



# **CALVIN COLLEGE**

**The college of the Christian Reformed Church**

**Catalog for 1979-80**

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1979

**SEPTEMBER**

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# CALENDAR

## The Fall Semester 1979

SEPTEMBER	4	Tuesday
	5	Wednesday
	6-8	Thursday-Saturday
	10	Monday
OCTOBER	22	Monday
NOVEMBER	13-20	Tuesday-Tuesday
	20	Tuesday
	21	Wednesday
	21	Wednesday
	26	Monday
DECEMBER	12	Wednesday
	13	Thursday
	14	Friday
	19	Wednesday

Faculty Conference  
Residence halls open  
Orientation and registration

First semester classes begin 8 a.m.  
Convocation 9:45-10:40 a.m.  
Reading Recess  
Registration for Interim for all students.  
Registration for spring semester for juniors, seniors, and graduate students  
Thursday class schedule in effect  
Friday class schedule in effect  
Thanksgiving Recess 5 p.m.  
Classes resume 8 a.m.  
Classes end 10 p.m.  
Reading Recess  
Examinations begin 9 a.m.  
Examinations end 9:30 p.m.  
Christmas vacation begins

## The Interim 1980

JANUARY	9	Wednesday
	30	Wednesday
	31	Thursday-Friday
FEBRUARY	1	Friday

Interim term begins 8 a.m.  
Interim term ends 5 p.m.  
Registration for spring semester for freshmen and sophomores

## The Spring Semester 1980

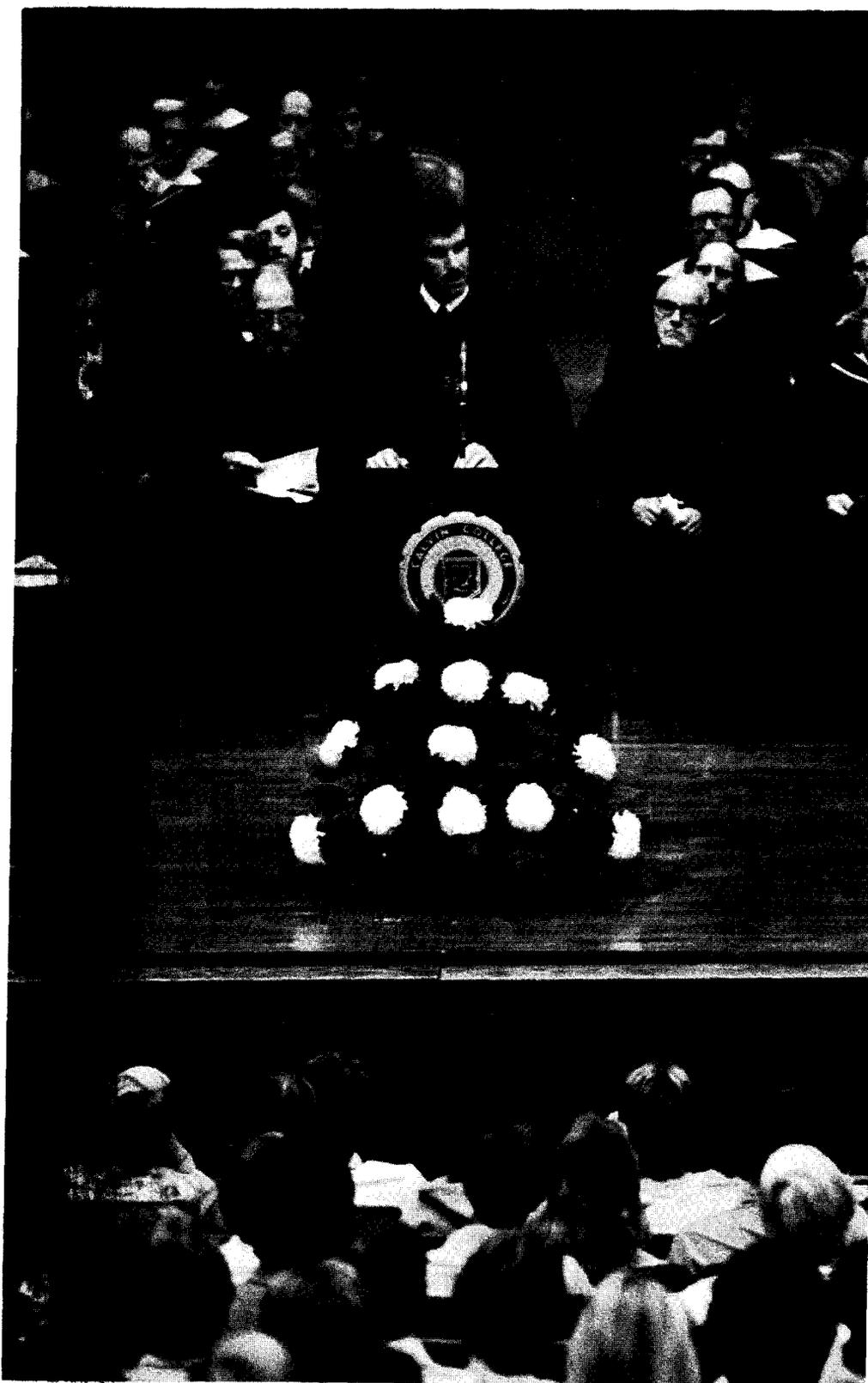
FEBRUARY	4	Monday
MARCH	28	Friday
APRIL	8	Tuesday
MAY	14	Wednesday
	15	Thursday
	21	Wednesday
	24	Saturday

Spring semester classes begin 8 a.m.  
Spring vacation begins 10 p.m.  
Spring vacation ends 8 a.m.  
Reading Recess  
Examinations begin 9 a.m.  
Examinations end 4:30 p.m.  
Commencement 3 p.m.

## The Summer Semester 1980

JUNE	2	Monday
	24	Tuesday
	25	Wednesday
JULY	18	Friday
	21	Monday
AUGUST	12	Tuesday

First session begins 8:30 a.m.  
First session ends  
Second session begins 8:30 a.m.  
Second session ends (No class July 4)  
Third session begins 8:30 a.m.  
Third session ends



## 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 Brés 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 1,270 and last year was approximately 4,000.

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 1,500 students. The William Spoelhof College Center, the Bergsma Natatorium, the Knollcrest East apartment complex, and the recent addition to Hiemenga Hall have been added, thereby providing for the potential of 4,000 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 300,000-volume collection of books and bound periodicals is distributed over three floors of open stacks, which are arranged according to the Library of Congress classification. More than 1,800 current periodicals are available for use in the library. Two major microfiche collections, The Library of American Civilization and The Library of English Literature, are part of the 17,000-item collection of microfilm, microfiche, and microcards. The library, which is air conditioned, can seat 1,100 persons, mainly in individual study carrels 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 80,000 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 shaped by the Christian faith as reflected in the Reformed standards. This finds its broadest expression in the study of the various liberal arts where students are encouraged to develop value judgments which are grounded in the knowledge of man's relationship to God, to himself, to his fellowman, and to the world, and to acknowledge the Lordship of Christ overall. It is in this setting of Christian commitment that the college seeks to promote sound scholarship, earnest effort, and an obligation to use one's talents fully in response to a divine calling.

The end of such Christian commitment is the Christian life. Informed and mature Christian 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 one's 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, Calvin College provides many opportunities 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 involve participation in local churches.

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 not only students 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.

## **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. 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 and appeals regarding compliance 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. Student appeals will be heard by the Academic Standards Committee.

## **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 forms the typical 4-1-4 plan, consisting of two semesters, each approximately four months in length, plus a one-month interim term in January. 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 three consecutive three and a half week sessions; a student is permitted to register for one regular course during each session.

## **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 27,000 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. 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 Hiemenga 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.





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# 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 Association for Inter-collegiate Athletics for Women (AIAW) 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 resident 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 to 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, 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. Family plans for married students 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, offers career and personal counseling. The staff provides guidance for students searching for careers by helping them recognize their own resources and talents and by exploring with them the variety of careers available and appropriate for them. The staff also offers individual and group counseling and provides programs in the areas of interpersonal relationships, self understanding, the Christian and his self image, marriage preparation, test anxiety, and values clarification. The career resource reference area contains a wide selection of career information.

### **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.

After his freshman year a student 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 career and personal problems.

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 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 also assists seniors in finding post-graduate employment 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 dean for academic program administration. 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 dean. 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 in the early fall and students are advised to take the Graduate Record Examination at the earliest possible date.





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# 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. *A completed application for admission*
2. *Academic transcripts of previous schooling*
3. *ACT or SAT entrance examination results*
4. *The recommendation of a pastor or spiritual counselor*

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 preseminary 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.

Candidates with strong backgrounds are often able to earn advanced college credit in certain subjects. This may be secured in any of four ways:

1. *A grade of 3 or higher on an Advanced Placement (AP) Examination conducted by the College Entrance Examination Board,*
2. *A satisfactory score on any of the Subject Examinations of the College-Level Examination Program (CLEP) of the College Entrance Examination Board,*
3. *The completion of college-level work while in high school,*
4. *The passing of special departmental examinations at Calvin College.*

Furthermore, students who have completed appropriate courses in high school are excused from certain college graduation requirements. This is most common in foreign language, mathematics, literature, and the sciences. Consult pages 42 and 43 for a description of the ways high school courses satisfy college requirements.

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 20, December 8, February 16, April 12, and June 14.

The Scholastic Aptitude Test will be given this academic year on November 3, December 1, January 26, March 22, May 3, and June 7. 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.

Although low test scores are seldom used to bar admission to students who demonstrate a desire for a college education, they are used to determine probation and condition status. In 1978 the average high school grade was B (3.09); the average SAT-V was 490 and the SAT-M was 532; and the average ACT-E was 20.72 and the average ACT-M was 22.99.

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

## X Transfer Students

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 institu-

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## MODEL HIGH SCHOOL PROGRAM

High school students should recognize that the quality of their high school education will determine the ease with which they will do college work and their ability to follow certain courses of study. At Calvin the nature and quality of a student's high school preparation may reduce his college graduation requirements (See pages 41-45). Although in general narrow specialization is not desirable in high school, at least two years of Latin are recommended for those intending to become ministers and four years of mathematics for those with a professional interest in engineering, mathematics, 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.

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tions 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.

### 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 removed 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/or low ACT or SAT test scores may be admitted on academic probation or condition 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 Support 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.

### **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 authorized under Federal law to enroll nonimmigrant alien students.

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 for whom English is a second language must have an adequate command of English as demonstrated by their performance on either the English Test administered by the English Language Institute of the University of Michigan (ELI) or on the Test of English as a Foreign Language (TOEFL), administered periodically throughout the world by the Educational Testing Service. Students admitted with grades of at least 85 on the ELI or 500 on the TOEFL are permitted to carry a regular load while those admitted with lower scores are required to take appropriate non-credit courses in English as a Second Language along with regular courses and to carry a reduced load. All such students are admitted on condition and must take English courses each semester until they have successfully completed English 100 and an English literature course, courses required of all students for graduation. (Such students usually can satisfy the graduation requirements in a foreign language with their native language.) The ELI is administered during the fall orientation week to all students for whom English is a second language and the results are used to place them in appropriate English courses.

## 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) 774-7896. 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.

## X Visitors and Auditors

Members of the community who are not enrolled as students in any college are invited to register as visitors in most lecture classes. Admission to the college is not required, but each visitor must register with the Registrar's Office before attending class. The fee for each course visited is \$15, which includes campus parking privileges. Courses in accounting, applied art, computer science, English composition and creative writing, foreign language, applied music, speech, and courses in which a laboratory experience is an integral part of the classroom activity are not open to visitors but only to credit-seeking students and auditors.

Those who wish to participate in courses not open to visitors without receiving credit must register as auditors. Admission to the college is required prior to registration. The audit fee is one half the credit fee per course, although full time students may audit courses without additional charge. Auditors are expected to attend all classes and participate in the assigned activities of the class. They may take all tests and submit assigned papers for evaluation, but they are not required to do so. Auditors may change their registration from audit to credit only during the first four weeks of the semester.

## 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.

## X Student Load and Classification

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

Not more than two units of applied arts courses, except for music majors in certain applied music concentrations, or four semesters of basic physical education may be applied to graduation.

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.

## X 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 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 a grade of **W** 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.

## **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 45 for details.

## **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.

### **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 placed 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 Support Program.

Freshmen admitted on probation may not take more than three-and-a-half course units for credit and are required to participate in the Academic Support Program. They must remain in that program for the second semester unless they earn a grade point average of 2.0 for the first semester; their probation is lifted if they have earned a 2.5.

Freshmen granted regular admission whose first semester's grade point average is below 1.5 are placed on academic probation, limited to three-and-a-half course units for credit, and required to participate in the Academic Support Program.

Students who after two semesters in residence have a grade point average below 1.67 and those who after three or more semesters in residence have a grade point average below 2.0 are placed on probation. Probation is lifted when a student achieves an average of 2.0.

**Students** are subject to academic dismissal if they have not earned the **minimum cumulative grade point average** stipulated in the schedule below.

<i>Semesters in Residence</i>	<i>Grade Point Average</i>
1	1.00
2	1.00
3	1.30
4	1.45
5	1.60
6	1.75
7	1.85
8 or more	1.90

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

Students who meet the conditions for teacher certification in Michigan, as explained on pages 50-54, should apply for this certificate at the Registrar's Office at the end of the semester during which they 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 45 for details.



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# EXPENSES

## Tuition and fees

**TUITION FOR THE ACADEMIC** year is \$2,680; room and board on campus is an additional \$1,380; and textbooks and classroom supplies average approximately \$200. Tuition for either semester is \$1,340 and includes an interim course; part-time students are charged for the interim at a per course rate.

Most students at Calvin College receive some sort of financial support from grants-in-aid, scholarships, or other programs. Special grants-in-aid based on direct support through the churches are available to members of the Christian Reformed denomination.

### BASIC CHARGES

Tuition, full time per sem.	\$1,340
Tuition, part time per course unit	350
Tuition, auditing, per course unit	175
Room and board, academic year	1,380

### SPECIAL FEES AND DEPOSITS

Visitor fee, per course	15
Directed teaching fee (Ed 345,346)	10
Examination fee (course credit)	20
Examination fee (exemption)	5
Late application fee	10
Late installment payment fee	5
Individual music instruction	
One hour weekly lesson per sem.	200
Half hour weekly lesson per sem.	100
Vehicle registration fee	10
Residence hall social fee	15
Housing deposit	35
Physical education locker deposit	5

*Tuition for full-time students includes the right to audit, to participate in student activities, and to receive student publications.*

Students are encouraged to pay their tuition, fees, room, and board in full at the time of registration each semester. Payment schedules are available at registration for those students who need to make payments over a period of time. These schedules call for a down payment at the beginning of each semester with 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 \$730 for tuition, room, and board; the minimum for non-resident students paying tuition only is \$500. Accounts not paid on time are subject to a \$5 late payment fee, and those not paid by the end of the semester will be charged an additional 1 percent per month on the unpaid balance. Transcripts are not issued for students owing money.

If a student withdraws from the college his charges for the semester (tuition, room, board, etc.) will be prorated from the beginning of the semester until his official withdrawal at the Registrar's Office. A student who withdraws from a single course will have his charges reduced only if he withdraws at the Registrar's Office within the first six weeks of the semester, and his charges will be prorated

according to the portion of the six weeks completed. Financial aid of such students is reviewed and may be reduced.

## Grants, scholarships, and awards

ALTHOUGH THE COST of education has been increasing steadily in recent years, the amount of financial aid has increased even more rapidly. A Calvin College education is financially possible for almost any student and may, in fact, because of the various scholarship and grant programs be less expensive for the student than schools with lower fees.

The Office of Financial Aid assists students in working out programs to cover all of their college costs. Those who apply for need-based financial aid programs and qualify, automatically receive an Award Sheet indicating the way they can meet their costs including possible grants, scholarships, loans, and income from student employment. Students should determine how they will meet their costs before registration and, if intending to carry a full academic load, should not plan to work more than twelve or fifteen hours a week.

### TUITION REDUCTION PROGRAMS

Members of the Christian Reformed Church and residents of Michigan receive grants-in-aid which are not based on family income or student academic performance. The denominational grant-in-aid ranges from \$200 to \$620 a year, depending on the location of the student's home. The Michigan Tuition Differential Grant is expected to be \$500 this year for students from Michigan.

**Michigan Tuition Differential Grants.** The State of Michigan is phasing in a grant program of aid to Michigan students at private colleges in the state which off-sets part of the difference in tuition between public and private colleges. The grants are awarded to all Michigan students at specified class levels who are attending private colleges in Michigan. Although grades and family income are not considered in making the grant, the student must be meeting the academic progress standards of the college. Freshmen and sophomores are eligible in 1979-80, juniors become eligible in 1980-81, and seniors in 1981-82. The grant is expected to be \$500 this year.

**Denominational Grants-in-Aid.** Students whose families are members of the Christian Reformed Church and who thus contribute regularly to Calvin College through denominational quotas, receive an institutional grant in aid at registration. The amount of this grant is determined in part by the distance between the student's home and the 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 his residence before enrolling at Calvin. If a student's parents are not members of the denomination, the grant is based on the location of the Christian Reformed Church of which the student is a member. When the need of a student is met by a State of Michigan Competitive Scholarship or Tuition

Grant the institutional grant-in-aid is reduced to keep the total amount of aid within the maximum permitted by state regulations.

The institutional grant-in-aid for the academic year, payable by semester, is:

For Michigan students	
Within 10 miles of the campus	\$200
From 10 to 150 miles	280
Beyond 150 miles	360
For out-of-state students	
Within 300 miles	460
From 300-1,000 miles	540
More than 1,000 miles	620
Manitoba, Ontario, Quebec	540
Alberta, British Columbia, Saskatchewan	620

The grant for part-time students is \$25 a course unit.

## ACADEMIC SCHOLARSHIPS

A variety of types of scholarships are available for students of all classes. These are granted on the basis of academic achievement, program of study, other designated conditions, and, in some cases, financial need. Approximately three hundred scholarships are awarded annually to prospective freshmen and a like number to upperclassmen.

At the time of admission all students are considered for scholarships. Scholarship review begins in December and students who are selected to receive a scholarship are notified soon afterwards. Those students who wish to be considered for the Freshman Honor Scholarship or similar scholarships should be admitted by February 1 and should arrange to have their ACT or SAT scores available by that time. If students are eligible for more than one scholarship they are granted the larger one.

