emphasis on monetary theory and policy and their role in domestic and international economics. Prerequisite: 151. *Mr. J. Tiemstra.*

334 INDUSTRIAL MARKETS AND PUBLIC CONTROL.* S. A study of the structure, control, and market behavior of American industry, and the public policies for the control of economic power. Prerequisite: 151. Not offered 1978-79.

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. G. Monsma.*

336 COMPARATIVE ECONOMIC SYSTEMS.* S. A comparison of various forms of economic organization, such as capitalist and socialist types, and an evaluation of their

performance in theory and practice. Prerequisite: 151. *Mr. J. Lesage.*

337 WORLD POVERTY AND ECONOMIC DEVELOPMENT.* A study of the causes of widespread poverty in many nations and regions of the world, and a study and evaluation of policies designed for its alleviation. Prerequisite: 151. Not offered 1978-79.

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. *Mr. J. Tiemstra.*

339 THEORY OF PUBLIC FINANCE.* F. 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. D. Ebels.*

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. *Mr. E. Dykema.*

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

395 ECONOMICS SEMINAR.* 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. Not offered 1978-79.

JANUARY 1979 INTERIM

I-50 FINANCIAL SYSTEM COMPONENTS: FINANCIAL INSTITUTIONS AND FINANCIAL MARKETS. This course presents an overview of the financial system and the role it plays in our economy. Major trends, problems, and current issues are explored. The course considers such factors as equity, efficiency, progress, and stability in the performance of financial institutions and markets. The course also examines investments in detail. The latest theoretical and practical de-

velopments (including the capital-asset pricing model) are analyzed and evaluated. Includes a paper and a week visit to major city and an appropriate fee. Prerequisites: 151 and permission of instructor. Mr. K. Kuipers.

I-51 ACCOUNTING ISSUES AND INSTITUTIONS. This course considers current issues in accounting standards in the light of accounting theory and the process by which generally accepted accounting principles are developed. A joint study of the issues is followed by individual research. Includes week visit to major city with an appropriate fee. Prerequisite: 207. Mr. D. Pruis.

I-52 BUSINESS TAXATION. A study of a variety of federal, state, and local payroll, excise, property, franchise, income and other taxes (other than Federal income tax, which is covered in Economics 209) applicable to business firms and non-profit organizations. Provisions of each tax will be studied, with applications to a variety of situations explored in problem assignments. The course includes an evaluation of the provisions of the taxes studied, including the tax impact on different types of firms within a state as well as selected interstate comparisons. Prerequisite: 207. Mr. L. De Lange.

I-53 INTRODUCTION TO ENVIRONMENTAL ECONOMICS. This course deals with the theory of practical implementation of environmental policies. The emphasis is on the development of an approach to assess the optimal levels both of pollution and of the development of natural resources. Private market solutions are assessed in terms of their impact on environmental quality and alternative public policies are evaluated. The course concludes with an

exploration of adjustments necessary to ensure the future viability of Western society. Readings, lectures, discussion, and group or individual projects exploring environmental issues of local or regional concern will be included. Prerequisite: 151 Mr. D. Ebels.

I-54 URBAN ECONOMICS. This course examines the theory of urban location and land use and the economic determinants of city size, location, and structure. Students will investigate applied topics such as housing, racial segregation, public services, transportation, and the economic growth and decline of cities. Prerequisite: 151. Mr. J. Tiemstra.

I-55 INTRODUCTION TO MANAGEMENT SCIENCE. A survey of the various tools of management science including linear programming, dynamic programming, game theory, queueing, and inventory theory. The course covers the evaluation of models and problem formulation and solution. Problem sets will be assigned. Prerequisites: 151 and Mathematics 111 or 206. Mr. J. De Jong.

I-56 THE CANADIAN ECONOMY. The course introduces students to various Canadian economic institutions and focuses on the crucial role economic growth has played in the development of these institutions. With the question of the legitimate role of the state in economic life in the background, the course also evaluates the concept of economic growth and discusses its impact in such areas as federal-provincial relations, industrial structure, energy development and regional disparities. A paper is required. Prerequisite: 151 or permission of the instructor. Mr. J. Lesage.

Education

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

Associate Professors C. Mulder, D. Westra

Assistant Professors K. Blok, W. Hendricks, T. Hoeksema, L. Stegink

Instructor B. Bosma, R. Mulder

Director of Teacher Certification and Placement M. Strikwerda

THE VARIOUS TEACHER EDUCATION PROGRAMS are described in detail on pages 45-49. Prospective secondary teachers should consult with an adviser in

the department in which they expect to major. The coordinator of secondary education is Mr. Philip Lucasse and the coordinator of special education is Mr. Thomas Hoeksema. Prospective elementary teachers should consult with Mr. William Hendricks, coordinator of elementary education.

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

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

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

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

A recommended elective for students in secondary teacher education and any student interested in refining college-level reading skills. *Mrs. B. Bosma.*

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

345 DIRECTED TEACHING: ELEMENTARY.* F and S, one to three course units. Includes classes and seminars in teaching the various subjects offered in the elementary school. Each course unit of 345 and 355 involves at least ninety clock hours of practice teaching. Prerequisites: approval of the department and a cumulative grade point average of C (2.0). *Staff.*

346 DIRECTED TEACHING: SECONDARY.* F and S, one to three course units. Includes classes and seminars in teaching the various disciplines. Each course unit of 346 and 356 involves at least ninety clock hours of practice teaching. 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 by supervisors in 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.*

SPECIAL EDUCATION

216 **EDUCATION OF EXCEPTIONAL CHILDREN.** F and S. An orientation to all disability areas included within the field of special education. The course acquaints the students with the basic information and the specialized vocabulary needed for dealing with handicapping conditions. Consideration of the major issues in special education as well as with contemporary educational practices. *Mr. T. Hoeksema.*

306 **MENTAL RETARDATION.*** F and S. Study of cognitive, affective, and social characteristics of the mentally impaired, with attention given to several common etiologies. Examination of issues involved in defining mental retardation. Investigation of diagnostic treatment and preventive techniques. Differentiation of mental retardation from related conditions. Discussion of research and emerging concepts within the field. Special Education 216 must be taken previously or concurrently. *Mr. T. Hoeksema.*

310 **DIAGNOSIS AND PRESCRIPTION IN SPECIAL EDUCATION.** This course is designed to acquaint students with the basic terminology and theory of assessing specific learning problems. Skill will be developed in the selection, administration, and interpretation of formal and informal, standardized and non-standardized assessment devices for the purpose of determining educational prescriptions. Prerequisite: 216. *Staff.* Not taught 1978-79.

320 **THEORIES OF LEARNING DISABILITIES.** As an introduction to the field, this course seeks to acquaint students with the major theoretical models of learning disabilities and with the academic, social, and motor characteristics of learning disabled children. Approaches to the education of learning disabled children which have been based on the theoretical models examined are also studied. Prerequisite: 216. *Staff.* Not taught 1978-79.

323 **TEACHING OF READING: METHODS, DIAGNOSIS, AND PRESCRIPTION.** A study of the nature of reading as a cognitive and developmental process, the basic skills needed in learning to read, and various approaches to the teaching of reading. This course also includes a study of the various kinds of problems which children exhibit when learning to read, the use of common

diagnostic tests with an emphasis on the strengths and weaknesses of each, and a clinical experience involving both the diagnosis of reading problems and the use of appropriate corrective measures. Prerequisites: 301, 303, 310. *Staff.* Not taught 1978-79.

330 **CURRICULUM AND INSTRUCTION: MENTALLY IMPAIRED.** A study of the curricula, materials, and methods appropriate to the instruction of the mentally impaired. Attention is given to the problems of organizing classes, making curricular decisions, and selecting methods and materials. A field experience with mentally impaired students is an integral part of this course. Prerequisites: 216, 301, 303, 306; 305 is recommended. *Staff.* Not taught 1978-79.

332 **CURRICULUM AND INSTRUCTION: LEARNING DISABILITIES.** A study of the curricula, methods, and materials appropriate to the education of learning-disabled children. Attention is given to the problems of organizing classes, adapting learning environments, making curricular decisions, and selecting materials and instructional methods. Special emphasis is on the development of language. A field experience with learning disabled students is an integral part of this course. Prerequisites: 216, 301, 303, 320; 305 is recommended. *Staff.* Not offered 1978-79.

347 **DIRECTED TEACHING: MENTALLY IMPAIRED.** Two course units. *Staff.* Not offered 1978-79.

348 **DIRECTED TEACHING: LEARNING DISABILITIES.** Two course units. *Staff.* Not offered 1978-79.

357 **DIRECTED TEACHING SEMINAR: MENTALLY IMPAIRED.** One half course unit. *Staff.* Not offered 1978-79.

358 **DIRECTED TEACHING SEMINAR: LEARNING DISABILITIES.** One half course unit. *Staff.* Not offered 1978-79.

352 **SOCIETY AND MENTAL RETARDATION.*** F and S. Implications of mental retardation on adaptive behavior with particular emphasis on adult status. Consideration of crucial social needs of the mentally impaired and critical analysis of past and present programs and services for the retarded. Study of the impact of retarded persons on family systems. *Mr. T. Hoeksema.*

GRADUATE COURSES

510 HISTORY OF AMERICAN EDUCATION. 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. Satisfies context of education requirement in education and history. *Staff.*

512 THEORIES OF SCHOOLING. This course examines psychological, socio-psychological, and educational concepts relevant to an analysis and evaluation of the schooling process. Intellectual skills required for the construction of micro-theory and the interpretation and implementation of research will also be stressed. Satisfies context of education requirement in education and psychology. *Staff.*

513 PSYCHOLOGY AND THE TEACHING OF READING. A study of the dynamics of learning to read, including research from child psychology, psycholinguistics, educational psychology, and learning theory. Readings, lectures, and analysis of reading practices and materials from the psychological point of view will be used to improve reading instruction in all grades. Prerequisite: at least one course in reading and one in psychology. Satisfies context of education requirement in education and psychology. *Staff.*

515 MORAL EDUCATION. The study of a number of theories of moral education, some of which stress the cognitive approach and others the affective. Kohlberg, Rath, and Simon theories are examples. Individual projects and construction of teaching units. *Staff.*

530 EDUCATION OF THE GIFTED. This course focuses on several manifestations of intellectual, social, and artistic giftedness. Several aspects of the educational and guidance process are studied, such as identification of talent and giftedness, curriculum considerations, teaching methods, role models, and guidance procedures. Prerequisite: graduate standing and teaching experience. *Staff.*

531 TEACHING CHILDREN WITH LEARNING PROBLEMS. An orientation to the variety of handicapping conditions which affect school-age children. This course for regular classroom teachers acquaints them with the basic information and specialized vocabulary needed for dealing with handicapping

conditions in the typical classroom. It will include consideration of major issues and contemporary practices in the education of exceptional learners. *Staff.*

532 INSTRUCTIONAL GAMING. Introduction to the theory and practice of simulation and non-simulation gaming for instructional purposes. Both commercially available games and games developed in class will be used and evaluated in terms of their instructional and motivational value at various grade levels and in various subject fields. *Staff.*

533 MOTIVATING THE UNDER-ACHIEVING STUDENT. A diagnosis of the learning climate of the classroom as it is affected by the socio-cultural environment of the community and an assessment of the individual factors that affect each student's readiness to learn. Compensatory and motivational teaching materials and styles will be evaluated for their relevance to the under-achieving student. Students will relate this content to a specific classroom situation and to the broader problems of motivation and under-achievement. *Staff.*

534 SCHOOL ADMINISTRATION. A study of the structure, organization, administration, and management of the school, primarily the elementary school, including the role of the teacher-principal. Includes the development of professional leadership and supervisory practices. *Staff.*

535 THE SCHOOL AS A SOCIAL ORGANIZATION. A study of the religious premises and theoretical bases of organizations, with special emphasis on school systems. Particular attention is paid to the teacher functioning in a school organization. A major goal of the course is an attempt to formulate a Reformed Christian theory of organizations. *Mr. L. Stegink.*

536 THE YOUNG CHILD IN A PRESCHOOL SETTING. A review and critique of the basic theories of child development. Observation and intensive analysis of the behavior of a particular child in a preschool setting as related to the major theories. Prerequisite: Psychology 204. *Miss D. Westra.*

537 CURRICULUM FOR EARLY CHILDHOOD EDUCATION. An evaluation of the major approaches to building a curriculum for early childhood education (up to age eight), the underlying assumptions of each approach, and the effects of each approach on the children. Prerequisites: one course in edu-

cation and one in psychology. Miss D. Westra.

540 READING PROBLEMS IN THE ELEMENTARY CLASSROOM. This course is designed to enable experienced elementary teachers to work with problem readers in their own classrooms. The course includes: a study of the various kinds of reading problems encountered at the elementary level and their causes; the use of the most common formal and informal diagnostic tests with an emphasis on the strengths and weaknesses of each; a critical introduction to the reading materials available for the classroom; and a field experience involving both the diagnosis of reading problems and the use of appropriate corrective measures. Prerequisite: 322 or the permission of the instructor. Staff.

541 READING PROBLEMS IN THE SECONDARY CLASSROOM. This course is designed to help secondary-level teachers recognize the reading problems they are most likely to find in their classrooms and to understand what is needed to correct the problems—including the development of separate reading programs. The course includes: a study of the nature of the reading process; a survey of basic reading and study skills; an examination of the reading problems students face when they read typical high school textbooks; a consideration of alternative ways of working with problem readers; a survey of the reading and study skills materials that are appropriate at this level; the use of the most common formal and informal diagnostic tests with an emphasis on the strengths and weaknesses of each; and the development of a model program for use in a particular high school class. Prerequisite: 307, 322, a year's teaching experience on the secondary level, or the permission of the instructor. Staff.

542 DIAGNOSIS AND REMEDIATION OF READING DISABILITIES. An advanced course for the training of reading specialists who may serve as consultants to classroom teachers and may work individually with severely disabled readers. The course includes a discussion of reading theory, a study of the specialized and general testing tools emphasizing validity and interpretation, the development of prescriptive programs for remediating the problems identified, and the consideration of how to work with regular classroom teachers to implement such programs in a normal classroom. A field experience with a se-

verely disabled reader will involve the development and administration of an appropriate battery of tests, the designing of a remedial program, and creation of an evaluation procedure. Prerequisite: 540, 541, or permission of the instructor. Staff.

580 CURRICULUM THEORY AND DEVELOPMENT. A study of conflicting and complementary curriculum theories for elementary and secondary schools and how these theories ought to be conceived and practiced. A project in designing curriculum is required at the appropriate level and in the student's area of concentration. Staff.

581 EDUCATIONAL PHILOSOPHY AND CURRICULUM DECISIONS. The course examines the philosophical views of selected thinkers on curriculum. The course focuses on the differences among the best of secular and of Christian curriculum theories, with special emphasis on the way curriculum theory is related to the religious vision and the major learning goals of education. Satisfies context of education requirement in education and philosophy. Prerequisite: at least one course in philosophy or philosophy of education. Staff.

590 INDEPENDENT STUDY (graduate). F,I,S. Staff.

595 GRADUATE PROJECT. F.I.S., full or half course. The prospectus for each Master of Arts in Teaching project must be developed under the supervision of a faculty member and must be approved by the student's graduate adviser. Staff.

JANUARY 1979 INTERIM

I-10. MAINSTREAMING HANDICAPPED CHILDREN. This course, designed for prospective elementary teachers, will explore the integration of handicapped students in regular school programs through a study of existing models, through observation in schools, and through interaction with local school personnel. Implications of the mainstreaming model for Christian schools will be considered. Students will develop strategies for dealing with diverse learner needs within the regular classroom. Mr. T. Hoeksema.

I-11. GROWING UP LIKE TOPSY? A study of the young child—the influences on growth and development, the problems surrounding child care, and present-day answers to yesterday's questions. Each student will select an area for special study, such as TV

for children, day care centers, preschools, foster children, child abuse, working mothers, the single parent, play, sexism in children's books, and others. There will be readings, discussions, preschool observations, films, and visits with personnel from agencies serving children. *Miss D. Westra.*

I-12. **APPALACHIAN INTERIM.** This course provides a cross-cultural, teacher-aiding experience in the Appalachian region of Western North Carolina, using Mars Hill College as a base. Students will serve as teacher aides three days a week in a mountain community school and will spend two days in seminars discussing appropriate learning theory, developing instructional materials, and examining the culture. Additional work will be done with the Mars Hill College Appalachian Studies Group. Background reading required before the interim. Fee for transportation, materials, etc. \$105; for room and board, \$95. January 3 to 21. Prerequisite: permission of the instructor. *Mr. G. Besselsen.*

I-13. **USING PUPPETRY IN EDUCATION.** This course will focus on the construction and use of puppets as an instructional device for use in both day school and church education at the elementary and secondary levels. It will give some attention to the history of puppetry in theater arts. Students will devise their own puppets, with accompanying stories and characters for them, for use in remedial reading, language arts, social studies, religious education, and theater arts. No prerequisite. *Mrs. J. Stoppels.*

I-14 **EXCEPTIONAL CHILDREN COME IN SMALL PACKAGES.** This course examines current practices in the education of preschool handicapped children, identifying their needs, and developing strategies to meet those needs. Topics included are early intervention with infants, assessment of developmental needs, working with families, preschool programming and funding, and the legal rights of parents. Students will observe infant and preschool programs and will practice formal and informal testing of such children, write prescriptive teaching plans, and do research on a given topic. *Mrs. C. Rottman.*

I-15 **CULTIVATING THE IMAGINATION.** By examining various theories of what promotes or inhibits imaginative responses in persons, the course will help individuals develop new ways of responding to familiar and unfamiliar situations and problems.

It will also define what we mean by imagination or creativity and experiment with specific techniques which facilitate creative thinking such as Guilford's model of divergent thinking, synectics, and brainstorming. Lectures, discussions, significant small group work. Students will do assigned reading and the necessary library research for a practical project. *Mr. J. Wiersma.*

I-50 **LANGUAGE EXPERIENCES IN THE ELEMENTARY CLASSROOM.** This course examines the rationale and the methodology of the Language Experience Approach to the teaching of reading. The learning experiences include lectures, demonstrations, films, observations, and assigned readings. Course requirements include written or oral reviews of research in the various facets of the LEA and development of an LEA activity to be presented in an elementary classroom. Prerequisites: 305 or 322. *Mrs. K. Blok.*

I-51 **ALTERNATIVES IN EDUCATION.** Using Grand Rapids Public Schools as a laboratory, students will observe a wide variety of learning environments established as alternatives to standard schooling. Through reading, students study the desirability of alternatives; through interviews with directors of programs and those involved in the programs, students will assess the effectiveness of such alternative programs. Prerequisite: enrollment in teacher education or permission of the instructor. *Mr. P. De Boer.*

I-52 **MULTI-CULTURE, ALTERNATIVE SCHOOL EXPERIENCE.** Students will be placed at Dawn Treader School in Paterson, New Jersey. Dawn Treader is an inner-city, alternative school with a majority/minority culture mix. Special emphasis is given to utilizing the cultural diversity and the urban setting to enhance the motivation and self-esteem of the pupils. The course includes lesson planning, tutoring, required reading, and a daily journal. The classroom teacher and principal will give daily supervision and conduct weekly seminars. *Mr. Lucasse* will lead a concluding seminar during the first week of second semester. Prerequisite: permission of the coordinator. *Mr. P. Lucasse.*

I-53 **CURRICULUM AND METHODS OF MULTI-GRADE CLASSROOMS.** Students will be placed in an off-campus multi-grade classroom where they will be able to utilize the spread of pupil ability for individualiza-

tion and peer tutoring. Special attention is given to management skills for both curriculum and scheduling in the class. The course includes lesson planning, tutoring, teaching, required readings, and a daily journal. The classroom teacher and principal will give daily supervision and conduct weekly seminars. Dr. Lucasse will lead a concluding seminar during the first week of second semester. Prerequisite: permission of the coordinator. *Mr. P. Lucasse.*

I-54 MEDIA IN THE CLASSROOM. This course will focus on the nature of print and

non-print educational media, the uses of media to individualize instruction, sources of media for the classroom, and tools for evaluation of media. Activities will include readings, lectures, field trips to local media sources and centers, observations of various classroom uses of media, and implementation of media in an actual unit of instruction. Activities will include laboratory production of media. Prerequisites: 301-303. *Mrs. K. Weaver.*

Idis I-13 INTRODUCTION TO PHOTOGRAPHY. *Mr. P. Lucasse.*

Engineering

Professors J. Bosscher (chairman), tL. Van Poolen
Instructors R. Hoeksema, K. Peterson

CALVIN COLLEGE offers a basic engineering program which, after the candidate's subsequent study of approximately three semesters in an accredited school of engineering, can result in the awarding of a bachelor's degree from each school attended. For details see pages 52 and 53.

101 GRAPHICAL COMMUNICATION AND CONCEPT DESIGN. F. Graphical techniques for spatial analysis; a study of basic topics in engineering and architectural drawing to provide facility in the transmission of ideas through accepted graphical means. Areas covered include orthographic projection, free-hand sketching, pictorial representation, auxiliary views, sections and conventions, and basic dimensioning; an introduction to the design process by means of lectures and assigned architectural or engineering projects. Readings are also assigned in design-related areas of creative thinking, aesthetics, models, economics, and human satisfaction. *Staff.*

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

Prerequisites: Mathematics 111, Engineering 101, and enrollment in Computer Science 108. *Staff.*

202 STATICS AND DYNAMICS. S. Study of fundamental principles of mechanics and their application to the problems of engineering. Vector algebra, forces, moments, couples, friction, virtual work, kinematics of a particle, kinematics of a rigid body, dynamics of particles and rigid bodies, impulse, momentum, work and energy are presented in two and three dimensions. Must be preceded by Physics 126 and 182 and accompanied by Mathematics 211. *Staff.*

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. *Staff.*

208 INTRODUCTION TO CIRCUIT ANALYSIS. S. An introduction to basic circuit concepts. Elementary applications of diodes and transistors. Introduction to dynamic circuits. Included are analog systems and digital logic elements and circuits. Computer analysis is utilized. Individualized labora-

tory stations are utilized to emphasize basic concepts. Students taking 208 should not also take 308. Prerequisites: Mathematics 211 and Physics 225. *Staff.*

305 MECHANICS OF MATERIALS. F. Application of principles of mechanics to solution of problems in stress and strain of engineering materials, including resistance to force, bending, torque, shear, eccentric load, deflection of beams, buckling of columns, compounding of simple stresses, introduction to theories of failure and energy methods. Laboratory experiments are used to emphasize principles. Prerequisite: 202. *Staff.*

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

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

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

312 PRINCIPLES OF ANALOG COMPUTATION. F. half course. An introduction to the theory and techniques of analog computation, including computer solutions for representative forms of linear and non-linear

differential equations. Includes introduction to iterative analog computation using the AD-256 computer. Prerequisite: Mathematics 212 or permission of the instructor. *Staff.*

314 VIBRATION ANALYSIS. S. Analysis of mechanical vibration in both transient and steady state regimes, employing analytical and computer techniques for solution. Linear and non-linear problems are investigated with original inquiry suggested and encouraged. Prerequisites: Mathematics 212 and Physics 225. *Staff.*

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

318 CONTROL SYSTEMS ANALYSIS. S. An introduction to linear feedback control theory, including transient and frequency response; stability; systems performance; control modes and compensation methods. Hydraulic, electrical, pneumatic, and inertial components and systems are investigated and employed. Prerequisites: Mathematics 212 and Physics 225. *Staff.*

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

JANUARY 1979 INTERIM

I-50 THEORY OF STRUCTURES. An analysis of beams and two-dimensional simple trusses and rigid frames. Course work includes calculation of reactions, shears, and bending moments due to fixed and moving loads; influence lines; thin-walled beam theory; and analysis of statically indeterminate structures. Prerequisite: 305. Mr. R. Hoeksema.

I-51 ENGINEERING INSTRUMENTATION. This course is an introductory study of engineering measurements and instrumentation with an emphasis on the usefulness, reliability, and accuracy of measurements. The course considers the characteristics and uses of transducers to determine pressure, acceleration, strain, temperature, voltage, and other physical quantities. Prerequisite: 312. Mr. K. Peterson.

314 VIBRATION ANALYSIS. Mr. J. Bosscher.

English

Professors H. Baron, E. Ericson, G. Harper, I. Kroese, K. Kuiper, P. Oppewall,** H. Ten Harmse (chairman), R. Tiemersma, S. Van Der Weele, C. Walkout,† M. A. Walters, S. Wiersma

Associate Professors C. Otten, J. H. Timmerman,

Assistant Professor R. Meyer, J. Snapper

Instructors D. Klooster, L. Spoelman

THE ENGLISH DEPARTMENT offers a major in English, a minor in English, and a major in English Education. Prerequisite to any of these concentrations is a minimum grade of C (2.0) in 100 and 200.

The recommended program for a major in English is ten regular courses and one interim course; the program includes 100, 200, 303, 310, 311, 329 or 330, four other literature courses, and one interim.

The recommended program for secondary education is 100, 200, 202, 203, 310, 311, 313 or 315, 329, and 336. Students for this program must pass a screening test which is given in November, April, and July. Senior Majors in teacher education programs must take 336 in the fall and Education 346 and 356 in the spring. The program for elementary education is 100, 200, 202 or 303, 203, 212, 225, 329 or 330, 235 or 332 or 336, 313 or 315. The advisers are H. Baron (elementary) and K. Kuiper (secondary).

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

The core requirement in written rhetoric is met by 100 or by examination. The first literature core requirement is typically taken from 200, 202, 203, 212, and 303, but any course in literature (as distinguished from language, composition, and film) except 225 may fulfill this requirement. Any course in the English Department, except for composition courses, will satisfy additional core requirements in the fine arts.

100 WRITTEN RHETORIC. F and S. A study of written English rhetoric, including a review of grammar, extensive practice in writing expository essays, and the preparation of a research paper. *Staff.*

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

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

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

212 AMERICAN LITERARY CLASSICS. F and S. A critical study of American masterpieces as the literary embodiment of the

evolving minds, ways, and values of the American cultural process. Emphasis upon eight major authors. Not open to students who have had 310 or 311 or to English majors. *Staff.*

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

220 WORLD LITERATURE.* S. A course of selected readings and lectures in the literature of non-English speaking people, ancient and modern, with special emphasis on the period from Dante to Solzhenitsyn, and with particular attention to significant forms and themes. *Mr. S. Vander Weele.*

225 CHILDREN'S LITERATURE. F and S. Through intensive reading this course develops the history of children's literature,

some standards for evaluating children's books, and knowledge of some of the best literature for children. Prerequisite: English 100 or its equivalent. *Mrs. C. Otten, Mrs. M. Zylstra.*

235 INTERMEDIATE COMPOSITION. S. A second course in rhetoric and composition designed for students who wish additional instruction in writing. Includes readings, a review of basic rhetorical principles, and extensive practice in writing a variety of short papers. Prerequisite: 100 or its equivalent. *Staff.*

251 INTRODUCTION TO CINEMA. S. A study of the development and structure of cinema as an art form and as a cultural medium. The course aims to develop the student's understanding of cinematic language and to guide him in assessing films and film values. Course work includes readings in film history and criticism as well as the viewing and analysis of movies. *Mr. I. Kroese, Mr. L. Sweetman.*

302 MEDIEVAL ENGLISH LITERATURE.* F. A study of Chaucer's *Canterbury Tales* and *Troilus and Criseyde* as reflecting Chaucer's literary genius and the major cultural phenomena of his time. Supplementary study in translation of *Beowulf*, *Gawain and the Green Knight*, and portions of *Piers Plowman*. Not offered 1978-79.

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

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

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

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

307 ENGLISH LITERATURE OF THE EIGHTEENTH CENTURY.* S. A study of English poetry and prose in the eighteenth century, with emphasis on the neo-classicists,

Pope, Addison, Swift, and Johnson, and a study of the beginnings of the romantic outlook in Gray, Thomson, and Cowper. *Mr. S. Vander Weele.*

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

309 ENGLISH LITERATURE OF THE NINETEENTH CENTURY.* S. A continuation of 308. A study of the Victorian writers of England in both poetry and prose, with intensive critical work on Tennyson, Browning, and Arnold among the poets, and Arnold, Newman, Huxley, and Ruskin among the prose writers. *Mr. R. Tiemersma.*

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

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

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

314 THE ENGLISH NOVEL.* S. A survey of the English novel from its beginnings through Conrad, with emphasis upon the art and thought of the major novelists. Special attention is paid to the development of realistic, romantic, epic, and symbolic strains in modern fiction. The course includes the reading of at least twelve novels. Prerequisite: English 200. *Miss H. Ten Harmsel.* Not offered 1978-79.

315 MODERN BRITISH AND AMERICAN FICTION.* F and S. Intensive reading of selected works of major twentieth-century British and American novelists. *Mr. P. Oppewall.*

318 STUDIES IN AMERICAN LITERATURE.* S. Intensive studies of three or four American writers selected from different periods of American literary history, with the selection changed from year to year. Typical groupings are: Hawthorne, James, Faulkner; Whitman, Dickinson, Frost, Stevens;

Thoreau, Twain, Ellison, Baldwin; and Melville, Hemingway, O'Neill. Prerequisites: 310, 311. *Staff.*

321 **MODERN DRAMA.*** F. Plays by the following authors are read and discussed in relation to the major movements in modern drama: Ibsen, Chekhov, Shaw, Brecht, Pirandello, Beckett, O'Neill, Miller, Williams, Albee, Pinter. *Miss M. A. Walters.* Not offered 1978-79.