The general freshman and upperclassman scholarships of \$150 a year are renewable for up to four years, or until the student receives his degree, if the student maintains a 3.5 average or higher. Transfer students and others achieving this average are considered automatically each year. Other special scholarships are awarded on an annual basis and require an annual application, unless the condition of the scholarship specifies otherwise. Students should determine their own eligibility for these scholarships. Students who receive one of the special scholarships usually are not considered for general scholarships as well.

## NEED-BASED FINANCIAL AID

Significant need-based financial aid is available to students from the college, the denomination, the federal government, and the various state and provincial governments. Furthermore, there are opportunities for various types of student loans as well as for part-time employment on and off campus.

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. To be fair to all students, applica-

tions for financial assistance must be supported by a financial statement, 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

The progress of students receiving aid is reviewed at the end of each semester. The continuation of financial aid, however, is determined only after the second semester.

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.

## SCHOLARSHIP AND GRANT DIRECTORY

### *Freshman Scholarships and Awards*

**Freshman Honor Scholarships.** Each year the college awards approximately twenty-five Honor Scholarships to students of superior academic achievement and potential. The minimum stipend of this scholarship is \$400 for direct educational expenses plus \$50 for books other than textbooks.

**Valedictorian Freshman Scholarships.** Scholarships of \$300 each are awarded to incoming freshman who rank first in their high school class.

**National Merit Freshman Scholarships.** Calvin College awards a scholarship of \$300 to each prospective freshman who has been selected as a Semi-Finalist in the National Merit Scholarship Program.

**Freshman Scholarships.** Scholarships of \$150 are awarded to entering freshman who have done excellent work in high school and have not been selected to receive one of the other freshman scholarships. These scholarships are generally awarded to stu-

dents with a grade point average of 3.5 or higher although SAT or ACT test scores are also considered.

**Calvin College National Merit Scholarship.** Calvin College annually sponsors one four-year scholarship of \$500 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, 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.

**Oratorio Society Applied Music Awards.** A number of awards of \$250 each are presented by the Calvin College Oratorio Society to prospective freshman for use toward the cost of individual lessons in applied music. 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 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 the Music Department. Awards are announced by April 15.

#### *Freshman Scholarships and Grants Not Administered by the College*

**Michigan Competitive Scholarships and Tuition Grants.** The State of Michigan provides awards of up to \$1,200 to Michigan residents attending eligible institutions in the state. Competitive Scholarships are awarded on the basis of ACT scores and need and can be used at both public and private colleges in the state. Tuition grants are awarded solely on the basis of need and can be used only at private colleges. Additional information can be obtained from the counselor's office of any Michigan high school.

**Michigan Tuition Differential Grants.** The State of Michigan currently is introducing a grant program of aid to Michigan students at private colleges in the state in an effort to help off-set part of the differences in tuition between public and private colleges. The grants are awarded to all Michigan students at specified grade levels who are attending private colleges in Michigan. Grades and family income are not considered in making the award although the student must meet the requirements of the college's academic progress policy in order to continue receiving the award. Freshmen and sophomores are eligible for this program in 1979-80, juniors will be added in 1980-81, and in 1981-82 the program will be open to all undergraduates. The amount of the grant is expected to be \$500 for 1979-80.

**Freshman Alumni Grants.** Since 1966 the Calvin Alumni Association has given a large number of freshman grants of \$150 or \$250 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. Nonresidents 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 Educational 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 freshmen candidates. Ar-

rangements 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.** Scholarships of \$150 are awarded to upperclassmen each year who have a cumulative grade point average of 3.5 or higher at the end of the first semester of the previous year and who have not been selected to receive one of the other scholarships awarded by the college. Transfer students are considered for this scholarship on the basis of their grade point average at their previous college.

**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.

**The Margaret and Douglas Bush Family Scholarship.** The Bush family has provided the college with funds, the purpose of which is to encourage worthy students to prepare for positions in business and business education. One award of \$300 is made each year by the Scholarship Committee of the college on the basis of diligence, character, commitment to service of the Lord and mankind, promise of growth, and, in some

cases, financial need. Although the student's academic record is not a primary factor, a grade point average of 3.00 or better is required.

**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.

**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.

**Dr. Paul and Mrs. Doris Dirkse Health Care Scholarship.** Dr. and Mrs. Dirkse have provided the college with a fund, the income from which is used to award scholarships of \$400 or more to students pursuing pre-professional courses in medicine, dentistry, nursing, physical therapy, and related professions and para-professions. Pre-nursing students will be considered as freshmen and sophomores. Other students will be considered at the sophomore, junior, and senior class levels. Selection criteria include vocational interest, academic record, character, and need.

**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 \$1,000 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.

**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.

**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 chil-

dren 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. Vander Laan, in honor of Mr. Vander Laan's brother, have provided the college with a fund, the income from which is used to award four 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 scholarships are 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 toward the cost of individual lessons in applied music 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 toward the cost of individual lessons in applied music 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 Upperclassman 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 toward the cost of individual lessons in applied music 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 toward the cost of individual lessons in applied music 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 toward the cost of individual lessons in applied music 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.** Fifteen scholarships in the amount of \$250 each, will be available to Christian school teachers for study at Calvin College during the summer of 1980. Christian Schools International and Calvin College each contributes \$1,875 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 Christian Schools International 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, Christian Schools International, 865-28th Street, S.E., Grand Rapids, Michigan 49508.

Application must be made by March 15.

### *Financial Aid*

**Basic Educational Opportunity Grant.** The BEOG Program, funded by the federal government, is designed to provide grant assistance of up to \$1,800 per year to students whose parents' income is approximately \$25,000 or less. Since there are factors other than income level considered in the evaluation, some with incomes above \$25,000 may qualify for the program and others with lower incomes may not qualify.

**Supplemental Educational Opportunity Grant.** This program, funded by the federal government, is for students with exceptional financial need, *i.e.* the family is not able to pay more than one half of the student's college expenses. The maximum award a student can receive is \$4,000 in four years or, in special circumstances, \$5,000 in five years. The program is open to students at all undergraduate class levels.

**Calvin College Grants.** The college has established 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 1979-80 is \$1,600.

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

**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 private banks, guaranteed and subsidized by the federal government through various state and private agencies, are available from many banks and other lending institutions in amounts up to \$2,500 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, during which time there is no interest charge. The repayment period can be as long as ten years, if needed, although a minimum payment of \$30 per month is usually required. 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 \$1,800 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 \$100 are available from funds provided by the *Royce Ulferts Memorial Loan Fund*, the *Eben Mumford Scholarship / Loan Program*, and the Kiwanis Club.

**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 two students selected to represent the college at the Junior Division of the Annual Interpretative Reading Festival.
4. \$10 awards to each of 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 \$1,500, 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., es-

tablished 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.

**O. K. Bouwsma Memorial Award in Philosophy.** Through the generosity of Mrs. O. K. Bouwsma and other benefactors, an annual prize of \$100 will be awarded to one upperclass student for distinguished achievement in philosophy and promise of future contribution to Christian scholarship. The Philosophy Department selects the recipient.

**The Rinck Memorial Award.** A fund of \$4,000 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 \$100 for the best essay and a prize of \$75 for the second-best essay on a subject bearing on the evangelization of the Jews. The contest is open to all college students and is administered by the Department of Religion and Theology.

#### *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 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 fellow-

ships, 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 \$2,400 plus tuition for an academic year's work, are open to students nominated through the Scholarship Committee. Up to twenty-four grants are made by the university to students nominated by various Michigan colleges and universities. For information,

consult the 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.

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# ACADEMIC PROGRAMS

## Christian liberal arts education

**THE PRIMARY FOCUS** of a Christian liberal arts education at Calvin College is on teachers and students together engaging in the various scholarly disciplines, directed and enlightened in their inquiries by the Word of God. The faculty believes that in a complete liberal arts education 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, a Master of Arts in Teaching degree in 1976, and a Master of Arts in Christian Studies will in introduced in 1980. 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 54-64) 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. 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. (Biblical studies.)

Religion 206, 301, 303, 304, 308, 311, or 312. (Theological studies.)

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), 124, Astronomy 110, or 201.

Biology 111, 115, 116, 117, 121, or any other course in biology (105-106 must be taken as a unit). Biology 115 is recommended for elementary teacher education and is required for majors and minors in physical education; 121 is required for students interested in medicine, dentistry, etc.

The two-course science requirements 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 requirements; 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; one in psychology or sociology**

Economics 151, Political Science 151, 201 (required in elementary teacher education programs), 202, 203, 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 or American 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, 231, 232, 233, 234, 236, 241, 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 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.

A course in English or American literature. English 200, 202, 203, 212, and 303 are recommended; other literature courses except 225 are acceptable.

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

One course unit of basic physical education is required and only one may be applied to the minimum graduation requirements. This requirement is met by one course unit of credit from Physical Education 102, 103, 104, or 105 plus three additional courses from 110-198. Students in elementary education and physical education programs may substitute Physical Education 221 for one of the additional courses.

**Competency is required in one foreign language**

Competency in one foreign language is usually demonstrated by having completed four years of a foreign language in high school, by an examination, or by completing a 123- or

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.

## 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 courses 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. PROGRAMS OF CONCENTRATION (MAJORS AND MINORS)

As stated above, every degree-seeking student must fulfill the requirements of a faculty-approved departmental or group major. Although such major concentrations are not normally chosen until the second semester of the sophomore year, most programs do presuppose the completion of specific freshman and sophomore courses. Official admission to a major program requires the formal approval of a department or program 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 concentra-

tion may be permitted to remain in that program for a single semester of probation.

Optional faculty-approved minors and supplementary concentrations are being developed in addition to those required for teacher education programs. A cumulative grade point average of C (2.0) is required for admission to such programs. The minors and concentrations require six course units and must be completed with a minimum average of C (2.0).

The various programs of concentration are specified in the section of the catalog which describes departmental programs and course offerings, beginning on page 67. Group majors designed for teacher certification programs are described in the section on Teacher Education Programs, on pages 50 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.

## Special academic programs

### Exemption and Course Credit by Examination

Regularly enrolled 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 19.

### 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 Department 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 have a cumulative grade point average of 3.3 or higher, 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 Support Program**

The Academic Support Program provides special training and support 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, peer tutoring is available in most basic courses and personal academic counseling is provided by faculty members associated with the program. Special intensive classes are offered in English 100 and English as Second Language for students whose previous work indicates a need for more systematic language development, and non-credit, pre-college mathematics review courses are available to liberal arts students as well as to science students who have limited training in mathematics.

Participation in the program is required of students on academic probation, but its services are available to any student who wishes to do better in any class. Drop-in services include analysis of studying efficiency, diagnostic testing, and circulation of materials for independent work in reading, reasoning, spelling, specialized vocabulary, and mathematics. The program also offers intensive workshops and a credit course during interim for development of college-level 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 program 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, English, psychology, and sociology. For details consult Mr. Donald Smalligan of the Sociology Department.

### **Washington Semester Program**

Calvin College is 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. Johan Westra of the Political Science Department is the faculty adviser.

## **Other degree programs: B.F.A., M.A.T., M.A.C.S.**

### **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 a prescribed program of concentration. Before applying for admission to the program a student must have completed three studio art courses. Additional requirements for admission and of the program are available from the chairman of the Department of Art.

The required eighteen-course program consists of four courses in art history including 231 and 232; four basic art courses (207, 208, 209, 210), four introductory courses to the various media (310, 311, 320, 325); three intermediate and advanced studio courses from 309, 312, 314, 315, 321, 322, 326, and 327; two advanced art interims; and two semesters of 395. No more than eighteen courses in art may be applied to the degree. This program is not appropriate for those seeking teacher certification.

The liberal arts core must include:

1. Six courses from the contextual disciplines. (History 101 or 102, Philosophy 153 and 208, Religion and Theology 103 and 301, and an additional core course from history, religion and theology, or Interdisciplinary 100 ).

2. One core course from mathematics and the natural sciences,
3. One core course from economics, political science, psychology, and sociology,
4. A foreign language through the 202-level or two approved courses in foreign culture,
5. The basic core requirements in English 100, speech, physical education, and the fine arts other than art.

### **Master of Arts in Teaching Degree**

The Master of Arts in Teaching (M.A.T.) program serves 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+ (2.3) 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 com-

pleted 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 require more than the minimum of nine courses.

### Master of Arts in Christian Studies Degree

Beginning in the fall of 1980 Calvin College will offer a one year Master of Arts in Christian Studies degree (M.A.C.S.), specifically concerned with relating Christian faith to academic inquiry, for college graduates of any age or profession who are interested in developing such Christian perspectives. This program is not intended to be a substitute for professional graduate study but rather to complement such study and to provide a broad foundation in Christian understanding. The director of the program is Mr. George Marsden.

#### ADMISSION

The minimum requirements for admission are a bachelor's degree from an accredited college with a minimum average of B (3.0). Other students may be admitted provisionally for one semester. Candidates with major deficiencies in their undergraduate programs or lacking preparation in areas critical to this program, such as Biblical studies or introductory philosophy, may be required to complete prerequisite courses in addition to the minimum courses required for the degree. Normally course work done previously at other institutions may not be applied to degree requirements. Inquiries and applications for admission should be sent to the Office of Admissions. Applications for admission and for financial aid must be received by February 1 for first consideration.

To be eligible for the degree a student must complete with a cumulative average of B (3.0) a ten-course unit (normally twelve month) program worked out with an adviser. Only courses completed with grades of C+ (2.3) or higher may be applied to the degree. Five of the course units must be graduate-only courses, including a two course sequence on "Christianity, Learning, and Culture"; a structured graduate reading course; and two units for a thesis. In addition the student must complete at least five course units in a specific area involving Christian perspectives on one of the following: the fine arts, human behavior, the humanities, the natural sciences, the social order, or theoretical thought. Students taking the various upper-level undergraduate college courses that will be suggested in each of these areas, or approved seminary courses, are expected to do work in these courses that is appropriate for graduate credit. In addition to the course requirements, a student must pass a comprehensive examination in his or her program area.

## **Programs for teacher education and other professions**

### **Teacher Education Programs**

Students wishing to be teachers should apply for admission to a teacher education program at the Department of Education during the second semester of their sophomore year. At that time they must have completed at least ten course units of college work with a cumulative average of C (2.0) and must provide evidence that they have had at least twenty-five hours of experience working with school-aged young people. To remain in the program students must maintain a 2.0 average in all of their courses, in their declared major, and in their professional education courses. In addition they must receive the positive recommendation of their instructor in Education 301-303 and, if in special education, their instructor in Education 215.

To be admitted to directed teaching students must, in addition, have completed at least twenty five course units including at least six in their major concentration, must have the approval of the Department of Education and of their major adviser, and must have completed all of their professional education requirements except for Education 304. Formal application must be made by April 1 of the school year preceding the anticipated directed teaching.

To be recommended for certification a student must have earned the appropriate bachelor's degree, including approved teacher education major and minor concentrations, must have earned at least a 2.0 in directed teaching, and must be recommended by his or her college supervisors.

Students failing to meet these standards will be dropped from the program. Appeals may be made to an appeals committee through the registrar.

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.<sup>1</sup> 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 with minor modification 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 beyond Grade 12. 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 beyond Grade 12, or four years after Grade 13. Students intending to teach in Christian schools in Ontario are not required to

<sup>1</sup>In 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.

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, dean for academic program administration.

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 41-45 for the courses recommended for studies 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 the language arts adviser, 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, 202 and two 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, 117, and one other; 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 107 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 207, 208, 215, 231, and 232; 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 the fine arts advisor, 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, 116, or 117, 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 a quarter course of basic physical education. A minor in the Academic Study of Religion is also possible.

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

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

**Secondary education.** The minimum secondary program requires the completion of the general graduation requirements (see pages 41-45 for the courses recommended for students in teacher education); a departmental concentration of at least eight and a 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, a course and a 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, five 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.

## **Accounting**

An accounting concentration may be added to the Business Economics concentration described under the Economics and Business Department by electing at least six accounting courses (or business law) 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 more than 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 professional 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>	<b>COURSES</b>
Art, studio drawing or design	2
Chemistry, if none in high school; biology; or psychology	1
Physics 221, 222	2
Economics, history, political science, or sociology	2
Literature	1
Religion and theology	1

## Business Administration

Balanced preparation for a business career is provided by meeting the general degree requirements (page 41) and the Business Economics concentration in the Department of Economics and Business. This program provides a minimum of twelve courses—the equivalent of forty-two semester hours—in business economics and related mathematics courses. See page 89 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>	<b>COURSES</b>
Idis 100 or another elective	1
Economics 151	1
English 100	1
History 101 or 102	1
Foreign Language	2
Mathematics 205-206 or appropriate substitutes	2
Physical education	1/2
Religion and theology	1
Speech 100 or 240	1/2 or 1
<i>Second year</i>	<b>COURSES</b>
Art, music, or 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>	<b>COURSES</b>
Economics 309	1
Economics 313	1
Economics 316	1
Economics 322	1

Literature	1
Religion and theology	1
Electives	3
<i>Fourth year</i>	<b>COURSES</b>
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 and a half 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>	<b>COURSES</b>
Chemistry 103	1
Engineering 101	1
Engineering 102	½
Mathematics 111, 112	2
Physics 126 and 186	1½
Interdisciplinary 100 (Interim)	1
Economics 151	1
English 100	1
Computer Science 108	½
Physical education	½

<i>Second year</i>	<b>COURSES</b>
Engineering 205	1
Engineering 202 or an engineering elective	1
Engineering 208 or 308	1
Mathematics 211, 212	2
Physics 225	1
Social Science elective	1
Philosophy 153	1
Literature, if needed for graduation, or a non-technical elective (Interim)	1
Speech 100	½

<i>Third year</i>	
Engineering elective	1
Technical elective, from 200 or 300 level courses in biology, chemistry, engineering, mathematics, or physics	2
Interim, engineering	1
Philosophy, 200 series course	1
Religion and Theology	1
Literature	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 and mathematics, physics, or geology 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 both Calvin College and an accredited university school of forestry or they may work out transfer arrangements from Calvin College to a forestry school of their own choosing.

Normally, participants in the combined curriculum program in forestry spend three years at Calvin College plus two years at a school of forestry. Graduates from the combined curriculum program receive two degrees. The Bachelor of Science in Letters and Forestry is granted by Calvin College to students completing twenty-seven courses in the combined curriculum program in forestry at Calvin College plus one full year of academic work toward a forestry degree at an accredited forestry school. Upon completion of forestry school graduation requirements students receive the degree in forestry given by that school.

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 the physical sciences 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, and 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.

Calvin College is one of several colleges in Michigan participating in a cooperative program in forestry with the School of Natural Resources at The University of Michigan. The prescribed courses above meet the pre-forestry requirements of that program. Graduates from this program receive a professional forestry degree, the BSF degree, from The University of Michigan. Stu-

dents **planning** to attend The University of Michigan are advised to elect Psychology 151 or Sociology 151 as the additional social science course. In addition, **Mathematics 205-206** is preferred over Mathematics 111-112; at least one course in **chemistry is required**, and Computer Science is recommended. Students **planning to attend** The University of Michigan are expected to enroll in a summer forestry camp session at Camp Filibert Roth following their sophomore or junior year at Calvin College.

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 school 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 prescribed program specifically designed for the student planning to enter a law school after graduation. Law school applicants must have a college degree and must take the Law School Admission Test, but law schools do not require that applicants have taken specific courses or have a particular major concentration. Prospective law school applicants should complete the requirements for a Bachelor of Arts degree as they are listed on page 41. 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. Since admission to law schools has become very competitive, some students may be advised to plan programs which will also prepare them for alternate careers in other fields such as business, social work, or teaching. Pre-law students should declare they are pre-law at registration time and are advised to consult the pre-law adviser before or during each semester's registration. Juniors and seniors, whatever their field of major concentration, should choose their electives with care and in consultation with the pre-law adviser.

## 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 21.

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.

Premedical and predental students should take their Medical College Admissions Test (MCAT) or Dental Admissions Test (DAT) in the spring of their junior

year and should apply for admission to the medical or dental school during the summer prior to their senior year.

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 at least eleven designated core courses in subjects other than foreign language, mathematics, and the sciences. 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 a course in which hematology and immunology are studied (Bio I-55 meets this requirement); 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>	<b>COURSES</b>
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>	<b>COURSES</b>
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:

	<b>COURSES</b>
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; a course in educational psychology, 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.

## Natural Resources

Calvin offers students interested in the various phases of natural resources a variety of ways to attain their goals. Early in their college careers such students should consult with Mr. Al Bratt of the Biology Department, the adviser for such programs, to determine the requirements of the program most appropriate for them.

Professional competence in any area of natural resources usually requires work beyond the bachelor's level. Furthermore, students primarily interested in research or management should follow an undergraduate program leading to a major in biology anticipating specialization in a phase of natural resources at the graduate level.

A cooperative five-year program requiring three years at Calvin and two at the University of Michigan, is flexible and appropriate for many students. At the end of the first year at the university Calvin awards a Bachelor of Science in Natural Sciences to those who have completed twenty-seven courses at Calvin with a minimum average of C including thirteen designated core courses. At the end of the following year, provided the required courses are taken, the university grants a Bachelor of Science in Natural Resources degree. Most courses in these programs are prescribed.

Students may also plan to transfer to the university after two years. Typically such students take Biology 121, 122, 221, 222, Chemistry 103, 104, Computer Science 108, Mathematics 111-112 or 205-206, and, if interested in fisheries, Chemistry 301, 302. The remaining courses should be in the humanities and social sciences to meet the University of Michigan requirements.

Michigan State University also provides training in various sorts of natural resources fields. The two-year "non-preference" program described under Agriculture on page 55 prepares students to enter these programs.

## 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 23). 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, 201	1
Mathematics	1
Interim required but not designated	1
 <i>Second year</i>	 COURSES
Biology 221	1
Biology 336	1
Chemistry 253	1
Chemistry 254	1

Fine Arts elective	1
Physics 223	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, Eastern Michigan University, Madonna College, Nazareth College, Mercy College, Michigan State University, Northern Michigan University, Wayne State University, Oakland University, Saginaw Valley State College, and the University of Michigan.

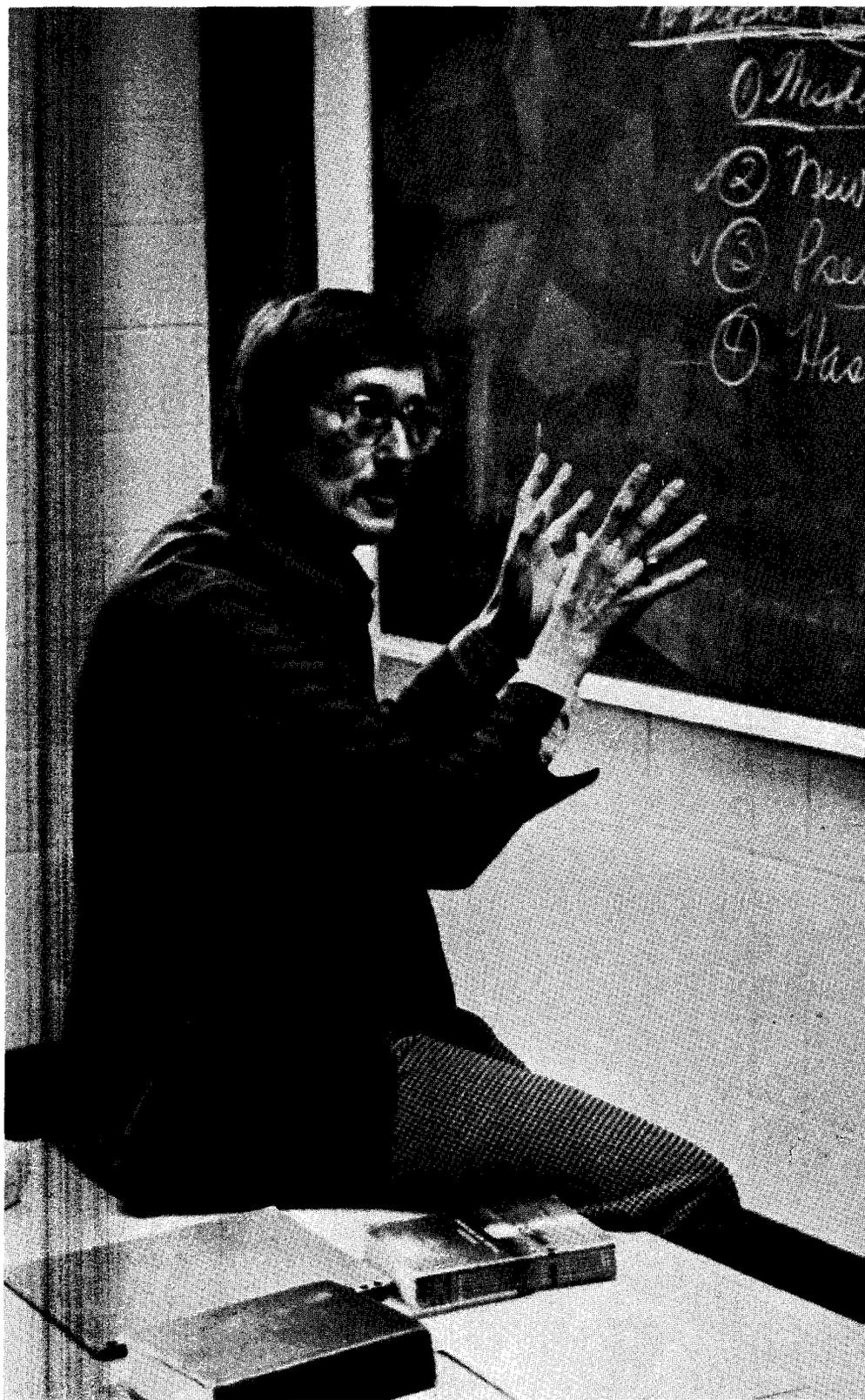
### **Recreation**

Calvin's recreation program is described in the following section on the Department of Physical Education.

### **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.





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# COURSES

## Description of courses offered by the various departments

The symbols F (Fall), I (Interim), and S (Spring) indicate when each course is offered. The term core designates those courses in each department 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 (\*\*).

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## Interdisciplinary

**100 Christian Perspectives on Learning.I.** An introductory study of the relationship between Christian faith and learning. Beginning with a consideration of some contemporary alternatives and challenges to Christianity, the course proceeds to an examination of current statements of the nature of Christian faith and discipleship. The course culminates in an examination of how different views of Christian faith and its relation to culture produce different kinds of secular and Christian colleges. The ground is thus laid for a critical examination of one's academic experience at Calvin College. Taught by a committee representing the several disciplines and open to freshmen and sophomores. Mr. L. Stegink (chairman).

**234 The Contemporary American Religious Situation\* S.** A description and analysis of current American religious developments in historical, sociological, and theological perspective. Institutional and non-institutional developments, within and outside of the Judeo-Christian tradition, will be examined. Satisfies as a third core course in Religion and Theology. Mr. J. Primus, 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. Mrs. E. Greenway.

### 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 1980 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 paper is required. *Mr. K. Piers, Mr. U. Zylstra.*

**I-11 Development Through Puppetry.** Students will study the art of puppetry and its role in the development and growth of children. They will explore the relationship of puppetry to the development of thinking patterns such as those described by Piaget, Vygotsky, and Torrance. The study includes: (1) lectures on the construction of puppets, history of puppets, and learning theory; (2) observation exercises focusing on the physical and emotional traits of people and the translation of those qualities into puppets; and (3) experience in the art of puppet manipulation, staging, and script preparation. A notable puppeteer will demonstrate his art and answer questions about his work. Students will select an area of puppetry that interests them and design a project relating to their professional concerns. Each participant will also develop a script and stage a puppet show for live performance. Students will assume the cost of their puppet construction. Time: 9 AM to 5 PM. *Mrs. H. Bonzelaar, Mr. D. Holquist.*

**I-12 Your Use of God's World.** God created our planet and its resources and instructed us to care for them. Unfortunately, during the past two centuries we have abused the earth more often than we have tended it. This course begins with a detailed examination of the current state of planet earth placing special emphasis upon energy, minerals, and food. Participants will review human attitudes toward nature paying particular attention to those attitudes influenced by Christian thought. Other topics include current resource-use

patterns, the projected depletion times of various resources, and world population-growth patterns as they relate to the diminution of our resources. The responsibility of Christians in the stewardly use of the earth and its resources is emphasized. *Mr. V. Ehlers.*

**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 demonstrations of each procedure, students will do all of their own camera and dark-room work. Many picture-taking assignments are required; the first assignments will deal primarily with basic techniques and later tasks will emphasize photography as an art form. A portfolio of finished photographs will be required at the end of the interim and will be put on display. All dark-room equipment and facilities will be provided but each student must supply his own camera, preferably a single lens reflex camera with provision for manual control of focus, shutter speed, and aperture. Supplies such as film, chemicals, and paper will cost approximately \$50. This course demands much effort and time—thus the student should have no other major time commitments during the interim. Prerequisite: written permission of an instructor. *Mr. D. Brink, Mr. H. Van Till.*

**I-14 Pedaling and Pondering with Photography.** A course in documentary photography combined with a bicycle tour of the southern United States from the Pacific to the Atlantic Oceans which teaches the participants to observe, record, and comment on life through photography. Documentary photography is a means of conveying an idea or message that sets it apart from an ordinary snapshot. Students will use their cameras to express significant ideas about life, faith, the world, an experience or social condition that forces others to think about the world in a new way. The bicycle tour will average 100 miles per day; students are required to take a special section of PE 160 during the first semester. Papers and a final presentation. January 1 through January 30. Fee of \$500. *Mr. R. Jensen.*

**I-15 Volcanoes in the Sea: Biology and Geology of Hawaii.** The best way to study living organisms, rocks, biological com-

munities, and geological processes is to observe and examine them as they occur in nature. To that end, this course will be taught in Hawaii. Field trips will be conducted all day every day with visits to four islands: Hawaii, Maui, Kauai, and Oahu. The geologic features and biological communities associated with volcanic activity, coral limestone deposition, and coastal and stream erosion will be examined. Readings and group discussion. Satisfies science studies group majors. Fee of \$1,000. Mr. A. Gebben, Mr. C. Menninga.

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 **Ancient Greek Civilization: On Location.** A guided tour of selected archaeological sites and museums on mainland Greece and Crete selected for their importance in the flowering of classical literature, philosophy, religion, and the arts. Before departure each student must have completed a basic reading assignment and must have presented his or her own research objectives for the course. One week after returning, each student will present a written report summarizing his or her experiences in relation to those objectives. All students in good standing are eligible; students from other colleges will also participate. Prior course work in the Greek language, history, art, architecture, or philosophy is helpful but not necessary. Fee of \$1,280. Mr. G. Harris, Mr. C. Orlebeke.

I-18 **The Arts of England: Drama, Art, and Architecture.** Students will spend two weeks in London visiting theaters, museums, and churches for lectures in and discussions of the dominant periods and movements in the English tradition. They will also attend ten plays, receive lectures, and be involved in a discussion of the dramas. Art lectures will be given in the British Museum, National Gallery, Victoria and Albert Museum, and the Tate. In addition the interim will include a nine day lecture tour of the cathedrals of Canterbury, Winchester, Salisbury, Wells, Bath, Coventry, York, Lincoln, Ely, and Cambridge returning to

London for the Westminster and Henry VII chapels. Included in the cycle will be a study of the York Cycle Plays and ten days in Stratford to see performances of the Royal Shakespeare Company. Satisfies fine arts core. Fee of \$850 for travel and lodging. Mr. Edgar Boevé, Mrs. Ervina Boevé.

I-20 **Deeds, Words, and Art.** "Great nations write their autobiographies in three manuscripts, the book of their deeds, the book of their words, and the book of their art. Not one of these books can be understood unless we read the two others, but of the three the only trustworthy is the last." (John Ruskin). A study of the great intellectual movements in Western civilization from the medieval to the modern period. The basis of the course is Kenneth Clark's television series *Civilization*, augmented by lectures and discussions illustrating the expression of the mind of the age in literature and music. Readings in Clark's *Civilization* and representative authors and listening assignments from representative musical works. Students will attempt an understanding of the thought and imagination of the past through an examination of art, music, and literature. Mr. H. Slenk, Mr. R. Tiemersma.

I-22 **How Good Students Become Better.** A workshop involving study in groups and as individuals for students who know they are performing below their potential—and who want to do something about it. A broad range of academic resources and skills will be studied. Included are various aspects of reading: speed, mode, and comprehension; analytical and critical study skills; efficiency in attacking difficult textbooks; vocabulary and spelling development; listening and note-taking techniques; test-taking skills, including techniques for standardized admission tests. A substantial portion of the work will be done in individual projects in programs designed by the student to fill his own needs. Not suitable for students with a GPA below 2.0. Mr. J. Snapper and staff.

I-23 **Having and Rearing Children.** An examination of some basic philosophical issues involved in having and raising children. Questions which will be considered concern (1) the right to have children; the propriety of abortion; artificial insemination, test-tube babies, genetic engineering; bearing children for others; (2) parental obligations and rights; differing duties of

fathers and mothers; child abuse and neglect; children's obligations and rights; day care; (3) parental authority to determine children's education, religion, and sexual orientation; age of emancipation and majority; the role of the state. Working primarily by class discussion we will try to develop a Christian perspective using both philosophical and psychological insights. Readings, speakers, and presentations by members of the class. *Mr. K. Konyndyk, Mr. R. Stouwie.*

**I-24 Politics and the Bomb.** A study of the interplay of politics and science in the formulation and implementation of public policy with a focus on the development of nuclear weapons. The course proceeds chronologically beginning with the discovery of nuclear fission in the 1930's and ending with the current concern regarding nuclear arsenals and the problem of proliferation. Topics include: the Manhattan project, the decision to drop the bomb, the McCarthy hearings, the development of weapons systems (ICBM, MIRV, ABM), and arms control measures (limited test ban treaty, SALT). Lectures, discussions, films, guest speakers, and a paper. *Mr. R. De Vries, Mr. A. Kromminga.*

**I-25 Take the Road to Creativity.** By examining various theories of what promotes or inhibits imaginative responses in persons, students will develop new ways of responding to familiar and unfamiliar situations and problems. They will also learn what is meant by imagination or creativity and will experiment with specific techniques which facilitate creative thinking such as lateral thinking, synectics, and brainstorming. Lectures, discussions, significant small group work, assigned reading, and research for a personally designed project. *Mr. J. Wiersma.*

**I-26 CPOP (Christian Perspectives on Parenting).** An introduction to and analysis of approaches to parenting combined with an attempt at integrating these approaches in light of Christian perspectives. The course includes an analysis of family life and the interrelationships between family members throughout their life span as children and parents. Relevant research is reviewed regarding approaches to parenting and the behavior and emotional development of children. This course also includes discussion of such topics as: Biblical perspectives on authority and discipline in the home, parent-child relationships over the course of

development, preparing for a child, the working parent, day care, single parenthood, aging parents, parenting an adopted child, choosing the nonparent role, and the role of the school in parenting. Readings, presentations by the instructors and resource persons, supplementary films, case studies, group activities, role playing, and discussion. No prerequisite but an introductory psychology course is recommended. *Mrs. N. Stehouwer, Mr. S. Stehouwer.*

**I-27 Monkey: The Chinese Pilgrim's Progress.** A rollicking tale of supernatural feats, *Monkey* (also known as *The Journey to the West*) is a classic Chinese novel rich in Buddhist and Taoist folklore. It recounts the story of a Buddhist monk who travels from China to India in search of sacred scriptures. As guardians for his journey, he is given three animal spirits who have a spiritual pilgrimage of their own to complete. Their shortcomings combine with the attacks of evil spirits to produce a series of wild adventures for the four travelers. Students are introduced to the form of the Chinese novel, given some background on the Buddhist and Taoist themes in the novel, and will discuss the text of the novel in detail. A short paper dealing with a theme in the novel is required. *Mr. R. Van Houten.*

**I-28 Who Is My Neighbor in the Third World?** One-third of the world's population lives in Third World countries. The comparative lack of agricultural and industrial development in those nations raises the question of what constitutes a Third World country and how a country becomes (or stays) that way. Selected regions from Latin America, sub-Saharan Africa, and south-east Asia will be considered as case studies. Options available to Christians in providing non-paternalistic help to these countries will be discussed in class and dealt with in assigned papers. Among the questions to be answered are: should requests for help from more developed nations be ignored or honored? Why? What type of aid is useful and meaningful? What is our goal in providing aid? Readings, lectures, films, and discussions relating to current challenges. No prerequisite but a college geography course is desirable. *Mr. G. Oosterman.*