329 **LINGUISTICS.*** F. 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. S. Wiersma.*

330 **HISTORY OF THE ENGLISH LANGUAGE.*** S. An analysis of the changes that have occurred throughout the history of the English language, based on an intensive study of selected portions of the *Oxford English Dictionary* and passages from Chaucer, Shakespeare, and various English translations of the Bible. *Mr. S. Wiersma.*

331 **LITERARY CRITICISM.** S. An introduction to contemporary theories and methodologies of literary criticism with investigations into their historical origins and development. The course includes illustrations of the various methods as well as some practical criticism. *Mr. C. Walkout.*

332 **ADVANCED COMPOSITION AND RHETORIC.*** S. 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. *Mr. S. Vander Weele.*

333 **THE WRITING OF PLAYS, POEMS, AND STORIES.*** S. A course in the principles of composition of plays, poems, and stories. Works by contemporary authors are analyzed in the light of these principles. Students will practice writing in all three forms. Prerequisite: a grade of B (3.0) in 100. *Mr. J. H. Timmerman.*

336 **TEACHING OF WRITING.*** F. An introduction to various approaches to composi-

tion in the secondary school English curricula with an emphasis on pedagogy in the teaching of writing. Extensive reading and frequent exercises in composition, revision, and evaluation. Senior majors in teacher education programs must take this course in the fall and Education 346 and 356 in the spring semester. *Mr. H. Baron.*

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

395 **SEMINAR.*** F. *Staff.*

GRADUATE COURSES

510 **LITERATURE FOR THE ADOLESCENT.** A survey and evaluation of adolescent literature, an examination of reference tools and approaches to the teaching of adolescent literature, a consideration of criteria for selection, and a critical study of several representative works. *Staff.*

511 **STUDIES IN ANALYTICAL APPROACHES TO THE TEACHING OF LITERATURE.** An examination of the theoretical considerations underlying various approaches to teaching literature at the secondary level, and application of critical approaches to selected literary works. The specific subject matter will be defined each time the course is offered. *Staff.*

580 **PRINCIPLES, PRACTICES, AND PROGRAMS IN SECONDARY ENGLISH EDUCATION.** An advanced methods course for those teachers involved at the junior high school or high school level. It involves general principles, materials, and pedagogical practices with emphasis on current trends and developing problems. Each student will make a special study of a given area of language, composition, or literature. *Staff.*

590 **INDEPENDENT STUDY (graduate).** F,I,S. *Staff.*

595 **GRADUATE PROJECT.** F.I.S., full or half course. The prospectus for each Master of Arts in Teaching project must be developed under the supervision of a faculty member and must be approved by the student's graduate adviser. *Staff.*

JANUARY 1979 INTERIM

I-10 **F. SCOTT FITZGERALD AND THE TWENTIES: HEAR THEM ROAR.** An intensive study of F. Scott Fitzgerald's major writings and the fascinating era which they reflect. Students read the best of Fitzgerald's novels

and stories, a brief cultural history of the Twenties, a biography, and perhaps Zelda Fitzgerald's novel *Save Me the Waltz*. This delightful course has been designed to challenge the student who is widely read in literature and to please the general student who is timorous but curious about literature. The instructor will employ a variety of methods to prevent boredom from setting in. *Mr. K. Kuiper.*

I-11. MELODRAMA AND MINSTREL SHOWS. A course in the reading of popular American plays of the nineteenth century. Because they exhibit notions about society, politics, and morality commonly held by Americans in the nineteenth century, these plays constitute a social history of the United States at that time. The course will include a thorough study of the themes and stereotypes found in early American drama with special emphasis on those themes and stereotypes which are distinctly American. Students will read several short plays from a collection including melodramas, social dramas, minstrel shows, patriotic plays, and regional plays. *Mrs. L. Spoelman.*

I-12. LITERATURE OF VISION AND FANTASY. The title of this course has also become a title for a literary method. Essentially, authors of such literature possess a vision of spiritual or mythic truth, and select as their means of revealing such a vision the literary method of fantasy. Such literature is often probing, often revealing, often fun. Works to be studied include R. Tolkien, *The Hobbit*; Charles Williams, *All Hollow's Eve*; C. S. Lewis, *The Lion, the Witch and the Wardrobe*, and *The Last Battle*; Arthur C. Clarke, *Childhood's End*; and possibly one from Isaac Asimov, *The God's Themselves*; Robert Heinlein, *Stranger in a Strange Land*; and Tennyson, *Idylls of the King*. *Mr. J. H. Timmerman.*

I-13. ALEKSANDR SOLZHENITSYN. Extensive reading of Solzhenitsyn's texts, with an option of some other reading in Russian literature and culture. The course will focus on locating Solzhenitsyn's significance in the contexts of Russian and world literature, current world politics, Christian thought, and contemporary culture. *Mr. E. Ericson.*

I-14 UTOPIA AND DYSTOPIA. An exploration of utopian thinking and the modern reaction against utopian dreams and hopes. After an examination of Plato's *Republic* and More's *Utopia*, the course concentrates on the nineteenth and twentieth century

utopias such as Bellamy's *Looking Backward* and Wells' *Modern Utopia*. This is followed by an examination of key dystopias such as Huxley's *Brave New World*, Zamiatin's *We*, and Rand's *Anthem*. Students will then react to more recent utopias such as Huxley's *Island*, Skinner's *Walden Two*, and LeGuin's *The Dispossessed* in the light of the dystopian critique. Attention is given to the intellectual content and the vision of society which the books present. The course is thus a bridge-building one linking literature with theories of government, economics, and religion. One of its main aims is to show that it is possible to dream new possibilities for society and to bring these dreams into actual existence. *Mr. C. Walsh.*

I-15 YEATS AND AUDEN. A study of two major poets of the twentieth century who are not only rich in theme and idea but are master craftsmen as well. They change and grow in the course of their writing careers and both respond to the social and cultural changes of the age. Some of their non-poetical works are included. For all students interested in poetry. *Mr. C. Walhout.*

I-50. CREATIVE WRITING WORKSHOP: WRITING CHILDREN'S FICTION. The aim of this course is to help the student prepare a manuscript for publication. Two things will be stressed: writing and market research. *On Writing*: the students may choose to write the short story, the short novel, poetry; to translate or to retell fiction or poetry. *On Market Research*: the student will concentrate on the area of his writing project and will become thoroughly familiar with recent publications in that field. Class sessions will focus on sharpening writing skills and on sharing market information. Prerequisite: 100 or creative writing experience. *Mrs. C. Otten.*

I-51. INTRODUCTION TO CANADIAN LITERATURE. A study of some of the major Canadian writers since the seventeenth century, with an emphasis on the literary conventions and thematic concerns of twentieth-century writers. Some of the authors included will be Margaret Atwood, Margaret Avison, Morley Callahan, Emily Carr, Leonard Cohen, Hugh Garrer, Alice Munro, and Mordecai Richler. The course will include informal lectures, class discussions, reports on Canadian novels, and guest lecturers. Prerequisite: one college-level literature course. *Mr. H. Baron.*

I-53 A STUDY OF RELIGIOUS AND SOCIAL

SATIRE IN THE WORKS OF PETER DE VRIES: THE TROUBLE WITH TURNBULL. Giving special attention to the figure of the backsliding Calvinist in De Vries' work and to his theories of humor, students will read six of his best novels—among them *The Mackerel Plaza*, *The Blood of the Lamb*, and *Let Me Count the Ways*—as well as selected short stories. Seminar format includes reading and discussion of short papers. Prerequisite: 100. Mr. R. Meyer.

I-54 C. S. LEWIS. A study of ten of Lewis' fiction and non-fiction works. Class sessions are devoted to lectures and explanation of the texts. In addition, there will be two one-hour sessions weekly for discussion and questions in smaller groups. Since some of the works studied require more than a single evening's reading, students are advised to begin their reading during the Christmas holidays. A reading list will be made available through the ICB in December. Quizzes and a final exam. Prerequisite: 100. Mr. D. Freeman, Mr. R. Timersma.

I-55. **THE FILMS OF ALFRED HITCHCOCK.** "Kim, this is only a movie. Let's not go too deeply into these things. It's only a movie." Hitchcock was responding to Kim Novak's uncertainty about the character she was playing in *Vertigo*. Hitchcock's films are "only movies," but to study these movies is to discover that Hitchcock himself goes into these things deeply enough. To study his work as a whole is virtually to study the development of the artistry of cinema, for Hitchcock spans movie history itself—from the silent era to the present time. To study his work is to study the film as a popular medium with serious implications. It is to study the relationship between simple fun and serious art, between "mere entertainment" and the subtle revelation of a thorough-going vision of life. Films to be viewed and discussed include *Easy Virtue*, *Blackmail*, *The Man Who Knew Too Much*, *Sabotage*, *The 39 Steps*, *The Lady Vanishes*, *Foreign Correspondent*, *Strangers on a Train*, *Dial M for Murder*, *Vertigo*, *North by Northwest*, *Psycho*, and *Frenzy*. Prerequisite: at least sophomore status or permission of an

instructor. Mr. G. Harper, Mr. I. Kroese, Mr. L. Sweetman.

I-56. **BASIC JOURNALISM.** This course aims to give a taste of journalism by means of textbook readings, class exercises, reporting assignments, guest speakers, and tours of a newspaper and television station. It includes the fundamentals of news writing, with emphasis on attractive news leads and the standard, inverted pyramid organization of news stories used by newspapers. An "on assignment" sequence of several days includes coverage of events such as a campus talk, a meeting of a local unit of government, a sports event, a music event, a drama event, and the like. A human interest feature is also required. Adaptation of writing style to the time demands of broadcasting is taught via class exercises and simulated television newscasting. Local journalists will speak to the class on journalistic technique as well as on contemporary ethical issues in journalism. Tours of the Grand Rapids Press and a local TV studio are arranged. Correct grammar and spelling are stressed. A student who is weak in these areas should review a grammar handbook and should be willing to rewrite when requested in order to do satisfactory work. Typing ability useful but not required. Previous experience on a student newspaper helpful but not required. Prerequisite: 100. Mr. P. Oppewall, Mr. R. Ver Hulst.

I-58 **TWENTIETH-CENTURY DRAMA.** Centering on the themes, philosophical perspectives, and theatrical techniques of such playwrights as Shaw, Synge, Miller, Williams, and Albee this course furnishes a significant introduction to the development of Western drama—particularly English and American—in this century. The course includes readings, lectures, discussions, the viewing of films, and possible attendance of live performances offered in Michigan theaters. Prerequisite: 100. Mr. D. Klooster.

Idis I-19 **LITERATURE FOR THE PERSON WHO LIKES MUSIC.** Mr. S. Wiersma.

Idis I-52 **THE BIBLE IN LITERARY PERSPECTIVE.** Mr. S. Vander Weele.

French

Professor A. Otten

Assistant Professor C.-M. Baldwin, (acting chairman)

Instructor E. Monsma

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 teachers requires 201, 202, 217, 218, 321, 322, and three from the following: 311, 312, 313, 314, 372, and French Interim Abroad. 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 program coordinator. Cognates in a second foreign language, art (231, 232), and English or American literature (202, 203, 212, 303) are recommended. A year-abroad program is available in Paris. All courses above 102 meet core requirements; 217, 218, 311, 312, 313, 371, and 372 meet core requirements in the fine arts.

LANGUAGE

101 ELEMENTARY FRENCH. F. An introductory course in the comprehension and use of spoken and written French. The instructor and student assistants guide students in determining their needs and abilities as well as in the best ways for each to learn French. The course includes both larger and smaller class sessions. *Mrs. C.-M. Baldwin.*

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

121-122-123 INTRODUCTORY AND INTERMEDIATE FRENCH. F-I-S. A closely integrated sequence involving two semesters and the interim for students who have completed two years of high school French with less than a C average or for students who studied French in the tenth and eleventh grades. Students in the teacher education programs who have had no foreign language in high school may register for this course if they have the permission of the department. Students who have previously studied French are assigned to this class on the basis of a placement test administered at the time of fall registration. *Mr. A. Otten.*

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

202 INTERMEDIATE FRENCH. S. Continuation of French 201. *Mrs. E. Monsma.*

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

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

LITERATURE

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

217 INTRODUCTION TO FRENCH LITERATURE. F. An introduction to the major writers, movements, and themes in French literature. Extensive reading, lectures, *explications de texte*, reports. Conducted in French. Mr. A. Otten.

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

311 FRENCH DRAMA.* F odd years. A study of dramatic literature from the Middle Ages to the present day, with emphasis on classical and contemporary drama. Conducted in French. Not offered 1978-79.

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. Not offered in 1978-79.

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

314 FRENCH PROSE.* S even years. A study of major writers expressing French thought, spirit, and sensibility in nonfiction from Montaigne to Sartre. Special attention is paid to Calvin, Pascal, *les philosophes*, and the existentialists. Conducted in French. Not offered 1978-79.

371 LITERARY DOCTRINES AND PROBLEMS. S even years. An advanced course devoted largely to literary theory, using as its point of departure a selection of such significant documents in the history of French literature as Du Bellay's *Défense et illustration de la*

langue française, the various statements relating to the *Querelle des anciens et des modernes*, Hugo's *Préface de Cromwell*, the transcript of Flaubert's trial, and others. This course includes an examination of the situations and writings which elicited these documents. Normally this course should be taken after completion of the genre courses. Conducted in French. Mr. A. Otten.

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

395 SEMINAR.*

CIVILIZATION

372 FRENCH CIVILIZATION. F odd years. A study of examples of non-literary artistic expressions of the French mind in painting, architecture, and music, and of French religious, political, and social institutions. Designed to enhance the student's knowledge of French culture and to enrich his literary studies, this course is a complement to, rather than a substitute for, literary studies. Conducted in French. Not offered 1978-79.

JANUARY 1979 INTERIM

I-10 FRENCH THEATER IN TRANSLATION. A study of the development of the French theater from the medieval farces and miracle plays through the twentieth century, with particular emphasis on the seventeenth century classics and on the modern Theater of the Absurd. Historical perspectives, themes, character development, etc. are studied in such plays as *The Cid*, *Phedre*, *The Marriage of Figaro*, *The Bald Soprano*, and *Waiting for Godot*. No knowledge of the French language is needed. Mrs. E. Monsma.

I-50. MODERN QUEBEC NOVELS: REFLECTIONS OF A PEOPLE. One of the most outstanding features of recent French-Canadian culture has been the emergence and growth of a distinctly *québécois* literature which ever since the late forties has developed both as a valid art form and as an important aspect of the French-

Canadian mind and civilization. In turn, it has cultivated French-Canadian self-awareness and self-esteem. This course will study the development of this literature through a study of the French-Canadian literary history. Several major novels will

be studied closely. Readings, lectures, and films will be in French. Prerequisite: 201. Mrs. C.-M. Baldwin.

Idis I-11 SURREALISM IN ART AND LITERATURE. Mr. A. Otten.

Geography and geology

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

German

Professors W. Bratt, **J. Lamse (chairman, Department of Germanic Languages)
Associate Professor C. Hegewald
Assistant Professor B. Carvill
Instructor S. DeHaan

STUDENTS should complete their first college year of German with a minimum average of C (2.0) for admission to the major program. This concentration normally includes 201, 202, 215, 217, 218, and four additional courses. Students enrolled in the teacher education program must include 216 and 250. A teaching minor consists of a sequence of six courses including 201, 202, 215, and three additional courses. Students contemplating either a German major or minor are encouraged to consult with a departmental adviser early in their programs. A year-abroad program is available in Austria and Germany.

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

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

102 ELEMENTARY GERMAN. S. Continuation of 101. Staff.

121-122-123 INTRODUCTORY AND INTERMEDIATE GERMAN, F-I-S. A closely integrated sequence involving two semesters and the interim for students who have completed two years of high school German with less than a C average or, in some cases, for students who studied German in the tenth and eleventh grades. Students in the teacher education programs who have had no foreign language in high school may register for this course if they have the permission of the department. Students

who have previously studied German are assigned to this class on the basis of a placement test administered at the time of fall registration. Staff.

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

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

203 INTERMEDIATE GERMAN. F, core. A one-semester course intended specifically for students who have successfully completed three years (six units) of high school

German. Selected readings and continued language study. *Mr. W. Bratt.*

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

216 **ADVANCED ORAL AND WRITTEN COMPOSITION.** S. Continuation of 215. *Mrs. B. Carvill.*

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. *Mrs. B. Carvill.*

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

250 **GERMAN CIVILIZATION.** F, odd years, fine arts core. A study of the German spirit as it finds expression particularly in social customs and institutions, religious and political life, and the fine arts. Lectures and discussions. Prerequisite: 202. Not offered 1978-79.

301 **CLASSICISM.*** F, even years, core. A study of the origins, nature, and literary manifestations of the classical ideal in eighteenth-century Germany. Readings from Lessing, Goethe, and Schiller. Prerequisite: 217, 218, or permission of the instructor. *Mr. J. Lamse.*

303 **ROMANTICISM.*** S, odd years, core. The literary theory and philosophical-religious basis of the German romantic movement as reflected in representative works of both earlier and later Romantics. Prerequisite: 217, 218, or permission of the instructor. *Mr. J. Lamse.* Not offered 1978-79.

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: 217, 218, or permission of the instructor. *Mr. C. Hegewald.*

305 **NINETEENTH CENTURY DRAMA.*** S,

even years, core. A comprehensive study of the lives and works of leading German dramatists of the nineteenth century. Assigned readings and papers. Prerequisite: 217, 218, or permission of the instructor. *Mr. W. Bratt.*

306 **LITERATURE OF THE GERMAN DEMOCRATIC REPUBLIC.** A survey of East German literature from its beginnings in the late 1940's to the present. The course includes an analysis of the relationship of the literature to the literary theories of Socialist Realism as well as to the political and social structure of the German Democratic Republic. Prerequisites: 217, 218, or permission of the instructor. *Mrs. M. J. Lamse.*

307 **EARLY TWENTIETH CENTURY LITERATURE.*** F, odd years, core. Selected readings in German and Austrian literature from 1890 to 1940, with special emphasis on the works of Hofmannsthal, Mann, Kafka, Brecht, and Hesse. Lectures, discussions, and assigned papers. Prerequisite: 217, 218, or permission of the instructor. *Mrs. M. J. Lamse.* Not offered 1978-79.

308 **POSTWAR LITERATURE.*** S, odd years, core. Readings in German literature from 1945 to the present from such writers as Andersch, Frisch, Böll, and Grass. Seminar papers are required. Prerequisite: 217, 218, or permission of the instructor. Not offered 1978-79.

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

395 **SEMINAR.***

COURSES IN ENGLISH

361 **INTRODUCTION TO MODERN GERMAN CULTURE.** S, fine arts core for students in designated preprofessional programs. A survey of the German cultural tradition of the past two centuries as it finds expression in the various arts, with particular emphasis on representative works of literature in translation. Open to all students, but planned primarily for those in designated preprofessional courses whose programs include the "foreign culture" option. No knowledge of German is required. *Mr. W. Bratt.*

JANUARY 1979 INTERIM

I-50. GERMAN INTERIM ABROAD. This course will be approximately five weeks in length, and will be conducted in West and East Germany. A brief tour through Northern Germany will be followed by ten days of study in Husum, Schleswig-Holstein. A second study-phase of the course will be conducted in West Berlin, and will be followed by a tour of East Germany. Course participants will be given five days for independent study and travel prior to returning to the U.S. Satisfies departmental concentrations. Prerequisites: permission of instructor and 215 or the equivalent. Fee of approximately \$800. Mr. W. Bratt.

I-51 ISSUES AND PERSPECTIVES IN FOREIGN LANGUAGE STUDY. This course sketches briefly the history of foreign language study in the Western World and presents in greater depth the underlying anthropological, political, and historical reasons for the course and shape of foreign language instruction in the last fifty years in America. A series of films exemplifies the different current schools and methods of foreign language teaching. In this setting students will develop a rationale for foreign language.

studies and for the integration of faith and learning in foreign language education. During the last week of this course the students will share their findings with area high school teachers and students. Prerequisites: two years of study in any foreign language. Mrs. B. Carvill.

I-52 INTRODUCTION TO MEDIEVAL GERMAN LITERATURE. Within the context of medieval thought and life students will read and discuss works of the major figures in medieval German epic and lyric literature such as *Das Nibelungen Lied*, *Iwein*, *Parzival*, and *Tristan und Isolde*. Frequent initial sessions help the student develop a fluency in reading medieval German aloud and a proficiency in understanding the medieval German literary text. Following sessions analyze the lyric poetry of von Morungen, von Hagenau, and von der Vogelweide for their general human significance and aesthetic character. Portions of the works read in medieval German are supplemented by modern English and German translations and English is allowed as necessary during discussions. Written analyses and reports. Prerequisite: 202 or permission of the instructor. Mr. J. Lamse.

Greek

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

History

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

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

The minimum requirements for a major concentration are nine courses in history including 101 or 102, or 102 Honors, the departmental seminar (395), and a program emphasizing either American, European, or World History concentrations. One upper-level interim course may be included in the required nine courses. 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 World History concentration requires one course from 301-305 (from 301-302 if the student has taken 102), one course from 310-312, and at least four courses from 201, 202, 203, 204, and 320. A 390 in a non-western field is also advised. The world-history concentration is designed primarily for teacher education students. Other teacher education programs require two to three courses from both the European and the American sequence with electives from non-western history. A secondary school minor includes 101 or 102; two from 310, 311, 312 or 211 plus either 355 or 356; 360, and two others. The elementary school minor is 101 or 102, 202, 204, 211, 320, and one other. The ideal teaching minor should include the designated courses in both programs. One upper-level interim course may be applied to a minor concentration. Students seeking special advice on teacher education programs, including group majors for middle school teaching, should consult Mr. S. Greydanus.

The core requirement in history must be met by 101 or 102, or 102 Honors; any other regular course in the department will satisfy the additional requirements in the contextual disciplines. Upperclass students who have not completed their core requirements in history should discuss alternative ways of satisfying the requirement with the chairman.

AREA SURVEYS

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

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

101 HONORS WESTERN CIVILIZATION. F, core. A non-conventional and more intensive approach to some aspects of Western Civilization designed to develop a critical understanding of history. In 1978-79 the course will be built around a dialogue between two historians analyzing how Western thought since 1600 relates to its wider cultural context. Open to freshmen and sophomores with cumulative averages of 3.3 or higher and, in exceptional cases with permission of the department, to upper classmen who have not completed 101 or 102. *Mr. G. Marsden, Mr. D. Van Kley.*

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. Not offered 1978-79.

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. Not offered 1978-79.

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 civilization of China and Japan. Study of the growth and development of traditional East Asian society is supplemented by topical discussions of religion, philosophy, art, music, and literature. *Mr. E. Van Kley.*

204 MODERN EAST ASIA.* S. A study of the transformation of East Asian society resulting from the intrusion of the West, from the sixteenth century to the present. Primary emphasis is placed on the civilizations of China and Japan and on the contacts between East Asia and the West. Topics on East Asian religion, philosophy, art, literature, and music are included. *Mr. E. Van Kley.*

NATIONAL HISTORIES

211 SURVEY OF AMERICAN HISTORY. F and S. Selected themes in American history from colonial times to the present. This course is not intended for those who plan to take period courses in American history. *Mr. R. Bolt.*

212 ENGLAND. F. A survey of English history including the Anglo-Saxon background; the medieval intellectual, religious, and constitutional developments; the Tudor and Stuart religious and political revolutions; the emergence of Great Britain as a world power; the growth of social, economic, and political institutions in the modern period. *H. Ippel.*

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

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

220 THE HISTORY OF FRANCE.* A survey of the history of France from the "new monarchy" of Louis XI to the present. Particular attention is given to the religious wars of the sixteenth century, the growth of the French monarchy at the expense of other institutions, the character and influence of the French Enlightenment, the nature and repercussions of the French Revolution, and the causes of France's political de-

cline in the late nineteenth century. *Mr. D. Van Kley.* Not offered 1978-79.

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

223 THE HISTORY OF GERMANY.* S. A survey of German history with particular attention given to the period from the Reformation to the present. Included in the course are medieval background, the Reformation and its impact on later German developments, the religious wars, intellectual developments of the eighteenth and nineteenth centuries, the movement toward political unity in the nineteenth century, World War I, the Weimar Republic, the rise of the Nazi movement. *Mr. F. Roberts.* Not offered 1978-79.

STUDIES OF HISTORICAL PERIODS

301 CLASSICAL HISTORY.* F and S. A study of the history of Greece and Rome from the Minoan Age through the reign of the Emperor Theodosius. The emphasis is on the political and economic changes which were the background for the shifts in intellectual styles. Particular problems are studied in depth: the emergence of the city-state; the Periclean age of Athens; the age of Alexander; the crisis of the Roman Republic; and the Decline. The two units of Classics 311-312 may be substituted in history concentrations for this one-unit course. *Mr. B. De Vries, Mr. G. Harris.*

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. H. Rienstra, Mr. F. Roberts.*

303 RENAISSANCE AND REFORMATION EUROPE.* F and S. Studies in topics in European history from 1300 to 1650. Attention is given to such problems in intellectual history as the nature of humanism, the character of religious reform, and the rise of sci-

ence. Requires readings in narrative histories and sources. *Mr. H. Rienstra.*

304 **EARLY MODERN EUROPE.*** 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.*

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. D. Diephouse.*

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. R. McCarthy.*

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

312 **TWENTIETH CENTURY UNITED STATES.*** F and S. A study of politics, diplomacy, labor, industry, and scientific achievement since the 1890's with emphasis on such developments as the Progressive movement, World War I, the retreat from international responsibility; the roaring twenties, the Great Depression, the New Deal, World War II, and domestic and foreign developments since World War II. *Mr. R. Bolt.*

320 **CONTEMPORARY WORLD.*** F. Western Europe from World War I to the present; the breakdown of colonialism and the resulting emergence of non-European powers; World War II and its role in 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. D. Diephouse.*

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 1978-79.

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

355 **INTELLECTUAL HISTORY OF THE UNITED STATES.*** F and S. An analysis of the changing intellectual patterns in American society 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. During the spring semester this course will be taught in conjunction with Philosophy 243 and Mr. C. Orlebeke. *Mr. G. Marsden.*

356 **SOCIAL AND CULTURAL HISTORY OF THE UNITED STATES.*** S. A study of the development of American society from 1776 to the present with reference to developments other than those primarily political or intellectual, such as social reform movements, popular culture, art and architecture, educational developments, the labor movement, immigration, nativism and racism, and urban problems. Prerequisite: a general knowledge of American history. *Mr. R. Wells.*

360 **AFRO-AMERICAN HISTORY.*** S. An intensive inquiry into the role of the Afro-

American in the history of the United States, including an evaluation of past and present assumptions of the place of the Afro-American in American life, and an acquaintance with the historiography on this subject. *Mr. S. Greydanus.*

380S FIELD WORK IN MIDDLE EAST ARCHAEOLOGY. An on-site introduction to archaeological field work in the Middle East designed to expose the student to the methodologies involved in stratigraphic excavation, typological and comparative analysis of artifacts, and the use of non-literary sources in the writing of Middle East history. Prerequisite: consent of the instructor. *Mr. B. De Vries.*

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

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

GRADUATE COURSES

571 STUDIES IN HISTORY: Students will engage in a concentrated investigation of a particular topic or period of history. Advanced reading and discussion of the source materials, literature, problems, interpretations, and more recent findings on a selected period or topic are included. Topic will be selected each time the course is offered. *Staff.*

580 RESOURCES FOR TEACHING HISTORY AND THE SOCIAL STUDIES. An exploration of research in the various approaches to the teaching of history and the social studies on the secondary level. Course requirements include the development of a bibliography of resources for the teaching of history and the social studies and will relate these to the curriculum and philosophy of social studies teaching from a Christian perspective. *Staff.*

581 HISTORIOGRAPHY. The course focuses on historical writing as reflective of different personal and cultural styles and on the role of history in the intellectual adventure of man. Historians will be studied to determine their diverse opinions and interpretations. The focus is on understanding historical writing so that it can be taught more effectively. Assigned readings, seminar participation, and papers are required. *Staff.*

590 INDEPENDENT STUDY (graduate). F,I,S. *Staff.*

595 GRADUATE PROJECT. F.I.S., full or half course. The prospectus for each Master of Arts in Teaching project must be developed under the supervision of a faculty member and must be approved by the student's graduate adviser. *Staff.*

JANUARY 1979 INTERIM

I-10 THE NATIVE AMERICAN IN CANADA AND THE UNITED STATES. This course studies the unjust treatment of the Native American Indian on both sides of the 49° parallel. It explores white attitudes and governmental policies in the mosaic Canadian society and in the integrative U.S. society. Readings, films, and a research paper. *Mr. S. Greydanus.*

I-11. A HISTORY OF GRAND RAPIDS. A study of Grand Rapids' history from its early beginnings to the present time. The study will include important political, economic, social and cultural developments that have been significant in the shaping of Grand Rapids. Students will be encouraged to utilize primary as well as secondary sources. *Mr. R. Bolt.*

I-12 AMERICA THROUGH BRITISH EYES. A comparative cultural history course in which students view American culture from a British perspective. The course is offered in London, England, enabling students to gain firsthand knowledge of British culture. Lectures by Parliament members, London University professors, and persons in church, trade union, and media positions supplement those given by the instructors. An essay which integrates the readings, lectures, and experiences had while in Britain is required. Fee to cover transportation and costs in England. *Mr. H. Ippel, Mr. R. Wells.*

I-13 DANTE: A STUDY OF THE DIVINE COMEDY. A reading of the *Divine Comedy* by Dante Alighieri (1265-1321) in English translation will be accompanied by introductory lectures on the poet and his age. After the first week the activity of the course will be intensive discussions of the text. *Mr. H. Rienstra.*

I-14 A HISTORY OF CHRISTIAN MISSIONS IN CHINA: ON THE THRESHOLD OF AN OPEN DOOR. A study of the two major waves of missionary activity in China since 1500, the

culture which the missionaries found there, the problems it posed for Christian missions, the goals and tactics of the missionaries, and the results of their efforts. In addition to lectures and discussions by the instructor there will be discussions with former missionaries, readings, student reports, and an examination. *Mr. E. Van Kley.*

I-15 **THE SIREN SONG OF COMMUNISM.** The course attempts three things. First, to explain in simple terms the Marxist-Leninist credo and its appeal for millions of people. Second, to discuss the Russian Revolution of sixty years ago as the first successful Communist take-over of a country. Third, to consider from a Christian perspective how the Communist appeal can best be countered in the Third World today. Required will be brief oral reports and an essay dealing with the third point above. *Mr. D. Jellema.*

I-50 **EXPLOSION IN THE GARDEN: VIENNA, BERLIN, AND THE BIRTH OF TWENTIETH CENTURY CULTURE.** A study of the upheaval in European culture between 1880 and 1930 which gave birth to the distinctive new forms and styles of much twentieth century

music, literature, and art. Concentrating on developments in Vienna and Berlin, the course will explore the connections between social crisis and aesthetic crisis and will analyze the search for new artistic languages reflected in, for example, expressionist drama, atonal music, and abstract painting. Films, slides, recordings, and student presentations will be included in addition to lectures and assigned readings. Prerequisite: 101 or 102. *Mr. D. Diephouse.*

I-51 **THE RADICALS OF THE PROTESTANT REFORMATION.** A study of major figures and movements within the left-wing of the Protestant Reformation. The course will deal primarily with the development of the Anabaptist and Spiritualist movements, with some consideration also being given to the Revolutionaries and the Anti-Trinitarians. Each student will present a paper and perhaps an oral report and will be expected to do reading in assigned books. Prerequisite: 101 or 102. *Mr. F. Roberts.*

Idis I-50 **THE FAMILY IN HISTORY.** *Mr. G. Marsden.*

Latin

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

Mathematics

Professors P. Boonstra, S. Leestma, L. Nyhoff,** C. Sinke, G. Van Zwalenberg, P. Zwier (chairman)

Associate Professors T. Jager, J. Kuipers

Assistant Professors D. Brink, R. Konyndyk

Instructor T. Thomasma

Assistant L. Vredeveld

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 for admission to a program of concentration in the department. The program includes 111, 112, 211, 212, 351, three additional courses numbered 300

or above, and one upper-level interim course. Majors are expected to prepare and present a talk at the mathematics colloquia.