**I-29 Exploring Employment for College Graduates.** Students are placed in full-time, unpaid internships with local businesses,

industries, or social agencies. Regular seminars on campus deal with job search studies, interviewing and resumé writing, self evaluation, and specialized preparation. Prerequisites: junior or senior standing, permission of the instructors. Not open to students who have taken or expect to take a departmental practicum or internship. *Mr. P. Lucasse, Mr. J. Ver Wolf.*

**I-50 Introduction to Management Science (Operations Research).** A survey of the various tools of management science including linear programming, dynamic programming, integer programming, network models, probabilistic models, scheduling models, queueing, and inventory theory. This course includes the evaluation of models and problem formulation and solution. Satisfies the departmental concentrations in economics and business and in mathematics. Prerequisites: Mathematics 206, 343, or permission of the instructor. *Mr. J. De Jong.*

**I-51 The Best of Bergman.** In 1957, with the release of *The Seventh Seal*, Ingmar Bergman established himself as a major film director. Today he is one of the most celebrated film makers in the history of cinema and a shaper of that history in our time. His films are indisputably serious but he does not lack a lighter, comic touch. His films are also rich, abundant, and comprehensive—and therefore significant at several levels, notably psychological, theological, and cinematic. The major considerations are Bergman's life, the influences on his work, and the works themselves—their themes and techniques. Other topics include the nature of religious art and the relationship of film to other disciplines. Films include *Smiles of a Summer Night*, *Wild Strawberries*, *The Virgin Spring*, *Through a Glass Darkly*, *Winter Light*, *The Silence*, *Persona*, and *Cries and Whispers*. Discussion, lectures, demonstrations, readings, and tests. Presence at all class sessions and film showings is required. Fee of \$10. Prerequisite: sophomore status or above. *Mr. I. Kroese, Mr. H. Vander Goot, Mrs. M. Vander Goot.*

**I-52 Calvinist Roots: Conservative or Radical? Is the Calvinist tradition in social, political, and economic thought radical or conservative? What are, and what ought to**

be, a Calvinist's attitudes towards such questions as the right to revolt against oppression, the proper assessment of capitalism, the class struggle between the rich and poor? The course emphasizes Calvin's Geneva and Dutch Calvinism, especially the careers of Groen van Prinsterer and Abraham Kuyper. Attention is also given to Calvinism in the United States, Canada, and South Africa—and, if time permits, to other places where Calvinism is a presence. Lectures, discussions, readings, guest speakers, and student reports. Prerequisite: sophomore status or above or permission of an instructor. *Mr. D. Jellema, Mr. R. Mouw, Mr. J. Westra.*

**I-53 Allegorical Exegesis in Christian Theology.** Many modern readers of the Bible assume that allegorical exegesis is arbitrary and without value. Yet from its beginnings the church employed allegory to develop and enrich its understanding of Scripture. By encountering the vast and varied literature governed by this tradition of interpretation, we can enter into a symbolic world of rich theological meaning. Readings and discussions of New Testament, patristic, and medieval sources; and parallels from Judaism and Greco-Roman religion. Prerequisite: one course in Biblical theology and one additional course in theology, philosophy, or literature. *Mr. D. Timmer.*

**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 using SPSS. Students will complete several data analysis projects 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.*

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# Art

Associate Professors E. Boevé, \*C. Huisman, R. Jensen, C. Overvoorde (chairman)  
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, 310 or 311, 320 or 325, and two from 309, 312, 313, 321, and 326. 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 must include; 207, 208, 209, 215, 216, 231, 232, 310 or 311, and 320 or 325; the seven-course minor concentration includes: 207, 208, 209, 215, 216, 231, and 232. Advisers for these programs are Mr. Boevé, Mrs. Bonzelaar, and Mr. Kuiper.

The Bachelor of Fine Arts (B.F.A.) program, with a greater professional emphasis, is fully described on page 47. 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 Introduction to Drawing.** F and S. Students are taught composition while being introduced to drawing media and to the basic proportions of the human figure. The course includes the historical development and terminology of drawing. Prerequisite: 208. *Mr. R. Jensen, Mr. C. Overvoorde, Mr. T. Van Laar.*

**210 Intermediate Drawing.** S. A continua-

tion of 209 further developing skills in the drawing media and the understanding of the proportion and volume of the human figure. Prerequisite: 209. *Mr. T. Van Laar.*

**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 in the sophomore year. *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. *Mr. J. Kuiper.*

**231 An Introduction to the History of the Fine Arts.** F, core. A survey of the history of architecture, painting, and sculpture in Ancient, Medieval, and Renaissance times. A study of the character of ancient art from Egypt through Rome is followed by a study of Medieval art from its beginning in the early days of the Christian era to its climax in the Gothic period of the thirteenth century. *Mr. E. Boevé.*

**232 An Introduction to the History of the Fine Arts.** S, core. Continuation of 231. The study of painting from 1500 to the present. *Mr. E. Boevé, Miss B. Van Halsema.*

**309 Advanced Drawing.\*** A more advanced course in drawing providing an opportunity for students to search and experiment with new ideas and forms and to develop personal ideas and themes. Prerequisite: 210. *Staff.*

**310 Introduction to Sculpture.\*** F and S. An introduction to massive sculptural forms using subtractive techniques such as carving and modeling. Typical materials used are plaster, wood, clay, and plastic. The course includes an introduction to the historical development and terminology of sculpture. Prerequisite: 210. *Mr. R. Pederson.*

**311 Introduction to Ceramics.\*** S. An introduction to clay and glazes and their use. Emphasis is on hand-building techniques as a means of discovering the expressive and functional possibilities of the medium. Readings on the history of ceramics are required. Prerequisite: 210. *Mr. C. Huisman.*

**312 Intermediate Sculpture.\*** F and S. An introduction to volumetric sculptural forms using additive techniques such as welding, brazing, and wood construction. Typical materials used are steel, copper, wood, and plastic. A continued study of the historical development and terminology of sculpture is included. Prerequisite: 310. *Mr. R. Pederson.*

**313 Intermediate Ceramics.\*** S. A continued exploration of the medium, including the use of the potter's wheel, emphasizing personal expression. Technical readings and batch formula testing of one or more glazes is required. *Mr. C. Huisman.*

**314 Advanced Sculpture.\*** A more advanced study of sculpture with the opportunity for students to concentrate in one area and to develop personal ideas and

themes. Prerequisite: 312. *Mr. R. Pederson.*

**315 Advanced Ceramics.\*** S. A continuing study of the historical and technical aspects of ceramics and glazes allowing students to develop competency and personal expression through the study and use of stoneware and porcelain clay bodies. A historical or technical paper is required. Prerequisite: 313. *Mr. C. Huisman.*

**320 Introduction to Printmaking.\*** F and S. An introduction to the four basic printmaking media—relief, intaglio, serigraphy, and lithography—through slide presentations, lectures, readings, and demonstrations. Each student will choose one basic medium to explore during the semester. Prerequisite: 210. *Mr. C. Overvoorde, Mr. T. Van Laar.*

**321 Intermediate Printmaking.\*** F and S. Continued exploration of the printmaking media with an emphasis on the development of visual ideas. The student may continue with the medium chosen during the first semester or experiment with another. Prerequisite: 320. *Mr. C. Overvoorde, Mr. T. Van Laar.*

**322 Advanced Printmaking.\*** A further investigation of the printmaking media allowing students to develop the unique qualities of a particular medium or combination of media in relation to their own visual ideas. Prerequisite: 321. *Mr. C. Overvoorde, Mr. T. Van Laar.*

**325 Introduction to Painting.\*** F and S. An introduction to the use of the paint medium, primarily using acrylic paints, emphasizing techniques, materials, and visual communication. The course includes a history of the media and of its technical development. Prerequisite: 210. *Staff.*

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

**327 Advanced Painting.\*** F and S. A continuation of 326 with a primary concern for developing each student's skills and individual approach to painting. 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 van der Rohe, and Saarinen. Outside reading and papers will be required. *Mr. E. Boet .*

**390 Independent Study.\*** F, I, S. A student wishing to register for this course must submit a written proposal to the chairman for his approval.

**395 Seminar and Exhibition.\*** F and S, half course. 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 1980 INTERIM

**I-11 Traditional Art of the Third World.** A

lecture/discussion course in the traditional art, aesthetic systems, and ethnographic roots of the Third World. The course includes a study of West African traditional art, pre-Columbian art, and Oceanic art. References will also be made to the Haniwa and Joman periods of Japanese art and to American Indian art. Field trips to Chicago Fields Museum and to the Detroit Institute of Art. Research paper. Satisfies fine arts core. *Mr. J. Kuiper.*

**I-50 American Sculpture of the Twentieth Century.** Sculpture in post-World War II America has assumed international prominence. This course examines the work of sculptors responsible for that rise, including Calder, David Smith, Noguchi, Nevelson, Oldenburg, Morris, Judd, Smithson, and others. Their work is studied in the context of its historical heritage in European sculpture and the contemporary relationship to American painting. A research paper is required to supplement slide lectures, films, and discussions. Prerequisite: 232. *Mr. R. Pederson.*

**I-51 Water Color: An Exploration.** 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 student projects. Prerequisites: 207, 208, 209. *Mr. C. Overvoorde.*

**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 effects of this environment 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. T. Van Laar.*

**Idis I-11 Development through Puppetry.**  
*Mrs. H. Bonzelaar.*

**Idis I-14 Pedaling and Pondering with Photography.** *Mr. R. Jensen.*

**Idis I-18 The Arts of England: Drama, Art, and Architecture.** *Mr. E. Boevé.*

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# Astronomy

*Professors R. Griffioen (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.** S, 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.*

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# Biology

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

*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. Computer science is recommended. Cognates should be completed by the end of the sophomore year.

The secondary school teaching major is the same as the program of concentration except that an additional 300-level biology 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 core requirement in biological science is usually met by 111, 115, 116, 117, or 121, but may also be met by 105-106 when taken as a unit and by any other course in the department. 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. Cell, gene, and evolution theory are emphasized. Topics in ecology are discussed. Lectures and laboratories. Prerequisites: none, but Mathematics 109 and Physics 110 are recommended. *Staff.*

**115 Human Biology.** F and S. A study of topics selected from human physiology,

anatomy, genetics, development, ecology, and evolution. Emphasis is on current concepts in these topics, their historical development, and how they relate to health and other disciplines. The nature of biological science is studied through these topics. Lecture and laboratory. Normally a student should take the core courses in mathematics and biology before this course. *Staff.*

**116 Field Biology.** F. An introduction to the study of the common plants and animals in their natural environment. The course emphasizes general concepts and methods used in field biology and stresses the identification of plants and animals and their inter-relationships. Lectures and laboratories. *Mr. H. Bengelink.*

**117 Plant Biology.** F. An introduction to the principles and concepts of plant biology for the general college student. Seed plant structure, function, development, and reproduction are emphasized. Topics include plant classification, diversity, and ecology. The historical development of selected current theories are presented. Lectures and laboratory. Normally students should take the core courses in mathematics and biology before this course. *Staff.*

## 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 emphasized in the discussion of eukaryotic cells and the laboratory work includes plant cells as units of structure and function within multicellular plants. Honors recitation sections for qualified students. *Staff.*

**122 Animal Structure and Function.** S. An introduction to the anatomy, development, and physiology of the vertebrate animal. Honors recitation sections for qualified students. 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, Mr. B. Ten Broek.*

**352 Investigations in Ecology.\*** F. Laboratory and field studies of biological populations and communities. *Mr. A. Gebben, Mr. A. Vander Hart.*

**353 Investigations in Cell Biology.\*** S. Laboratory studies with discussions of cellular, organelle, and molecular topics in cell biology including the techniques for preparing and observing materials for studies of structure and function. Additional prerequisite: Chemistry 253 or 301. *Mr. H. Bouma, Mr. U. Zylstra.*

### 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. Tighelaar.*

**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. Prerequisites: 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 1980 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 histology. This course is intended for B.S. in Nursing students and others who need credit in gross anatomy. Prerequisite: one course in biology. *Mr. G. Van Harm.*

**I-51 Investigations in Plant Anatomy.** A laboratory course on the structure, differentiation, and growth of vegetative plant organs. The interrelationships and interactions of cells, tissues, and organs is emphasized. Theoretical aspects of plant anatomy and the techniques used in preparation of plant materials will be introduced during the morning sessions. A laboratory will be available in the afternoon for completion of a required project describing the anatomy of a specific vegetative plant. Satisfies the investigations course requirement in biology concentrations; those electing to meet the investigations requirement will receive letter grades. Prerequisite: 221. *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 concept 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. Tigchellar.*

**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, laboratory work, films, and a paper. Enrollment preference for medical technology students. Prerequisite: 122. *Mr. H. Bouma.*

**Idis I-10 Our Daily Bread.** *Mr. U. Zylstra.*

**Idis I-15 Volcanoes in the Sea: Biology and Geology of Hawaii.** *Mr. A. Gebben.*

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# Chemistry

Professors \*R. Albers, R. Blankespoor, H. Broene, T. Dirkse, K. Piers, \*\*W. Van Doorne (chairman)  
Associate Professors R. De Kock (acting chairman, second semester), A. Leegwater  
Instructor K. Huber

**PREREQUISITE TO BEING ADMITTED** to a concentration in chemistry is a minimum average of C (2.0) in 104 and either 201, 253, 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 or French is strongly 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.

100 **Preliminary College Chemistry**. F. A special course in the introductory concepts of chemistry that is open only to students who have not studied chemistry previously or who have departmental permission. Students who successfully complete this course and I-59, Introductory Chemistry, during the Interim may register for 104 during the

spring semester. Laboratory. Mr. W. Van Doorne.

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. Laboratory. Mr. T. Dirkse.

**103 General Chemistry.** 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. Prerequisite: one year of high school chemistry or permission of the department. 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 or I-59. 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. Prerequisite: one year of high school chemistry or permission of the department. Mr. R. De Kock.

**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. Prerequisites: 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 physicochemical theory, together with an introduction to modern methods of analysis and identification. Laboratory. Prerequisite: 104 and preferably 201. Mr. B. Blankespoor, Mr. A. Leegwater.

**302 Organic Chemistry.** S. A continuation of 301. Laboratory. Prerequisite: 301. Mr. R. Blankespoor, Mr. A. Leegwater.

**303 Biochemistry.\*** S. 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. K. Piers.

**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 106 is recommended. *Mr. R. De Kock.*

**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.\*** F. 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, full or half course. 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 1980 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. Prerequisite: 301. *Mr. R. De Kock.*

**I-51 Climatology: A Study of Weather Conditions and the Factors which Influence Them.** Climate may be defined as the characteristic weather conditions of a specific region averaged over an extended period of time. Both climate and weather are made up of dynamic processes that are constantly changing. This course focuses on several aspects of climate. First, the weather conditions that make up climate will be examined. These include temperature, air motions, wind patterns, cloud types, humidity, precipitation, and radiation effects. Second, natural factors that influence weather conditions will be studied such as altitude, latitude, and proximity to bodies of water and mountains. Third, descriptive elements of climate will be considered with respect to the earth as a whole, the United States, and western Michigan. Finally, a short time will be devoted to a look at man's impact on climate through pollution as well as man's attempts to control climate. This course involves lectures, discussions, several tests, at least one visit to the weather bureau, and at least one lecture by a local meteorologist dealing with weather forecasting. Satisfies physical science core. Prerequisite: one year of high school chemistry or physics or permission of the instructor. *Mr. R. Blankespoor.*

**I-52 Radiochemistry and Nuclear Radiation.** A study of natural and induced radioactivity (including the detection and measurement of radiation) and its effect on chemical and biological systems. Laboratory work will include some work with radioisotopes in chemical systems. A study will be made of current knowledge of the effects of radiation on man and his environment and the problem of setting safe limits for man-made radiation. The prospects for and advisability of nuclear power development will be discussed. Students will be encouraged to pursue their own specific interests. Students should reserve two afternoons for laboratory work each week (either M-W or T-T). Satisfies science studies group major and medical technology programs. Prerequisite: 103, 113, or high school chemistry. *Mr. H. Broene.*

**I-53 Chemistry of the Elements.** A discussion-type study of the development and use of the Periodic Table which includes a survey of the chemical characteristics of each element in terms of the family relationships in the table. These chemical charac-

teristics will also be related to current ideas of atomic structure. Prerequisite: 103 or its equivalent. *Mr. T. Dirkse.*

**I-54 The Grand Edifice of Nineteenth Century Science.** Nineteenth century physical science is often viewed as a culmination of the central themes of Newton's physics and Dalton's chemistry. This thesis is evaluated by exploring the history of nineteenth century science, in particular the influence (and imposition) of a mechanical world-view on various disciplines such as physics, chemistry, and physiology. Specific topics covered include the assumptions of the mechanical picture, the presumed relationship of science and religion, the

atomic-hypothesis debates, the criticisms of mechanics by E. Mach and W. Oswald, and the plea for experimental medicine by C. Bernard. The course consists of lectures, assigned readings, class discussions, films, and a short paper. Satisfies physical science core. Prerequisite: one college-level science course or a year of high school chemistry or physics. *Mr. A. Leegwater.*

**I-59 Introductory Chemistry.** A continuation of 100, including the rest of the material covered in 103. Laboratory. Prerequisite: successful completion of 100 or permission of the department. *Staff.*

**Idis I-10 Our Daily Bread.** *Mr. K. Piers.*

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# Classical Languages

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

THE DEPARTMENT OFFERS FOUR programs of concentration: in Classical Civilization, in Classical Languages, in the Greek language, and in the Latin language. The program in Classical Civilization or Classical Studies combines some study of one of the languages with a broad study in the culture and civilization of the Greeks and Romans and of the later influence of that culture. The Classical Languages program is designed for graduate studies, the Greek language program is for preseminarians and for any others wishing to concentrate in Greek language and literature, and the Latin language program is for those intending to teach the language at the secondary school level. Modified concentrations are available to other students.

The Classical Civilization program consists of ten courses and one interim, all selected in consultation with a member of the department. The course requirements, besides the approved interim course, include: two courses, at the 200 level or above, in Greek language (one of which may be in New Testament Greek) or in Latin language; Classics 211, 221, 231; Philosophy 210; either Classics 311 and 312 or History 301 and 302; and two courses selected from: Art 231, History 201, History 302 (if not elected above), History 303, Philosophy 220, Philosophy 312, Political Science 305, Religion 302, Religion 312, Speech 325, Speech 317, or additional courses (at 200 level or above) in the selected language.

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 pre-seminarian 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, 231, 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 investi-

gation of Graeco-Roman culture. Slide lectures, written reports. *Mr. K. Bratt.*

**231 Classical Mythology.** S, fine arts core. 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.* Not offered 1979-80.

**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 1979-80.

**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 1979-80.

### GREEK

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

**102 Elementary Greek.** S. Continuation of 101. Completion of the text and the reading of the selected prose passages. Mr. G. Harris, Mr. R. Wevers.

**201 Intermediate Greek A.** F. Readings in the early dialogues of Plato. Special emphasis is put on gaining reading proficiency in Greek prose. Prerequisite: 102. Mr. R. Otten.

**202 Intermediate Greek A.** S, core. Readings in Homer's *Iliad*. Attention is given to the characteristics of Homer's world. Prerequisite: 201 or 203. Mr. R. Otten.

**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. Not offered 1979-80.

**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. Not offered 1979-80.

**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 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. Mr. G. Harris.

### 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. Mr. K. Bratt.

**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. Mr. K. Bratt.

**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: Luc-**

**retius and Seneca.\*** F, core. Selections from Lucretius and Seneca, designed to portray some of the major ethical and political issues raised in Roman thought. Collateral reading and reports. Prerequisite: 205 or 206. Alternates with 303. *Mr. R. Wevers.*

**302 Latin Philosophical Literature: Cicero and Augustine.\*** S, core. Readings in Cicero and Augustine, selected to complete the survey begun in 301 and to present the first major Christian critique of classical thought. Collateral readings and reports. Prerequisite: 205 or 206. Alternates with 304. *Mr. R. Otten.*

**303 Latin Lyric Poetry.\*** F, core. A study of Latin lyric poetry from Catullus through the elegiac poets, with some attention to early Christian and medieval poetry. Collateral reading and reports. Prerequisite: Latin 205 or 206. Alternates with Latin 301. Not offered 1979-80.

**304 Tacitus and Pliny.\*** S, core. Readings in the historical works of Tacitus and the correspondence of Pliny as sources and commentary on the political issues and movements of the Early Empire. Collateral reading and reports. Prerequisite: Latin 205 or 206. Alternates with Latin 302. Not offered 1979-80.

#### JANUARY 1980 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 Dante's *Purgatorio* and Milton's *Paradise Lost*. 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. R. Wevers.*

**102 Elementary Latin.** Students completing 102 during the Interim may proceed with 202 in the second semester provided they have achieved a minimum grade of B- or have the recommendation of the instructor. Prerequisite: 101 or its equivalent. *Mr. R. Otten.*

**Idis I-17 Ancient Greek Civilization: On Location.** *Mr. G. Harris.*

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# Computer Science

*Professors S. Leetsma (chairman, Department of Mathematics), L. Nyhoff*

IN ADDITION TO THE THREE introductory programming courses for students who plan to use the computer in their disciplines, the Department of Mathematics offers courses for those who wish to prepare for careers in computer science. The initial courses in the program under development include Computer Science 108 and 251 as well as Mathematics 111, 112, 211, 341, 343, and 352.

The Prime 400 computer, located in the William Spoelhof College Center, is 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 com-

puter 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, physics. Intended for students majoring in mathematics and science. Prerequisite: Mathematics 111, which may be taken concurrently. *Mr. S. Leestma.*

**251 Discrete Structures.** F. An introduction to various discrete mathematical structures. Topics include sets and binary relations, graphs, algebraic structure, lattices, and Boolean algebras. Combinatorics, algorithms, and abstract computers (Turing machines) are also considered. Also listed as Mathematics 251. *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 development 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.*

#### JANUARY 1980 INTERIM

**I-52 Computer Languages and Compilers.** Computer programs must be written in a programming language but since programming in machine language is tedious and inefficient, high-level languages such as BASIC and FORTRAN have been developed. These languages are user-oriented rather than machine-oriented. Programs written in these languages must, however, be translated into an equivalent set of machine-language instructions. This translation is carried out by programs called compilers or interpreters. This course examines the structure of machine, assembly, and high-level languages and some of the techniques used in the design of a compiler. A simple hypothetical computer will be used for illustration but compilations produced by an actual computer will also be studied. Prerequisite: 108. *Mr. L. Nyhoff.*

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## Dutch

*Professors W. Bratt (chairman, Department of Germanic Languages), W. Lagerwey, Queen Juliana Chair of Language and Culture of the Netherlands (program coordinator)*  
*Instructor N. Chadburn*

**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.

JANUARY 1980 INTERIM

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 the 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 English language of several important aspects of Netherlandic civilization: language, literature, history, religion, art, architecture, social structure, and education. Alternative readings in Dutch or English. *Staff.*

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. *Ms. N. Chadburn.*

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.*

I-50 **Netherlandic Interim.** An introduction to significant aspects of Netherlandic civilization as expressed in institutions, the arts, cultural monuments, commercial and technological developments. The course also provides an intensive language learning experience (students will live with Dutch and Flemish families during at least half of the interim). In Amsterdam students will visit the important museums, attend a worship service in the Westerkerk, and have lectures on the Dutch language, the history of Amsterdam, and Dutch Calvinism. In Belgium they will visit Antwerp, Ghent, Bruges, Brussels, Leuven, and Hasselt gaining first-hand knowledge of Flemish civilization. Students will also visit cathedrals, guild houses, and museums to learn of Flemish contributions in architecture, painting, printing, commerce, religion, and statecraft. Fee of \$975. Prerequisites: the equivalent of one-and-a-half years of Dutch and permission of the instructor. *Mr. W. Lagerwey.*

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# Earth science, geography, geology

Professors R. Griffioen (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.

Group major programs are available in geology-chemistry, geology-engineering, and geology-physics. Members of the geology faculty will assist students in developing specific programs.

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, 261 or 312, Astronomy 110 or 201 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. Not offered 1979-80.

**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.*

**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. Prerequisites: Geology 151 and Chemistry 103. *Mr. D. Young.*

312 **Structural Geology.**\* S. An analysis of common geological structures such as folds, faults, joints, and foliation; inquiry into the nature of stresses producing these structures; and discussion of the regional structures of North America and Europe with particular reference to the geology of the Appalachians. Laboratory, field trip. Prerequisite: completion of or concurrent registration in 152. *Mr. D. Young.*

371 **Petrology I.**\* F. A study of the mineralogy, chemistry, structure, texture, field associations, tectonic setting, and genesis of the earth's major rock types. Emphasis is placed on the description and theory of formation of igneous rocks. The petrographic microscope is extensively used in rock identification and interpretation. Laboratory. Prerequisite: 261. *Mr. D. Young.*

372 **Petrology II.**\* S. A continuation of 371 involving the study of the earth's major rock types. Emphasis is on the description and theories of formation of the metamorphic and sedimentary rocks. Laboratory, field trip. Prerequisite: 371. *Mr. D. Young.*

390 **Independent Study in Geology.**\* Full course or half course. Prerequisite: permission of department. *Staff.*

#### GRADUATE COURSES

520 **Advanced Earth Science.** This course includes consideration of the main ideas which serve as unifying principles in earth science. Recent discoveries and current re-

search projects are reviewed. The course highlights ideas resulting from studies in earth sciences which have increased our understanding of the relationship between the earth and its human inhabitants. Topics include applications of geology to environmental problems, contributions of space research to understanding the earth, and the relationship between the results of geological study and teachings of the Bible. Special attention is given to topics and concepts which can be incorporated into elementary, middle, and secondary school materials and activities. Prerequisite: Earth Science 113 or permission of department. *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 1980 INTERIM

I-11 **Whatever Happened to Dinosaurs: A Survey of Prehistoric Life.** This course looks at paleontology, that is, the world of ancient forms which previously inhabited our planet. Topics include old and new views of fossils, the preservation of life in rocks, fossil evidences for and against evolution, the problem of extinction of trilobites, dinosaurs, and Pleistocene mammals, the use of fossils in the oil industry, and a look at some famous bone hunters. Students will become familiar with the fossils of plants, invertebrates, and vertebrates through lectures and laboratory sessions. *Mr. D. Young.*

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## Economics and business

*Professors G. Monsma (chairman), D. Pruis, L. Van Wyk*  
*Assistant Professors L. De Lange, † E. Dykema, D. Ebels, K. Kuipers, J. Tiemstra*  
*Instructors J. De Jong, J. Lesage, S. Roels*

**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 administra-

tion 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 six courses from 209, 307, 308, 309, 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. D. Ebels, Mr. J. Lesage, Mr. G. Monsma, Mr. J. Tiemstra, Mrs. L. Van Wyk.*

**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.** S. A study of Federal in-

come 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 207. Interpretation of published financial statements. Introduction to cost accounting and to reporting to management. Prerequisite: 207. *Mr. L. De Lange, Mr. D. Pruis, Mrs. S. Roels.*

**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. 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. *Mr. D. Pruis.*

**311 Auditing.\*** F. 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. *Mr. E. Jen.*

**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.** F and 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 func-

tion in the firm, including production and promotional policy, price determination, and distribution channels. Prerequisite: 151. *Mrs. S. Roels.*

**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. G. Monsma, Mr. L. van Wyk.*

**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. *Mr. J. Tiemstra.*

**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. Not offered 1979-80.

**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.\*** F. A study of the causes of wide-spread poverty in many nations and regions of the world, and a study and evaluation of policies designed for its alleviation. Prerequisite: 151. *Mr. L. van Wyk.*

**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. Not offered 1979-80.

**339 Theory of Public Finance.\*** S. A study of the economics of government expenditures, taxation, and debt, with emphasis on allocation of resources, income distribution, and level of employment and production in the economy. Prerequisite: 151. *Mr. D. Ebels.*

**342 History of Economic Thought.\*** 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. Not offered 1979-80.

**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 1979-80.

#### JANUARY 1980 INTERIM

**I-10 Managing A Nonprofit Organization.** A survey of management principles and problems common to most nonprofit organizations. Specific attention is given to systems of planning, budgeting, accounting, information, personnel, and fund raising. Case examples are taken from several types of nonprofit organizations including educational institutions, hospitals, community agencies, and governmental units. In addition, guest speakers are anticipated. Individual and group presentations are re-

quired. In addition to case analysis students should expect some reading and rudimentary financial calculations. Appropriate for students with any major. *Mrs. S. Roels.*

**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 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 Energy, the Environment, and Economic Growth.** This course assesses the adequacy of both economic theory and its practical implementation in the protection of the environment and natural resources. Topics include evaluation of existing environmental policies, U.S. energy policies and use patterns, and an exploration of adjustments in the existing economic order necessary to ensure the future viability of civilization. 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.*

**Idis 1-50 Introduction to Management Science.** *Mr. J. DeJong.*

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## Education

*Professors †G. Besselon, N. Beversluis, P. De Boer (chairman), C. Kass, P. Lucasse, D. Oppewal, J. Wiersma*

*Associate Professors T. Hoeksema, C. Mulder, L. Stegink, D. Westra*

*Assistant Professors K. Blok, B. Bosma, W. Hendricks*

THE VARIOUS TEACHER EDUCATION PROGRAMS are described in detail on pages 50-54. 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. Prerequisites: 301, 303, and Philosophy 153. *Mr. H. Beversluis, Mr. P. De Boer, Mr. D. Oppewal.*

**305 Elementary Teaching Methods.\*** F and S. A study of the methods of teaching the various subjects taught in the elementary school. Prerequisite: 303. *Staff.*

**307 Teaching Reading Skills in Content Areas.\*** F and S, one half course. An analysis of the problems encountered by students reading in typical expository texts; a presentation of the responsibilities and qualifications of teachers in content fields for applying principles of reading in daily assignments; demonstrations of techniques that can be used to meet the wide range of reading levels found in the average classroom. Optional tutoring experiences. A recommended elective for students in secondary teacher education and any student

interested in refining college-level reading skills. *Mrs. K. Blok.*

**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. Prerequisite: Speech 214 is recommended. *Mrs. B. Bosma, Mrs. K. Blok.*

**345 Directed Teaching: Elementary.\*** F and S, one to three course units. Students participate in full-time supervised practice teaching. Those in regular elementary education programs teach in two different schools and may, if their certification program requires it, have one experience in their major field. Each course unit of 345 involves at least ninety clock hours of actual teaching. Prerequisites: good standing in the teacher education program and appropriate recommendations. *Staff.*

**346 Directed Teaching: Secondary.\*** F and S, one to three course units. Students participate in a full-time supervised practice-teaching experience in their major or minor field. Each course unit of 346 involves at least ninety clock hours of actual teaching. Prerequisites: good standing in the teacher education program and appropriate recommendations. *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 of contemporary educational practices. *Mr. T. Hoeksema.*

**306 Mental Retardation.\*** F. 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. Prerequisite: 216 must be taken previously or concurrently. *Mr. T. Hoeksema.*

**310 Diagnosis and Prescription in Special Education.** S. 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.*

**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. *Miss C. Kass.*

**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 1979-80.

**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 1979-80.

**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 1979-80.

**347 Directed Teaching: Mentally Impaired.** Two course units. *Staff.* Not offered 1979-80.

**348 Directed Teaching: Learning Disabilities.** Two course units. *Staff.* Not offered 1979-80.

**357 Directed Teaching Seminar: Mentally Impaired.** One half course unit. *Staff.* Not offered 1979-80.

**358 Directed Teaching Seminar: Learning Disabilities.** One half course unit. *Staff.* Not offered 1979-80.

**352 Society and Mental Retardation.\*** 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.* Not offered 1979-80.

## 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. *Mr. P. De Boer.*

**512 Theories of Schooling.** This course examines psychological, sociopsychological, 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. *Mr. J. Wiersma.*

**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. Prerequisites: at least one course in reading and one in psychology. Satisfies context of education requirement in education and psychology. *Mr. G. Besselsen.*

**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. *Mr. D. Oppewal.*

**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. *Miss C. Kass.*

**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. *Mr. P. Lucasse.*

**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. *Mr. P. Lucasse.*

**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. *Mr. C. Mulder.*

**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 education 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. *Mr. K. Blok, Mrs. B. Bosma.*

**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. *Mrs. K. Blok, Mrs. B. Bosma.*

**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 severely disabled reader will involve the development and administra-

tion 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. *Mrs. B. Bosma, Miss C. Kass.*

**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. *Mr. D. Oppewal.*

**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 1980 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, through interaction with local school personnel, and through a variety of class simulation activities. 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. Not open to special education students. *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. \$115; for room and board \$105. Exact dates to be announced. Prerequisite: permission of the instructor. *Mr. C. Mulder.*

**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. Prerequisite: 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 teachers 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 individualization 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. Mr. Lucasse will lead a concluding seminar during the first week of second semester. Prerequisite: permission of the coordinator. *Mr. P. Lucasse.*

**I-54 Use of Children's Literature in the Elementary Classroom.** Demonstrations, lectures, and workshop activities designed to develop an understanding of and appreciation for the role of children's books in planning teaching experiences. The use of children's literature will be evaluated particularly as it relates to the reading program and to other classroom subjects. Students will read extensively and develop related projects. Prerequisite: English 225 or permission of the instructor. *Mrs. B. Bosma.*

**I-55 Teaching Children with Physical Disabilities.** Students will develop knowledge and skills in working with children who have abnormal physical developments and/or multiple handicaps. In addition to attending twelve evening sessions on campus, students will work five full days with multiply-handicapped children at the Ottawa Area Center. Sessions include basic neuroanatomy, problems in physical development (such as cerebral palsy or spina bifida), and a study of the theories which grew out of various treatment methods. The field experience allows students to observe physical problems manifested in children, to learn how to minimize the effects of these problems, and to become familiar with ser-

vices which are available to teachers in dealing with children's physical disabilities. Open to junior or senior special education students or to others with the permission of Mr. T. Hoeksema. *Mr. H. Triesenberg.*

Idis I-25 **Take the Road to Creativity.** *Mr. J. Wiersma.*

Idis I-29 **Exploring Employment for College Graduates.** *Mr. P. Lucasse.*

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# Engineering

*Professors J. Bosscher (chairman), †L. Van Poolen  
Instructors R. Hoeksema, N. Van Gaalen*

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 55 and 57.

A group major in engineering and physics or geology may be appropriate for some students. The group major in engineering and geology consists of Engineering 101, 202, 205, and 305; Geology 151, 152, 261, and 312; plus four approved electives. The group major in engineering and physics consists of twelve courses. Ten of these must be from the engineering and physics departments, with no fewer than four from either. The remaining two cognate courses must be chosen from a third department.

**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. *Mr. J. Bosscher, Mr. N. Van Gaalen.*

**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. *Mr. J. Bosscher, Mr. R. Hoeksema.*

**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. *Mr. R. Hoeksema.*

**205 Principles of Materials Science.** F. An introductory course in the science of engineering materials. Engineering properties are correlated with internal structures; atomic, crystal, micro, macro, and service environments; mechanical, electrical, thermal, chemical, magnetic, and radiation. Prerequisite: Chemistry 103. *Mr. J. Bosscher.*

**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 laboratory stations are utilized to emphasize basic concepts. Students taking 208 should not also take 308. Prerequisite: concurrent registration in Mathematics 212. Mr. K. Peterson.

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

**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. Mr. K. Peterson.

**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. Mr. R. Hoeksema.

**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. Mr. N. Van Gaalen.

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

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

**318 Control Systems Analysis.** I, 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. Mr. J. Bosscher.

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

#### JANUARY 1980 INTERIM

**I-50 Structural Analysis.** A study of beams and two-dimensional simple trusses and rigid frames. Course work includes calculation of reactions, calculation of shear forces and bending moments due to fixed and moving loads, calculation of beam and frame deflections, analysis of moving loads using influence lines, and the analysis of statically indeterminate beams and frames. Prerequisite: 305. Mr. R. Hoeksema.