Students preparing to teach mathematics should complete a nine-course program including the five courses designated above in the general program plus 321, 331, 343 and one upper-level interim course. During the spring of their junior year students should take 321 or 331 and, ordinarily, they will do their directed teaching in the spring semester of their senior year. The six-course minor for prospective teachers consists of 111, 112, 211, 321, 351, and one additional 300-level course.

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

A group major in science and mathematics meets the needs of some students, particularly those in professional programs. These majors are not appropriate for students who anticipate attending graduate school or who are in teacher education programs. Such group majors require twelve courses in the sciences and mathematics, ten of which must be from two departments with no fewer than four from either, with the remaining two courses chosen from a third department. The departmental chairmen of the three departments must approve each such program. Group concentrations involving economics, philosophy, and other departments are possible on an individual basis.

The core requirements in mathematics may be met by Senior Mathematics in high school or by 107, 109, 111, or 205.

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

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

107 FUNDAMENTAL CONCEPTS IN MATHEMATICS: THE REAL NUMBER SYSTEM. F and S, core. This course gives the prospective elementary teacher an exposure to elementary mathematics from a more advanced standpoint. It considers the methodology

of mathematics as well as the historical development of the real number system. Other topics considered are logic, sets, axiomatic systems, groups, and number theory. Students may not receive credit for this course and for 109. Prerequisites: a year of algebra and of geometry in high school. *Staff.*

109 ELEMENTS OF MODERN MATHEMATICS. F and S, core. An introduction to the content, methodology, and history of mathematics. Among the topics which may be covered are cardinal numbers and set theory, axiomatic systems, probability theory, computer programming, groups and fields, and number theory. Prerequisites: a year of high school algebra and geometry. *Staff.*

111 CALCULUS AND ANALYTIC GEOMETRY I. F and S, honor section, core. Rates of change, limits, derivatives of algebraic functions, applications of the derivative, integration, applications of the integral. *Staff.*

112 CALCULUS AND ANALYTIC GEOMETRY II. S, honor section. Transcendental and hyperbolic functions, formal integration, analytic geometry, polar coordinates, vec-

tors, parametric equations. Prerequisite: 111. *Staff*.

205 **ELEMENTARY ANALYSIS.** F and S, core. Real number system; field properties; polynomial, exponential, and logarithm functions and their graphs; elementary differential calculus; rules for differentiation; applications of the derivative to maximum-minimum problems; elementary integral calculus; definite and indefinite integrals; rules for integration; applications of the integral to area problems; some elementary differential equations and application to problems such as population growth. Intended for students other than mathematics and science majors. Prerequisite: Two years of high school mathematics. *Staff*.

206 **FINITE MATHEMATICS, PROBABILITY, AND STATISTICS.** S. Sequences including arithmetic and geometric progressions, applications to mathematics of finance; algebra of matrices, applications to solutions of systems of linear equations and linear programming; elementary probability theory, binomial and normal distributions, distribution of sample statistics, statistical inference, regression analysis. Prerequisite: 111 or 205. *Staff*.

209 **FUNDAMENTAL CONCEPTS IN MATHEMATICS: GEOMETRY.*** S. The principal focus of this course is geometry. Included is a study of axiomatic system, congruence, parallelism, similarity, measure, coordinate geometry, and plane transformations. Other topics will depend on the students' background. These may include probability, statistics, computer programming, and introduction to BASIC. Prerequisite: 107 or 109. *Staff*.

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

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

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 in-

terested in applications of analysis. Prerequisite: 211. *Mr. G. Van Zwalenberg*.

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

321 **FOUNDATIONS OF GEOMETRY.*** S. Consideration of Euclidean geometry as an axiomatic system, introduction to non-Euclidean geometry, the Poincaré model. Prerequisite: 112. Not offered 1978-79.

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. P. 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: Computer Science 107 or 108 and Mathematics 212. *Mr. L. Nyhoff*.

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. R. Konyndyk*.

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. P. Zwier*.

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. D. Brink*.

361 **GENERAL TOPOLOGY.*** F. 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. Not offered 1978-79.

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. T. Jager.

381 ADVANCED LOGIC.* S. Topics include the formalization of propositional and quantificational logic. Taught jointly with the Philosophy Department and also listed as Philosophy 381. Staff.

390 READINGS IN MATHEMATICS.* F, I, S. Independent study of topics of interest to particular students, under supervision of a member of the department staff. Open to qualified students with permission of the chairman. Staff.

395 SENIOR THESIS IN MATHEMATICS.* F, I, S. The course requirements include an expository or research paper and an oral presentation on a selected topic in mathematics. Open to qualified students with the permission of the chairman. Staff.

GRADUATE COURSES

510 ADVANCED GEOMETRY FOR TEACHERS. A study of geometry from the point of view of groups of transformations, including considerations of isometries, translations, glide reflections, and similarities. Applications to theorems in Euclidean geometry. Consideration of affine, projective, hyperbolic, and elliptic geometries, and models for each. Prerequisite: Mathematics 321 or its equivalent. Staff.

512 PHILOSOPHY AND FOUNDATIONS OF MATHEMATICS. A study of the philosophical problems which arise in the context of mathematics; logicism; intuitionism, and formalism; metamathematics and the theorems of Gödel, Church, and Tarski; some philosophical implications of these theorems. Some attention is paid to the philosophical stance of materials and texts written for the classroom. Prerequisite: undergraduate mathematics minor or permission of instructor. Staff.

513 REAL ANALYSIS AND TOPOLOGY FOR TEACHERS. Construction of the real number system; metric space topology with applications to Euclidean spaces, limits, continuous functions, differentiation, and Riemann-Stieltjes integration. Prerequisite: 211. Staff.

580 ADVANCED METHODS AND MATERIALS IN SECONDARY SCHOOL MATHEMATICS. A study of methods which can be used to teach mathematics in the junior and senior high school. Consideration is also given to materials, both commercial and teacher-made, which can be used to teach mathematics. Prerequisite: mathematics minor or major. Staff.

590 INDEPENDENT STUDY (graduate). F,I,S. Staff.

595 GRADUATE PROJECT. F.I.S., full or half course. The prospectus for each Master of Arts in Teaching project must be developed under the supervision of a faculty member and must be approved by the student's graduate adviser. Staff.

JANUARY 1979 INTERIM

I-10 WHAT DO ALL THOSE BUTTONS MEAN? Hand-held calculators are very popular today. Many of them have buttons for functions which are not at all meaningful to persons whose mathematics background is limited. This course explores those functions to discover their meaning and application. The course is intended for students who have had only algebra and geometry in high school. It will be necessary for students to have a hand-held calculator, but check with the instructor before purchasing one. Mr. P. Boonstra.

I-11 THE CALCULUS: A HISTORICAL APPROACH. A treatment of the basic concepts of calculus from the early roots in antiquity through the refinements of the nineteenth century. This course is designed for students with little or no knowledge of the calculus who wish to learn its content without becoming involved in the details of problem solving. Mr. T. Jager.

I-12 ELEMENTS OF MATHEMATICS. Core. This course investigates the development of mathematics and the interaction of mathematics and culture. Various important mathematical events are considered in the context of the history of mathematics. *Mathematics in Western Culture* by Morris Kline serves as a resource book for historical background. Topics to be considered are: the history of mathematics, axiomatic systems, number theory, set theory, probability, simple algebraic equations, conic sections, and graph theory. Satisfies mathematics core. Mr. L. Vredeveeld.

I-50 DIFFERENTIAL GEOMETRY OR HOW TO FIND SHORTEST PATHS ON A DOUGHNUT. Differential geometry is a field of mathematics which has a long, illustrious history and important applications in physics, astronomy, and cosmology. It combines fundamental notions from calculus and geometry to study curves and surfaces. This is generalized to higher dimensions in the study of differentiable manifolds and Riemannian geometry—topics which are central to modern cosmology and field theory. Students will be assigned problems which illustrate and apply the theorems proved in class. Prerequisite: 211. *Mr. P. Zwier.*

I-51 OPERATIONS RESEARCH MODELS. This course is for sophomore-level students and above in business or engineering programs. It introduces the concepts of operations research by emphasizing model construction and the types of models available rather than using a mathematical approach which obscures the practical purpose of models. The course discusses allocation models, solution methods (among them linear programming, network models, integer programming, and dynamic programming), location models, scheduling models, probabilistic models, Markov models, queuing models, and inventory models. Prerequisite: 111 or 205. *Mr. G. Van Zualenberg.*

I-52 APPLIED SCIENCE FOR THOSE WHO DON'T KNOW STATISTICS. Emphasis is on applications to sociology and other social sciences rather than on mathematical theory. The course covers descriptions of data, elementary probability, the binomial and normal distributions, large sample

tests and confidence intervals, t-tests, and, if time permits, non-parametric statistics and regression. Prerequisite: 109 or two years of high school algebra. *Mr. Roger Konyndyk.*

I-53 NUMBER THEORY AND COMPUTING. This course covers the usual topics of elementary number theory, such as divisibility properties of the integers (primes, GCD, Euculeidean Algorithm, unique prime factorization theorem), Pythagorean triples, continued fractions. Students will be divided into groups, each group being responsible for finding and presenting in class solutions to problems and proofs. Each group will also be responsible for writing and running programs for problems which will illustrate the theory, how the computer is used in number theory to test conjectures, and how a computer investigation may lead to formulation of a conjecture which may then be proved deductively. This course can serve as a good introduction to, or application of, abstract algebra, because many of the results are really algebraic in nature. At the same time, many of the problems in number theory are computational in nature and thus lend themselves readily to computer solution and/or investigation. Satisfies departmental concentrations. Prerequisites: Mathematics 112 and knowledge of BASIC computer language. *Mr. L. Nyhoff.*

Idis I-51 INVESTIGATIONS IN MATHEMATICAL MODELING OF ECOLOGICAL SYSTEMS. *Mr. S. Leestma.*

Idis I-21 THE WONDERFUL WORLD OF AMERICAN RAILROADS. *Mr. C. Sinke.*

Music

Professors J. Hamersma, H. Slenk, C. Stapert, D. Topp (chairman), J. Worst
Associate Professors D. De Young, H. Geerdes, C. Kaiser
Assistant Professors G. Huisman, R. Rus

STUDENTS MUST COMPLETE 103, 104, 114, and 124 with a minimum grade of C (2.0) in each for admission to a music major concentration. Applicants will be informed of the department's action within a month after completing these courses.

Students preparing for graduate study in music must take 103, 104, 113, 114, 123, 124, 203, 204, 213, 214, 223, 224, 303, and 304; 121, 131, 141, 161, or 171 each semester; 180 each semester; and four additional courses from one of the follow-

ing areas of specialization: *music history*, 311, 312, 313, 314, or approved interim courses; *theory-composition*, 311, 312, and two from 315, 316, 317; or *applied music*, eight semesters from 210, 220, 230, 240, 260, or 270, including a solo recital. (The adviser for the applied music program is Mrs. R. Rus.)

Students desiring to teach music in the schools can choose one of three programs. A fifteen-course concentration enables graduates to teach music in grades k-12. Such programs, with a primary emphasis on the secondary level, require 103, 104, 113, 114, 123, 124, 203, 204, 223, 224, 237, 239, 303, and 304; 180 each semester; 131 or 141 each semester for vocal music or 161 or 171 each semester for instrumental music; plus four additional courses from one of the following concentrations: *instrumental music*, 197, 198, 315, and four semesters of 140, 150, 160, or 170; *vocal music*, 213, 214, 311 or 312, 313 or 314, or an approved interim; two semesters of 120; and four semesters of 130. This is the appropriate program for students interested in doing graduate work in music education.

A ten-and-a-half-course concentration qualifies graduates to teach in a regular elementary classroom and to teach music in grades k-8. The program requires 103, 104, 113, 114, 123, 124, 203, 204, 233, 237, 239; 180 each semester; and three additional courses from one of the following concentrations: *instrumental music*, 197, 198, two semesters of 140, 150, 160, or 170; and two semesters of 161 or 171; *vocal music*, two semesters each of 120, 130, and 131 or 141; one course from 311-319; and a half-course elective from 213, 214, 223, 224, or applied music. Fine Arts Studies group majors are available for students who wish some courses in music.

The seven course music minor for secondary teachers leads to a certificate for grades 7-12. It requires 103, 113, 123, 233, 234, 237, 239; two semesters of 110, 120, 130, 140, 150, 160, or 170; two semesters of 131, 141, 161, or 171; and one course elective in music. The adviser for all teacher education programs is Mr. D. Topp.

A nine-course general education program is available for students not expected to teach or to enter graduate school. This program includes 103, 104, 203, 204, 113, 114, 123, 124, and may be completed by either 233, at least one course in applied music, and two electives or by 303, 304, at least one course in applied music, and one elective.

All transfer students must consult Mr. J. Hamersma at their first registration for an evaluation of their transfer credits in music and to receive counseling into the appropriate sequence of music courses. During their first semester at Calvin transfer students must also validate their transfer credits in keyboard harmony with Mr. H. Slenk or enroll in 113 and in aural perception with Mrs. R. Rus or enroll in 123.

All music majors must successfully complete the Princeton Comprehensive Music Examination during April of the spring in which they take 304. (Majors whose programs do not include 304 must take this examination in the spring following their completion of 103, 104, 203, 204, and 233.) Scores of this test become part of the student's departmental record and may be used by the music department when making recommendations for graduate schools, scholarships, and teaching positions.

The fine arts core requirement may be met in several ways. Students with a minimal musical background may prefer 231, 232, 236, or 238. Students with greater musical background should take 233, 234, or, possibly, 103. Because 103

satisfies the core requirement and is the initial course in all concentrations involving music, freshmen considering any of these programs should take 103 along with 113 and 123, both quarter courses, which are also part of such programs.

GENERAL COURSES

231 **AN INTRODUCTION TO MUSIC LITERATURE.*** F, core. For students with limited musical background who are interested in increasing their knowledge and enjoyment of music. The emphasis is on intelligent and perceptive listening. This year the course will concentrate on music from the Baroque and Classical periods. Listening, term paper, concert attendance. No prerequisite. *Mr. J. De Jonge.*

232 **F and S. AN INTRODUCTION TO MUSIC LITERATURE.*** S, core. A course similar to 231 but with different content. Includes the music of representative composers of the Romantic and Modern-Contemporary periods. Listening, term paper, concert attendance. No prerequisite. *Mr. J. De Jonge.*

233 **HISTORY OF MUSIC*.** F, core. A study of the art of music from its origins through the Baroque. Score studies, listening repertory, and reading. *Mr. C. Stapert.*

234 **HISTORY OF MUSIC*.** S, core. A study of the art of music from Bach to the present. Score studies, listening repertory, and reading. *Mr. C. Stapert.*

235 **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 1977-78.

236 **CHURCH MUSIC*.** S, 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. *Mr. J. Hamersma.*

237 **CONDUCTING.** F and S, half course. A course in basic, general conducting leading to the conducting of either instrumental or choral literature. Two hours of class and two hours of conducting laboratory per week. Should be taken by instrumental

music education majors, nine-course majors, and music minors during the spring semester of their sophomore year and by fifteen-course vocal music education majors during the fall semester of their junior year. Prerequisite: 104. Will not be offered in the fall of 1978-79. *Mr. H. Geerdes, Mr. H. Slenk.*

BASIC COURSES

103 **THE MATERIALS OF MUSIC I.** F, core. A course in the development of the ability to grasp and notate the rhythmic, melodic, and harmonic elements of music. Students anticipating any concentration involving music must take 113 and 123 concurrently. See note above concerning the use of this course to meet fine arts core requirements. *Miss G. Huisman, Mr. H. Slenk, Mr. C. Stapert.*

104 **THE LITERATURE AND MATERIALS OF MUSIC II.** S. A continuation of 103. A coordinated study of the historical, theoretical, and practical aspects of music by means of lectures, score study, written exercises, listening, performance, and reading. A study of the music of the late Baroque and of the Classical eras. Students intending to major in music must take 114 and 124 concurrently. Prerequisite: 103. (Formerly 204.) *Staff.*

113 **KEYBOARD HARMONY I.** F, quarter course. A course in the development of the ability to play at the keyboard the rhythmic, melodic, and harmonic elements of music. The student is required to play all the major, minor, and modal scales as well as easy chord progressions using all the diatonic triads in root position and some in first and second inversion. To be taken concurrently with 103. Prerequisite: piano skills. Others will be required to take remedial piano. *Mrs. T. Knol.*

114 **KEYBOARD HARMONY II.** S, quarter course. A continuation of 113. The student is required to play progressions involving seventh chords in their various inversions, to demonstrate the ability to use secondary dominants at the keyboard, and to modulate to closely related keys by means of common chord and chromatic modulation. *Mrs. T. Knol.*

123 AURAL PERCEPTION I. F, quarter course. A course in the development of the ability to hear and to sing at sight the rhythmic, melodic, and harmonic elements of music. Rhythmic perception involves all note values and rests in various combinations, with an emphasis on duplet and triplet contrasts. Melodic perception involves all intervals smaller than an octave above and below a given note. Harmonic perception involves the major and minor triads in root position, first inversion, and second inversion as well as augmented and diminished triads. To be taken concurrently with 103. *Mrs. R. Rus.*

124 AURAL PERCEPTION II. S, quarter course. A continuation of 123. Rhythmic perception in this course involves the use of ties and syncopation, melodic perception involves the intervals between the octave and the twelfth including one and two-part melodic dictation, and harmonic perception involves the dominant seventh chords as well as harmonic dictations using the chords and triads studied in 123. *Mrs. R. Rus.*

203 THE LITERATURE AND MATERIALS OF MUSIC III*. F. A continuation of 104. A study of the music of the Romantic era. Prerequisite: 104. Students whose programs require 213 and 223 must take those courses concurrently. (Formerly 303. Present upperclassmen take this in place of 303.) *Mr. H. Slenk, Mr. J. Worst.*

204 THE LITERATURE AND MATERIALS OF MUSIC IV*. S. A continuation of 203. A study of post-Romantic and Contemporary music. The class presents a concert of contemporary and *avant garde* music in early May. Prerequisite: 203. Students whose programs require 214 and 224 must take these courses concurrently. (Formerly 304. Present upperclassmen take this in place of 304.) *Mr. J. Worst.*

213 KEYBOARD HARMONY III. F, quarter course. A continuation of 114. To be taken concurrently with 203. Prerequisite: 114. *Mrs. T. Knol.*

214 KEYBOARD HARMONY IV. S, quarter course. A continuation of 213. *Mrs. T. Knol.*

223 AURAL PERCEPTION III. F, quarter course. A continuation of 124. To be taken concurrently with 203. Prerequisite: 124. *Mrs. R. Rus.*

224 AURAL PERCEPTION IV. S, quarter course. A continuation of 223. *Mrs. R. Rus.*

303 THE LITERATURE AND MATERIALS OF MUSIC V*. F. A continuation of 204. A study of Western music prior to 1500. Prerequisite: 204. (Formerly 104.) *Mr. C. Stapert.* Not offered 1978-79.

304 THE LITERATURE AND MATERIALS OF MUSIC VI*. F and S. A continuation of 303. A study of the Western music of the late Renaissance and early Baroque eras. Prerequisite: 303. (Formerly 203). *Mr. C. Stapert.* Not offered 1978-79.

ADVANCED COURSES

311 VOCAL POLYPHONY OF THE RENAISSANCE*. F. A study of the vocal style of Palestrina. Exercises in modal counterpoint. Listening repertory of compositions. Prerequisite: 303. *Mr. J. Hamersma.*

312 INSTRUMENTAL AND VOCAL POLYPHONY OF THE LATE BAROQUE*. S, odd years. A study of contrapuntal practice of late Baroque composers, principally J. S. Bach. Exercises in tonal counterpoint. Listening repertory of compositions. Prerequisite: 304 or 104 and 233. *Staff.* Not offered 1978-79.

313 MUSIC OF THE CLASSICAL PERIOD*. F, odd years. A study of the Classical style of Haydn, Mozart, and Beethoven. Analytical score studies of representative works. Listening repertory of compositions. Several short papers. Prerequisite: 104. *Staff.* Not offered 1978-79.

314 MUSIC OF THE ROMANTIC PERIOD*. S, even years. A study of the principal forms of the Romantic period from Schubert and Schumann through Wagner. Analytical score studies of representative works. Listening repertory of compositions. Several short papers. Prerequisite: 203. *Mr. H. Slenk.*

315 ARRANGING, ORCHESTRATION, AND SCORING*. F. Survey of the history of the orchestra and orchestration, and problems involved in writing for orchestra, band, and stage band. A survey of the technical limitations of each instrument and the human voice. Projects written by class members will be performed by department organizations whenever practicable. Prerequisite: 104. *Mr. J. Worst.*

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

317 COMPOSITION*. F. Writing in contemporary forms and according to tempo-

rary practice. Prerequisite: 104 or permission of the instructor. *Mr. J. Worst.*

319 **ADVANCED 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: 203. Not offered 1978-79.

MUSIC EDUCATION

238 **ELEMENTARY SCHOOL MUSIC***. F and S, core. A study of the content and methods for teaching music in the elementary school classroom. Includes consideration of philosophy and materials. This course is recommended for elementary education students. (Music 239 is required of elementary music education majors.) *Mr. D. Topp.*

239 **SCHOOL MUSIC***. F. A study of the philosophy, methods, and materials for teaching elementary and secondary school music with emphasis upon research, planning, and teaching. This course is required of secondary music education majors, music minors, and elementary music education majors, and is also open to elementary education majors with a background in music. *Mr. D. Topp.*

APPLIED MUSIC

INDIVIDUAL LESSONS

Students enrolling in any course in this section must also register for 180.

110 **ORGAN.** Quarter course. Individual lessons in organ emphasizing skills for the church organist. *Mr. J. Hamersma.*

120 **PIANO.** Quarter course. Individual lessons in piano. *Mrs. R. Rus, Mrs. T. Knol, Mrs. M. Slenk.*

130 **VOICE.** Quarter course. Individual lessons in voice. *Mr. C. Kaiser, Miss G. Huisman, Mrs. T. Haan.*

140 **BRASSES.** Quarter course. Individual lessons in cornet, horn, baritone, trombone, or bass horn. *Mr. D. De Young.*

150 **PERCUSSION.** Quarter course. Individual lessons in snare drum, tympani, and other percussion instruments.

160 **STRINGS.** Quarter course. Individual lessons in violin, viola, violoncello, bass viol, or classical guitar.

170 **WOODWINDS.** Quarter course. Individual lessons in flute, oboe, clarinet, bassoon, saxophone, or recorder.

210 **ADVANCED ORGAN.** Half course. Individual lessons for the music major concentrating in organ. *Mr. J. Hamersma.*

220 **ADVANCED PIANO.** Half course. Individual lessons for the music major concentrating in piano. *Mrs. R. Rus.*

230 **ADVANCED VOICE.** Half course. Individual lessons for the music major concentrating in voice. *Mr. C. Kaiser.*

240 **ADVANCED BRASSES.** Half course. Individual lessons for the music major concentrating in cornet, horn, baritone, trombone, or bass horn. *Mr. D. De Young.*

260 **ADVANCED STRINGS.** Half course. Individual lessons for the music major concentrating in violin, viola, violoncello, bass viol, or classical guitar.

270 **ADVANCED WOODWINDS.** Half course. Individual lessons for the music major concentrating in flute, oboe, clarinet, bassoon, saxophone, or recorder.

CLASS LESSONS

180 **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.*

197 **STRINGS AND BRASSES.** F odd years. Class lessons in string and brass instruments for the music major concentrating in instrumental music education and others wishing to learn a secondary instrument. *Mr. H. Geerdes.* Not offered 1978-79.

198 **WOODWINDS AND PERCUSSION.** F even years. Class lessons in woodwind and percussion instruments for the music major concentrating in instrumental music education and others wishing to learn a secondary instrument. *Mr. H. Geerdes.*

ENSEMBLES

121 **COLLEGIUM MUSICUM.** Quarter course. Music for small instrumental and/or vocal ensembles from all periods is studied and performed. This is an honors ensemble open to singers and instrumentalists who

also participate in the choir, band, or orchestra. It is also open to keyboard, woodwind, and brass instrumentalists who are interested in performing on old wind and keyboard instruments and who meet the demands of musicianship. *Staff.*

131 **CAMPUS CHOIR.** Quarter course. Representative works in the field of choral literature are studied and sung. Emphasis given to the development of singing and sight-reading skills as well as to regular performances. Open to music majors and others who meet the requirements of voice and musicianship. *Mr. M. Mustert.*

141 **CAPELLA.** Quarter course. Representative works in the field of choral literature are studied and a limited number of selections are prepared for concert performance. Membership is maintained at a set limit and is open only to those who meet the demands of voice, sight reading, and choral musicianship. *Mr. H. Slenk.*

151 **STUDIO LAB BAND.** No credit. Representative works from traditional, contemporary, and experimental jazz and rock music are studied and prepared for public performance. Open to a limited number of instrumentalists who meet the demands of musicianship. Does not meet the music major ensemble requirement.