**I-51 Engineering Instrumentation.** An introductory study of engineering measurements and instrumentation with an

emphasis on the characteristics and uses of transducers to measure pressure, acceleration, temperature, strain, voltage, and other physical quantities. Students will also consider the usefulness, accuracy, and reliabil-

ity of physical measurements. Prerequisite: 208 or 308. *Mr. K. Peterson.*

**318 Control Systems Analysis.** *Mr. J. Bosscher.*

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# English

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

*Associate Professor J. H. Timmerman*

*Assistant Professors R. Meyer, J. Snapper*

*Instructor E. Yff*

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 or 330, and 336. For this program students 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 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 and 260 may fulfill this requirement. Any literature course will satisfy additional core requirements in the fine arts.

**010 Intermediate English as Second Language I.** F, non-credit. This course provides a systematic review of the comprehension and use of spoken and written English for students whose native language is other than English. Students are assigned to this class on the basis of a placement test administered at the time of fall registration. *Mrs. S. Horton.*

**011 Intermediate English as Second Language II.** S, non-credit. Continuation of 010. *Mrs. S. Horton.*

**020 Advanced English as Second Lan-**

**guage.** F and S, non-credit. This course provides extensive practice in written English for students whose native language is other than English. It includes study of grammar, vocabulary development, and instruction in writing. Students are assigned to this class on the basis of a placement test administered at the time of registration. *Mrs. S. Horton.*

**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. Laboratory sections providing supplementary exercises in grammar, reading skills, and vocabulary development are available for students in the Academic Support Program. *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. J. Timmerman.*

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. P. Tigchelaar, 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.*

260 **Basic Reporting.** F. An introduction to the basic practices of journalism with primary emphasis on news gathering methods, interviewing techniques, and news writing style. Writing assignments are based on coverage of campus and community events. Prerequisite: 100. *Mr. Peter Oppewall.*

302 **Medieval English Literature.\*** F. A study of Chaucer's *Canterbury Tales* and *Troilus and Criseyde* as reflecting Chaucer's literary genius and the major cultural phenomena of his time. Supplementary study in translation of *Beowulf*, *Gawain and the Green Knight*, and portions of *Piers Plowman*. *Mr. R. Meyer.*

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

304 **English Literature of the Sixteenth Century.\*** S. A study of the lyricists and sonneteers, the prose writers, and the dramatists (exclusive of Shakespeare). An intensive study of the poetry of Spenser and the drama of Marlowe. *Mr. S. Wiersma.*

305 **English Literature of the Seventeenth Century.\*** F. A study of important poetry and prose in England from Donne to Dryden, with particular emphasis upon the poetry of Donne, Herbert, Vaughan, Traherne, and Herrick, and upon the prose of Donne, Browne, and Taylor. *Mr. E. Ericson.*

306 **Milton.\*** S. An intensive study of the poetry and prose of John Milton. *Mrs. C. Otten.*

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: 200. *Miss H. Ten Harmsel.*

**315 Modern British and American Fiction.\*** F. 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.*

**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. Walthout.*

**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 composition 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.

543 **Classroom Uses of Children's Literature.** An exploration of children's literature as an integral part of the reading and language arts programs in the elementary grades, of the uses of literature in other curricular areas, of ways of establishing appropriate reading environments, and of creative activities that enhance the reading experience. 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 1980 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 **Major Russian Writers.** The Russian tradition has always been a main bearer of the development of the nation's thought and culture and this course is designed to introduce students to Russia by a reading of selected literary classics of the nineteenth and twentieth centuries. (Among other things, Christianity has been influential in this tradition, even during the Soviet period.) A tentative list of authors is Gogol, Dostoevsky, Tolstoy, Bulgakov, Pasternak, and Solzhenitsyn. The course includes some lectures but will be primarily discussion. Mr. E. Ericson.

I-12 **Literature of Existentialism.** Existentialism has produced a major and powerful body of literature and has, in fact, often used literature as a vehicle of expression for its philosophy. In this course lectures will be given to introduce basic tenets of Existentialism and major authors, but primary focus will be upon an analysis of selected works which chronologically trace the development of Existentialism. The expectation is that the student will begin to perceive belief structures in literature, will begin to understand a contemporary world and life view which has shaped a great deal of literature, and will begin to learn critical principles for dealing with the relationship of belief and art. Works likely to be examined include: *Fear and Trembling*, *Thus Spake Zarathustra*, *Notes from Underground*, *Nausea*, *The Plague*, *Waiting for Godot*, and *Irrational Man*. No prerequisite but intended for those with a strong interest in philosophy and/or literature. Mr. J. Timmerman.

I-13 **The Short Story.** Using the collection of stories published in *Fiction 100*, students will look closely at the short story as a literary form. Although the course is one in the reading of short stories and not the writing of them, students may submit a story for evaluation. Mr. C. Walhout, Mrs. J. Walhout.

**I-14 Acting Workshop.** The class will consist largely of improvisational exercises designed to give the beginning actor a sense of security on stage, to allow him to react spontaneously with acting partners, and to expand his emotional and sensory awareness—skills basic to recreating any script. Students will also begin analyzing assigned scripts. *Miss M. Walters.*

**I-50 James Joyce's *Ulysses*.** A close reading of Joyce's important work with ancillary readings in his other works, particularly the semi-autobiographical *Portrait of the Artist as a Young Man* and in his correspondence, as well as in selected materials used in the composition of *Ulysses*. The course includes lectures, seminar-type discussions, and individual research projects in the geography of Dublin as perceived through keyed maps relating the action of the book to Dublin and its people. Prerequisite: 200. *Mr. G. Harper.*

**I-51 Introduction to Canadian Fiction.** A representative study of twentieth century Canadian novelists and short story writers emphasizing regional and national identity. Some of the authors to be studied are Hugh MacLennan, Hugh Garner, Stephen Leacock, Morley Callaghan, Robertson Davies, Margaret Atwood, Margaret Laurence, and Rudy Wiebe. The course includes informal lectures, class discussion, reading reports, and a possible trip to Toronto. *Mr. H. Baron.*

**I-52 God's Grandeur: The Poetry of Gerard Manley Hopkins.** A careful study of the poetry of Gerard Manley Hopkins, poet-priest, within a context of his letters, his love of nature, his personal spiritual struggles, his theological and philosophical views, and his innovative poetic style (sometimes called "more modern than the moderns"). Daily lectures or discussions, oral and written analyses of poems, guest lectures, and tutorials will allow a variety of approaches to the "Pied Beauty" of Hopkins' great Christian poetry. The course will climax in an informal presentation—"An Afternoon with Gerard Manley Hopkins"—prepared by students. This course should appeal to all who are interested in learning how a first-rate poet affirmed his faith in an age of skepticism. Prerequisite: 200 or permission of instructor. *Miss H. Ten Harmsel.*

**I-53 Shakespeare's History Plays: Fact, Myth, and Drama.** A look at Shakespeare's ten plays concerning English history with

special emphasis given to the two tetralogies dealing with The Hundred Year's War and The War of the Roses. Attention will also be given to the so-called Tudor Myth, to the matter of separating fact from fiction in the plays, to Shakespeare's sources and his view of history, to the organization of historical events into comic and tragic patterns, and to the problem of turning historical personages and events into dramatic characters and plots. Some films will augment study of the texts. Lectures, discussions, and short papers. Prerequisite: 100. *Mr. R. Meyer.*

**I-54 Writing Reviews.** This course offers experience in writing reviews of films, plays, lectures, books, and television programs for various types of media. It includes reading in critical writing by professional reviewers. Assignments can be adapted for students with special interests in music and art. One of the writing options open to students in the journalism program. Prerequisite: 100. A basic journalism course is desirable. *Mr. S. Van Der Weele.*

**I-55 The Permutations of Love.** An analysis of four types of stories—the story of the tragic lovers, the story of the son as lover, the story of the widow as lover, and the story of the man who loved God—each of which has been adapted by various writers for particular purposes. Shakespeare, Keats, and Keller all tell the story of Romeo and Juliet; Petronius, Taylor, Cocteau, and Fry all tell the story of the widow of Ephesus; Meyer, Anouilh, Eliot, and Fry all tell the story of the martyrdom of Beckett. Each writer uses a personal form for the story he chooses to tell and students will find the differences in the telling of each story and try to explain them. Papers, reports, lectures, and discussions. Prerequisite: 200. *Mr. S. Wiersma.*

**I-56 Eliot and His Age.** A detailed examination of the poetry and prose of T. S. Eliot with particular attention to Christian dogma and doctrine in Eliot's writing. The principal textbook is *Eliot and His Age*; paperback selections of Eliot's poems, plays, and social writings will also be used. A paper is required. Prerequisite: 100. *Mr. R. Kirk.*

**Idis I-20 Deeds, Words, and Art.** *Mr. R. Tiemersma.*

**Idis I-22 How Good Students Become Better.** *Mr. J. Snapper.*

**Idis I-51 The Best of Bergman.** *Mr. I. Kroese.*

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# French

Professor A. Otten (chairman)

Assistant Professors †C.-M. Baldwin, E. Monsma

**PROGRAMS FOR STUDENTS** wishing to major in French are worked out for them individually by the chairman. To be eligible a student must have completed at least two courses in French with a minimum grade of C (2.0) and must have completed 101-102, 121-122, or the equivalent.

The program of concentration includes 201-202 or the equivalent, 217, 218, 311, 312, 313, 314, 321, and 322. The major program for prospective teachers requires 201, 202, 217, 218, 321, and 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 chairman. Cognates in a second foreign language, art (231, 232), and English or American literature (202, 203, 212, 303) are recommended. A year-abroad program is available in Paris.

All courses above 102 meet core requirements; 217, 218, 311, 312, 313, 371, and 372 meet core requirements in the fine arts.

## LANGUAGE

**101 Elementary French.** F. An introductory course in the comprehension and use of spoken and written French. 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. *Mr. A. Otten.*

**102 Elementary French.** S. Continuation of 101. Prerequisite to a program of concentration are 101 and 102. *Mr. A. Otten.*

**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. *Mrs. C. Gallouët-Schutter.*

**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 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 stu-

dent's capacity to write in the different genres, including the *dissertation*. Prerequisite: 202. Mrs. E. Monsma.

**322 Advanced French.** S, half or full course. Continuation of 321. Mrs. E. Monsma.

### 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.\*** S 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. Mrs. E. Monsma.

**312 The French Novel.\*** F odd years. A study of fiction from the Middle Ages to the present day with special emphasis on the nineteenth and twentieth centuries. Conducted in French. Mrs. C. Gallouët-Schutter.

**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. Not offered 1979-80.

**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 1979-80.

**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 litera-

ture 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. Not offered 1979-80.

**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

**272 Introduction to French Culture and Civilization.** An introduction to the cultural traditions of France and to the way these are reflected in its social, political, and religious institutions and in its literature, art, and music. The course is taught in English; no knowledge of French is required. Satisfies the foreign culture option for students in designated programs. Staff.

**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 1979-80.

### JANUARY 1980 INTERIM

**I-50 French Interim Abroad.** A five-week study tour of France which includes three weeks of study in Paris, a one-week visit to the chateaux of the Loire valley, and a final week for independent study or travel. In Paris the group will visit monuments, museums, and neighborhoods representative of both historical and modern France. Students will also attend concerts and plays. Lectures and readings in French. Fee of approximately \$975. Prerequisite: 201 or its equivalent and permission of the instructor. Mrs. E. Monsma.

I-51 **January in Quebec.** A three-week study program in the French language and in French-Canadian life and culture. Using Laval University in Quebec City as a base, students will visit cultural institutions and historical points of interest and participate

in winter activities. They will also stay with a French-Canadian farm family for one week. Fee: \$550. Prerequisite: 201 or the equivalent and permission of the instructor. Mr. A. Otten.

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## Geography and geology

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

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## German

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

**PROGRAMS FOR STUDENTS** wishing to major in German are worked out for them individually by departmental advisers who should be consulted early. To be eligible a student must have completed at least two courses in German with a minimum grade of C (2.0) and must have completed 101-102, 121-122, or the equivalent.

The typical major requires ten courses in addition to the elementary courses and must include 123, 201-202 or the equivalent, 215, and at least two courses at the 300-level. The nine course teacher education major must include 215, 216, 250, and two 300-level courses. Six course teacher education minors must include 215.

Calvin-sponsored programs are available in Germany and Austria for the interim, a semester, or an academic year. Students interested in such programs should work out the details with the chairman and the registrar.

The fine arts core may be met by German literature courses numbered 217 and above.

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 but who, on the basis of a placement test, are not

prepared for 201. The course is also open with the permission of the department to students in teacher education programs who have had no foreign language in high school. 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. Con-

tinuation 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. 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, Mrs. M. J. Lamse.*

**250 German Civilization.** F, odd years, fine arts core. A study of the German spirit as it finds expression particularly in social customs and institutions, religious and political life, and the fine arts. Lectures and discussions. Prerequisite: 202. *Mr. C. Hegewald.*

**301 Classicism.\*** F, even years, core. 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. Not offered 1979-80.

**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 Romanticists. Prerequisite: 217, 218, or permission of the instructor. *Mr. J. Lamse.*

**304 Realism.\*** S, even years, core. Readings in the literary prose of the latter half of the nineteenth century. A survey of the intellectual and cultural changes immediately preceding this era and an analysis of some literary works characteristic of the period. Prerequisite: 217, 218, or permission

of the instructor. *Mr. C. Hegewald.* Not offered 1979-80.

**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.* Not offered 1979-80.

**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.* Not offered 1979-80.

**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 Schnitzler, Mann, Kafka, Brecht, and Hesse. Lectures, discussions, and assigned papers. Prerequisite: 217, 218, or permission of the instructor. *Mrs. M. J. Lamse.*

**308 Postwar Literature.\*** S, odd years, core. Readings in German literature from 1945 to the present from such writers as Andersch, Frisch, Böll, and Grass. Lectures, discussions, and assigned papers. Prerequisite: 217, 218, or permission of the instructor. *Mrs. M. J. Lamse.*

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

**395 Seminar.\***

## COURSES IN ENGLISH

**361 Introduction to Modern German Culture.** S, foreign culture core for students in designated 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 1980 INTERIM

**I-10 Nazi Germany.** A study of Nazi Germany (1933-1945) concentrating on the origins and growth of Nazism, life in Hitler's Germany, and the last days of the Third Reich. The course is conducted in English. Slides, movies, demonstrations, records, readings, quizzes, discussions, lectures, projects, and eyewitness reports. *Mr. C. Hegevald.*

**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 a week 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 \$900. *Mrs. M. J. Lamse.*

**I-51 Campus German.** A student-designed German-language conversation course built around campus-based scenes and concerns. Utilizing studies in communication theory, students will analyze communication situations on campus, develop typical conversation material, translate the material into German, and prepare all of the conversations for video-taping on location. The course serves two distinct but interrelated ends: first, course-related experiences and activities provide students with the means and opportunity to master vocabulary and structures appropriate for campus use and to grow in cultural and personal awareness; second, the texts as well as the video-taped material arising out of the course will provide the staff of the German department with certain components needed for the contemplated restructuring of the conversation segments currently taught in 201-202. Prerequisite: 201. *Mr. J. Lamse.*

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## Greek

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

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## History

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

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

a foreign language and, if secondary teaching is their goal, concerning the various types of programs leading to certification.

The minimum requirements for a major concentration are nine courses in history including 101, 102, or 102 Honors, 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 study of the ideal and the practice of political virtue in a Republic. The study will focus on late Republican Rome and on Renaissance Florence. There will be assigned readings in Plutarch, Cicero, and Machiavelli and several papers will be required, but no examination. Enrollment is limited to students with a 3.3 grade point average or higher. *Mr. H. Rienstra.*

**201 Ancient Near East.\*** F. A cultural history of the ancient Near East from prehistory to the rise of Islam, based on evidences from archaeology and cultural anthropology as well as on ancient texts in translation, Biblical accounts, and contemporary historical records. Special consideration is given to geographical setting, artistic and linguistic traditions, and cultural contacts with European civilizations. *Mr. B. De Vries.*

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

203 **Traditional East Asia.**\* F. An introduction to the history of East Asian civilizations from the earliest times to the nineteenth century. Primary 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. R. Van Houten.*

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. R. Van Houten.*

### 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, Mr. R. Swierenga.*

212 **England.**\* F. A survey of English history including the Anglo-Saxon background; the medieval intellectual, religious, and constitutional developments; the Tudor and Stuart religious and political revolutions; the emergence of Great Britain as a world power; the growth of social, economic, and political institutions in the modern period. *Mr. H. Ippel.*

215 **Canada.**\* 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 decline in the late nineteenth century. *Mr. D. Van Kley.* Not offered 1979-80.

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.**\* F. A survey of German history with particular attention given to the period from the Reformation to the present. Included in the course are medieval background, the Reformation and its impact on later German developments, the religious wars, intellectual developments of the eighteenth and nineteenth centuries, the movement toward political unity in the nineteenth century, World War I, the Weimar Republic, the rise of the Nazi movement. *Mr. F. Roberts.*

### STUDIES OF HISTORICAL PERIODS

301 **Classical History.**\* F and S. A study of the history of Greece and Rome from the Minoan Age through the reign of the Emperor Theodosius. The emphasis is on the political and economic changes which were the background for the shifts in intellectual styles. Particular problems are studied in depth: the emergence of the city-state; the Periclean age of Athens; the age of Alexander; the crisis of the Roman Republic; and the Decline. The two units of 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. 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.*

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. F. Roberts.*

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

**305 Modern Europe.\*** F and S. Western Europe from 1815 to 1914. A study of the political and economic phenomena of this century; and examinations of nationalism, liberalism, Darwinism, imperialism, and militarism. *Mr. 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 355. *Mr. H. Brinks.*

**311 Nineteenth Century United States.\*** F and S. An examination of United States history from the end of the revolutionary era to 1901. Attention is given to the Federalist period, the origins of political parties, Jeffersonian and Jacksonian democracy, sectionalism, slavery, the Civil War and reconstruction, economic expansion and the rise of big business, political corruption and reform, and imperialism. *Mr. 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.\*** S. Western Europe from World War I to the present; the breakdown of colonialism and the resulting emergence of non-European powers; World War II and its role 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 interrelationship 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 1979-80.