161 **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. D. De Young.*

171 **ORCHESTRA.** Quarter course. Representative works in the field of chamber and symphony orchestra literature are studied and prepared for concert performance. Open to all students who meet the demands of musicianship. One full orchestra rehearsal per week, plus one string orchestra rehearsal. *Staff.*

181 **ORATORIO CHORUS.** No credit. The study of representative works of the great masters of choral writing with a view to public performance. Handel's *Messiah* is performed annually at Christmas time and another oratorio is presented in the spring. Open to all who meet the requirements of voice and musicianship. One rehearsal a week. *Mr. H. Geerdes.*

GRADUATE COURSES

510 **SCHOOL CHORAL MUSIC.** An examination of the significant choral literature from the Renaissance to the present day. For daily research projects the student will use the reference works, scores, and recordings in the Calvin libraries. The instructor will call attention to the repertoire suitable for junior and senior high school choirs. Prerequisite: undergraduate major or minor in music or permission of instructor. *Staff.*

511 **SCHOOL INSTRUMENTAL MUSIC.** A survey of music and materials available for instrumental classes, small ensembles, bands, and orchestras at the elementary, middle school, and high school level. The course covers such topics as the techniques for evaluating materials in terms of their musical value as well as for their effectiveness as teaching tools, the history and the development of literature for the wind band, and the principles of good programming. *Staff.*

512 **USING MUSIC TO TEACH OTHER SUBJECTS.** An examination of the ways in which music may support the learning of such other subjects as history, literature, geography, physical education, basic school skills, Bible, psychology, sociology, and foreign languages. Students will learn how to find, evaluate, and present music in areas that they select. No previous musical skills are required. Students electing the course for only one-half course credit will do less research. *Staff.*

580 **ADVANCED METHODS AND MATERIALS FOR MUSIC EDUCATION.** An examination of music teaching methods and materials in a philosophical and historical context. Students will use readings in the philosophy and history of education combined with related lectures and class discussions as material for developing their own attitudes toward music education. Includes organization of programs for personal and professional growth. *Staff.*

590 **INDEPENDENT STUDY (graduate).** F.I.S. *Staff.*

595 **GRADUATE PROJECT.** F.I.S., full or half course. The prospectus for each Master of Arts in Teaching project must be developed under the supervision of a faculty member and must be approved by the student's graduate adviser. *Staff.*

JANUARY 1979 INTERIM

I-10 **THE SYMPHONIES OF BEETHOVEN.** A study of the life and music of the great Ludwig von Beethoven through an analytical and comparative study of his symphonies on record and score. *Mr. J. De Jonge.*

I-11. **MUSIC THEORY FOR PLEASURE.** The elements of music will be studied with an emphasis on rhythm, melody, and harmony. Includes lectures, class discussion, practice sessions, and daily written assignments. Work includes listening to, singing, playing, and writing of rhythms, melodies, and harmonies, and the study of selected compositions that illustrate these musical elements. Recommended for students with musical performing skill who have little or no theory background; for students considering a music major or major involving music, and for students who did poorly in first semester music classes who wish to continue in some form of music major. Prerequisite: ability to read music in at least one clef. *Miss G. Huisman.*

I-12 **SINGING FOR PLEASURE.** An introductory course for those interested in the human voice and how it works. The course accents the role singing can play in enriching one's everyday life. It also considers the various types of vocal literature and analyzes characteristics of past, present, and leading singers. The course emphasizes group voice instruction and includes demonstrations by the professor and by students. Private practice and listening to various recorded performances of vocal music are also included. Students learn how to sing, how to listen to singers, and how to listen to various styles of vocal music. No particular music background is required but some choral experience would be helpful. *Mr. C. Kaiser.*

I-13. **PIANO PEDAGOGY.** A course designed to prepare students to give instruction in piano. Emphasis on goals, methods, and materials, class discussions, outside reading, films. The course will be followed second semester with required teaching experiences involving children, under the guidance of the instructor. Prerequisite: permission of the instructor. *Mrs. T. Knol.*

I-14 **UNDERSTANDING HYMNS: AN APPROACH FOR THE WORSHIPER.** This course introduces and analyzes hymns from a musical, textual, liturgical, and theological perspective. It is intended for students of

any class level and with any sort of musical background. Textbook readings, hymnal evaluation, outside readings, a short paper, and worship service report. Class time is largely devoted to discussion, singing, and lecture. *Mr. C. Stapert, Mr. D. Topp.*

I-10 **WIND INSTRUMENT LITERATURE—SOLO AND ENSEMBLE.** A study and performance of music literature for winds by major composers of Western music. The course explores literature for solos, chamber ensembles, wind ensembles, and band with the goal of acquainting students with the large body of music literature for wind instruments. Class activity includes performance of solo works and chamber ensembles, listening to records and lectures, and reading and research in the literature of the student's major instrument. Prerequisite: approval of instructor. *Mr. D. De Young.*

I-51 **BACH, THE PREACHER: THE ORGAN HYMNS.** A study of Bach's interpretations by musical means of the texts or the hymns chosen for the organ settings. Rhythmic devices, melodic figures, and the organ of Bach's day will be discussed as means for the interpretation of the hymns. Background in the Lutheran liturgy and in Bach's life and creative output will also be studied. Record listening (minimum of two hours per day), score study, reading, and discussion. Open only to organ concentrates. *Mr. J. Hamersma.*

I-52 **PLAYING THE PIANO FOR PLEASURE.** A course designed to inspire students who stopped taking piano lessons when they were younger and have since regretted it. The course emphasizes basic technical skills and their application to the interpretation of classical piano literature. It includes class lessons, demonstrations, recordings, and displays of available literature and materials. There is a practice break built into the daily class schedule but additional practice will be required. Students will keep a journal of their technical and musical progress. Prerequisites: some previous piano instruction and permission of the instructor. *Mrs. R. Rus.*

I-53 **THE CATHEDRAL MUSIC OF ENGLAND.** A study of the protestant church music of England, from the time of the Reformation to the present. This course consists of lectures which expose the student to the birth and development of the Anglican liturgy and to the music that was composed for it

by men such as Merbecke, Byrd, Purcell, Handel, Williams, Howells, and Britten. Instead of examining scores and listening to records in class, students will attend Morning Prayer and/or Evensong each day at Westminster Abbey (London), King's College Chapel (Cambridge), and other great centers of cathedral music in England. This interim offering is created for the members

of The Capella of Calvin College, who will also sing cathedral services of American and British church music while in England. Satisfies advanced music elective requirement. Fee of approximately \$800. Prerequisite: member of The Capella. *Mr. H. Stenk.*

Idis I-12 NOISE AND MAN. *Mr. H. Geerdes.*

Philosophy

*Professors M. E. Botha, K. Konyndyk, *R. Mouw, C. Orlebeke (chairman), A. Plantinga, E. Runner, N. Wolterstorff*

Assistant Professor G. Mellema

Instructors P. Faber, D. Vriend

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 Perspectives in Philosophy (151-152), two historical period courses (210, 220, 230, 240), one historical figure or movement course, and two courses in systematics, including one from the advanced level. Students may also meet the departmental requirements by completing Introduction to Philosophy (153) and an intermediate-level systematics course instead of 151-152, provided the historical period courses are chosen from 210, 220, and 230. A four-unit cognate sequence approved by the student's adviser is required in another department.

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 209 or Education 304.

ELEMENTARY COURSES

151 and 152 PERSPECTIVES IN PHILOSOPHY. F and S. A year-long introduction to philosophy which aims to give the student a Christian philosophical framework for his thinking, along with some awareness of important alternative philosophical perspectives. It also aims to give the student some sense of the history of philosophy. 151 is a prerequisite to 152. *Mr. E. Runner, Mr. N. Wolterstorff.*

153 INTRODUCTION TO PHILOSOPHY. F and S. A one-semester introduction to philosophy, with fundamentally the same aims as

the Perspectives in Philosophy course, except that it will not aim to acquaint the student with the history of philosophy. *Staff.*

171 INTRODUCTION TO LOGIC. F and 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. C. Orlebeke.*

173 INTRODUCTION TO SYMBOLIC LOGIC. F and S. 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. D. Vriend.*

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. *Staff.*

204 **PHILOSOPHY OF RELIGION.*** F. A study of some philosophical questions arising from religious belief. *Mr. A. Plantinga.*

205 **ETHICS.*** F and S. A course designed to deal both historically and situationally with the persistent problems of the moral life. *Mr. P. Faber.*

206 **PHILOSOPHY OF HISTORY.*** S. An examination of several topics in both the speculative and analytical philosophy of history. Some consideration will be given to individual thinkers such as St. Augustine, Hegel, and Collingwood, but the course will be structured around questions of the nature and meaning of historical knowledge. *Mr. M. H. Rienstra.*

207 **POLITICAL AND SOCIAL PHILOSOPHY.*** F and 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. *Ms. M. E. Botha, Mr. R. Mouw.*

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

209 **PHILOSOPHY OF EDUCATION.*** F. and S. A study of the nature, aims, and principles of education. *Mr. G. Mellema.*

INTERMEDIATE HISTORICAL COURSES

All intermediate courses presuppose one course in philosophy.

210 **HISTORY OF ANCIENT PHILOSOPHY.** F. A history of philosophy from Thales to Aristotle. *Mr. C. Orlebeke.*

220 **HISTORY OF MEDIEVAL PHILOSOPHY.** S. A history of philosophy from Augustine to the Renaissance. *Mr. N. Wolterstorff.*

230 **HISTORY OF MODERN PHILOSOPHY.** F and S. A study of selected

philosophies of the seventeenth and eighteenth centuries. *Mr. K. Konyndyk.*

240 **HISTORY OF CONTEMPORARY PHILOSOPHY.** S. A study of major movements in recent and contemporary Anglo-American philosophy. Preparation in the history of philosophy is strongly recommended. Not offered 1978-79.

243 **AMERICAN PHILOSOPHY.*** S. To be offered conjointly with History 355. *Mr. G. Marsden, Mr. C. Orlebeke.*

ADVANCED HISTORICAL COURSES

All advanced courses presuppose at least two courses in philosophy, normally two courses from the intermediate historical group including 230.

312 **PLATO AND ARISTOTLE.** S. Advanced study of Plato and Aristotle. Not offered 1978-79.

331 **KANT.** S. A study of the *Critique of Pure Reason*. Not offered 1978-79.

332 **HEGEL.** F. Special attention is paid to Hegel's moral and political philosophy as expressed in his *The Philosophy of Right* and to Karl Marx's critique of Hegel. *Mr. M. Westphal.*

333 **KIERKEGAARD.** S. *Mr. K. Konyndyk.*

335 **NINETEENTH CENTURY PHILOSOPHY.** F. A study of the major figures in nineteenth century continental European philosophy. *Mr. E. Runner.*

340 **TWENTIETH CENTURY CONTINENTAL PHILOSOPHY.** S. A study of major figures in recent phenomenology and existentialism. Suggested preparation: 335. *Mr. E. Runner.*

ADVANCED SYSTEMATIC COURSES

All advanced courses presuppose at least two courses in philosophy, normally two courses from the intermediate historical group.

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

375 **PHILOSOPHICAL ANTHROPOLOGY.*** S. A critical examination of major philosophical discussions of the nature of man, with special attention to the concepts of mind, body, action, soul, and immortality. *Mr. R. Mouw.*

381 ADVANCED LOGIC.* S. Topics include the formalization of propositional and quantificational logic. Taught jointly with the Mathematics Department and also listed as Mathematics 381. *Staff.*

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

395 ONTOLOGY.* S. A study of selected topics of ontology. *Mr. A. Plantinga.*

GRADUATE COURSES

501 THE EDUCATIONAL ENTERPRISE: A PHILOSOPHICAL PERSPECTIVE. An examination of factors presently operative in the educational enterprise from the perspective of the history of Western philosophy. Satisfies context of education requirement in education and philosophy. *Staff.*

590 INDEPENDENT STUDY (graduate). F,I,S. *Staff.*

595 GRADUATE PROJECT. F.I.S., full or half course. The prospectus for each Master of Arts in Teaching project must be developed under the supervision of a faculty member and must be approved by the student's graduate adviser. *Staff.*

JANUARY 1979 INTERIM

I-10 THE PHILOSOPHY OF TECHNOLOGY. This course proceeds from the assumption that our technological society is in trouble and can no longer be taken for granted, particularly by Christians. Accordingly, the course addresses a number of questions: On what grounds is technology being attacked and defended today? What is the relation between science and technology? Which philosophical ideas and claims underlie modern science and technology? Are these ideas and claims acceptable to a Christian? Can a Christian justifiably enter a technological vocation such as engineering? The course considers such questions by examining a number of important books and articles representing liberal humanism, the counter-culture, socialism, and Chris-

tianity. Both humanities and science and engineering students are welcome and should be prepared to learn from each other. There will be a study of the design process and a consideration of alternative technologies. Class reports, lectures, discussions, a local plant tour, and a course paper. *Mr. C. Orlebeke.*

I-51 LOGIC AND METAPHYSICS. Although logic is often presented as an uncontroversial cut-and-dried science, in fact there are many philosophical problems which logic raises. There are differences of opinion about such seemingly bedrock matters as a correct system of logic, the proper interpretation of implication and logical necessity, the law of the excluded middle, and the nature of logical laws. The course investigates problems connected with the traditional metaphysical topics of necessity and essence. Students will decide which topics are pursued. The course will be conducted in seminar fashion and each student will be required to make a presentation on a topic of his/her own choosing. Prerequisite: 173 or permission of the instructor. *Mr. K. Konyndyk.*

I-52. MAURICE MERLEAU-PONTY: HIS PHILOSOPHICAL PSYCHOLOGY AND PHENOMENOLOGY. Merleau-Ponty was one of the most significant thinkers of the twentieth century. Topics to be studied include his criticisms of behaviorism, his development of Gestalt theory, and his theory of the role of the body in perception. Chief sources for the course are his *The Structure of Behavior* and *Phenomenology of Perception*. Lectures, class reports, and papers. Of interest to students of philosophy, psychology, and recent European thought. Prerequisite: one course in philosophy. Also helpful: 340. *Mr. E. Runner.*

Idis I-15 THE CHRISTIAN LITURGY. *Mr. N. Wolterstorff.*

Idis I-16 BUSINESS ETHICS. *Mr. G. Mellem.*

Idis I-17 MEDICAL ETHICS. *Mr. P. Faber.*

Physical education

Professors B. Steen, M. Zuidema (chairman)
Associate Professor J. Timmer

Assistant Professors R. Honderd, J. Pettinga, D. Tuuk, D. Vroon, D. Zuidema
Instructors N. Van Noord, D. Hageman
Assistant Instructors E. Driesenga, K. Wolters

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 k-12 or the elementary and secondary levels, requires the approval of the department chairman. The ten-and-a-half-course program includes 201, 212, 215, four courses from the 230 series, 301, 302, 380, and Biology 115. 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. With the approval of the department 312 may be substituted for 230 in major programs. The seven-course teaching minor includes three quarter-courses from 100-199, 201, 212, 221, 302, 380 as a half course, and Biology 115.

BASIC PHYSICAL EDUCATION COURSES

The Basic Physical Education program is part of the liberal arts core and consists of an initial personal inventory (101) followed by four quarter courses (normally three from 120-198 plus 199). Veterans with two or more years of military experience will be exempted from the core requirements in physical education if they present discharge papers at the Registrar's Office.

All students must register for PE 101 (Diagnosis-Classification) as their first physical education course. The first five weeks of this course are devoted to a diagnostic inventory to determine fitness, skills, understanding of physical education, psycho-social needs, and recreational goals. On the basis of the results, the student and his instructor plan an appropriate sequential program of courses including fitness and skill developmental activities, aquatics, and recreational sports. Older or handicapped students typically satisfy the requirements with courses from the Adaptive Program (110). All students must register for Physical Fitness (199) as the fourth quarter course in the sequence.

Physical Education majors and minors and elementary education students may substitute 221 for one quarter course in basic physical education (110-198).

101 DIAGNOSIS-CLASSIFICATION. F and I, non-credit. This course substitutes for the first five weeks of the student's first basic physical education course. Each student undergoes a thorough diagnostic inventory to assist him and his instructor in planning an appropriate program of college physical education for the student. *Staff.*

110 ADAPTIVE PROGRAM. F, I, and S, quarter course. This is a specialized program for older students and those with physical handicaps whose needs cannot be met in the regular programs (120-198). Adaptive and corrective activities are developed for each student. Students are assigned to regular activities or special programs. The college physician is consulted in the cases of physically handicapped students. Students who are eligible for this course should consult the departmental representative at reg-

istration. The course may be repeated. *Mr. M. Zuidema.*

120-159 GUIDED INSTRUCTIONAL PROGRAM. F, I, and S, quarter courses. Various developmental and recreational courses planned to develop one or more aspects of personal efficiency are offered. Examples of such courses are: physical conditioning, weight training, motor training, rhythmic, wrestling, gymnastics, badminton, bowling, tennis, golf, handball, paddleball, and volleyball. Up to three quarter courses may be taken in this program. *Staff.*

160-198 SPECIALIZED INSTRUCTIONAL PROGRAM. F, I, and S, quarter course. Specific courses are developed with a departmental representative and may include, among others, aerobic fitness, individual and group experience in creative movement ex-

pression, and programmed learning in self-defense, skiing, cycling, or mountain climbing. Such programs may be arranged by individuals or groups and for more advanced students may include instructional clubs in various leisure-time sports. Up to three quarter courses may be taken in this program. *Staff.*

199 **PHYSICAL FITNESS.** F and S, quarter course. This course is the final one in the basic physical education sequence and, accompanied by a review of the results of the student's initial personal inventory, aims to give him a basis for maintaining life-long physical fitness. *Staff.*

221 **ELEMENTARY SCHOOL ACTIVITIES AND PROGRAMS.** See description under Professional Courses.

PROFESSIONAL COURSES

201 **HISTORY AND PERSPECTIVE.*** F. The course deals with two areas—the history of physical education in the civilized world, and the problems, purposes, and philosophical implications of physical education as they affect man in general and educational institutions in particular. *Mr. B. Steen.*

212 **KINESIOLOGY.** F. A study of human motion from the scientific standpoint. Particular attention is given to a mechanical analysis of musculoskeletal movements as applied to games, sports, and daily living. Prerequisite: Biology 115. *Mr. R. Honderd.*

215 **PHYSIOLOGY OF PHYSICAL ACTIVITY.*** S. A study of physical efficiency and physiological principles involved in human exercise. Emphasis will be placed on the responses of the respiratory, cardiovascular, and muscular systems. The course includes the physiology of factors affecting performance such as the environment and the use of tobacco, alcohol, and drugs. Prerequisite: Biology 115. *Mr. J. Timmer.*

221 **ELEMENTARY SCHOOL ACTIVITIES AND PROGRAMS.*** F and S, half course. The course provides a working knowledge of the fundamentals of physical education planning for elementary school children. It substitutes for one quarter course in basic physical education (110-198) for physical education majors and minors, and for elementary teacher education students. *Mr. M. Zuidema and 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. Students must complete Laboratory A and Laboratory B while registered for their first two courses in the 230 series.

LA **Motor Learning Principles.** F and S. *Mr. M. Zuidema.*

LB **Psychology of Teaching/Coaching.** F and S. *Mr. B. Steen.*

230 **Field Hockey.** S. *Miss D. Zuidema.* Not offered 1978-79.

231 **Basketball.** F. *Mr. D. Vroom.*

232 **Baseball/Softball.** S. *Mr. J. Pettinga.*

233 **Track and Field.** S. *Mr. R. Honderd.*

234 **Soccer.** F. *Mr. M. Zuidema.*

235 **Volleyball/Tennis.** F. *Mrs. K. Wolters, Miss N. Van Noord.*

236 **Football.** F. *Mr. J. Pettinga.* Not offered 1978-79.

237 **Gymnastics.** S. *Miss N. Van Noord.*

238 **Wrestling.** S. *Mr. J. Pettinga*

301 **MEASUREMENT AND EVALUATION IN PHYSICAL EDUCATION.*** S. A study of the evaluation techniques in physical education. Emphasis on evaluation of physical fitness, body mechanics, growth, motor ability, sport skills, knowledge of health practices and sports activities, and program evaluation. Consideration is given to the organization of evaluation programs and the use of such programs. The course gives opportunity for practical experience in administering tests. *Mr. M. Zuidema.*

302 **ORGANIZATION OF THE CURRICULUM AND PROGRAMS OF PHYSICAL EDUCATION.** S. A study of the structure and curricula of modern physical education programs of elementary and secondary schools and the closely-related areas of administration of athletics, intramurals, recreation, and health programs. Opportunity is given to construct total programs of physical education for selected schools. *Mr. B. Steen.*

303 **LEADERSHIP IN RECREATION PROGRAMS.** S, half course. This course studies the organization of recreation programs and gives opportunity for observing programs in action, for structuring new programs, and for developing leadership skills. *Mr. D. Tuuk.*

312 **PHYSIOLOGY OF CONDITIONING AND INJURIES.** F, half course. The study of physiological principles as they apply to physical training and rehabilitation from injury. Specific types of training programs

are studied. Laboratory topics will include athletic injury treatment, taping techniques, and first aid procedures. May substitute for 230 in major programs with the approval of the department. Prerequisite: Biology 115. *Mr. J. Timmer.*

380 INDIVIDUAL COMPETENCES. F, I, and S, full or half course. This course offers opportunity for physical education majors and minors to develop the physical condition and skill necessary to be beginning teachers in physical education. It requires active participation and competence in a variety of physical education skills. Students should register for this course when they are admitted to a major or minor in the department and remain registered for it until they have completed the other departmental requirements. Majors, who need a full course credit, must earn 210 points, and minors, who receive a half course credit, must earn 105. Periodic competency examinations are given. Elements of this course are prerequisites for 230 courses. *Mr. B. Steen, Mrs. K. Wolters.*

JANUARY 1979 INTERIM

I-10 IMPROVING THE COMMUNICATION SKILLS OF COACHES. This course takes a serious look at the importance of communication skills in athletics. It also discusses a wide range of communication techniques and their adaptability in the sports setting. Student responsibilities include self-examination and improvement of communication skills, small and large group interactions, observations and interviews with a selected number of coaches, brief papers, and a final examination. *Miss N. Van Noord.*

I-11 THE DANCE: THEN AND NOW. This course deals with dance through the ages, from primitive through twentieth-century forms, and its relationship to the culture and art of its time. Special attention is given to the use of dance in a religious context and its history as a liturgical form. Readings, films, and studio presentations. No previous dance experience required. *Mrs. E. Van't Hof.*

I-12 VOCATIONAL ALTERNATIVES IN PHYSICAL EDUCATION. An introspection into physical education related professions. This course acquaints students with the opportunities that exist in the profession outside the K-12 teaching situation. Students become acquainted with the knowledges and methodologies that are basic to each vocational alternative. Lectures, discussions, field observations, research papers, and presentations. *Mr. J. Pettinga.*

I-13 WHAT RESEARCH TELLS THE PHYSICAL EDUCATOR AND COACH. This course offers an opportunity to investigate current research findings with a view toward teaching and coaching applications. There will be a serious attempt to investigate, evaluate, and interpret research studies that are published in *Research Quarterly*; *Quest*; *AAHPER Research Proceedings*; *National College Physical Education Association Proceedings*; *Medicine and Science in Sports*; *Journal of Educational Psychology*; *Journal of Applied Physiology*; *Journal of Experimental Psychology*; *Perception and Motor Skills*; *American Journal of Physiology*; and *American Physical Education Review*. The course will begin with an overview of research methods and statistical techniques. Students are expected to be able to handle mathematical concepts and be able to do independent investigation. *Mr. M. Zuidema.*

I-50. OUTDOOR EDUCATION. This course is designed to give the student opportunities to develop knowledge and appreciation for the out-of-doors through direct experiences, research projects, and field trips. It involves the theory for such activities and the practice. Direct experiences could include: cross-country skiing, orienteering, snow shoeing, ice fishing, tracking, hiking, and winter camping. Visiting lecturers and field trips to area nature centers will be included. A lab fee of \$20 must be paid in advance. Students are responsible for securing their own cross-country skiing equipment. Prerequisite: sophomore standing or above. *Miss D. Zuidema.*

Physics

Professors V. Ehlers (chairman), R. Griffioen, A. Kromminga, C. Menninga (Geology),
H. Van Till, J. Van Zytveld
Associate Professor D. Young (Geology)
Assistant Professor R. Manweiler

STUDENTS INTENDING to major in physics are advised to enter college with four years of mathematics and to take their required courses in mathematics (Mathematics 111, 112, 211, 212) and physics (Physics 123, 124, 181, 182, 225, 226) during their freshman and sophomore years. Computer Science 108 is also recommended for the first semester of the freshman year. Students may apply for admission to the department before completing 226 and Mathematics 212, but they must have completed the designated courses with a minimum average grade of C (2.0) before they can be admitted to the major program.

The major program of concentration in physics consists of a total of nine courses, including the required basic physics courses listed above. Each student's program of concentration must be approved by the department and must include an appropriate distribution of theory and laboratory courses as well as cognate courses in mathematics.

Students with physics majors from Calvin may, with appropriate planning, earn a master of engineering degree (M.E.) from the University of Michigan School of Engineering with one additional year of study. Such programs should be planned with the department chairman.

Students planning to pursue graduate study in physics should take, in addition to the introductory courses, 335, 345, 346, 375, 376, 380 or 381, a minimum of a half course credit of Modern Physics Laboratory, 365 or 379, 395 and 396 or an interim course in research, and Mathematics 313.

The major program of concentration in physics for secondary education students requires a minimum of nine college courses, including Philosophy 203, Physics 123, 124, 181, 182, 225, 226, 380 or 381, a minimum of a half course credit of Modern Physics Laboratory, plus approved electives from the Advanced Courses. The minor program for secondary education students requires 123, 124, 181, 182, 225, 226, 380 or 381, a minimum of a half-course of credit in modern physics laboratory, plus approved electives from Advanced Courses. Each student's program must be approved by the chairman of the department.

The teaching group major in physics and mathematics consists of Mathematics 111, 112, 211, 212, 321, and 351; Physics 123, 124, 181, 182, 225, 226, 381, and a minimum of a half course credit of Modern Physics Laboratory. A group minor in the same fields consists of Mathematics 111, 112, and 211; Physics 123, 124, 181, 182, 225, and 226. The elementary teacher education adviser is Mr. Clarence Menninga.

The teaching group major in physics and chemistry consists of Physics 123, 124, 181, 182, 225, 226; Chemistry 103, 104, and either 253-254 or 301-302; and two and a half courses approved by the Science Division Education Coordinator, Mr. Clarence Menninga. Courses recommended for such electives include Physics 380, 381, 382, Chemistry 201, 277, and 278.

A group major in science and mathematics meets the needs of some stu-

dents, particularly those in professional programs. The majors are not appropriate for students who anticipate attending graduate school or who are in teacher education programs. Such group majors require twelve courses in the sciences and mathematics, ten of which must be from two departments with no fewer than four from either, with the remaining two courses chosen from a third department. The departmental chairmen of the three departments must approve each such program.

The physical science core requirement may be met by a year of high school physics, by 110, 112, 124, 222, 225, Chemistry 104, Astronomy 110, 201, Geology 152, or interim courses in physics and chemistry which are designated as satisfying the core. Students preparing to be elementary teachers should take 112 and must complete 113 if any other course is taken instead.

INTRODUCTORY COURSES

110 **PHYSICAL SCIENCE.** F and S, core. This course evaluates the basic assumptions used in the scientific study of nature, discusses the methods of scientific investigation and the development of scientific theories, and presents the results of scientific investigations in the fields of physics and chemistry. It also acquaints students with the fundamental laws of physics and chemistry and explains certain important physical phenomena. This course is designed primarily for non-science majors and is not open to those who have taken (or plan to take) Physics 112, 123, 126, or 221. Laboratory. Prerequisites: high school algebra and Mathematics 107, 109, or the equivalent. *Staff.*

112 **PHYSICAL SCIENCE.** F and S, one and a half courses, core. The major objectives of this course are the same as those of 110 except that a laboratory-oriented approach is used to achieve the objectives. Emphasis is placed on the processes and structure of science. The course is open only to future elementary school teachers and makes use of elementary school science programs and materials. Not open to those who have taken or plan to take 110, 123, 126, or 221. Prerequisites: high school algebra and Mathematics 107 or 109 or their equivalent. *Mr. R. Manweiler, Mr. V. Ehlers.*

113 **SCIENTIFIC PROCESSES AND SCIENCE TEACHING.** S, half course. A study of the processes and structure of science, designed to acquaint future elementary school teachers with the fundamentals of science and their use in elementary school science programs. Extensive use is made of programmed modules and elementary school science materials. For students entering elementary education programs who have

taken 110 or Astronomy 110 previously rather than 112, the preferred course. Not open to students who have taken 112. Prerequisite: 110 or Astronomy 110. *Staff.*

123 **INTRODUCTION TO MODERN AND CLASSICAL PHYSICS.** F, half course. 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 123-124 rather than with 110. Topics in classical physics include mechanics and thermodynamics. The nature of scientific study in general and its place in one's world and life view will be discussed. Prerequisites: concurrent registration in or completion of 181, Mathematics 111, and, if possible, Computer Science 108. *Mr. J. Van Zytveld.*

124 **INTRODUCTION TO MODERN AND CLASSICAL PHYSICS.** S, core. A continuation of 123, which is a prerequisite. Prerequisites: Mathematics 111 and concurrent registration in Mathematics 112 and Physics 182. *Mr. J. Van Zytveld.*

126 **INTRODUCTORY PHYSICS: MECHANICS AND HEAT.** S. An introduction to classical Newtonian mechanics applied to linear and rotational motion; a study of energy and momentum and their associated conservation laws; an introduction to the concept of heat and a study of the first and second laws of thermodynamics. This course serves as a preparation for 225 and is intended primarily for engineering students and others who cannot fit 123-124 into their programs. Prerequisites: Mathematics 111 and concurrent registration in Mathematics 112 and Physics 186. *Staff.*

221 GENERAL PHYSICS. F. One and one-quarter course. This course is designed for those who do not intend to do further work in physics. The major areas of physics are discussed: mechanics, heat, electricity and magnetism, light, waves, relativity, and quantum theory. Laboratory. Prerequisites: plane trigonometry and high school algebra. *Mr. J. Lillis.*

222 GENERAL PHYSICS. S, core. One and one-quarter course. A continuation of 221, which is a prerequisite. Laboratory. *Staff.*

223 PHYSICS FOR THE HEALTH SCIENCES. F. An introduction to those topics in physics which are basic to work in a variety of health science fields. The course is oriented toward understanding some of the basic laboratory techniques and instruments which are fundamental to medical and para-medical instrumentation. Topics include physical measurements and data analysis, basic mechanics, heat, electric and magnetic fields, electric circuits, basic electronics and instrumentation, optics, radioactivity, and X-rays. Prerequisites: High school geometry and algebra. *Mr. J. Van Zytveld.*

225 INTRODUCTORY PHYSICS: ELECTRICITY, MAGNETISM, AND WAVES. F, core. A study of the properties of electric and magnetic fields and of the integral form of Maxwell's equations which describe these fields; a mathematically unified treatment of alternating current circuits, general wave phenomena, and geometrical and physical optics. Laboratory. Prerequisites: 124 or 126, Mathematics 112, and concurrent registration in Mathematics 211. *Mr. R. Griffioen, Mr. A. Kromminga.*

226 INTRODUCTORY MODERN PHYSICS. S. An introduction to quantum effects and the wave-particle duality of matter and radiation: a study of the structure of atoms, molecules, solids, nuclei, and fundamental particles as described by Schroedinger theory. Einsteinian relativity is also considered. Prerequisites: 225, Mathematics 211, and Computer Science 108. *Mr. R. Griffioen.*

ADVANCED COURSES

Prerequisites for all of the 300-level physics courses are Computer Science 108 or its equivalent 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. Prerequisite: 124 or 126. *Mr. R. Griffioen.*

345 ELECTROMAGNETISM.* S. The basic equations of the classical electromagnetic interaction theory 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 this theory is studied. The basic theory and some applications are considered in 345, while the remaining applications and relativity are reserved for 346. Prerequisite: 225. *Mr. R. Manweiler.*

346 ELECTROMAGNETISM.* F. A continuation of 345, which is a prerequisite. *Mr. R. Manweiler.*

365 THERMODYNAMICS AND STATISTICAL MECHANICS.* F. Discussion of the equation of state and the laws of thermodynamics with application to some simple systems; the thermodynamic potentials: kinetic theory. Treatment of statistical mechanics dealing mainly with ensembles and distribution functions, calculation of entropy and the thermodynamic potentials with application to crystals and gases. Quantum statistical mechanics is considered. Prerequisite: 335. *Staff.*

375 QUANTUM MECHANICS.* F. The main emphasis is on wave mechanics and its application to atoms and molecules. One-electron atoms are discussed in detail. Additional topics discussed are electronic spin and atomic spectra and structure. Nuclei, the solid state, and fundamental particles are also considered. Prerequisite: 226. *Mr. H. Van Til.*

376 QUANTUM MECHANICS.* S. A continuation of 375, which is a prerequisite. *Mr. H. Van Til.*

379 CONTEMPORARY PHYSICS.* S. An introduction to the major areas of current research in physics. Primary emphasis is placed upon solid-state, atomic, nuclear, and elementary-particle physics. Prerequisite: Physics 375. *Staff.*

380 ANALOG AND DIGITAL ELECTRONICS.* S. An introduction to electronic circuits and

devices and their applications. The following topics are included: A.C. circuit analysis; diode and transistor characteristics; amplifiers; oscillators; operational amplifiers; digital logic gates; flip-flops; counters; and integrated circuits. Laboratory exercises in all of the above topics are performed. Prerequisite: Physics 225. *Mr. J. Van Zytveld.*

390 INDEPENDENT STUDY IN PHYSICS.* F, I, S, half or full course. Independent readings and research in physics under the supervision of a member of the departmental staff. Prerequisite: permission of the chairman. *Mr. J. Van Zytveld.*

LABORATORY COURSES

181 BASIC ELECTRICAL MEASUREMENTS. F, quarter course. An introduction to basic D.C. electrical measurements including Kirchhoff's Laws, potentiometer circuits, and bridge circuits. Techniques of data handling and analysis and a brief introduction to A.C. circuits are included. *Mr. V. Ehlers.*

182 ELECTRICAL MEASUREMENTS. S, quarter course. Applications of D.C. electrical measurements; A.C. circuits, including experiments on frequency response and resonance; and an introduction to digital circuitry. Prerequisites: 181 and Mathematics 111. *Mr. V. Ehlers.*

186 INTRODUCTORY PHYSICS LABORATORY. S, quarter course. An introduction to basic D.C. electrical measurements and their use in studying various mechanical systems and thermodynamic phenomena. Corequisite: 126 or the permission of the instructor. *Staff.*

381 ELECTRONICS.* S, half course. An introduction to, and an analysis of, some of the basic digital and analog electronic circuits commonly used in science and engineering research. Prerequisites: 225 or a year of college physics and permission of instructor. *Staff.*

382 MODERN PHYSICS LABORATORY.* F and S. Quarter course. An introduction to the basic laboratory techniques in atomic, nuclear, and solid-state physics and a study of some of the more important experiments on which modern physical theory is based. This course may be repeated with the permission of the instructor. Prerequisite: 380, 381, Engineering 308, or a year of college

physics and permission of the instructor. *Mr. J. Van Zytveld.*

395-396 PHYSICS SEMINAR AND RESEARCH.* F, S, half course; I, full course. Experimental or theoretical 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. J. Van Zytveld.*

GRADUATE COURSES

510 PHYSICAL SCIENCE AND CONTEMPORARY SOCIETY. This course is designed to show the elementary or middle school teachers how physical science and its resulting technology interact. It does not deal primarily with the concepts and theories of physical science, but will focus on the societal impact of physical science. Topics of major interest include energy sources and energy use, supply and use of other material resources, and the limitations of physical science in solving societal problems. Prerequisite: Physics 112 or its equivalent. *Staff.*

590 INDEPENDENT STUDY (graduate). F, I, S. *Staff.*

595 GRADUATE PROJECT. F, I, S., full or half course. The prospectus for each Master of Arts in Teaching project must be developed under the supervision of a faculty member and must be approved by the student's graduate adviser. *Staff.*

JANUARY 1979 INTERIM

I-10 THE FIRST THREE MINUTES. A MODERN VIEW OF THE ORIGIN OF THE UNIVERSE. A study of the standard model of the early universe which has developed over the past decade. The course deals with certain aspects of cosmology—in particular those aspects related to the course of events in the early universe. Students will develop the necessary physics background. They will also discuss the 1965 discovery of cosmic microwave background radiation which led to the development of the standard model and evaluate the support given to the model from cosmic abundances of the elements. Satisfies the physical science core. *Mr. R. Griffioen.*

I-50 ENVIRONMENTAL APPLICATIONS OF PHYSICS. In this course a quantitative approach to a wide variety of environmental problems is considered. Primary emphasis

will be placed on transportation and air pollution. However, many other areas will be touched on briefly, e.g., noise pollution and energy from nuclear fusion. This course has two purposes. The first purpose is to show that physics is very relevant to contemporary environmental problems. The second is to acquaint students with the details of some of these problems. Prerequisites: a year of college physics and of calculus. *Mr. A. Kromminga.*

I-51. MODERN PHYSICS LABORATORY. An introduction to the basic laboratory techniques in atomic, nuclear, and solid-state physics and a study of some of the more

important experiments on which modern physical theory is based. Prerequisite: 380, or a year of college physics and permission of the instructor. *Mr. J. Van Zytveld.*

390 INDEPENDENT STUDY IN PHYSICS. F, I, S. Independent readings and research in physics, under the supervision of a member of the departmental staff. *Mr. J. Van Zytveld.*

Geo I-11 GEOLOGY OF NATIONAL PARKS. *Mr. C. Menninga.*

Idis I-13. INTRODUCTION TO PHOTOGRAPHY. *Mr. H. Van Till.*

Political science

Professors *J. De Borst, J. Westra (chairman)*

Associate Professor *P. Henry*

Assistant Professors *R. De Vries, J. Penning, C. Smidt*

TO BE ADMITTED to a major program in political science a student must have completed 151 with a minimum grade of C (2.0). In addition to 151 the program requires 201, 203 or 303, 207, 305 or 306, and four additional courses in the department. Required cognates include Economics 151 and an approved three-course sequence in one of the following departments: economics, history, psychology, or sociology. Students planning to pursue graduate study in political science should take 302 and both 305 and 306.

Students preparing for a secondary teaching certificate should meet the general major requirements in political science and, as far as possible, in the cognate fields; 202 is recommended but not required. A departmental minor requires 151, 201, 202, and any other three courses. *Mr. R. De Vries* is the adviser for teacher education.

The core requirements in political science normally are met by 151. Elementary education students may satisfy the core requirement with 201 and Canadian students with 210.

151 INTRODUCTION TO POLITICS. F and S, core. An introduction to political science. Analyzes the nature of the political process, the methods political scientists use in studying it, and some of the key concepts and terminology they have developed to explain it. *Staff.*

201 AMERICAN POLITICS. F and S. A study of American national politics. Emphasis is on the social context, constitutional foundations, and the major institutions, processes, and functions of American politics. *Staff.*

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. J. Penning.*

203 COMPARATIVE GOVERNMENT—EUROPE. S. A study of the government and politics of four major European states: Great Britain, France, Germany, and the Soviet Union. Prerequisite: 151. *Mr. J. Westra.*

207 **INTRODUCTION TO INTERNATIONAL POLITICS.** F. Analysis and critique of various theoretical approaches to the study of international politics; concepts of power; the nation-state and the doctrine of sovereignty; diplomacy; nationalism; imperialism; war; balance of power; collective security; and world government. *Mr. J. De Borst.*

209 **PUBLIC ADMINISTRATION.** F. An introduction to the political process. Principles of administrative organization, methods of administrative control, and budget management. The organizational and administrative problems encountered by government agencies charged with carrying out public policies. *Mr. J. Penning.*

210 **CANADIAN GOVERNMENT AND POLITICS.** F and S. A study of the political system of Canada with emphasis on national (federal) government and politics. Major topics covered include the origins and development of Canada's political institutions; Canada's constitution, the British North American Act; Canadian federalism; the operation of the parliamentary-cabinet system in Canada; political parties and elections; social forces and trends in Canadian politics. This course carries core credit for Canadian students only. *Mr. J. Westra.*

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 the United States. *Mr. C. Smidt.*

303 **COMPARATIVE GOVERNMENT—THE NON-WESTERN WORLD.*** F. A study of the politics of Asian and African states. Emphasis is on the issues and problems posed by the modernization process. *Mr. R. De Vries.*

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

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

308 **PRINCIPLES OF AMERICAN FOREIGN POLICY.*** S. An analytical view of American foreign policy; its domestic sources; process of formulating policy; instruments of

American diplomacy; the nature of U.S. relations with hostile powers, allies, the emerging nations, and the United Nations; the limitations and potentials of American foreign policy. *Mr. R. De Vries.*

309 **INTERNATIONAL ORGANIZATIONS.*** S. An examination of regional and universal international organizations; their processes, functions, and impact on the international system. The United Nations system as well as economic and political integration within the North Atlantic area, among Communist states, and in the Third World. *Mr. R. De Vries.* Not offered 1978-79.

310 **THE JUDICIAL PROCESS AND CIVIL LIBERTIES.*** S. The judicial process in American politics. Special consideration of the Supreme Court's interpretations of the Constitution, with emphasis on civil liberties. *Mr. J. De Borst.*

312 **LEGISLATIVE BEHAVIOR.*** F. A study of legislators, legislatures, and the legislative process. The impact of institutional structures, political parties, outside forces, and personal norms on the legislative process. The role of legislatures in the democratic process. State and non-American legislatures are considered but the emphasis is on the federal Congress. *Mr. P. Henry.* Not offered 1978-79.

313 **POLITICAL PARTIES.** F. A study of political parties and their role in the political process. The approach will be comparative: different types of party systems; typologies and classifications of parties; different patterns of leadership, membership, organization. Emphasis will be on parties in Western democratic systems with special attention given to American political parties. *Mr. C. Smidt.*

390 **INDEPENDENT STUDY.*** F, I, S. Reading or directed projects for majors. Open with the permission of the chairman and the instructor under whom the work will be done. *Staff.*

395 **SEMINAR.***

JANUARY 1979 INTERIM

I-10 **POLITICAL TERRORISM.** A study of the origins, philosophy, methods, consequences, and possible solutions to the various expressions of political terrorism. While studying such organizations as the Palestine Liberation Organization, the Irish

Republican Army, and terrorist groups in Western and Third World countries the course asks whether common conditions and a common philosophy underlie such diverse groups. Readings and class discussion are supplemented with films and guest speakers. A paper is required. *Mr. R. De Vries.*

I-11. **THE POLITICAL NOVEL.** A study of politics as seen through the eyes of the literary artist and expressed through the form of the novel. Lecture material will survey the development of the political novel in England and the United States. Class discussion will focus on three American novels, which will be required texts. Students will also read and report on a political novel of their own choice. *Mr. J. Westra.*

I-50 **THE MAKING OF THE PRESIDENT 1980.** This course examines the electoral, constitutional, and political elements relative to the presidential election process. It covers the following: the constitutional and legal rules by which elections are determined (including provisions relative to the electoral college, campaign finance and reporting, equal time provisions under the Federal Communications Act, party rules, etc.), the political dynamics of the presidential electoral process (including recruitment of candidates, interest group involvement, the balancing of a presidential ticket, etc.), and a review of the popular and academic literature on presidential elections. Each student will present a major research paper on *changing patterns* in American presiden-

tial elections. Prerequisite: at least one course in political science. *Mr. P. Henry.*

I-51 **THE WATERGATE ERA.** A study based primarily on the reading of a number of the books, diaries, and articles written by the participants, observers, investigators, and critics of the events, personalities, and accidents that make up the Watergate caper. An attempt will be made to achieve a balanced evaluation of this era by an in-depth discussion of source materials written from various perspectives. Prerequisite: at least one course from 151, 201, History 211, or 312. *Mr. J. De Borst.*

I-53. **WORK-STUDY IN STATE/LOCAL GOVERNMENT.** This course is designed to provide a work/study opportunity in state or local government for a select group of students. Each student will be assigned to work with a field instructor in a state or local government agency or in the office of an elected or local official. The college instructor, the student, and the field instructor will together plan a program designed to build on the program of instruction at the college and the student's career goals. Normally, forty hours of work per week on a regular schedule are required. Students will keep a log of activities, write a brief reaction paper, and attend weekly on-campus seminars. May be applied to departmental concentrations and to teacher education minors in political science and social studies. Prerequisite: sophomore, junior, or senior status and permission or instructor. *Mr. J. Penning.*

Idis I-54 **SPSS: A COMPUTER LANGUAGE FOR SOCIAL SCIENTISTS.** *Mr. C. Smidt.*

Psychology

Professors M. Bolt, †W. Joosse, D. Lindskoog, A. Reynolds, R. Stouwie, R. Terborg
Associate Professors J. Brink, W. Sanderson (chairman)
Assistant Professors C. Bennink, J. Bentham, D. Snuttjer, S. Stehouwer, M. Vander Goot, G. Weaver

INTRODUCTORY PSYCHOLOGY (151) must be completed with a minimum grade of C (2.0) by students intending to major in the department. The nine course major consists of 151, 250, 306, three 300-level electives, one of which must include a laboratory experience, and three electives from the offerings of the Psychology Department. Not more than one interim and no independent studies (390) may be included in the first nine courses of a major.

Students intending to pursue graduate education in psychology or related fields should consult a department member for advice. There are a number of options open which require different types of preparation.

A teaching minor consists of six courses: 151, 212, 306, 311, one from 330, 331, 332, and one elective.

The core requirement in psychology is best met by 151. Education 301 satisfies the core requirements for students in teacher education programs and serves as a prerequisite for 200-level courses only.

151 **INTRODUCTORY PSYCHOLOGY.** F and S, core. An introductory course intended to give the beginner an 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.

201 **DEVELOPMENTAL PSYCHOLOGY: LIFE-SPAN.** S. An overview of human psychological development from birth to death. The primary objective is to understand the behavior characteristic of each stage of development and the psycho-social factors which influence that behavior. Primarily for students in the health science programs and not open to students who have taken or plan to take 204, 207, or Adult Psychology. Prerequisite: 151. Mr. W. Joosse, Mr. D. Lindskoog.

204 **DEVELOPMENTAL PSYCHOLOGY. CHILD.*** F and S. A basic overview of normal development from birth to adolescence. Organization is chronological (infant, toddler, etc.) and conceptual (cognitive development, social-personality development, etc.). Prerequisite: 151. Mr. S. Stehouwer, Mr. R. Stouwie, Mrs. M. Vander Goot.

207 **DEVELOPMENTAL PSYCHOLOGY: ADOLESCENT.** F. A study of the transitional years of human development from puberty to early adulthood. Emphasis is on developmental changes and on the tasks which the adolescent faces in his different roles. Prerequisites: 151 and 204. Mr. R. Stouwie.

211 **PERSONALITY AND ADJUSTMENT.** F. A study of psychological theory and research pertinent to personality dynamics and adjustment. Coverage includes concepts of mental health, need fulfillment, sources of conflict and stress, the nature and effects of anxiety, the self concept, and principles of emotional and interpersonal competence. Attention will be given to the personal application of these topics. Prerequisite: Psychology 151. Mr. W. Joosse, D. Lindskoog.

212 **PSYCHOPATHOLOGY*.** F and S. A study of the wide range of abnormal behaviors. Emphasis is on causes, dynamics, and classification, with some attention to treatment approaches. Prerequisite: Psychology 151. Mr. J. Benthem, Mr. S. Stehouwer, Mr. G. Weaver.

216 **PSYCHOLOGY OF THE EXCEPTIONAL CHILD*.** S. A basic overview of the "other" children, those who differ physically, mentally, or behaviorally from "normal" children. Emphasis on causal factors, characteristics, and diagnosis. Prerequisite: 151. Mr. R. Stouwie.

250 **DESCRIPTIVE STATISTICS FOR SOCIAL SCIENCES.*** F and S. An introduction to the major forms of descriptive statistics (measures of central tendency, variability, linear transformation, area transformation, correlation). Both an understanding of and proficiency in the application of these concepts and techniques in the areas of education, psychology, sociology, etc., will be sought. Mr. A. Reynolds, Mr. D. Snuttjer.

306 **HISTORY OF PSYCHOLOGY.*** F and S. A study of the origins of contemporary psychology within science and within philosophy, and of the development of various systematic approaches to psychology as a separate academic discipline in Europe and the United States. Prerequisites: two courses in psychology. Mr. W. Sanderson.

308 **INTRODUCTION TO EXPERIMENTAL PSYCHOLOGY*.** S. A critical study of experimental methods, problems, materials, results, and conclusions, with major emphasis on perception and learning. Laboratory work will be required. Open only to juniors and seniors intending to major in psychology who have either 250 or Mathematics 206. Mr. R. Terborg.

310 **SOCIAL PSYCHOLOGY.*** F and S. A critical study of the individual's relationship to other individuals, groups, and cultures. Attention is given to such topics as beliefs, attitudes, and values; social influence and

conformity; interpersonal perception and attraction; aggression and social conflict; altruism; and collective behavior. Students may not receive credit for this course and Sociology 310. Prerequisite: Psychology 151. *Mr. M. Bolt, Mr. J. Brink.*

311 THEORIES OF PERSONALITY.* F and S. An introduction to modern American and European theories concerning the psychological structure, dynamics, and development of the human personality. Prerequisites: 151, 212. *Mr. J. Brink, Mr. W. Sanderson.*

312 PRINCIPLES OF PSYCHOLOGICAL MEASUREMENT.* F and S. An introduction to the theoretical and practical issues, viewpoints, and techniques of psychological testing in the areas of intelligence and personality. Test construction, including those that measure academic achievement, is emphasized. Prerequisite: 250, Mathematics 205, or Mathematics 343. *Mr. A. Reynolds.*

314 CLINICAL PSYCHOLOGY. F. An introduction to the science, techniques, and art of employing psychological means to promote the welfare or mental health of persons. Prerequisites: 212, 311, and 312. *Mr. J. Benthem.*

315 PRACTICUM IN A CLINICAL SETTING. An introductory course in theoretical and applied psychotherapy, taught in a hospital setting, and appropriate for students interested in clinical and general psychology. This course deals cognitively and critically with various modes of psychotherapy from a Christian perspective, gives the student an acquaintance with a variety of mental hospital procedures, and offers the opportunity to begin in a minimal way and under supervision some direct experience with the disturbed. Prerequisites: junior-senior standing; departmental approval; 151, 212, and 311. *Mr. J. Benthem.*

322 PERSPECTIVES OF PSYCHOLOGY. S. The purpose of this course is to explore the relationship of psychology to—or its involvement in—such areas as literature, religion, art, and morality. Normally, in any given semester, major emphasis will be on only one of these areas. In 1978–79 this course will consider the relationships of psychology to religion. *Mr. G. Weaver.*

330 PSYCHOLOGY OF MOTIVATION.* F. A thorough discussion of the psychological study of motivation. Recent research findings as well as theory formation in the areas

of emotion and motivation are included. Prerequisite: 151. Two-hour laboratory each week. *Mr. G. Weaver.*

331 PSYCHOLOGY OF SENSATION, PERCEPTION, AND COGNITION.* F. A detailed examination of the functions of perception and thought in human beings. Various theories as well as current research trends will be discussed. Two hour laboratory each week. Prerequisite: 151. *Mr. D. Snuttjer.*

332 PSYCHOLOGY OF LEARNING PROCESSES.* F and 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. Two-hour laboratory each week. Prerequisite: 151. *Mr. C. Ben-nink, Mr. D. Snuttjer, Mr. R. Terborg.*

333 PHYSIOLOGICAL PSYCHOLOGY. S. An intensive investigation of the physiological bases of behavior. Theories and research concerning the relationship between the nervous system and several aspects of behavior will be discussed. Discussion of the mind/brain problem. Two hour laboratory each week. Prerequisite: 151. *Mr. D. Snuttjer.*

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

395 SENIOR RESEARCH SEMINAR ON ISSUES IN CONTEMPORARY PSYCHOLOGY.* F. The preparation, presentation, and discussion of papers based on current psychological literature and upon individual empirical research. Open to seniors majoring in psychology. Prerequisite: 308. *Mr. M. Bolt.*

GRADUATE COURSES

510 EDUCATIONAL MEASUREMENT. This course provides a theoretical and practical background which will enable classroom teachers to construct or select tests for specific purposes. It is designed to enable teachers to use test scores wisely and effectively in the learning process. A major paper requires knowledge and application of the concepts of reliability and validity as well as practical considerations in the evaluation of a standardized test of the student's choice. *Mr. S. Stehouwer.*

511 INTRODUCTION TO GUIDANCE AND COUNSELING. A survey of principles, major theories, and resources which shape guidance and counseling efforts in the schools. The course focus is on how a teacher can

best contribute to and benefit from those efforts. *Mr. S. Stehouwer.*

512 **MENTAL HEALTH AND THE CLASSROOM.** An analysis of the mental health dimensions of education, emphasizing the developmental needs and adjustment challenges of students. Includes the influence of teacher behavior and school programs. *Mr. D. Bowman.*

590 **INDEPENDENT STUDY** (graduate). F.I.S. Staff.

595 **GRADUATE PROJECT.** F.I.S., full or half course. The prospectus for each Master of Arts in Teaching project must be developed under the supervision of a faculty member and must be approved by the student's graduate adviser. Staff.

JANUARY 1979 INTERIM

I-10. **SOCIAL PSYCHOLOGY THROUGH LITERATURE.** An introduction to basic concepts and theory in social psychology through fiction. Selected novels and short stories such as *Caine Mutiny*, *Ox-Bow Incident*, and *In Cold Blood* will be used in an attempt to gain insight into contemporary social psychological issues. Readings, discussions, and films based on literature. Not recommended for students who have taken or who intend to take 310. *Mr. M. Bolt.*

I-11. **NON-VERBAL ASSESSMENT OF PERSONALITY.** This course will explore several unusual approaches to the assessment of personality. Analysis of handwriting, figure drawings, dreams, expressive body movements, and non-language. IQ measures will be explored. Students will be expected to report on readings, develop and use techniques and scoring procedures, collect data, and relate findings to current theories. *Mr. A. Reynolds.*

I-12. **ISSUES IN PSYCHOLOGICAL EDUCATION.** Psychological education is a relatively new phase of educational psychology which examines the psychological development of the student as the result of the schooling process. It stresses the psychological outcomes of schooling rather than the academic outcomes, the ones that have been stressed traditionally. Topics will include: educational social psychology, the "hidden curriculum", self-esteem, values, moral development, and Christian education. *Mr. A. Shoemaker.*

I-13 **VALUES: THEIR DEVELOPMENT, DIS-**

COVERY, AND DISSEMINATION. This course focuses on several issues regarding values and the effects personal values may have upon our choices and actions. It is divided into two sections. The first half of each day's class focuses on issues related to such questions as: How are values developed and how are they changed? What role, if any, do values have in such things as classroom teaching, psychotherapy, family interactions, and mate selection? What happens when values conflict? Can you teach values—should you? The second half of each day's class is spent engaging in various group activities which facilitate coming face-to-face with one's own personal values and analyzing the effect these values have on one's own behavior. *Mr. S. Stehouwer.*

I-50. **THE PSYCHOLOGY OF CONSCIOUSNESS.** Consciousness is a dimension of the human psychological experience that until recently has received little attention in the psychological literature. The historical causes of this lack of attention will be traced, and recent insights into the nature of human consciousness will be investigated. Several topics will be considered within this context including the following: altered states of consciousness achieved through meditation techniques and drugs, split-brain research, brain stimulation investigations, information processing abilities of individuals, and biofeedback. Assigned readings and student reports will provide the basis for class discussions. Prerequisite: 151. *Mr. D. Snuttjer.*

I-51 **PSYCHOLOGY AND LANGUAGE.** An introduction to the psychological aspects of language and its significance for the understanding of cognitive and social processes. Following a brief introduction to the nature of language, the course examines the following issues: the psychological processes underlying production and comprehension of language, the relationship between language and meaning, the relationship of thought to spoken language, the process of learning from language and of remembering what is heard or read, the teaching of language to chimpanzees, and the difference between oral and literate cultures. The course discusses the relevance of psycholinguistic research for education, hermeneutics, and translation. Lectures, readings, and discussions. Prerequisites: permission of the instructor or one of the following—308, 331, 332; English 329; or Education 307, 322. *Mr. C. Bennink.*

I-52. THE PSYCHOLOGY (AND PHILOSOPHY) OF WILLIAM JAMES. William James has been called the "Father of American Psychology," and he has also had a powerful influence on philosophy. This course will involve the study of James' psychology from his own works and an analysis of his philosophy. The way in which these two aspects of his thought emerge in his *Varieties of Religious Experience* will be considered. The course will consist largely in discussion in an informal setting and in brief daily papers relevant to assigned readings. Prerequisite: one course in philosophy or one course in psychology. *Mr. W. Sanderson.*

I-53. BIOFEEDBACK AND SELF CONTROL. A study of recent advances in the theory and technology of biofeedback in the modification of biological and psychobiological functions. Topics include treatment applications in psychophysiological disorders, control of brain wave activity, and autonomic nervous system control. Because of the embryonic development of this field most readings will be from professional journals. Each student will be required to do research and present a paper on a particular application of biofeedback technology. There will be exposure to and training in the use of biofeedback equipment. Prerequisite: 212 or permission of the instructor. *Mr. J. Benthem.*

I-54. WHY DO WE CHANGE OUR MINDS? A review of recent research regarding attitude change. Topics to be covered include: experimental procedures for manipulating and measuring attitudes, recent designs for studying attitudes in laboratory and field situations, the application of psychological theory to present social problems (e.g., energy conservation, preventive medicine, economic planning), the ethics of the social psychology experiment, and the relationship between psychological models of attitude formation and a Christian understanding of man. Reading and discussion of

journal articles and experience in designing, conducting, and evaluating attitudinal research. Prerequisites: 151 and junior or senior status. *Mr. G. Weaver.*

I-55 CHRIST AND PSYCHOLOGY. This course challenges thoughtful Christians to be critical but genuinely appreciative of the increasing role psychology is playing in modern life. During the last ten or fifteen years a sizeable literature has developed which focuses on the relationship between orthodox evangelical Christianity and the formal discipline of psychology. The course examines this literature and asks: How can a scientific psychology be compatible with a person-oriented Christianity? Are there counseling skills that, apart from faith in Christ, can help persons live more functional lives? Can a better system of psychology be built on a different understanding of science? Small group discussions and outside speakers. Prerequisite: at least one course in psychology. *Mr. D. Lindskoog.*

I-57 TO PUNISH OR NOT TO PUNISH? An introduction to the topic of punishment and its use in suppressing undesirable behavior. Historically this topic has been studied by learning psychologists (primarily in the animal laboratory) and developmental psychologists (who theorize about the role punishment plays in the socialization of children). This course studies both approaches as they relate to such punishment variables as: severity, duration, timing, contingency, reasoning, schedules of presentation, and the nature of the punishing agent. The course also looks at the side effects of punishment and possible alternatives to the use of punishment. Outside reading and a course paper or research project. Prerequisites: 151 and another non-interim psychology class. *Mr. R. Terborg.*

Idis I-55 FAIRY TALES. *Mrs. M. Vande Goot.*

Religion and theology

Professors W. De Boer (acting chairman), D. Holwerda, **J. Primus, †G. Spykman (chairman), C. Vos, L. Vos

Associate Professors S. Greidanus, H. Hoeks, L. Sweetman

Assistant Professors D. Cooper, P. Holtrop, H. Vander Goot, S. Woudstra

THE DEPARTMENT offers a major in Religion and Theology, a major in Religion and Education, and a teaching minor in the Academic Study of Religions. For each major a student must have completed either 103 or 108 with a minimum grade of C (2.0).

The program for the Religion and Theology concentration requires ten courses including 206, 207, 208, 301, 303, 308, and 395. An approved four-course sequence in another department is also required. The adviser for this program is the chairman.

The program in Religion and Education is for students who expect to serve as directors of education in churches, or in some cases, to serve as Bible teachers in the Christian day school system. The major concentration includes 103, 206, 303, 308, 319, 327 or 328, 395, plus three electives in the department and Education 301, 303, 304, and 346-356 or an internship in a church. Two of these electives may be satisfied by Greek 205-206 (New Testament Greek) and one by an approved interim course. Students who plan to serve as directors of education in churches should plan to do graduate work in the field of Church Education. The adviser for this program is Mr. Louis Vos.

The teaching minor leading to certification in the Academic Study of Religions requires seven courses. All students complete a four-course sequence consisting of Religion and Theology 151, 305, 395, and Interdisciplinary 234. Three additional courses are chosen in consultation with the adviser of the program. Normally two courses are chosen from Philosophy 204, 205, 207, Religion and Theology 206, 207, 208, 301, 303, 308, 311, 313, 327, 328, and approved interim courses. One course, normally, is chosen from Art 231, Classics 231, History 201, 202, 203, 204, Sociology 217, 311. The adviser of this program is Mr. Henry Hoeks.

The core requirements in religion and theology may be met by selecting one from the following courses in Biblical studies: 103, 108, 207, 208, 327, and 328, and one from the following courses in Theological, Historical and Religio-cultural studies; 206, 301, 303, 304, 308, 311, and 312. Any departmental course except interims may be chosen by students electing a third core course in religion and theology.