**351 English Constitutional History.\*** S. A study of the origins and subsequent developments of English law, legal institutions and constitutional usage 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. 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. *Mr. G. Marsden.*

**360 History of the United States.\*** 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. Swierenga.*

**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 Archae-**

## JANUARY 1980 INTERIM

**ology.** 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 nonliterary 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.*

I-10 **"Our Dancing Has Turned to Mourning": Native Americans in Canada and the United States.** This course studies the clash of two civilizations on both sides of the 49th parallel. It explores white attitudes and governmental policies and the resulting unjust treatment of the Native American in the mosaic Canadian society and in the integrative U.S. society. Readings, films, and a research paper. *Mr. S. Greydanus.*

I-11 **Dutch-American History.** A survey of Dutch-American history from 1600 to the present, emphasizing the nineteenth-century immigration and its subsequent history. Three lectures per week with tutorials designed to assist students in writing a short research paper. *Mr. H. Brinks.*

I-12 **War and Society, 1914-1945.** A study of World Wars I and II, emphasizing the social, political, and spiritual dimensions of these conflicts. While military affairs will receive some consideration, the course is concerned primarily with the impact of total war on the home front. Topics include the evolution of the warfare state, collaboration and resistance, concentration camps, and the image of warfare in contemporary art and thought. The course includes lectures, readings, films, and a variety of student projects. *Mr. D. Diephouse.*

I-13 **Religion and the American Revolution.** What are the "religious" dimensions of the American Revolution? Topics to be considered include: the "religious" causes of the American Revolution, the attitude of American and British Christian leaders to the rebellion, the impact of the Revolution on British and American Church history, and the American Revolution as a case study in the question of the "right of rebellion." *Mr. H. Ippel.*

I-14 **A History of Christian Missions in China: On the 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-50 **George F. Kennan: Thoughts and**

**Writings.** A study of selected writings by veteran American diplomat and scholar George F. Kennan. Students will be expected to read and discuss several of Kennan's publications including *Memoirs* and *Russia and the West*. There will be periodic written exams along with discussions of the reading. Prerequisite: 101 or 102. Mr. R. Bolt.

**I-51 The Jewish Experience in Europe.** A survey of Jewish cultural, religious, and economic life from the Middle Ages to the Holocaust. Special attention is given to the recurrent attempts to destroy Jewish identity and even Jewry itself through forced conversion, discrimination, periodic pogroms, and Hitler's "Final Solution to the German Question." Lectures, films, assigned readings, a term paper, and perhaps oral presentations by students. Prerequisite: 101 or 102. Mr. F. Roberts.

**I-52 The Asian Connection: The Impact of the East on Western Civilization.** A study of the ways in which Europe learned about Asia, particularly in the period after 1500, and a consideration of how the information gained about the East in turn had consequences in the development of Western culture. A general interest in East-West relations is presupposed. A major part of this course will be student reports on selected topics. Prerequisites: sophomore standing and either 101 or 102. Mr. E. Van Kley.

**I-53 Ethnic America.** This course focuses on migration and ethnicity as major themes in American history. It begins with general readings on emigration from Europe to the United States, concentrating on the nineteenth and twentieth centuries. This is followed by an intensive analysis of the Irish (both protestant and Catholic) in Ireland and America. Insights suggested by the Irish experience will be tested by student inquiries into the experiences of other ethnic groups: the Italians, Germans, Swedes, Jews, and Dutch. Students will present papers with the results of their inquiries. The course concludes with a general consideration of models of assimilation and adjustment of American ethnic groups. Prerequisite: 211, 311, or 312 or permission of the instructor. Mr. R. Wells.

**I-54 People and Positions in the English Civil War.** A look at England between 1640 and 1660 emphasizing the principal actors in the conflicts, compromises, and alliances of the time. Each student will focus on one or more character or group, assuming their views in a recreation of the important debates of the era. Readings include general background texts as well as focussed research. Prerequisite: 101 or 102. Mr. N. Lettinga.

**Idis 1-52 Calvinist Roots: Conservative or Radical?** Mr. D. Jellema.

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## Latin

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

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## Mathematics

Professors P. Boonstra, S. Leestma (chairman), L. Nyhoff, C. Sinke, G. Van Zwalenberg, †P. Zwier  
Associate Professors D. Brooks, T. Jager, J. Kuipers  
Assistant Professors D. Brink, R. Konyndyk, G. Venema  
Assistant L. Vredeveld

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. Students with deficiencies in algebra or trigonometry should take 110 before enrolling in 111. 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.

**001 Pre-college Mathematics for the Liberal Arts Student.** F and S, non-credit. A review of high school mathematics, from fractions and decimals to basic algebra and geometry, with intensive practice in mechanics. It includes instruction in study skills with particular emphasis on mathematical thinking and problem-solving. The course is designed to bring students whose mathematics background is weak to the level of competence needed for 109, Economics 151, and other core courses. Not intended for students in mathematics-oriented majors. *Staff.*

**002 Pre-college Mathematics for the Science Student.** F and S, non-credit. This course is an intensive study in the mechanics of algebra, equation solving, graphing, and numerical trigonometry of right triangles. Some attention is paid to calculations with hand-held calculators. This course is intended to be a pre-requisite to 110 or 205 for students in mathematics-

oriented majors whose previous preparation in mathematics is weak. Study skills are included. The emphasis is on mathematical thinking and problem solving. *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 pro-

gramming, groups and fields, and number theory. Prerequisites: a year of high school algebra and geometry. *Staff.*

**110 Elementary Functions.** F. A course in elementary functions to prepare students for the calculus sequence. Topics include the properties of the real number system, inequalities and absolute values, functions and their graphs, solutions of equations, polynomial functions, trigonometric functions, exponential and logarithm functions. Prerequisite: two years of high school mathematics. *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, vectors, 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; not open to those who have completed 111. 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, paral-

lelism, 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. Acceptable in non-mathematics MAT concentrations. 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.*

**241 Elementary Statistics.** An introduction to the concepts and techniques of statistics, designed for students with limited mathematical background. Topics include descriptive statistics, elementary probability theory, random variables and probability distributions, binomial and normal distributions, sampling distributions, estimation, hypothesis testing, regression and correlation, analysis of variance, non-parametric methods. The student is also introduced to use of the computer in statistical computations and simulations by means of statistical packages such as MINITAB and SPSS. No prior knowledge of computing is required. Prerequisite: two years of high school mathematics. *Staff.*

**251 Discrete Structures.** An introduction to various discrete mathematical structures. Topics include sets and binary relations, graphs, algebraic structures, lattices, and Boolean algebras. Combinatorics, algorithms, and abstract computers (Turing machines) are also considered. Prerequisite: 111. *Staff.*

**313 Topics in Advanced Analysis.\*** F. Fourier series, Laplace transform, series methods in ordinary differential equations, orthogonal functions, vector field theory, and partial differential equations. Intended for engineers, physicists, and others interested in applications of analysis. Prerequisite: 211. *Mr. G. Venema.*

**314 Complex Variables.\*** S. Complex numbers, complex functions, integration and the Cauchy integral formula, power se-

ries, residues and poles, conformal mapping. Prerequisite: 211. Mr. G. Van Zwalenberg.

321 **Foundations of Geometry.\*** S. Consideration of Euclidean geometry as an axiomatic system, introduction to non-Euclidean geometry, the Poincaré model. Prerequisite: 112. Mr. P. Boonstra.

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. Not offered 1979-80.

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. D. Brink.

343 **Probability and Statistics.\*** F. Probability, probability density functions; binomial, Poisson, and normal distributions; central limit theorem, limiting distributions, sample statistics, hypothesis tests, estimators. Prerequisite: 212. Mr. D. Brooks.

344 **Mathematical Statistics.** A continuation of 343 including theory of estimation, hypothesis testing, nonparametric methods, regression analysis, and analysis of variance. Prerequisite: 343. Mr. D. Brooks.

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. R. Komyndyk.

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. S. Leestma.

361 **General Topology.\*** F. Elementary set theory, topological spaces, separation properties and connectivity, continuous mappings, homeomorphisms, product and quo-

tient spaces, invariants under continuous mappings, compactness, metric spaces and completeness. Prerequisite: 211. Not offered 1979-80.

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. Not offered 1979-80.

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. Mr. T. Jager.

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: 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 1980 INTERIM

**I-10 Intuitive Statistics.** Core. Unlike most statistics courses that require some understanding of calculus, this course in non-parametric statistics is based on intuitively appealing ideas which require little mathematical background. After an introduction to the theory of probability and hypothesis testing, nonparametric alternatives to the usual statistics tests are examined. Topics include the binominal test, the sign test, contingency tables, tests based on rank, measures of correlation, and goodness of fit tests. This course should be useful to anyone who should know some statistics. Prerequisites: none, but a good high school algebra background is useful. *Mr. R. Konyndyk.*

**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. Vredeveld.*

**I-50 Aerospace Navigation.** Man's need for and interest in navigating—getting from here to there—motivated some of the earliest concepts in geometry. Navigation may

be defined as the science of determining one's position and course relative to some reference or coordinate frame. Local navigation is usually trivial and uninteresting. On the other hand, global navigation between two arbitrary points on the earth's surface is somewhat more interesting both mathematically and in applications. However, navigation in three-space poses a wide variety of interesting applications and problems, for example, the determination of relative position and course (or orientation) between two independent bodies in space or the relative position and orientation of two spacecraft in different orbits, etc. Mathematics, physics, and engineering will be discussed in the context of the evolution of the state-of-the-art navigation system: the original concept, the mathematical model, the implementation, the development, and various applications. The course will be adjusted to the level of the participants with each required to work at his level of competence. Satisfies the engineering interim requirement. Prerequisite: 111 or a college course in physics or engineering. *Mr. J. Kuipers.*

**I-51 Journal Seminar in Statistics.** Statistics as an academic discipline includes both mathematical theory and real-world applications. Both of these facets are illustrated in articles published in books such as *Statistics: A Guide to the Unknown*, in periodicals such as *Scientific American*, in professional journals such as *JASA*, *The American Statistician*, and in many medical, etc. journals. Each student will read both applied and theoretical papers, will write a summary and/or critique, and lead a discussion of at least one paper. Theoretical papers will be discussed on the basis of mathematical quality and applicability; applications papers will be criticized on grounds of validity, methodology, and data analysis. The format will be principally informal discussion. Prerequisite: 343. *Mr. D. Brooks.*

**I-53 Surfaces.** In this course the study of surfaces serves as an introduction to some of the rich, intuitive ideas of topology. Students will be encouraged to think spatially and to visualize mathematical subjects. The course begins with a review of continuous functions on subsets of Euclidean spaces followed by an introduction to topological equivalences and the elastic motions they allow. Topological equivalents will then be used to study two-dimensional surfaces including such interesting examples as the Moebius-band and the Klein bottle. Further

topics include orientability, genus, Euler characteristic, triangulation, classification, Morse theory, the Jordan curve theorem, and the four-color problem. Prerequisite: 211. Mr. G. Venema.

Idis I-13 **Introduction to Photography.**  
Mr. D. Brink.

111 **Calculus and Analytical Geometry I.**  
Mr. G. Van Zwalenberg.

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# Music

Professors J. Hamersma, H. Slenk, C. Stapert, D. Topp (chairman), J. Worst  
Associate Professors D. De Young, 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 following 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; six semesters of 131 or 141 for vocal music or six semesters of 161 or 171 for instrumental music; plus four and a quarter additional courses from one of the following concentrations: *instrumental music*, 197, 198, 315, 337, five semesters of 140, 150, 160, or 170, and one half course elective; *vocal music*, 311 or 312, 313 or 314, 338, or an approved interim; two semesters of 120; and five 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, one course elective, 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 expecting 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, 238, or 241. 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. *Staff.*

**232 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. *Staff.*

**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 1979-80.

**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.** S, half course. A course in basic, general conducting. *Mr. D. De Young.*

**241 American Popular and Traditional**

**Music. F and S, core.** A survey of four basic genres of popular American music showing their roots in European art music and in American folk music, particularly in country music, folk music, blues and jazz, and rock. Films, recordings, readings, live performances, and written reports. *Mr. J. Worst.*

### 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.*

**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. *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. M. Slenk.*

**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. M. Slenk.*

**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. M. Slenk.*

**214 Keyboard Harmony IV.** S, quarter course. A continuation of 213. *Mrs. M. Slenk.*

**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.*

**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.*

#### 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.* Not offered 1979-80.

**312 Instrumental and Vocal Polyphony of the Late Baroque\*.** S. A study of contrapuntal practice of late Baroque composers, principally J. S. Bach. Exercises in tonal counterpoint. Listening repertory of compositions. Prerequisites: 304 or 104 and 233. *Mr. H. Slenk.*

**313 Music of the Classical Period\*.** F. 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. *Mr. C. Stapert.*

**314 Music of the Romantic Period\*.** 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.* Not offered 1979-80.

**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 contemporary practice. Prerequisite: 104 or permission of the instructor. *Mr. J. Worst.*

**319 Advanced Church Music.\*I,** 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 1979-80.

**337 Instrumental Conducting.** F, half course. A course in advanced conducting techniques appropriate to bands and orchestras. Prerequisite: 237. *Mr. D. De Young.* Not offered 1979-80.

**338 Choral Conducting.** F, half course. A course in advanced conducting techniques appropriate to choirs. Prerequisite: 237. *Mr. H. Slenk.*

#### 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

*Not more than two course units of credit in applied music and drama may be applied to the minimum requirements for graduation unless the addition is part of a designated major or minor music concentration.*

#### INDIVIDUAL LESSONS

*At least twelve lessons a semester are required and students taking individual lessons must also register for 180.*

**110 Organ.** Quarter course. Individual lessons in organ emphasizing skills for the church organist. *Mrs. S. Boomsma, Mr. J. Hamersma.*

**120 Piano.** Quarter course. Individual lessons in piano. *Mrs. R. Rus, Mrs. M. Slenk, Mrs. S. Van Overen.*

**130 Voice.** Quarter course. Individual les-

sons in voice. *Mrs. T. Haan, Miss G. Huisman, Mr. C. Kaiser.*

140 **Brasses.** Quarter course. Individual lessons in cornet, horn, baritone, trombone, or bass horn. *Mr. F. Baker, Mr. D. De Young, Miss M. Gage.*

150 **Percussion.** Quarter course. Individual lessons in snare drum, tympani, and other percussion instruments. *Mr. B. Pulk.*

160 **Strings.** Quarter course. Individual lessons in violin, viola, violoncello, bass viol, or classical guitar. *Mr. R. Harbaugh, Mr. W. Patterson, Mr. P. Spring, Mr. Y. Vasiliki, Mr. Y. Yankelev.*

170 **Woodwinds.** Quarter course. Individual lessons in flute, clarinet, bassoon, saxophone, or recorder. *Mrs. R. Bylsma, Miss R. Gringorten, Mr. C. King, Mr. B. Weinstein.*

200 **Recital Coaching.** F and S, no credit. This course is required of all recitalists who will use keyboard accompaniment. *Mrs. R. Rus.*

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. *Staff.*

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 litera-

ture. Attendance is required of all music majors and students registered for individual lessons in applied music. *Staff.*

197 **Strings and Brasses.** F odd years, half course. 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. D. De Young.*

198 **Woodwinds and Percussion.** F even years, half course. Class lessons in woodwind and percussion instruments for the music major concentrating in instrumental music education and others wishing to learn a secondary instrument. Not offered 1979-80.

#### ENSEMBLES

101 **Men's Choir.** F and S, no credit. Open to general college students. *Mr. C. Kaiser.*

111 **Women's Choir.** F and S, no credit. Open to general college students. *Mrs. C. Kaiser.*

121 **Collegium Musicum.** F and S, quarter course. A series of honors ensembles open to singers and instrumentalists who also participate in the choir, band, or orchestra. Music from all periods is studied and performed. The Old Instrument Consort is an ensemble open to keyboard, woodwind, brass, and string instrumentalists who meet the demands of musicianship and who are interested in performing on old instruments. The Contemporary Chamber Players is an ensemble open to singers and instrumentalists interested in performing contemporary, avant-garde, and experimental music. *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. *Mr. L. Asper.*

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. *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. *Mr. D. Scripps.*

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. *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 1980 INTERIM

I-10 **New York Concert Tour.** A course in music appreciation with a one-week New York tour of orchestra, opera, musical theater, and jazz concerts. The tour is preceded by lectures, listening, and a study of the works to be heard. Each student is responsible for research into one of the major works or forms of music. Fee of \$350. Satisfies fine arts core. *Mr. D. De Young, Mr. J. Worst.*

I-11 **Basic Music Theory.** The elements of music are 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 a major involving music; and for students who did poorly in first semester music classes but wish to continue in some form of music major. Prerequisite: ability to read music in at least one clef. *Miss G. Huisman.*

**I-14 Understanding Hymns.** An introductory course for students of any class level and with any sort of musical background. Hymns will be analyzed from a musical, textual, liturgical, and theological perspective and students will also complete a brief hymnal in conjunction with library research. Class time includes discussion of worship perspectives relating to hymns, as well as lecture and a great deal of hymn-singing. *Mr. D. Topp.*

**I-50 Church Music for Organists.** An introduction to everything a musician needs to know to play a church service effectively. The course includes a survey of hymn preludes and how to use them, a summary of basic organ techniques and their application to the interpretation of organ literature, a study of the music of hymns and how to

play them, and an introduction to organ design and registration. Lectures, demonstrations, class lessons, listening assignments, service playing, church visits, and three hours of organ practice per day. Prerequisite: two or more years of organ lessons or two or more years of experience or permission of the instructor. *Mr. J. Hamersma.*

**I-51 Bach's Mass in B Minor.** An intensive study of Bach's Mass devoted primarily to a structural analysis of the work. Lectures on the history of musical settings of the Ordinary of the Mass, the history of the B Minor Mass, performance practice, symbolism, and Bach's religion. Prerequisite: 104. *Mr. C. Stapert.*

**Idis I-20 Deeds, Words, and Art.** *Mr. H. Slenk.*

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# Philosophy

*Professors P. DeVos, K. Konyndyk (chairman), R. Mouw, C. Orlebeke, A. Plantinga, E. Runner, N. Wolterstorff*

*Assistant Professors G. Mellema, D. Ratzsch*  
*Instructor L. Zimmerman*

**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 impor-

tant 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.*

**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. 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. *Miss L. Zimmerman.*

### INTERMEDIATE SYSTEMATIC COURSES

*All intermediate courses presuppose one course in philosophy.*

**202 Philosophy of Law.** S. A consideration from the Reformed Christian perspective of such topics as: the nature and types of law; sources of law; and the basis of a legal system, of legal and political authority, of obedience to law, and of human rights. *Mr. P. De Vos.*

**203 Philosophy of Science.\*** F. A study of philosophical problems arising out of the methods and results of modern science. *Mr. D. Ratzsch.*

**204 Philosophy of Religion.\*** F. A study of some philosophical questions arising from religious belief. *Mr. A. Plantinga.*

**205 Ethics.\*** F and S. A course designed to deal both historically and situationally with the persistent problems of the moral life. *Mr. R. Mouw.*

**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. Not offered 1979-80.

**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 jus-

tice; equality and the law; the basis of social and political authority; rights and obligations. *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. A. Plantinga.*

**230 History of Modern Philosophy.** F and S. A study of selected philosophies of the seventeenth and eighteenth centuries. *Mr. K. Komyndyk.*

**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. *Mr. A. Tol.*

**243 American Philosophy.\*** S. Not offered 1979-80.

### ADVANCED HISTORICAL COURSES

*All advanced courses presuppose at least two courses in philosophy, normally two courses from the intermediate historical group including 230.*

**312 Plato and Aristotle.** S. Advanced study of Plato and Aristotle. *Mr. C. Orlebeke.*

**331 Kant.** F. A study of the *Critique of Pure Reason*. *Mr. N. Wolterstorff.*

**332 Hegel.** F. Not offered 1979-80.

**333 Kierkegaard.** S. Not offered 1979-80.

**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. G. Mellema.

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. Not offered 1979-80.