151 INTRODUCTION TO RELIGION STUDIES.

S. An introductory course appropriate to prospective teachers, and required of those students who wish to minor in the Academic Study of Religions. This course deals critically with views of the origin, nature, and function of religions as they are found in the disciplines of cultural anthropology, the history and literature of religion, the phenomenology of religion, the psychology of religion, and the sociology of religion. This course also includes a study of the relevant Supreme Court decisions, a consideration of the problem of objectivity, an introduction to alternative pedagogical approaches to the study of religions, and an exposure to materials and media appropriate to teaching religion studies. Mr. H. Hoeks.

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, intertestamentary, 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 108. Open only to freshmen and sophomores. Staff.

108 NEW TESTAMENT BIBLICAL THEOLOGY. F and S, core. A more complete coverage of the biblical theology of the New Testament than can be offered in 103. Open only to freshmen and sophomores. Mr. W. De Boer, Mr. D. Holwerda.

207 OLD TESTAMENT PROPHETS. S, core.

An intensive study of the place and role of the major and minor prophets in the Old Testament, the commentary they offer upon the history of redemption in Old Testament times, together with an exploration of their basic themes and their continuing relevance. Not open to freshmen. *Mr. C. Vos.*

208 NEW TESTAMENT LETTERS. F, core. An intensive study of the place and role of the epistles in the canon of the New Testament, the doctrinal and ethical interpretations which these epistles give of the redemption portrayed in the Gospels, the light they shed on the early Christian Church, and their abiding relevance and significance. Not open to freshmen. *Mr. W. De Boer.*

302 BIBLICAL ARCHAEOLOGY.* S. A study of the pertinent archaeological data which provide a background for or throw light upon the biblical narrative. Prerequisite: one course in Biblical Studies and junior or senior standing. *Mr. B. Van Elderen.* Not offered 1978-79.

327 OLD TESTAMENT INTERPRETATION.* F, core. An intensive study of the basic principles and methods of biblical interpretation developed in the context of the biblical-theological themes of the Old Testament. Designed especially for departmental majors. Also open for core credit to juniors and seniors. *Mr. C. Vos.*

328 NEW TESTAMENT INTERPRETATION.* S, core. An intensive study of the basic principles and methods of biblical interpretation developed in the context of the biblical-theological themes of the New Testament. Designed especially for departmental majors. Also open for core credit to juniors and seniors. *Mr. D. Holwerda.*

THEOLOGICAL STUDIES

206 REFORMATION THEOLOGY. F and S, core. A study of Christian doctrine as formulated in the Protestant Reformation and refined and elaborated by later Reformed theologians. Comparisons are drawn between the Reformed system and those of other branches of Christendom. Calvin's *Institutes of the Christian Religion* serves as a basic text. Not open to freshmen. *Staff.*

308 CONTEMPORARY THEOLOGY.* F, core. Selected writings of significant contemporary theologians are read and evaluated.

Prerequisite: junior or senior standing. *Mr. D. Holwerda.*

312 EARLY CHRISTIAN THEOLOGY.* S, core. A study of the growth of the church and its 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. Prerequisite: junior or senior standing. *Staff.* Not offered 1978-79.

313 ROMAN CATHOLIC THEOLOGY.* S. The development of Roman Catholic theology from the medieval era to present times, finding its climax in contemporary changes growing out of Vatican II. The Council of Trent, Counter-Reformation Theology, papal encyclicals, Vatican I, and major schools of thought and shifting practices will be examined. Prerequisite: junior or senior standing. *Mr. G. Spykman.*

HISTORICAL STUDIES

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

304 AMERICAN RELIGIOUS HISTORY.* F, 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. Not open to freshmen. *Mr. G. Marsden.*

RELIGIO-CULTURAL STUDIES

Interdisciplinary 234 THE CONTEMPORARY AMERICAN RELIGIOUS SITUATION may be applied to certain concentrations in this department.

301 CHRISTIANITY AND CULTURE (Studies in Calvinism).* F and S, core. An histori-

cally-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 **BASIC CHRISTIAN ETHICS.** S, core. A biblical-theological study of moral issues, both personal and social, considering relevant ethical principles and practices as they developed in the Judeo-Christian tradition. *Mr. P. Holtrop*.

MISSIONS AND WORLD RELIGIONS

203 **THEOLOGY OF MISSION.** S. A survey of biblical material pertaining to mission. These materials are used in evaluating the contemporary problems of mission: i.e., renescent non-Christian religions, ecumenism, mission in the ferment of social revolution. Not open to freshmen. *Mr. L. Sweetman*.

204 **HISTORY OF MISSIONS.** F. The record of missionary history through the ancient, medieval, and modern periods is examined with a view to ascertaining the principles that come to expression, the methods employed, the areas covered, the chief figures, and the measure of success or failure. In the modern period the great missionary conferences of the twentieth century are analyzed and evaluated. Not open to freshmen. *Mr. J. Bratt*. Not offered 1978-79.

305 **WORLD RELIGIONS.*** F. An analytical and critical study of the phenomena, the conceptual pattern, and the sacred texts of the major non-Christian religions: "Primitivism," Hinduism, Buddhism, Shinto, and Islam. Each religion is studied as a total perspective for life which is embodied in inter-personal and communal life, in cult, and in ideology. The study includes "popular" as well as "official" expressions of the religions. Not open to freshmen. *Mr. L. Sweetman*.

RELIGION AND EDUCATION

319 **FOUNDATIONS OF RELIGIOUS EDUCATION.*** S. This course begins with an historical survey of informal and formal religious educational practices from early Hebrew times to those of contemporary North American homes, churches, and schools. The course proceeds to a consideration of some salient socio-cultural, theological, and developmental considerations in-

olved in religious education. Not open to freshmen. *Mr. H. Hoeks*.

390 **READING AND RESEARCH.*** F, I, S, full course or half course. Prerequisite: permission of the chairman. *Staff*.

395 **SENIOR SEMINAR.*** F and S. This course will focus on significant theological issues (hermeneutical, systematic, or historical), provide a thorough introduction to theological bibliography, and require a major research paper. *Staff*.

GRADUATE COURSES

580 **PERSPECTIVES, PROGRAMS, AND PRACTICES IN BIBLE AND RELIGION CURRICULUM.** A study of various approaches in the schools to curriculum and teaching in biblical studies, church history, reformed thought, and world religions. Consideration is given to the way fundamental differences of perspective on biblical Christianity influence the selection and use of curriculum designs, materials, and teaching techniques. Course content is adapted to the various grade levels of particular interest to enrollees. *Mr. H. Hoeks*.

JANUARY 1979 INTERIM

I-10. **THOMAS MERTON: MAN OF PRAYER, WRITER, SOCIAL CRITIC.** A study of the spiritual pilgrimage of the late monk from the Abbey of Gethsemani in Kentucky. After an introduction to the contemplative tradition within Christian history, major emphasis will be on the writings of Merton (1915-1968). The course will include a one-week stay at the Abbey of Gethsemani in Trappist, Kentucky. *Mr. D. Cooper*.

I-14. **PAUL'S LETTER TO THE ROMANS.** This letter is often called "The Gospel according to Paul." Time and again it has touched off important spiritual movements—including those associated with Augustine, Luther, Wesley, Barth. It bears study and re-study. The course seeks to probe the scholarly resources available for the study of Romans and to discuss the practical issues arising from the letter. *Mr. W. De Boer*.

I-50 **THE POTTER AND THE CLAY: THE DOCTRINE OF PREDESTINATION.** A study of what is often seen (rightly or wrongly) as the main or most distinctive doctrine in Reformed theology. Predestination and freedom are analyzed within the larger history

of Christian thought and within the contemporary scene of both theology and philosophy. The course is divided into three parts: 1. significant moments in the history of predestination doctrine; 2. a typological spectrum of contemporary thinkers on predestination and freedom, and 3. a reconstructive statement, or attempt to formulate a biblically sensitive and responsible doctrine of predestination for today. Lectures, discussions; assigned and optional readings in Scripture, Augustine and Calvin; Beza and Hoeksema; Barth, Berkouwer, Daane, Hartshorne, Tillich, Berdyaev, Sartre, etc. A main accent is on rethinking the doctrine of freedom, responsibility, and piety. Prerequisite: 206 or permission of instructor. *Mr. P. Holtrop.*

I-51 THE THEOLOGY OF CREATION. This course will be taught in Toronto, at the Institute of Christian Studies. It brings together James Olthuis of ICS, Herbert Richardson of St. Michael's College, Henry Vander Goot of Calvin College, and Gustaf Wingren of Sweden. Wingren is Europe's leading theologian of creation. The course deals with the question of the theology of creation in the contemporary theological context. A major theme is the eclipse of creation in modern thought—a theme that provides a critical angle on Modernism, Neo-orthodoxy, and theologies that limit revelation to what is in the Bible. The fol-

lowing themes will be considered: 1. creation and the interpretation of non-Christian religions; 2. creation out of nothing and continuing creation (providence); 3. salvation as the restoration of creation. Prerequisites: two religion courses and permission of the instructor. *Mr. H. Vander Goot.*

I-52 GOD'S JUSTICE AND OURS. This course compares the Egyptian, Babylonian, Greek, and Roman views on justice with those found in the Scriptures (particularly in the writings of the prophets.) It focuses on the contrasting views for social structures and international policies. Prerequisite: one course in religion and theology, and one course in either economics or political science. *Mr. C. Vos.*

I-53 DISCUSSION GROUP ON CHRISTIAN DOCTRINE. A course which familiarizes students from a non-Reformed background with the major doctrines and beliefs of the Reformed faith. The course includes a wide reading of representative Reformed and non-Reformed literature, a paper, and dialogue between the instructor and students. A previous religion course is helpful. *Mr. S. Woudstra.*

Idis I-52. THE BIBLE IN LITERARY PERSPECTIVE. *Mr. H. Hoeks.*

Idis I-55. THE FILMS OF ALFRED HITCHCOCK. *Mr. L. Sweetman.*

Sociology

*Professors G. De Blaey, P. De Jong, H. Holstege (chairman), R. Rice, T. Rottman, W. Smit, **D. Wilson*

Associate Professors †R. Houskamp, D. Smalligan,

STUDENTS MUST COMPLETE 151 with a minimum grade of C (2.0) for admission to the major program. A concentration in sociology requires 151, 318, 320, and six additional courses, excluding 210, 300, and 301. One interim course in sociology may be included among the additional courses. Students may earn a semester's credit at the Chicago Metropolitan Study Center, applying some of that work to departmental programs. The teacher education adviser is Mr. D. Wilson.

The social work courses are 300, 301, 303, and 380; 300 and 301 are taken in addition to the courses required for a sociology major. Students interested in social work should consult with Mr. Donald Smalligan, the adviser for such programs, not later than the beginning of their sophomore year.

The core requirement in sociology may be met by 151 or 217. Sociology 311 and 217 may be a part of the teaching minor in the academic study of religions.

151 SOCIOLOGICAL PRINCIPLES AND PERSPECTIVE. F and S, core. A general introduction to the discipline. Provides a brief theoretical and conceptual grasp of sociology as a body of knowledge dealing with group relationships as these affect both the individual and society. An attempt is made to articulate this knowledge and to demonstrate its use by showing how a sociological perspective offers a rational interpretation of issues current in our society. *Staff.*

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

217 SOCIAL ANTHROPOLOGY. F and S, core. A study of the historical trends in anthropology that have led to its present day perspective. The concepts of functionalism and cultural relativism are examined and evaluated. The course surveys various cultural patterns around the world. *Mr. D. Wilson.*

300 HISTORY AND THEORY OF SOCIAL WELFARE AND SOCIAL WORK. F. A study of the social, cultural, political, and economic factors involved in social work including a discussion of the role and function of the major social welfare agencies. The course also includes an analysis of the trends in social work and of the issues involved in its various fields. *Mr. D. Smalligan.*

301 SOCIAL WORK PRACTICE. S. Students are taught the social work techniques of casework and of group work with an emphasis on how basic social work concepts are related to professional practice. Prerequisite: 300. *Mr. Smalligan.*

302 URBAN SOCIOLOGY AND COMMUNITY ORGANIZATION.* F and S. A descriptive and theoretical analysis of urban society and urban sub-communities. The emphasis is on urban processes and problems and sub-cultures within the city as well as on such contemporary issues as community development and planning. *Mr. H. Holstege.*

303 CHILD WELFARE AND FAMILY SERVICES.* F. A study of social policy and service delivery in child welfare and family service agencies. Major topics include: a history of child welfare and family service policy in Europe and North America and

the factors causing changes in these policies; a description and evaluation of the contemporary service delivery system and treatment methods; a study of unmet needs and present trends; and a sociological analysis of the relationship between the family, courts, politics, and contemporary American society. Prerequisites: 300 and 301 or the permission of the instructor. *Mr. D. Smalligan.* Not taught 1978-79.

304 THE FAMILY.* F and S. An intensive culturally comparative and historical analysis of the family as an institution. The contemporary courtship, marriage, and divorce patterns of the American family are also discussed. *Mr. H. Holstege.*

306 SOCIOLOGY OF DEVIANCE.* F and S. An analysis of deviant behavior: its causes, manifestations, prevention, and programs of control. Special attention is given to the role of social norms in generating as well as controlling deviance. Emphasis is put on ways in which social structures generate and label deviance. Implications are drawn for various institutions, particularly the school and the church. *Mr. P. De Jong, Mr. T. Rottman.*

308 POPULATION AND SOCIETY.* F. Introduction to demographic analysis of society. Includes a consideration of the major demographic theories of population growth and how these contribute to an understanding of population explosion; review of how the socio-cultural dimension of human society affects major sources of population growth: fertility, mortality, migration, and how variations in these reciprocally affect society; and analysis of causes and consequences of population size, distribution, and composition for human society. *Mr. R. Rice.*

309 SOCIOLOGY OF EDUCATION.* S. A study of education as a social institution and the school as an organization. Emphasis is on discussing the functions of education for society and the effects of society on education and schools. The school class as a special system is also analyzed with special consideration given to the role of the teacher. Prerequisite: 151 or permission of the chairman. *Mr. G. De Blaeij.*

310 SOCIAL PSYCHOLOGY.* F and S. Human behavior as a consequence of man's psychological make-up and his socio-

cultural environment. Attention is given to social interaction as it occurs in small group settings. Attention is also given to theoretical frameworks emphasizing self-concept and role playing. Students may not receive credit for this course and Psychology 310. Prerequisite: 151, Psychology 151, or permission of the chairman. *Mr. G. De Blaey.*

311 SOCIOLOGY OF RELIGION.* F. A study of the organizational forms of religion, with special attention being given to the influence and effectiveness of the church in its function as a social institution and to the social influences which have, in turn, affected the church. *Mr. W. Smit.*

312 THE SOCIOLOGY OF COMMUNITY.* S. A cross-cultural analysis of the changing nature of the community as a human ecological organization and as a structured system of status and power. Man's utopian dreams of ideal communities are contrasted with the types of communities actually found in primitive, agrarian, and industrial societies. *Mr. W. Smit.* Not offered 1978-79.

314 CONTEMPORARY SOCIAL PROBLEMS: CULTURAL AND SOCIAL RESPONSES TO DEATH AND DYING.* F. This course begins with a discussion of various theoretical orientations to the study of social problems generally. It then relates these theories to the particular problems associated with death and dying from the perspectives of contemporary culture and society, of those close to the dying person, and of the dying person himself. Special attention will be given to the extent to which the conceptions and customs surrounding death and dying are functional in their own terms and compatible with biblical norms. *Mr. T. Rottman.* Not offered 1978-79.

318 SOCIOLOGICAL THEORY.* F. An assessment of sociological theory in terms of its historical development and current role in understanding human behavior. Particular attention is given to the function of theory in the research process. Direction is given to the student in the formulation of sociological hypotheses from data. Prerequisite: 151. *Mr. H. Holstege, Mr. T. Rottman.*

320 SOCIOLOGICAL RESEARCH.* S. An assessment of the nature of the research process as applied to the study of theoretical problems in social science. Guides the student in designing and conducting a research project, involving definition of the problem, consideration of appropriate

methods, and the collection and analysis of data. Prerequisites: 151 and 318. *Staff.*

380 FIELD INSTRUCTION IN SOCIAL AGENCIES. F and S. This field-based course provides a perspective on the various levels of intervention and types of services provided by social agencies. Each student will be assigned to work with a field instructor in a social agency. The college instructor, the student, and the field instructor will plan a program of involvement in the agency that will build on the student's previous instruction on campus and toward his career goals. Prerequisites: 300 and 301 or the permission of the instructor. *Mr. D. Smalligan.*

381 PRACTICUM IN CLINICAL SOCIAL WORK. S. This course provides an opportunity for the student to relate social work knowledge to a clinical setting. Various roles and modes of clinical social work are studied from a Christian perspective. The social worker's role is related to those of other professionals such as the psychiatrist, the clinical psychologist, the adjunctive therapist, the psychiatric nurse, and the rehabilitation therapist and to the part each plays in the clinical team. Each student is assigned to a staff social worker who will supervise his direct work with patients. A student may not receive credit for this course and 380 or Psychology 315. Prerequisites: junior-senior standing, 300 and 301, and departmental approval. *Staff.*

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

395 SEMINAR.*

GRADUATE COURSES

501 SCHOOL IN COMMUNITY. A study of the reciprocal relationship between the school and the community. Particular attention is paid to the interrelationship between the school and religious, familial, political, and economic institutions. Satisfies context of education requirement in education and psychology. *Staff.*

590 INDEPENDENT STUDY (graduate). F,I,S. *Staff.*

595 GRADUATE PROJECT. F.I.S., full or half course. The prospectus for each Master of Arts in Teaching project must be developed under the supervision of a faculty member and must be approved by the student's graduate adviser. *Staff.*

JANUARY 1979 INTERIM

I-11. VIOLENT CRIME. The course focuses more on violent personal criminal behavior than on collective forms of violence such as riots. Thus, criminal homicide, aggravated assault, and forcible rape are discussed. The treatment of these forms of criminal behavior is couched in discussions of the nature of violence and the enculturation of violence via both the home and the mass media. Possible means of social control are reviewed. The course is taught through lectures by the instructor, student presentations, small group discussions, guest lectures, films, and assigned readings. Each student is responsible for either a term paper or a class presentation. *Mr. P. De Jong.*

I-12. THE CRIMINAL JUSTICE SYSTEM: A STUDY OF DIVERSE EXPECTATIONS. An analysis of the roles of police officers, judges, and correctional officers, especially the strains and conflicts that are brought about by historically changing and currently diverse social expectations. An attempt will be made to clarify the legitimate roles of criminal justice personnel by considering such basic questions as the nature of law and the role of enforcement in promoting social justice. Attention will be paid not only to the varying perceptions of what criminal justice personnel do and don't do but also to what they should do and shouldn't do. Thus, ethical and moral considerations necessarily apply. Consideration will also be given to opportunities and obstacles to career development in criminal justice. Lectures and assigned readings will be supplemented by classroom presentations of criminal justice personnel. Field observations will also be required. Satisfies departmental concentrations. *Mr. T. Rottman.*

I-13 THE SOCIOLOGY OF SPORT. The phenomenon of organized sport is one of the newer concentrations for study by sociologists. This course reviews what social scientists have said about sport and will attempt to make some contributions of its own toward a sociological analysis of sport. Lectures, discussions, research, presentations, and guest speakers will speak to such questions as: What are some important functions and disfunctions of organized sport in our society? in schools? in the world? How are sport and social status related? Is there a Christian athletics? *Mr. G. De Blacy.*

I-15. THE PLANNED FAMILY. The course begins with an introduction to the notion of the planned family. This involves a look at its historical development, the current family planning movement, survey findings on attitudes toward family planning, and various ethical and religious views. The major part of the course is structured around selected contemporary issues related to family planning, such as contraception, abortion, sterilization, artificial insemination, genetic consequences, voluntary childlessness, adoption, and foster homes. Ethical, religious, legal, social, and psychological considerations are explored for each selected issue. Considerable reading is required and small-group discussions are held regularly. Films and other media are used and a number of guest speakers from the community are asked to present various sides of the issues. *Mr. W. Smit.*

I-50. GERONTOLOGY. This course will involve analysis of the developing field of gerontology. There will be a detailed discussion of the physiological and psychological characteristics of the aging process. In addition there will be a study of substantive issues related to the needs of the elderly, such as social security, home and personal safety, housing, nutrition, legal information, recreation, transportation, tax rebates, and death and dying. There will also be a discussion of the institutional interrelationships that affect the elderly and an analysis of the changes needed in American society to aid senior citizens. Prerequisite: 151. *Mr. H. Holstege.*

I-52. CRISIS INTERVENTION IN DISASTER RELIEF PROGRAMS. A study of crisis intervention skills and problems designed to prepare students to work as volunteers in disaster recovery programs. The areas to be covered will include: interviewing skills, crisis intervention theory and practice, emotional reactions to disaster, volunteer "burn out," supervision of volunteers, related governmental and private agencies, and cultural conflict. Field experience away from campus, if possible. Prerequisites: junior or senior standing, permission of instructor and of representative of Christian Reformed World Relief Committee. *Mr. D. Smalligan.*

I-53 MISSIONARY ANTHROPOLOGY. The success of missionary work in any culture depends in part on the level of understanding and appreciation of the culture by the missionary. Anthropology can be an impor-

tant tool in increasing this understanding and appreciation. This course attempts to apply an anthropological understanding to the general problem of cultural interventionism and specifically to missionary activity. Particular attention is given to the

problem of translating the gospel message from one cultural context to another. Prerequisite: 217. *Mr. D. Wilson.*

Idis I-50 THE FAMILY IN HISTORY. *Mr. R. Rice.*

Spanish

Associate Professor D. Dunbar

Assistant Professors C.-M. Baldwin (acting chairman, Department of Romance Languages), B. Class, E. Cortina

Instructors S. Ariza, Y. Byam, E. Greenway

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 ten regular courses. The regular courses are 201-202, 217-218, 303-304, and four courses chosen from 305, 306, 307, 308, 321, 322. The teacher education major consists of 201, 202, 217, 218, 321, 322, and three from 303, 304, 305, 306, 307, 308, 309, 310. The minor program for prospective secondary teachers requires 201, 202, 217, 218, 321, and 322. Programs for students beginning Spanish in college, including prospective secondary teachers, which require only nine courses, should be worked out with the chairman or the program adviser. Cognates in another foreign language through the 200-level, European history, English literature, philosophy, history of music, or history of art are recommended. A year-abroad program is available in Spain. All courses above 102 meet core requirements in foreign language; all courses numbered 217 and higher, except for 321, 322, and 372, 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.*

121-122-123. INTRODUCTORY AND INTERMEDIATE SPANISH. F-I-S. A closely integrated sequence involving two semesters and the interim for students who have completed two years of high school Spanish with less than a C average or for students who studied Spanish in the tenth and eleventh grades. Students in the teacher education programs who have had no foreign language in high school may register for this course if they have the permission of the department. Students who have

previously studied Spanish are assigned to this class on the basis of a placement test administered at the time of fall registration. *Staff.*

201 INTERMEDIATE SPANISH. F. Review of essential grammatical structures and further training in spoken and written Spanish. Readings from significant Spanish authors. Prerequisites: 101 and 102 or their equivalent. *Staff.*

202 INTERMEDIATE SPANISH. F and S. Continuation of 201. *Staff.*

321 ADVANCED SPANISH I.* 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 Spanish. A variety of exercises and compositions of progressive difficulty are designed to enable the student to increase his understanding and skill in reading, writing, understanding, and speaking idiomatic Spanish. Thorough study of advanced grammar, idiomatic expressions, and vocabulary. Conducted in Spanish. Prerequisite: 202 or equivalent. *Mr. D. Dunbar.*

322 **ADVANCED SPANISH II.*** S. A continuation of 321, with additional extensive work on independent oral expression and written composition. A major paper in Spanish is required. Conducted in Spanish. Prerequisite: 321 or equivalent. *Mr. D. Dunbar.*

LITERATURE

217 **INTRODUCTION TO SPANISH LITERATURE I. F.** An introduction to the major writers and movements in Spain during the Medieval, Renaissance, Golden Age, and Neo-classical periods. Literary terminology and method of analysis are studied in detail. Conducted in Spanish. Prerequisite: 202 or equivalent. *Mrs. S. Ariza.*

218 **INTRODUCTION TO SPANISH LITERATURE II. S.** An introduction to the major writers and movements in Spain involved in Romanticism, Realism, The Generation of 1898, and the Contemporary period. Conducted in Spanish. Prerequisite: 202 or the equivalent. *Mrs. S. Ariza.*

303 **THE SPANISH NOVEL I. F.** A study of the novel from 1500 to 1800. Emphasis is on *La Celestina*, *Lazarillo de Tormes*, and the novels of Cervantes—*Don Quijote* and the *Novelas Ejemplares*. Selected chapters from other novelists are included as well as a study of the chief characteristics of the various types of novels such as the Novels of Chivalry and the Picaresque Novel. Conducted in Spanish. Prerequisite: 202 or the equivalent. *Mr. D. Dunbar.* Not offered 1978-79.

304 **THE SPANISH NOVEL II. S.** A study of the novel from 1800 to the present. Emphasis is on the regional Realistic novels of Valera, Galdós, Blasco Ibáñez, and other more modern novelists. Prerequisite: 202 or the equivalent. *Mr. D. Dunbar.* Not offered 1978-79.

305 **SPANISH AND LATIN AMERICAN POETRY.*** F. A study of the history and

characteristics of Spanish poetry by means of extensive readings and detailed examination of major poets. Special emphasis will be placed on the themes, forms, and techniques of poets of the last two centuries. Conducted in Spanish. Not offered 1978-79.

306 **SPANISH AND LATIN AMERICAN POETRY.*** S. A study of the history and characteristics of Latin American poetry, by means of extensive readings and detailed examination of major poets. Special emphasis will be placed on the themes, forms, and techniques of poets from the Modernist generation to the present day. Conducted in Spanish. *Mr. B. Class.*

307 **THE LATIN-AMERICAN NOVEL.*** F even years. A study of the novels of Latin America with particular emphasis on the last two centuries. Attention will be paid to the conditions that gave rise to the different types of novels, as well as to the intrinsic literary value of the novels themselves. Conducted in Spanish. *Mrs. E. Cortina.*

308 **THE LATIN-AMERICAN NOVEL.*** S even years. A continuation of 307. *Mr. D. Dunbar.* Not offered 1978-79.

309 **THE SPANISH DRAMA.*** F even years. A study of the dramatic expression of Spain's Golden Age of literature. Particular emphasis will be placed on the drama of Lope de Vega, Tirso de Molina, Calderón, and Alarcón. Conducted in Spanish. Prerequisite: 202 or equivalent. Not offered 1978-79.

310 **THE SPANISH DRAMA.*** S even years. A study of the dramatic expression of Echegaray, Benavente, Lorca, Casona, and Buere Vallejo. Conducted in Spanish. Prerequisite: Spanish 309. Not offered 1978-79.

372 **LATIN AMERICAN CIVILIZATION.** This course introduces the student to the culture of Latin America. Material covered includes historical backgrounds of the various countries; political, social, and religious institutions and values; and non-literary expressions. Reading materials include literary and non-literary sources. Conducted in Spanish. Prerequisite: 202 or the equivalent. *Staff.* Not offered 1978-79.

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

395 **SEMINAR.***

JANUARY 1979 INTERIM

I-10 THE CULTURE OF SPAIN (IN ENGLISH).

A study of Spanish culture from a non-literary standpoint. This course seeks to give the student a better understanding of the origins, life, social institutions, ideas, cultural problems, and needs of Spain. The course is designed for students with an interest in Spain but who may not be competent to undertake such a study in the Spanish language. Classes will consist of lectures, audio-visual presentations, classroom discussions, and a paper. This course constitutes a civilization core course for professional programs. *Mrs. S. Ariza.*

I-50 STREET SPANISH. An intensive course in colloquial Spanish for students who, having completed 102 or its equivalent, want to develop ready ability to communicate in Spanish with the Latinos and Chicanos. Because of its practical emphasis this course is particularly appropriate for students who plan to work in community-

related jobs which require the ability to use street Spanish, such as social work, teaching, volunteer field experience working with churches, volunteer agencies, and branches of the government, and in the area of each student's particular interest. Daily classes and drills with five to ten hours weekly of off-campus involvement. Films and local speakers. Prerequisite: 102 or its equivalent. *Mr. D. Dunbar.*

I-51 SPANISH INTERIM ABROAD. Five weeks in Spain, with a study program of Spanish language and culture at the University of Granada. Lectures by Spanish professors on selected topics in Spanish culture, three to four hours daily of formal class work, excursions to monuments and museums, as well as to neighboring cities. Five days of independent study and travel at the end of the course. A special fee of approximately \$900 will be charged. Prerequisites: 201 or the equivalent, and approval of instructor. Satisfies departmental concentrations. *Mrs. Y. Byam.*

Speech

Professors M. Berghuis, A. Noteboom, D. Nykamp, T. Ozinga, M. Vande Guchte (chairman)

Assistant Professors E. Boevé, D. Holquist, 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 Communications and Rhetoric. The major requires 200, 203, an interim, and five and one-half additional courses selected in consultation with a departmental adviser. Recommended cognates for students interested in oral interpretation and drama include aesthetics, history of art, introduction to musical literature, Shakespeare, and non-Shakespearean drama of the Renaissance; for those interested in speech education or speech correction, child psychology, psychology of exceptional children, descriptive statistics for the social sciences, and anatomy and physiology; for those interested in communications and rhetoric, cognate courses are chosen with the student's adviser.

The departmental honors program requires honors registration in three speech courses other than 100 and 200 and the completion of 390 and 395 beyond the minimum eight and a half course major.

A secondary school teaching major consists of 200, 203, 211, 215, 219, 230, 240 plus two and a half other courses. The elementary school teaching major includes 203, 214, 215, 219, plus five other courses. A six-course secondary school teaching minor should include 200, 203, 211, 215, 219, 230, or 240, plus a

half course elective. The elementary school minor is 203, 214, 215, 219, and two electives.

The core requirements in spoken rhetoric may be met by 100; 214, if the student is in an elementary education program; 240; 200; or by an examination, which presupposes formal and practical speech training in high school. The fine arts core requirement may be met by 203, 219, 304, 317, 318, 325, and 326.

COMMUNICATIONS AND RHETORIC

100 **FUNDAMENTALS OF ORAL RHETORIC.** F and S, half course, competency core. The primary aim of this course is to increase competence in oral communication, which includes a number of ways through which persons send and receive messages. Designated sections emphasize public speaking while others use a variety of approaches. Students in elementary teacher education programs should take 214 instead of this course. *Staff.*

150 **INTRODUCTION TO COMMUNICATION THEORY.** S. An introduction to the nature of human communication. Fundamental aspects of communication, representative communication theories, and a Christian perspective on communication theory. The relationship between communication theory and common communication acts as well as between communication theory and the other disciplines will be examined. Not offered 1978-79.

200 **ADVANCED ORAL RHETORIC.** F and S, competency core. Composition and presentation of types of speeches, readings in rhetorical theory and criticism of selected contemporary speeches, types of discussion, and parliamentary law. Prerequisite: 100 or equivalent. *Mr. M. Berghuis.*

211 **DEBATE.** F, half course. The forms and procedures of academic debate. Knowledge and competence in debating, judging, and coaching are course goals. Designed for debaters and prospective coaches. *Mr. J. Korf.*

230 **MASS COMMUNICATION.** F. Examination of television, radio, film, newspapers, magazines, and books. Emphasis on why and how mass media report events and the resultant effects on public attitude formation and change. Major topics include history of mass media; control and method of control of media; competition for the mass market; extent and quality of news coverage; and effects of mass media on society. *Mr. T. Ozinga.* Not offered 1978-79.

240 **GROUP COMMUNICATION.** F and S, competency core. Communication in the small group. Major topics include role development, cohesiveness, and group norms. Participation in experiential group situations, reading in group communication theory, and analysis of group communication are required. *Mr. D. Nykamp.*

250 **SEMANTICS.** S. Study of verbal and nonverbal symbols used in communication. Primary emphasis is on the effect of symbols. Major topics include relationships between symbols and referents, and problems in human communication. *Mr. D. Nykamp.* Not offered 1978-79.

305 **PERSUASION.*** S. Communication as influence at intrapersonal, interpersonal, group, mass, and cultural communication levels. Emphasis on increased understanding and competence. Prerequisite: 100 or equivalent. *Mr. D. Nykamp.*

311 **ARGUMENTATION.*** F. Study of rational discourse and its uses. Methods of investigation, analysis, and the use of evidence and logic. Regular application of theory to the student's own communication is required. *Mr. D. Nykamp.*

325 **HISTORY OF RHETORICAL THEORY.*** S, fine arts core. Major issues in the history of oral rhetoric and communication. Classical, medieval, and early modern theories will be compared to twentieth century approaches. Theorists studied include Plato, Aristotle, Bacon, McLuhan, Burke, Goffman, and representatives of various contemporary schools. Seminar papers and discussions. Not offered 1978-79.

326 **HISTORY OF PUBLIC ADDRESS.*** F, fine arts 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 is studied. 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 1978-79.

SPEECH EDUCATION AND SPEECH CORRECTION

214 SPEECH FOR THE ELEMENTARY TEACHER. F and S, competency core. 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. M. Vande Guchte.*

307 FUNDAMENTALS OF SPEECH PATHOLOGY. F. A study of the anatomy and physiology of the speech mechanisms, the involvement of the nervous system in the control of speech, and the acoustic characteristics of speech production. Prerequisite: 215. *Mr. M. Vande Guchte.*

308 BASIC AUDIOLOGY AND AUDIOMETRY. S. A study of the fundamental aspects of hearing: the physics of sound, the anatomy of the ear, the nature of hearing and hearing impairment, and the testing of hearing. Prerequisite: permission of instructor. *Mr. M. Vande Guchte.*

THEATER, DRAMA, AND ORAL INTERPRETATION

203 INTERPRETIVE READING. F and S, fine arts core. A study of the history, principles, and techniques of interpretation. Analysis and oral interpretation of prose, poetry, and drama. *Mr. D. Holquist, Mrs. A. Noteboom.*

219 PRINCIPLES OF DRAMATIC PRODUCTIONS. S, fine arts 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 director, attention will be given to the technical aspects of production. Students will be trained in acting and in directing by means of classroom presentations of dramatic scenes. *Mr. J. Korf.*

220 THESPIAN PRODUCTIONS. Half course for the year. Membership in the Thespian group is limited and is determined annually by tryout. The members will be given training in the various practical aspects of the production of drama. Students may participate more than one year. *Mrs. E. Boevé.*

304 ADVANCED INTERPRETATION. S, fine arts core. Continuation of 203. Application of its principles to the novel and drama. Intensive study in preparation for a reading program. Prerequisite: 203. Not offered 1978-79.

317 HISTORY OF THEATER AND DRAMA.* F, fine arts core. A historical and analytical study of theater and drama from its origins to 1800. *Mrs. E. Boevé.*

318 HISTORY OF THEATER AND DRAMA.* F, fine arts core. A continuation of 317. An historical and analytical study of theater and drama from 1800 to the present. *Mrs. E. Boevé.* Not offered 1978-79.

390 READINGS AND RESEARCH.* F, I, S. Independent study of topics of interest to particular students, under the supervision of a member of the department. Prerequisite: permission of the department. *Staff.*

395 SEMINAR.* Research of an approved topic or topics under the supervision of a member of the department, and presentation of the results in a departmental seminar. Prerequisite: permission of the department. *Staff.*

JANUARY 1979 INTERIM

I-10 SCENIC DESIGN FOR THEATER AND OPERA. The course studies the history and theory of scenic design from the 1700's to the present. It includes basic drafting principles, perspective drawing, water color rendering, model building, and set painting. Students will design sets for a full-length play or opera. *Mr. J. Korf.*

I-11. LIFE WITH ROBERT FROST. This course will attempt to understand how Robert Frost, America's most popular New England poet, views people and issues as students study his poetry through the avenue

of oral interpretation. The content of the course will be the poems of Robert Frost. The class will get at an intellectual and emotional grasp of the poems in their aesthetic entirety through reading them aloud and discussing them. Assignments will include solo readings and group readings; the group readings explore possibilities of both "chamber theater" and "choral reading" styles. The readings will culminate in a program towards the end of interim giving opportunity to share Robert Frost with an audience. *Mrs. A. Noteboom.*

I-12. ORGANIZATIONAL COMMUNICATION. This course will be run largely as a simulated organization. Each student will have a specified position and duties in that organization. Through this simulation students will explore typical problems and benefits

of working in formal and informal organizational structure when making decisions and solving conflicts. In addition, there will be readings in communication theory as it applies to communication in organizations such as business, political, educational, religious, and community organizations. Applications for positions in the simulated organization will be available in early December. *Mr. D. Nykamp.*

Idis I-12 NOISE AND MAN. *Mr. M. Vande Guchte.*

Idis I-14 MORAL EDUCATION. *Mr. D. Holquist.*

Idis I-18 CONTEMPORARY PROBLEMS IN ARCHITECTURE, DRAMA, AND PAINTING. *Mrs. E. Boevé.*



Directories

Board of Trustees

CLASSICAL TRUSTEES

Louis F. Baker, B.D., *Classis Wisconsin*
 Hessel Bouma, Jr., B.D., *Classis Kalamazoo*
 Peter Breedveld, B.D., *Classis Huron*
 Francis D. Breisch, Jr., Th.M., *Classis Alberta South*
 Theodore L. Brouwer, B.D., *Classis Zeeland*
 Sidney Cooper, B.D., *Classis California South*
 Gysbertus Corvers, B.D., *Classis Quinte*
 Henry De Moor, Jr., B.D., *Classis Alberta North*
 Robert W. De Vries, M.Div., *Classis Atlantic Northeast*
 Orwin W. Duistermars, B.D., *Classis Pacific Northwest*
 Henry Eshuis, B.D., *Classis Chatham*
 Martin D. Geleynse, B.D., *Classis Eastern Canada*
 Richard Grevengoed, M.Div., *Classis Chicago North*
 Richard Hoekstra, B.A., *Classis Grand Rapids North*
 John M. Hofman, B.D., *Classis Grand Rapids South*
 Henry T. Karsten, B.D., *Classis Florida*
 Jakob H. Kits, B.D., *Classis British Columbia*
 Roger Kok, B.D., *Classis Minnesota North*
 Leslie Kuiper, B.D., *Classis Northcentral Iowa*
 Herman Leetsma, B.D., *Classis Columbia*
 John Medendorp, B.D., *Classis Grand Rapids East*
 Dirk Mellema, B.A., *Classis Central California*
 John Meppelink, M.Div., *Classis Chicago South*
 George N. Monsma, J.D., *Classis Hackensack*
 Henry Petersen, B.D., *Classis Pella*

Raymond J. Sikkema, B.D., *Classis Hamilton*
 John Sittema, M.Div., *Classis Orange City*
 David L. Smit, M.Div., *Classis Sioux Center*
 Robert Swierenga, Ph.D., *Classis Lake Erie*
 Louis M. Tamminga, B.D., *Classis Toronto*
 John Timmer, Th.D., *Classis Hudson*
 Berton Van Antwerpen, B.D., *Classis Cadillac*
 Donald Van Beek, B.D., *Classis Muskegon*
 William Vander Haak, B.D., *Classis Holland*
 John Vander Lugt, B.D., *Classis Chicago South*
 Leonard Van Drunen, Jr., B.D., *Classis Grandville*
 John Van Stempvoort, B.D., *Classis Minnesota South*
 Robert Westenbroek, B.D., *Classis Rocky Mountain*

DISTRICT TRUSTEES

Harry J. Bloem, B.A., *Central District*
 Norman B. De Graaf, B.A., *Central District*
 Karen A. De Mol, M.Mus., *Central District*
 Wesley Geurkink, B.S., *Midwest District*
 Calvin Nagel, *Central District*
 Glenn Niemeyer, Ph.D., *Central District*
 Alan Pauw, Ph.D., *Farwest District*
 H. Everett Van Reken, M.D., *Central District*
 Theodore Wiersma, D.D.S., *Eastern District*

EXECUTIVE COMMITTEE—SEPTEMBER, 1978

Harry Bloem; Theodore Brouwer; Norman De Graaf; Karen De Mol; Richard Hoekstra; John M. Hofman; Calvin Nagel; Glenn Niemeyer; Raymond Sikkema; Louis Tamminga; Donald Van Beek; William Vander Haak.

Administration

PRESIDENTS

John H. Hiemenga, M.A., B.D., 1919-25
 Johannes Broene, M.A., 1925-30
 Rienk B. Kuiper, M.A., B.D., 1930-33
 Ralph Stob, Ph.D., 1933-39
 Johannes Broene, M.A., 1939-40
 Henry Schultze, B.D., 1940-51
 William Spoelhof, Ph.D., LL.D., Litt.D., L.H.D., 1951-1976
 Anthony J. Diekema, M.A., Ph.D., 1976-

DEAN OF THE FACULTY

Peter Allen De Vos, Ph.D., *Dean of the Faculty*

ACADEMIC ADMINISTRATION

John Vanden Berg, Ph.D., *Vice-President for Academic Administration*
 Charles J. Miller, Ph.D., *Dean for Academic Program Administration*
 Ernest Van Vugt, M.A., *Registrar*
 Marvin Monsma, M.A.L.S., *Director of the Library*
 John Lester De Beer, Ed.D., *Director of Instructional Resources Center*
 Sanford Clay Leestma, Ph.D., *Acting Director of Computing*

Evelyn Jean Diephouse, M.A., *Director of the Academic Success Program*
Madge Strikwerda, M.A., *Director of Teacher Certification and Placement*
John Dykema, *Computer Center Manager*
Herbert J. Brinks, Ph.D., *Curator of the Colonial Origins Collection*
Henry J. Baron, Ph.D., *Coordinator of Freshman Rhetoric*

BUSINESS AFFAIRS

Henry De Wit, M.B.A., *Vice-President for Business and Finance*
Lester Ippel, *Controller*
Edward Timmer, *Chief Accountant*
Jay Timmer, *Director of Physical Plant and Security*
A. Dean Van Bruggen, M.B.A., *Manager of the College and Seminary Stores*
Harry Faber, *Conference Coordinator*

COLLEGE ADVANCEMENT

Peter Vande Guchte, M.B.A., Ed.D., *Vice-President for College Advancement*
Wayne Kenneth Hubers, M.A., *Director of Scholarships and Financial Aid*
David E. Erickson, M.A., *Financial Aid Counselor*
Peter M. Harkema, M.A., *Admissions Development Director*
Donald Lautenbach, M.A., *Director of Admissions*
Roseanne G. Lopers, B.A., *Admissions Counselor*
James R. Van Wingerden, B.A., *Admissions Counselor*
Nancy Dorn Westra, M.A., *Admissions Counselor*
Donald G. Distelberg, B.A., *Director of Annual Giving*
James P. Hoekenga, M.A., *Executive Director of Alumni Relations*
Thomas J. Ozinga, M.A., Ph.D., *Director of College Relations*
Mark Vander Ark, M.A., *Planned Giving Specialist*

STUDENT AFFAIRS

Bernard E. Pekelder, B.D., M.A., *Vice-President for Student Affairs, College Chaplain*
Donald L. Boender, M.A., *Dean of Men*
Judith D. Mullins, M.Ed., *Dean of Women*
William K. Stob, B.D., Th.M., Ed.D., *Dean of Student Life*
John W. Verwolf, M.Ed., *Director of Placement*
Larry Teitsma, M.Div., M.A., Ph.D., *Director and Counselor in the Broene Center*
Anamarie Joosse, Ed.S., *Counselor in the Broene Center*
George W. Zuiderveen, M.A., *Counselor in the Broene Center*
William B. Monsma, Ph.D., *Chaplain's Assistant*
John Rupke, M.D., *College Physician*
Clarence Beets, M.D., *College Physician*
Annette Steenwyk, R.N., *College Nurse*
Dana E. Sommers, M.A., *Coordinator, Knollcrest East Residence Center*
Barry Loy, M.A., *Resident Director, Beets-Veenstra Halls*
Carol Bosch, B.A., *Resident Director, Boer-Bennink Halls*
Ruth Bylsma Parker, B.S., *Resident Director, Rooks-Van Dellen Halls*
Marian Peterson, B.A., *Resident Director, Noordevier-Vander Werp Halls*
Dale Kuiper, B.S., *Resident Director, Schultze-Eldersveld Halls*

Committees

ACADEMIC AFFAIRS COMMITTEES

Academic Standards Committee, J. Hamersma (1981, chairman), G. Harper (1979), D. Lautenbach (secretary), B. Ten Broek (1981), J. Tiemstra (1980), E. Van Vugt, one student.

College-Seminary Library Committee, H. Brinks (1981, chairman), C. Bult, M. Monsma (secretary), P. Oppewall (1979), D. Van Kley (1980), one college student.

Computer Services Committee, R. De Kock (1980), H. De Wit, G. Mellema (1981), L. Nyhoff (1981, chairman), J. Penning (1979), J. Vanden Berg.

Educational Policy Committee, P. De Jong (1981), P. De Vos (chairman), A. Diekema, G. Marsden (1980), C. Menninga (1981), J. Primus (1980), E. Runner (1979), J. Vanden Berg, one student.

Interim Term Committee, J. Bosscher (1981), G. Harris (1979), D. Jellema (1980), C. Miller (secretary), G. Van Harn (1979, chairman), D. Westra (1981), one student.

Professional Programs Committee, H. Broene (1980), W. De Boer (1981), P. De Vos, K. Kuipers (1979), D. Smalligan (1980, chairman), J. Timmer (1981), E. Van Vugt (secretary), one student.

Teacher Education Committee, G. Besselsen (1980), P. De Boer (1981), V. Ehlers (1981), H. Hoeks (1979, chairman), C. Miller (secretary), C. Orlebeke (1980), P. Tigchelaar (1979), J. Van Zytveld (1981), one student.

BUSINESS AFFAIRS COMMITTEES

College Store Committee, D. Ebels (1980), J. H. Timmerman (1981, chairman), D. Van Bruggen (secretary), two students.

Special Projects Committee, A. Bratt (1980), H. Faber, C. Miller (secretary), D. Pruis (1979), B. Steen (1981, chairman).

College Relations Committee, C.-M. Baldwin (1979), D. Distelberg, P. Harkema, J. Hoekenga, D. Nykamp (1980, chairman), C. Otten (1981), T. Ozinga, P. Vande Guchte, one member of the Board of Trustees, one student.

Priorities Committee, Ed Boevé (1980), J. Chapin, P. De Vos, H. De Wit, A. Diekema, K. Konyndyk (1981), B. Pekelder, C. Sinke (1979), R. Tiemersma (1980), P. Vande Guchte, J. Vanden Berg, two members of the Board of Trustees.

Special Events Committee, J. Bentham (1983), H. Bonzelaar (1981, co-chairman), D. Cooper (1981), S. Greydanus (1981), G. Huisman (1979), J. Korf (1979), S. Lambers (1980), D. Tuuk (1981), M. Vande Guchte (1979, co-chairman), G. Weaver (1979), E. Weidenaar (1980), K. Wolters (1980), one student.

CULTURAL AFFAIRS COMMITTEES

Cultural Affairs Coordinating Council, Ervina Boevé (1979), D. Holwerda (1980, chairman), C. Kaiser (1981), W. Stob (secretary), two students, non-voting representatives from Communications Board, Film Arts Committee, Fine Arts Guild, Homecoming Committee, Lectures Committee.

Communications Board, E. Ericson (1979, *Chimes*), K. Kuiper (1979, *Dialogue*), A. Noteboom (1981, secretary), D. Snuttjer (1979, *WCAL*), H. Van Till (1979, *Prism*), five students (one as chairman).

Fine Arts Committee, I. Kroese (1979), L. Sweetman (1979, mentor), M. Vander Goot (1981).

Fine Arts Guild, D. Diephouse (1979, mentor), S. Wiersma (1979, fine arts editor of *Dialogue*), representatives from the guilds.

Homecoming Committee, B. Bosma (1981), J. Hoekenga (secretary), W. Stob, three students (one as chairman), a representative from the Alumni Board.

Lectures Committee, E. Dykema (1981), K. Piers (1979, mentor), three students (one as chairman).

FACULTY AFFAIRS COMMITTEES

Committee on Committees, H. Beversluis (1979, secretary), A. Diekema (chairman), K. Kuiper (1979), C. Orlebeke (1979), T. Rottman (1979), P. Zwier (1979).

- Professional Status Committee*, R. Bolt (1981), J. De Borst (1981), P. De Vos, A. Diekema (chairman), B. Klooster (1979), R. Rice (1980), J. Vanden Berg, H. Vander Goot (1980).
- Athletics Committee*, W. Bratt (1980), G. De Blaeij (1981), R. Honderd (1979), S. Leetsma (1981, chairman), two students.
- Chapel Committee*, B. Pekelder (secretary), W. Lagerwey (1979), L. Vos (1981, chairman), six students.
- Resident Services Committee*, D. Boender, K. Blok (1981, secretary), H. De Wit, J. Mullins, four students (one as chairman).
- Scholarships and Aids Committee*, B. De Vries (1981), W. Hubers (secretary), T. Jager (1979, chairman), A. Kromminga (1981), D. Lautenbach, C. Miller, R. Stouwie (1980), two students.
- Student Conduct Committee*, E. Greenway (1979, chairman), B. Pekelder (secretary), W. Smit (1979), J. Wiersma (1980), U. Zylstra (1981), four students.
- Student Development Committee*, D. Boender, D. Dunbar (1981), T. Hoeksema (1979, chairman), H. Ippel (1981), J. Mullins, B. Pekelder (secretary), A. Reynolds (1979), W. Stob, L. Teitsma, two students.
- Student Life Committee*, M. Bolt (1980, chairman), W. Stob (secretary), C. Vos (1979), S. Woudstra (1979), three students.
- All-Campus Discipline Committee*, J. Brink (1980), P. Holtrop (1979), J. Kuipers (1980, chairman), R. Meyer (1979), E. Monsma (1981), W. Stob (secretary), M. Zuidema (1981), five students; C. Stapert as alternate.

AD HOC COMMITTEES

- Governing Board, Calvin Center for Christian Scholarship*, M. De Kryger, A. Diekema, R. Griffioen (1980), C. Plantinga (1979), H. Rienstra (1979, chairman), T. Rottman (1981), J. Vanden Berg, N. Wolterstorff (1979), a member of the Board of Trustees.
- Committee on International Affairs*, K. Bratt, B. Carvill, S. Greydanus, C. Overvoorde, K. Piers, L. Sweetman, G. Van Zwalenberg, J. Westra, D. Wilson, N. Wolterstorff (chairman), two students.

DEPARTMENTAL AND DIVISIONAL ORGANIZATION

The various departments are related as divisions: Division I, education, physical education, philosophy, and religion and theology (C. Orlebeke, *chairman*); Division II, language, literature, and the arts (R. Wevers, *chairman*); Division III, the natural sciences and mathematics (P. Zwier, *chairman*); Division IV, the social sciences (E. Van Kley, *chairman*).

- Art (II), Edgar Boevé, *chairman*
- Biology (III), Al Bratt, *chairman*
- Chemistry (III), William Van Doorne, *chairman*
- Classical Languages (II), Richard Wevers, *chairman*
- Economics and Business (IV), George Monsma, *chairman*
- Education (I), Peter De Boer, *chairman*
- Engineering (III), James Bosscher, *chairman*
- English (II), Henrietta Ten Harmsel, *chairman*
- Germanic Languages (II), James Lamse, *chairman*
- History (IV), Edwin Van Kley, *chairman*
- Mathematics (III), Paul Zwier, *chairman*
- Music (II), Dale Topp, *chairman*
- Philosophy (I), Clifton Orlebeke, *chairman*

Physical Education (I), Marvin Zuidema, *chairman*
 Physics (III), Vernon Ehlers, *chairman*
 Political Science (IV), Johan Westra, *chairman*
 Psychology (IV), William Sanderson, *chairman*
 Religion and Theology (I), Willis De Boer, *acting chairman*
 Romance Languages (II), Claude-Marie Baldwin, *acting chairman*
 Sociology (IV), Henry Holstege, *chairman*
 Speech (II), Marten Vande Guchte, *chairman*

Faculty

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

EMERITI

Josephine Baker, M.A., M.A.L.S.
Librarian, Emerita
 Henry Bengelink, M.S.
Assistant Professor of Biology, Emeritus
 Clarence Boersma, M.A., M.A., Ph.D.
Professor of Germanic Languages, Emeritus
 Bert Peter Bos, M.A., Ed.D.
Director of Teacher Certification, Emeritus
 John Harold Bratt, Th.B., Th.M., S.T.M., Th.D.
Professor of Religion and Theology, Emeritus
 John Thomas Daling, M.A., Ph.D.
Professor of Psychology, Emeritus
 John Lester De Beer, M.A., Ed.D.
Professor of Education, Emeritus
Director of the Instructional Resources Center
 John De Bie, M.A.
Assistant Professor of History, Emeritus
 James John DeJonge, M.S., M.Mus.
Associate Professor of Music, Emeritus
 Harry G. Dekker, M.S.
Registrar, Emeritus
Professor of Chemistry, Emeritus
 Bernard Jay Fridsma, Sr., M.A., Ph.D.
Professor of Germanic Languages, Emeritus
 Winifred H. Holkeboer, M.A.
Associate Professor of English, Emerita
 William Harry Jellema, M.A., Ph.D.
Professor of Philosophy, Emeritus
 Martin Karsten, M.S.
Associate Professor of Biology, Emeritus
 Cornelius A. Plantinga, M.A., M.Ed., Ph.D.
Professor of Psychology, Emeritus
 Tunis Prins, M.A., Ph.D.
Professor of Philosophy, Emeritus
 William Thomas Radius, M.A., Ph.D.
Professor of Classical Languages, Emeritus
 Gertrude Slingerland, M.A.
Assistant Professor of English, Emerita

William Spoelhof, M.A., Ph.D., LL.D., Litt.D., D.H.L.
President, Emeritus
 Seymour Swets, M.A.
Professor of Music, Emeritus
 John Johnson Timmerman, M.A., Ph.D.
Professor of English, Emeritus
 John Henry Tuls, M.A.
Associate Professor of Mathematics, Emeritus
 Gertrude Vander Ark, M.A., Ed.S.
Assistant Professor of Education, Emerita
 Helen Van Laar, M.A.
Assistant Professor of Education, Emerita
 Harry J. Wassink, B.S.
Professor of Engineering, Emeritus
 Enno Wolthuis, M.S., Ph.D.
Professor of Chemistry, Emeritus
 G. Roderick Youngs, Th.B., M.A., Ed.D.
Professor of Psychology, Emeritus
 Sydney T. Youngsma
Assistant to the President, Emeritus
 Mildred Reitsema Zylstra, M.A.L.S.
Assistant Professor of English, Emerita

ACTIVE

****Robert J. Albers, Ph.D. (Connecticut, 1962)**
Professor of Chemistry
 Sandra Kay Ariza, M.A. (Michigan State, 1974)
Instructor in Romance Languages
 Claude-Marie Baldwin, B.A. (Calvin, 1971), M.A. (Michigan State, 1977)
Visiting Assistant Professor of Romance Languages
Acting Chairman of the Department of Romance Languages
 Henry James Baron, M.A. (Michigan, 1966), Adv. Cer., Ph.D. (Illinois, 1968, 1972)
Professor of English
Coordinator of Freshman English
 John D. Beebe, M.A. (South Dakota, 1966), Ph.D. (Chicago, 1970)
Professor of Biology
 Carl Douglas Bennink, M.A., Ph.D. (Louisville, 1976, 1978)
Visiting Assistant Professor of Psychology
 James Alan Benthem, M.A. (Wayne State, 1976)
Assistant Professor of Psychology
 Melvin Earl Berghuis, M.A. (Michigan, 1949), Ph.D. (Michigan State, 1964)
Professor of Speech
 Gilbert Besselsen, M.A., Ph.D. (Michigan, 1963, 1969)
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
 Ronald Lee Blankespoor, Ph.D. (Iowa State, 1971)
Associate Professor of Chemistry
 Kathryn Blok, M.A., Ed. S. (Michigan State, 1967, 1975)
Visiting Assistant Professor of Education
 Donald L. Boender, M.A. (Michigan, 1965)
Dean of Men
****Edgar Gene Boevé, J. Franklin School of Professional Arts, M.S.D. (Michigan 1954)**
Associate Professor of Art
Chairman of the Department of Art

- Ervin Boevé, M.A. (Michigan, 1954)
Assistant Professor of Speech
Director of Drama
- Martin Bolt, M.A., Ph.D. (Michigan State, 1967, 1969)
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
- M. Elaine Botha, M.A., M.A., D.Phil. (Potchefstroom, 1963—social work, 1966—philosophy, 1970—anthropology), D.Phil. (Vrije Universiteit, Amsterdam, 1971—philosophy)
Visiting Professor of Philosophy
- Bette DeBruyn Bosma, M.A. (Michigan State, 1972)
Instructor in Education
- James Peter Bosscher, M.S. (Purdue, 1957), Ph.D. (Michigan 1968)
Professor of Engineering
Chairman of the Department of Engineering
- Hessel Bouma III, Ph.D. (Texas, 1975)
Assistant Professor of Biology
- Al Dirk Bratt, M.S. (Michigan State, 1957), Ph.D. (Cornell, 1964)
Professor of Biology
Chairman of the Department of Biology
- Kenneth Dale Bratt, M.A. (Princeton, 1973)
Instructor in Classical Languages
- Wallace Henry Bratt, M.A., Ph.D. (Michigan, 1956, 1966)
Professor of Germanic Languages
- Daryl Myron Brink, M.A. (Western Michigan, 1968), Ph.D. (Michigan State, 1972)
Visiting Assistant Professor of Mathematics
- John Harvey Brink, M.S., Ph.D. (Purdue, 1972, 1974)
Associate Professor of Psychology
- Herbert John Brinks, M.A., Ph.D. (Michigan, 1961, 1965)
Professor of History
Curator, Colonial Origins Collection
- Herman H. Broene, Ph.D. (Purdue, 1947)
Professor of Chemistry
- Conrad John Bult, M.A., M.A.L.S. (Michigan, 1962, 1965)
Assistant Library Director for College Related Matters
- Ynes Maria Byam, M.A. (Michigan State, 1977)
Instructor in Romance Languages
- Barbara Carvill, Ph.D. (Toronto, 1978)
Assistant Professor of Germanic Languages
- Bradley Mellon Class M.A. (Oregon, 1967), Ph.D. (New Mexico, 1974)
Assistant Professor of Romance Languages
- Dale Jay Cooper, B.D. (Calvin Theological Seminary, 1968)
Assistant Professor of Religion and Theology
- **Elsa Cortina, Doctora en Pedagogia (Universidad Habana, 1951)
Assistant Professor of Romance Languages
- Gordon Lee De Blaey, M.A., Ph.D. (Western Michigan, 1967, 1970)
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
Chairman of the Department of Education
- Willis Peter De Boer, Th.B. (Calvin Theological Seminary, 1951), D.Th. (Vrije Universiteit, Amsterdam, 1962)
Professor of Religion and Theology
Acting Chairman of the Department of Religion and Theology

- James Henry De Borst, M.A., Ph.D. (Michigan, 1965, 1972)
Professor of Political Science
- Sander De Haan, M.A. (Northwestern, 1969)
Instructor in German
- Jack Charles De Jong, M.B.A. (Chicago, 1978)
Instructor in Economics and Business
- Peter Ymen De Jong, M.A., Ph.D. (Western Michigan, 1969, 1972)
Professor of Sociology
- Roger Lee De Kock, Ph.D. (Wisconsin, 1969)
Associate Professor of Chemistry
- Leon W. De Lange, M.B.A. (Central Michigan, 1970), C.P.A.
Assistant Professor of Economics and Business
- Peter Allen De Vos, M.A., Ph.D. (Brown, 1964, 1972)
Professor of Philosophy
Dean of the Faculty
- Bert De Vries, B.D. (Calvin Theological Seminary, 1964), M.A., Ph.D. (Brandeis, 1965, 1967)
Professor of History
- Robert Lee De Vries, M.A., Ph.D. (Michigan 1964, 1974)
Assistant Professor of Political Science
- Henry De Wit, M.B.A. (C.P.A.) (Michigan, 1948)
Vice President for Business and Finance
- Derald Dwight De Young, M.M. (Eastman, 1965), Ph.D. (Minnesota, 1975)
Visiting Associate Professor of Music
- Anthony J. Diekema, M.A., Ph.D. (Michigan State University, 1958, 1965)
President
- David James Diephouse, M.A., Ph.D. (Princeton, 1971, 1974)
Assistant Professor of History
- Theodorf P. Dirkse, M.A., Ph.D. (Indiana, 1938, 1939)
Professor of Chemistry
- Esther F. Driesenga, B.S. (Grand Valley State, 1972)
Assistant in Physical Education
- David Lincoln Dunbar, M.A. (Oregon, 1965), Ph.D. (Arizona, 1976)
Visiting Associate Professor of Romance Languages
- Eugene Roy Dykema, M.B.A. (Chicago, 1968)
Assistant Professor of Economics
- Johanna Duyst, M.A.L.S. (Michigan, 1973)
Librarian
- Daniel Marcus Ebels, M.S. (Wisconsin, 1975)
Assistant Professor of Economics
- Vernon James Ehlers, Ph.D. (California, Berkeley, 1960)
Professor of Physics
Chairman of the Department of Physics
- Edward E. Ericson, Jr., M.A., Ph.D. (Arkansas, 1963, 1967)
Professor of English
- Paul William Faber, M.A. (Notre Dame, 1978)
Instructor in Philosophy
- 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
- Edna Carol Greenway, M.A. (Texas Christian, 1972)
Instructor in Romance Languages
- Sidney Greidanus, B.D. (Calvin Theological Seminary, 1964), D.Th. (Vrije Universiteit, Amsterdam, 1970)
Associate Professor of Religion and Theology
- Samuel Everett Greydanus, Jr., M.A. (Edinburgh, 1951)
Assistant Professor of History

- Roger Duane Griffioen, Ph.D. (Purdue, 1960)
Professor of Physics
- Dolores Hageman, M.A. (Michigan State, 1976)
Instructor in Physical Education
- John Edward Hamersma, S.M.M., S.M.D. (Union Theological Seminary, New York, 1952, 1961)
Professor of Music
College Organist
- George Graham Harper, Jr., M.A., Ph.D. (Northwestern, 1951, 1959)
Professor of English
- George Harris, M.A. (Michigan, 1959), Ph.D. (Northwestern, 1971)
Professor of Classical Languages
- Cornelius Peter Hegewald, M.A., D.A.G. (Michigan State, 1964, 1967)
Associate Professor of Germanic Languages
- William Cornelius Hendricks, M.Ed. (Western Washington State, 1955)
Assistant Professor of Education
Coordinator of Elementary Education
- Paul B. Henry, M.A., Ph.D. (Duke, 1967, 1970)
Associate Professor of Political Science
- Henry Jay Hoeks, B.S.A.E. (Purdue, 1958), M.C.E. (Western Theological Seminary, 1966)
 Ed. D. (Columbia, 1975)
Professor of Religion and Theology
Director of the Academic Study of Religions Program
- Robert James Hoeksema, M.S.E. (Michigan, 1978)
Instructor in Engineering
- Thomas Brian Hoeksema, M.A., Ph.D. (Michigan State 1972, 1975)
Assistant Professor of Education
Coordinator of Special Education
- Philip Cornelius Holtrop, B.D. (Calvin Theological Seminary, 1958)
Assistant Professor of Religion and Theology
- David Jack Holquist, M.A. (Michigan, 1967), Ed.S. (Michigan State, 1974)
Assistant Professor of Speech
- Henry Holstege, Jr., M.A., Ph.D. (Michigan State, 1958, 1966)
Professor of Sociology
Chairman of the Department of Sociology
- David Earl Holwerda, B.D. (Calvin Theological Seminary, 1956), D.Th. (Vrije Universiteit, Amsterdam, 1959)
Professor of Religion and Theology
- Ralph John Honderd, M.A. (Michigan State, 1966)
Assistant Professor of Physical Education
- †Richard Edwin Houskamp, M.S.W. (Chicago, 1961), D.S.W. (Tulane, 1976)
Associate Professor of Sociology
- Carl John Huisman, M.F.A. (Michigan State, 1967)
Associate Professor of Art
- Gertrude Ann Huisman, M.A. (Ohio State, 1963), M.Mus. (Michigan State, 1969)
Assistant Professor of Music
- Henry Peter Ippel, M.A., Ph.D. (Michigan, 1948, 1957)
Professor of History
- Thomas Leigh Jager, M.S., Ph.D. (Chicago, 1967, 1971)
Associate Professor of Mathematics
- Dirk William Jellema, Ph.D. (Wisconsin, 1951)
Professor of History
- Robert Andrew Jensen, M.F.A. (Ohio, 1952)
Associate Professor of Art
- Anamarie L. Joose, M.A., Ed. S. (Michigan State, 1971, 1972)
Counselor in the Broene Center
- †Wayne George Joose, M.A., Ph.D. (Michigan State, 1965, 1975)
Professor of Psychology

- Carl William Kaiser, M. Mus. (Catholic University, 1961)
Associate Professor of Music
- Beverly Jane Klooster, M.S., Ph.D. (Michigan State, 1961, 1972)
Professor of Biology
Director of Health Sciences Programs
- David John Klooster, M.A. (Chicago, 1976)
Instructor in English
- Thelma Knol, M.Mus. (Michigan, 1959)
Professional Staff, Department of Music
- Kenneth J. Konyndyk, Jr., Ph.D. (Wayne State, 1967, 1970)
Professor of Philosophy
- Roger Dale Konyndyk, M.A., Ph.D. (Math.), M.S. (Stat.) (Michigan State, 1972, 1975, 1976).
Assistant Professor of Mathematics
- James Dale Korf, M.A. (Michigan, 1970)
Visiting Assistant Professor of Speech
- Irvin Bertus Kroese, M.A., Ph.D. (Ohio, 1964, 1966)
Professor of English
- Albion Jerome Kromminga, Ph.D. (Minnesota, 1961)
Professor of Physics
- Kenneth Wayne Kuiper, M.A., Educ., M.A., English, Ed.D. (Michigan, 1955, 1959, 1963)
Professor of English
- Jack Kuipers, M.S.E., Info. and Cont. E. (Michigan, 1959, 1966)
Associate Professor of Mathematics
- James Alan Kuiper, M.F.A. (Michigan State, 1976)
Instructor in Art
- Kenneth Jay Kuipers, M.B.A. (Michigan State, 1968)
Assistant Professor of Economics and Business
- 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)
Librarian
- **James Lawrence Lamse, M.A., Ph.D. (Michigan, 1963, 1975)
Professor of Germanic Languages
Chairman of the Department of Germanic Languages
- Arie Leegwater, Ph.D. (Ohio State, 1967)
Associate Professor of Chemistry
- Sanford Clay Leestma, M.A. (Pennsylvania State, 1965), Ph.D., (New Mexico State, 1969)
Professor of Mathematics
Acting Director of Computing Services
- Jasper Lesage, M.A. (Toronto, 1975)
Instructor in Economics and Business
- Donald Philip Lindskoog, B.D. (Western Theological Seminary, 1962), M.A. (Chicago, 1965), Ph.D. (Baylor, 1972)
Visiting Professor of Psychology
- Philip Roger Lucasse, M.A., Ph.D. (Michigan, 1952, 1971)
Professor of Education
Coordinator of Secondary Education
- Robert Wayne Manweiler, Ph.D. (Cornell, 1972)
Visiting Assistant Professor of Physics
- George Mish Marsden, B.D. (Westminster Theological Seminary, 1963) M.A., Ph.D. (Yale, 1961, 1965)
Professor of History
- Rockne M. McCarthy, B.D. (Covenant Theological Seminary, 1967), Ph.D. (St. Louis, 1971)
Visiting Calvin Fellow, Calvin Center for Christian Scholarship
- Gregory Frank Mellema, Ph.D. (Massachusetts, 1974), M.B.A. (Michigan, 1978)
Assistant Professor of Philosophy
- Clarence Menninga, M.A. (Western Michigan, 1959), Ph.D. (Purdue, 1966)
Professor of Physics (Geology)

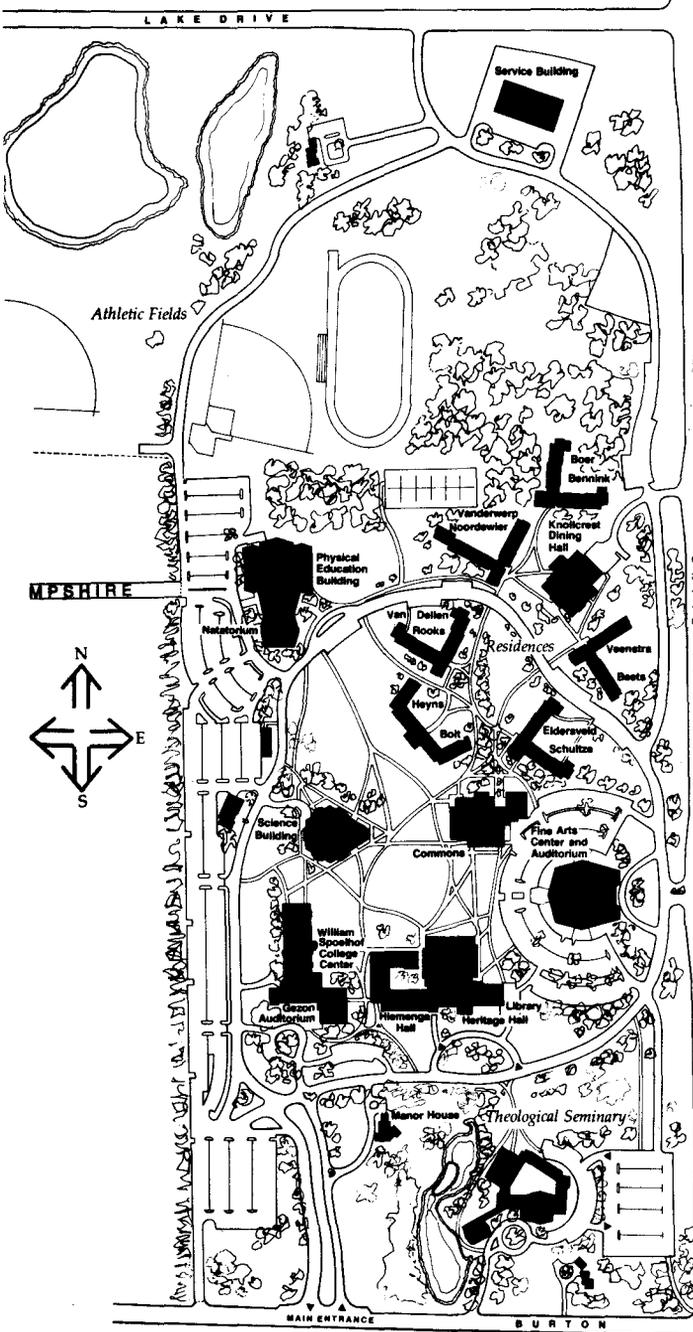
- Robert James Meyer, M.A. (California, Berkeley, 1972)
Assistant Professor of English
- Charles J. Miller, Ph.D. (Northwestern, 1947)
Dean for Academic Program Administration
Director of Graduate Studies
- Ellen Borger Monsma, M.A. (Indiana, 1968)
Instructor in Romance Languages
- George Norman Monsma, Jr., M.A., Ph.D. (Princeton, 1965, 1969)
Professor of Economics
Chairman of the Department of Economics and Business
- Marvin Eugene Monsma, M.A. (Michigan State, 1961), M.A.L.S. (Michigan, 1967)
Director of the Library
- *Richard John Mouw, M.A. (Alberta, 1965), Ph.D. (Chicago, 1971)
Professor of Philosophy
- Carl Thomas Mulder, M.A., Ed.D. (Western Michigan, 1964, 1973)
Associate Professor of Education
- Robert Louis Mulder, M.A. (Michigan State, 1973)
Instructor in Education
- Judith D. Mullins, M.Ed. (Loyola-Chicago, 1971)
Dean of Women
- Ann Janssen Noteboom, M.A., Ph.D. (Northwestern, 1952, 1957)
Professor of Speech
- Larry Ray Nyhoff, M.A. (Michigan, 1961), Ph.D. (Michigan State, 1969)
Professor of Mathematics
- Delwin Gene Nykamp, M.A., Ph.D. (Northwestern, 1967, 1974)
Professor of 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
Chairman of the Department of Philosophy
- Arthur James Otten, M.A., D. de l'U. (Laval, 1952, 1969)
Professor of Romance Languages
- Charlotte Otten, M.A. (Michigan, 1969), Ph.D. (Michigan State, 1971)
Associate Professor of English
- Robert Theodore Otten, M.A., Ph.D. (Michigan, 1951, 1957)
Professor of Classical Languages
- Chris Stoffel Overvoorde, M.F.A. (Michigan, 1966)
Associate Professor of Art
- Thomas J. Ozinga, M.A., Ph.D. (Michigan 1961, 1967)
Professor of Speech
Director of College Relations
- Ronald Owen Pederson, M.F.A. (Minnesota, 1977)
Visiting Instructor in Art
- Bernard Edward Pekelder, Th.B. (Calvin Theological Seminary, 1947), M.A. (Northwestern, 1965)
Vice President for Student Affairs
College Chaplain
- James Michael Penning, M.A., Ph.D. (Kentucky, 1974, 1975)
Assistant Professor of Political Science
- Kirk David Peterson, B.S.E.-E.E. (Michigan, 1977)
Assistant in Engineering
- Walfred H. Peterson, M.A., Ph.D. (Minnesota, 1949, 1957)
Visiting Calvin Fellow, Calvin Center for Christian Scholarship
- Jeffrey Robert Pettinga, M.A. (Michigan State, 1968)
Assistant Professor of Physical Education
- Kenneth Piers, B.Sc. (Hon.), Ph.D. (Alberta, 1963, 1966)
Professor of Chemistry

- Alvin Carl Plantinga, M.A. (Michigan, 1955), Ph.D. (Yale, 1958)
Professor of Philosophy
- **John Henry Primus, B.D. (Calvin Theological Seminary, 1957), D.Th. (Vrije Universiteit, Amsterdam, 1960)
Professor of Religion and Theology
- Donald E. Pruis, M.B.A. (C.P.A.) (Michigan, 1953)
Professor of Economics and Business
- Alfred John Reynolds, M.A. (Michigan, 1951), Ph.D. (Michigan State, 1965)
Professor of Psychology
- Rodger Reid Rice, M.A., Ph.D. (Michigan State, 1962, 1968)
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., Ph.D. (Vanderbilt, 1969, 1973)
Professor of History
- Theodore Allen Rottman, M.A., Ph.D. (Michigan State, 1955, 1965)
Professor 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)
Assistant Professor of Music
- William A. Sanderson, B.D., S.T.M. (Faith Theological Seminary, 1950, 1951), M.A. (Washington, St. Louis, 1965)
Associate Professor of Psychology
Chairman of the Department of Psychology
- **Carl James Sinke, M.S., Ph.D. (Purdue, 1951, 1954)
Professor 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)
Associate Professor of Sociology
- Corwin Esdert Smidt, M.A., Ph.D. (Iowa, 1971, 1975)
Visiting Assistant Professor of Political Science
- J. William Smit, M.A., Ph.D. (Michigan, 1959, 1964)
Professor of Sociology
- John Nelson Snapper, M.A., M.A. (San Diego State, 1971–English, 1975–education)
Assistant Professor of English
- David Mark Snuttjer, M.S., Ph.D. (Purdue, 1973, 1975)
Visiting Assistant Professor of Psychology
- Linda Beth Spoelman, M.A. (Eastern Michigan, 1974)
Instructor in English
- Gordon John Spykman, Th.B. (Calvin Theological Seminary, 1952), D.Th. (Vrije Universiteit, Amsterdam, 1955)
Professor of Religion and Theology
Chairman of the Department of Religion and Theology
- Calvin Ray Stapert, M.A., Ph.D. (Chicago, 1968, 1973)
Professor of Music
- Barney Steen, M.A., Ed.D. (Columbia—Teachers College, 1947, 1958)
Professor of Physical Education
- R. Scott Stehouwer, M.A., Ph.D. (Wayne State, 1977, 1978)
Assistant Professor of Psychology
- LeRoy Dale Stegink, M.A. (Michigan State, 1970)
Assistant Professor of Education
- William K. Stob, B.D., Th.M. (Calvin Theological Seminary, 1955, 1970), Ed.D. (Western Michigan, 1975)
Dean of Student Life

- Roger John Stouwie, M.A., Ph.D. (Wisconsin, 1968, 1970)
Professor of Psychology
- †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
- Larry Teitsma, M.Div. (Western Theological Seminary 1966), M.A., Ph.D. (Michigan State, 1968, 1973)
Director and Counselor in the Broene Center
- Bernard John Ten Broek, M.A., Ph.D. (Colorado, 1955, 1960)
Professor of Biology
- **Henrietta Ten Harmsel, M.A., Ph.D. (Michigan, 1958, 1962)
Professor of English
Chairman of the Department of English
- Robert Harold Terborg, M.A., Ph.D. (Michigan State, 1966, 1968)
Professor of Psychology
- Timothy Dale Thomasma, M.S. (Michigan, 1977)
Instructor in Mathematics
- Richard Robert Tiemersma, M.A., Ph.D. (Northwestern 1950, 1962)
Professor of English
- John Peter Tiemstra, Ph.D. (Massachusetts Institute of Technology, 1975)
Assistant Professor of Economics
- Peter V. Tigchelaar, M.S., Ph.D. (Illinois, 1966, 1970)
Associate Professor of Biology
- James R. Timmer, M.A. (Michigan, 1964) Ph.D. (Utah, 1974)
Professor of Physical Education
- John Hager Timmerman, M.A., Ph.D. (Ohio University, 1971, 1973)
Associate Professor of English
- G. Dale Topp, M.Mus., Ph.D. (Michigan, 1960, 1967)
Professor of Music
Chairman of the Department of Music
- David Bruce Tuuk, M.A. (Michigan, 1950)
Assistant Professor of Physical Education
- Marten Vande Guchte, M.Ed. (Wayne State, 1954), Ph.D. (Michigan State, 1969)
Professor of Speech
Chairman of the Department of Speech
- Peter Vande Guchte, M.B.A. (Michigan, 1960), Ed.D. (Western Michigan, 1973)
Vice President for College Advancement
- John Vanden Berg, M.A., Ph.D. (Michigan 1947, 1958)
Vice President for Academic Administration
- Henry Vander Goot, M.Div. (Princeton Theological Seminary, 1971), M.A., Ph.D. (St. Michael's College, University of Toronto, 1973, 1976)
Assistant Professor of Religion and Theology
- Mary Elizabeth Vander Goot, M.A., Ph.D. (Princeton, 1969, 1971)
Assistant Professor of Psychology
- Archie Lee Vander Hart, M.S. (Oregon State, 1976)
Instructor in Biology
- Steven John Van Der Weele, M.S., Ph.D. (Wisconsin, 1950, 1955)
Professor of English
- William Van Doorne, M.S., Ph.D. (Michigan, 1962, 1965)
Professor of Chemistry
Chairman of the Department of Chemistry
- Brenda R. Van Halsema, M.A., (Chicago, 1977)
Instructor in Art
Director of Art Exhibitions
- 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)
Professor of History

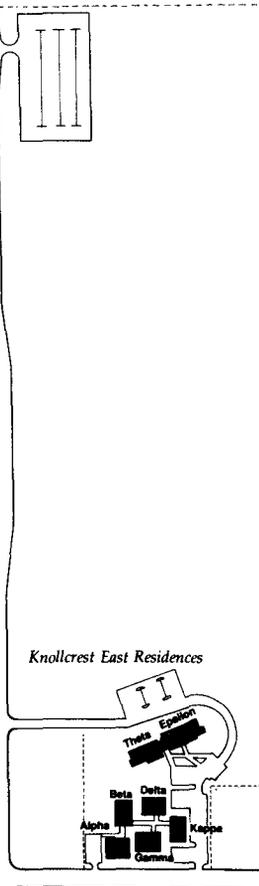
- Edwin John Van Kley, M.A., Ph.D. (Chicago, 1959, 1964)
Professor of History
Chairman of the Department of History
- Timothy Jon Van Laar, M.F.A. (Wayne State, 1975)
Instructor in Art
- Nancy Lynn Van Noord, M.A. (Michigan State, 1976)
Instructor in Physical Education
- †Catherine Wilhelmina Van Opynen, M.A. (Columbia—Teachers College, 1945), M.Ed. (Michigan, 1957)
- †Lambert John Van Poolen, M.S.M.E., Ph.D. (Illinois Institute of Technology, 1965, 1969), P.E. (State of Illinois, 1971)
Professor of Engineering
- Howard Jay Van Till, Ph.D. (Michigan State, 1965)
Professor of Physics
- Ernest Van Vugt, M.A. (Michigan, 1958)
Registrar
- 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)
Professor of Physics
- John Verwolf, M.Ed. (Seattle Pacific, 1972)
Director of Placement
- Clarence John Vos, Th.B. (Calvin Theological Seminary, 1950), Th.M. (Westminster Theological Seminary, 1951), D.Th. (Vrije Universiteit, Amsterdam, 1968)
Professor of Religion and Theology
- Louis Arthur Vos, B.D. (Calvin Theological Seminary, 1961), D.Th. (Vrije Universiteit, Amsterdam, 1965)
Professor of Religion and Theology
Director of Religion and Education Program
- Lon Morris Vredeveld, B.A. (Calvin, 1975)
Assistant in Mathematics
- David John Vriend, M.A. (California, Los Angeles, 1977)
Instructor in Philosophy
- Anthony Donald Vroon, M.A. (Western Michigan, 1965)
Assistant Professor of Physical Education
- Clarence Peter Walhout, M.A. (Michigan, 1956), Ph.D. (Northwestern, 1964)
Professor of English
- †Mary Ann Walters, M.A. (Michigan, 1962), Ph.D. (Michigan State, 1975)
Professor of English
- Glenn David Weaver, M.Div. (Princeton Theological Seminary, 1972), M.A., Ph.D. (Princeton, 1974, 1978)
Visiting Assistant Professor of Psychology
- Evelyn June Weidenaar, M.A., M.A.L.S. (Michigan, 1958, 1967)
Librarian
- Ronald Albert Wells, M.A., Ph.D. (Boston, 1964, 1967)
Professor of History
- Dorothy Westra, M.A. (Michigan, 1952), Ph.D. (Michigan State, 1978)
Associate Professor of Education
- Johan Gerard Westra, M.A., Ph.D. (Michigan, 1953, 1972)
Professor of Political Science
Chairman of the Department of Political Science
- Richard Franklin Wevers, M.A., Ph.D. (Wisconsin, 1959, 1962)
Professor of Classical Languages
Chairman of the Department of Classical Languages
- Jack Wiersma, M.S. (Seattle, 1967), Ph.D. (Iowa, 1968)
Professor of Education
- Stanley Marvin Wiersma, M.S., Ph.D. (Wisconsin, 1956, 1961)
Professor of English

- **Donald Reid Wilson**, M.Div. (Faith Theological Seminary, 1956), M.A., Ph.D. (Chicago, 1962, 1970)
Professor of Sociology
- Karla M. Wolters**, B.A. (Hope, 1973)
Visiting Instructor in Physical Education
- Nicholas Paul Wolterstorff**, M.A., Ph.D. (Harvard, 1954, 1957)
Professor of Philosophy
- John William Worst**, M.A. (Ohio State, 1964), Ph.D. (Michigan, 1974)
Professor of Music
- Sierd Woudstra**, B.D. (Calvin Theological Seminary, 1958), Th.D. (Westminster Theological Seminary, 1963)
Assistant Professor of Religion and Theology
- Davis Alan Young**, M.S. (Pennsylvania, 1965), Ph.D. (Brown, 1969)
Visiting Associate Professor of Physics (Geology)
- Doris Jean Zuidema**, M.A. (Columbia—Teachers College, 1963)
Assistant Professor of Physical Education
- Marvin Albert Zuidema**, M.A. (Michigan State, 1959), P.E.D. (Indiana, 1971)
Professor of Physical Education
Chairman of the Department of Physical Education
- George Wayne Zuiderveen**, M.A. (Michigan State, 1971)
Counselor in the Broene Center
- Paul John Zwier**, M.A. (Michigan, 1951), Ph.D. (Purdue, 1960)
Professor of Mathematics
Chairman of the Department of Mathematics
- Uko Zylstra**, M. Sc. (Michigan, 1968), D.Phil. (Vrije Universiteit, Amsterdam, 1972)
Assistant Professor of Biology



CALVIN

COLLEGE AND SEMINARY



The index

Academic Success Program	44	Dean's honor list	23
Academic programs	37	Degrees	37, 41
Accounting	49, 78	Dentistry	54
Accreditation	8	Dismissal	11, 21, 23
Administration	145	Divisions of the faculty	148
Admissions	16	Drama	12, 142
Advising	14	Dropping of courses	21
Advanced standing	17	Dutch	76
Agriculture	50		
Aims of the college	7		
Alumni Association	8	Earth Science	77
American College Test (ACT)	17	Economics	78
Architecture	50	Education	45, 81
Art	63	Education program requirements	45
Astronomy	65	Eligibility	21, 23
Athletics	12, 116	Employment	32
Auditing of courses	21, 26	Engineering	52, 87
Audio-visual services	9	English	89
Automobiles, regulations	14, 26	Examinations, exemption	17, 43
Awards to students	27	Examinations, course credit	17, 43
		Expenses	25
Bachelor of Arts degree	38		
Bachelor of Fine Arts degree	41, 63	Faculty	149
Bachelor of Arts in Medical Technology	55	Faculty committees	146
Bachelor of Science degree	38	Financial aid programs	32
Biology	66	Fees	26
Board and Room	26	Fine arts	12
Board of Trustees	144	Foreign students admissions	19
Broene Center	13	Forestry	53
Business Administration	51, 78	French	94
Calendar of the college	3, 8	Geography	77
Changing of courses	21	German	96
Chapel	10	Geology	77
Chemistry	69	Germanic languages	76, 96
Chicago Metropolitan Center	44	Government of the college	7
Christian Perspectives on Learning	59	Grading system	21
Classical Languages	72	Graduate fellowships	14, 35
Classification	20	Graduate placement	14
College Entrance Examination (SAT)	17	Graduation requirements	37, 41
Committees of the faculty	146	Greek	72
Communications	140		
Computer Science	75		
Control and government	7	Health insurance	13
Core curriculum	39	Health center	13
Correspondence	<i>inside front cover</i>	History of Calvin College	5
Counseling	14	History	98

Housing	11, 26	Pre-occupational therapy program	58
Honors programs	23, 43	Preprofessional programs	49
Incompletes	21	Preseminary program	55
Injuries	13	Prizes and awards	34
Instructional Resources Center	9	Professional programs	49
Interdisciplinary courses	59	Probation	18, 23, 44
Interim courses	39	Psychology	126
Interim requirements	8, 39	Readmission	17
Late application	16, 18, 26	Religion and Theology	130
Late registration	18, 26	Religious instruction, worship	10
Latin	72	Residence requirements	18, 24
Law	54	Romance languages	94, 139
Library	6	Room and board	11, 26
Loans	32	Scholarships	27
Major concentrations	38	Seminary classes	20, 54
Map of campus	160	Sociology	134
Master of Arts in Teaching	42	Spanish	139
Mathematics	103	Speech	140
Medical technology	55	Special education	49, 83
Medicine	54	Special students	18
Ministry	55	Standards of the college	7, 11
Motor vehicles	14	Student financial aids	27, 27
Music	107	Student government	12
Natural Resource degree	58	Student load	20
Nursing program	20, 56	Student loans	32
Orientation for new students	14	Student employment service	32
Parking	14, 26	Student expenses	26
Payment of fees	26	Suggested high school programs	19
Philosophy	114	Summer school	3, 8
Physical Education	116	Teacher education programs	45
Physical Education requirements	40	Teacher certificates	24, 45
Physics	120	Theater	142
Placement bureau	14	Transfers	17
Political Science	124	Teacher Placements	14
Postgraduate fellowships	14, 35	Trustees	144
Prearchitecture program	50	Tuition and related fees	25
Predental program	54	Washington Semester program	45
Preengineering program	52	Withdrawal	21
Pre-home economics program	58	Worship and Christian service	10
Premedical program	54	Year-abroad programs	44