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. Mr. T. Jager.

385 **Philosophy of Religion.**\* S. A study of philosophy of religion emphasizing miracles and mysticism. Mr. G. Mavrodes.

390 **Readings and Research.**\* F, I, S. Prerequisite: permission of chairman. Staff.

395 **Ontology.**\* S. A study of selected topics of ontology. Mr. D. Ratzsch.

## 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. Mr. G. Mellema.

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 1980 INTERIM

I-10 **Popular Philosophy.** Virtually every bookstore has a philosophy section. The books in such sections appear to deal with (and sometimes answer) the great questions of philosophy. But those books are almost never mentioned or discussed in college philosophy courses. In this course we will read and dissect approximately six such books. We will try to discover whether or not their authors' presuppositions, methods, and conclusions differ from those found in traditional philosophical works, and—if indeed they do differ—what the differences consist in and what is to be concluded from those differences, as well as from the books themselves. Mr. D. Ratzsch.

I-50 **Comprehensiveness and Certainty in Modern Philosophy.** In the nineteenth and twentieth centuries a fundamental philosophical issue has been debated: should philosophy and science strive for a global or synthetic account of things, taking into consideration all the complexities of the created order or should they aim for analytic precision and certainty? Are both possible? If not, which is more important? Class lectures and discussion. Readings in J. S. Mill, Merleau-Ponty, Dilthey, Husserl, and others. Prerequisite: one course in philosophy. Mr. E. Runner.

Idis I-16 **Business Ethics.** Mr. G. Mellema.

Idis I-17 **Ancient Greek Civilization: On Location.** Mr. C. Orlebeke.

Idis I-23 **Having and Rearing Children.** Mr. K. Konyndyk.

Idis I-52 **Calvinist Roots: Conservative or Radical?** Mr. R. Mouw.

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# Physical Education

Professors B. Steen, J. Timmer, M. Zuidema (chairman)  
Assistant Professors R. Honderd, J. Pettinga, D. Tuuk, D. Vroon, \*\*D. Zuidema  
Instructors E. Driesenga, N. Meyer, \*N. Van Noord  
Assistant Instructor K. Wolters

THE DEPARTMENT SERVES a number of functions—it provides a required but

flexible sequence of physical education courses for all students; it offers professional training for physical education teachers, coaches, and recreation leaders; and it directs an extensive program of intramural, recreational, and intercollegiate sports for men and women.

Admission to any of the professional concentrations requires the approval of the department chairman. The ten-and-a-half course teacher education major must include three quarter courses from 100-199, 201, 212, 215, 221, four courses from the 230 series, 301, 302, 380 for one course unit of credit, and Biology 115. Contingent on the appropriate directed teaching experience, a student may be certified at the elementary, secondary, or k-12 levels. The seven-course teaching minor must include three quarter courses from 100-199, 201, 212, 221, 302, 380 as a half course, and Biology 115. With the approval of the department, 221 or 312 may substitute in major programs for two courses from the 230 series.

The program in recreation leading to either Bachelor of Arts degree or a Bachelor of Arts in Recreation degree requires two majors, one in recreation and the second in a closely related discipline or disciplines. The major in recreation requires Biology 115; Physical Education 215; two course units from Physical Education 221, 230-239, and 312; Psychology 151 and 211; Sociology 151 and 310 (or Psychology 310), Religion 301; Recreation 304, 305, 310, and either two course units of 345 or four course units of 346. The related major may be in art, economics and business, music, physical education, psychology, sociology, religion and theology, speech, or an approved interdisciplinary major. Such interdisciplinary majors must consist of nine course units, five in one discipline, three in another, with no course duplicating a requirement in the recreation major, and must be approved by the chairman, the departments involved, and the registrar.

### BASIC PHYSICAL EDUCATION COURSES

The total of one course unit in basic physical education is required as part of the liberal arts core. Normally students meet this requirement with four quarter courses in four semesters but a three course option is available. Although students may take courses in addition to this, only one course unit of credit may be applied to the minimum graduation requirements.

The initial course for all students should be 102, 103, 104, or 105. Subsequently, students must select activities courses from the 110-198 sequence until they have completed the required one course unit of credit. Older and handicapped students may satisfy the requirement with courses from 193, the Adaptive Program. Elementary education students as well as majors and minors in physical education may substitute 221, Elementary School Activities and Programs, for one of the courses in the 110-198 sequence.

Students entering Calvin College prior to September, 1979 must complete 199, Physical Fitness, as the final course in their basic physical education sequence.

**102 Weight Reduction.** F and S, quarter course. This is a specialized course for students needing and desiring to lose weight. It begins with a body weight and fitness evaluation and includes a study of nutri-

tional and health fitness. Students are placed on a scientific program of weight loss and exercise. *Staff.*

**103 Therapeutic Fitness.** F and S, quarter

course. This is a course for students with special medical problems or in need of specific cardio-respiratory fitness development. The college or family doctor is consulted in cases where a medical history is necessary. Fitness and medical needs are evaluated and prescriptive exercise programs are developed. *Staff.*

**104 Physical Conditioning.** F and S, quarter course. This course aims at building cardio-respiratory and muscular fitness. Various forms of aerobic fitness options are presented, students are told how to make intelligent exercise decisions, and they are introduced to the idea that health fitness maintenance is a Christian responsibility. The course includes readings, lectures, and guided exercise sessions. *Staff.*

**105 Health Fitness Dynamics.** F and S, half course. This course involves the study of positive health practices in health fitness, including cardio-vascular physiology, nutrition, and exercise. The course includes lectures, laboratories, and discussions along with three exercise sessions a week. This option is for students seeking a total health fitness building experience. *Staff.*

**110-189 Guided Instructional Program.** F, I, and S, quarter courses. Various play and sport options are offered in this program. Students are introduced to the techniques and tactics of each sport and are given an opportunity to participate. Courses include: swimming, senior life saving, diving, archery, badminton, bowling, golf, handball, racquetball, tennis, gymnastics, weight training, basketball, volleyball, soccer, softball, folk and square dance, aerobics dance, orienteering, ice skating, cross-country skiing, and downhill skiing. Beginning and advanced skill classes are offered in most activities. Students should select courses that correspond to their skill levels. *Staff.*

**191 Specialized Instructional Program.** F, I, and S, quarter course. Individual activity options are available through this program. Approved options have included: aerobic fitness, individual and group experience in creative movement expression, and programmed learning in self-defense, skiing, cycling, and mountain climbing. Such programs can be arranged by individuals or groups. A staff member evaluates the requests and supervises the program when approved. *Staff.*

**193 Adaptive Program.** F, I, and S, quarter course. This is a specialized program for older students and those with physical handicaps. Such students should enroll in 103 as their first course and should complete three semesters of 193. Students who are eligible for this course should consult the physical education representative at registration. *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 IN PHYSICAL EDUCATION

**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. *Mrs. K. Wolters, Mr. M. Zuidema.*

**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. *Mr. M. Zuidema.*

LB Psychology of Teaching/Coaching. S. *Mr. B. Steen.*

230 Field Hockey. F. *Miss D. Zuidema.*

231 Basketball. F. *Mr. D. Vroon.* Not offered 1979-80.

232 Baseball/Softball. S. *Mr. J. Pettinga.* Not offered 1979-80.

233 Track and Field. S. *Mr. R. Honderd.*

234 Soccer. F. *Mr. M. Zuidema.* Not offered 1979-80.

235 Volleyball/Tennis. S. *Mr. D. Vroon, Mrs. K. Wolters.*

236 Football. F. *Mr. J. Pettinga.*

237 Gymnastics. S. *Staff.* Not offered 1979-80.

238 Wrestling. F. *Mr. J. Pettinga.* Not offered 1979-80.

**301 Measurement and Evaluation in Physical Education.\*** 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.*

#### PROFESSIONAL COURSES IN RECREATION

**304 Systems and Structures of Recreation I.** Modern recreation programs and their organization are identified and studied in this course with particular emphasis on administrative and leadership functions, recreational needs of social groups, and the design of recreational programs, including the problems of finances and facilities. Students observe recreational programs and facilities in therapeutic centers, churches, industry, and the community. Prerequisites: completion of the non-professional courses in the major. *Staff.*

**305 Systems and Structures of Recreation II.** Continuation of 304. *Staff.*

**310 Theories of Play.** A basic course in the theory of recreation. Professionals in recreation need to understand the basic concepts, definitions, and theories of play and recreation to be able to carry out their professional responsibilities. An understanding of the history and theories of play provide a framework for students working toward a Christian perspective on play and recreation and toward their own theories, programs,

and practices. Prerequisites: completion of the non-professional courses in the major. Staff.

**345 Field Instruction in Recreation.** Students are assigned to work with field instructors in recreational agencies enabling them to understand the specific agencies and the types of services provided. Individual programs are worked out by the college supervisor, the field instructor, and the student to enable the student to achieve his professional goal. May be repeated once. Prerequisites: 304, 305, 310. Staff.

**346 Field Internship Seminar in Recreation,** four course units. Students electing this course are involved full time in a semester's field experience in a recreational agency. An accompanying seminar on campus focuses on the problems of relating theory to practice. Prerequisites: 304, 305, 310, a minimum cumulative average of C (2.0), and the approval of the department. Staff.

#### JANUARY 1980 INTERIM

**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 Methods and Materials for Individual/Dual Sports.** The course emphasizes teaching progressions, skill and error analysis, class organization for small and large groups, and evaluation of equipment and materials for sports such as golf, archery, badminton, orienteering, racquetball, and cross-country skiing. Expert instruction; some participation. Designed for majors and minors in physical education and recreation. Mrs. K. Wolters, Miss. D. Zuidema.

**I-50 The Christian and the World of Sports Competition.** Students will take a historic and philosophic look at sports and competition from a Christian perspective. Topics include: the Christian and competition, the Christian and recreation, the American athlete and values, sports evangelism, the family and sports, the Christian coach, athlete-coach relations, the athletic scholarship, Christianity and sportsmanship, the Christian college and sports, and a definition of athletic success. A wide reading of representative literature, research papers, student presentations on a Christian approach to interscholastic athletics, and presentations by various people in the field. Prerequisite: 201. Mr. M. Zuidema.

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## Physics

Professors V. Ehlers, R. Griffioen (chairman), A. Kromminga, C. Menninga (Geology), H. Van Till, J. Van Zytveld  
Associate Professor D. Young (Geology)

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

Group majors are available in physics-geology, physics-engineering, and physics-mathematics. The chairman of the department will assist students in developing specific programs.

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) 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 intended for future elementary school teachers and makes use of elementary school science programs and materials but is open to all students interested in a laboratory-oriented course. 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. C. Menninga, 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. *Mr. V. Ehlers.*

**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. R. Griffioen.*

**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. *Staff.*

**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 Zylveld.*

**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. J. Van Zytveld.*

**345 Electromagnetism.\*** S. The basic equations of classical electromagnetic 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. Static field theory is considered in 345 while dynamic field theory and special relativity are developed in 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.\*** S. 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 Till.*

**376 Quantum Mechanics.\*** S. A continuation of 375, which is a prerequisite. *Mr. H. Van Till.*

**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: 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: 225. *Mr. K. Peterson.*

**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. *M. R. Griffioen.*

**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 cir-

cuity. Prerequisites: 181 and Mathematics 111. *Staff*.

**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. Concurrent registration is required in 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. *Mr. K. Peterson*.

**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 teacher 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 1980 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-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*.

**Idis 1-12 Your Use of God's World.** *Mr. V. Ehlers*.

**Idis 1-13 Introduction to Photography.** *Mr. H. Van Till*.

**Idis 1-15 Volcanoes in the Sea: Biology and Geology of Hawaii.** *Mr. C. Menninga*.

**Idis 1-24 Politics and the Bomb.** *Mr. A. Kromminga*.

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# Political Science

Professors J. De Borst, J. Westra (chairman)

Associate Professors J. Penning, C. Smidt

Assistant Professors R. De Vries, C. Strikwerda

To be admitted to a major program in political science a student must have completed one of the core credit courses (151, 201, 202, 203, or, for Canadians, 210) with a minimum grade of C (2.0). The major program requires: 201, 203 or 303, 207, 305 or 306 and five additional courses in the department. Cognate courses required of majors are Economics 151 plus an approved three course sequence in one of the following departments; economics, history, psychology, or sociology. Canadian students should take Political Science 210. Students planning to pursue graduate work 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, so far as possible, the cognate requirements. A departmental minor requires 151, 201, 202 and three additional courses approved by the departmental adviser for teacher education, Mr. Robert De Vries.

Although the core may be satisfied by 151, 201, 202, 203, or 210, Canadians are advised to take 210 and prospective elementary teachers either 201 or 210.

**151 Introduction to Politics.** F and S, core. A general survey course which introduces students to the nature and study of politics and includes some of the enduring questions of conflict and cooperation within and between nation-states. *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.** F and 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. *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.** 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.*

**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. Not offered 1979-80.

**305 History of Political Thought to the Reformation.** F. The development of political thought from ancient Greece to the sixteenth century. Mr. J. Westra.

**306 History of Modern Political Thought.** S. Representative political theorists from the Reformation to the present. Mr. 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.\*** F. 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.

**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.\*** S. A study of legislators, legislatures, and the legislative process. The impact of institutional structures, political parties, outside forces, and personal norms on the legislative process. The role of legislatures in the democratic process. State and non-American legislatures are considered but the emphasis is on the federal Congress. Mr. C. Strikwerda.

**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. Strikwerda.

**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 1980 INTERIM

**I-50 Work-Study Interim in Washington D.C.** A work-study program in Washington D.C. for a select group of students who will be placed in Congressional or Senatorial offices for forty hour work weeks. Evening seminars will be led by government leaders representing various departments, bureaus, and agencies. Students must be in Washington from January 8 through January 31. Fee of \$350 for housing, meals, and travel. Prerequisite; three courses in political science, a 3.0 grade point average, and approval of the instructor. 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 of instructor. Mr. J. Penning.

**Idis 1-24 Politics and the Bomb.** Mr. R. De Vries.

**Idis I-52 Calvinist Roots: Conservative or Radical?** Mr. J. Westra.

**Idis I-54 SPSS: A Computer Language for Social Scientists.** Mr. C. Smidt.

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# Psychology

Professors M. Bolt, W. Joosse, A. Reynolds, \*\*R. Stouwie, R. Terborg

Associate Professors J. Brink, W. Sanderson (chairman), G. Weaver

Assistant Professors C. Bennink, J. Benthem, D. Snuttjer, S. Stehouwer, M. Vander Goot

**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: Lifespan.** 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.*

**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: Adoles-**

**cent.\*** 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 or Education 301. *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: 151. *Mr. W. Joosse.*

**212 Psychopathology.\*** F and S. A study of the wide range of abnormal behaviors. Emphasis is on causes, dynamics, and classification, with some attention to treatment approaches. Prerequisite: 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. Em-

phasis 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 241. *Mr. C. Bennink, 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: 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 241, 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—its involvement in—such areas as literature, religion, art, and morality. In 1979-80 322A will be taught by Mr. G. Weaver and will develop a Christian view of various aspects of "psychologies of religion"; 322B will be taught by Mrs. M. Vander Goot and will develop a Christian view of the theological and philosophical roots of psychology.

**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. Bennink, 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.*

**334 Psychology of Language.** F. A study of the psychological aspects of language and their significance for the understanding of cognitive processes. The emphasis is on the mental processes underlying the production, comprehension, and acquisition of language. Reading, language disorders, and the relationship between language and thought are also discussed. Prerequisite: 151 or permission of the department. *Mr. C. Bennink.*

**335 Mental Health and the Classroom.** F and S. An introduction to the developmental needs and common developmental crises of school age children. Emphasis is on the methods of communication and classroom management which allow the teacher to promote healthy adjustment. *Mr. S. Stehouwer.*

**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. C. Bennink.*

#### 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. A. Reynolds.*

**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. J. Benthem, Mr. S. Stehouwer.*

**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 1980 INTERIM

**I-51 Television and Behavior.** The impact of television on attitudes and behavior is poorly understood considering the prevalence of television viewing in American culture. Consideration is given to the theory and research aimed at assessing programming. Questions include: Is there any evidence to support a cause-effect relationship between TV violence and the violent behavior of individuals? What is the impact of TV on moral development? What is the influence of TV on family relationships? Can TV be addictive and, if so, how can viewing habits be regulated? How is the effectiveness of a commercial related to the content of a program? Throughout, the focus is on a critical evaluation of the assumptions underlying current theory and methodology. Analysis and evaluation of current programs will supplement the academic requirements. Students will do assigned readings and be involved in a research project. Prerequisite: 151. *Mr. C. Bennink, Mr. J. Benthem.*

**I-53 Psychology of Groups.** An examination of the structure, processes, and performance of social groups. Attention is given to group problem-solving and decision-making, communication, leadership, cooperation, and conflict. Lectures, group exercises, and films. Prerequisite: 151. *Mr. M. Bolt.*

**I-54 The Psychology of Person Perception.** Students will examine how people make judgments about the motives, intentions, and personality characteristics of themselves and others. The implicit rules by which people judge the causes of behavior are explored within the framework of several theories of attribution. Consideration is also given to the processes of person perception in diagnosing mental illness, evaluating

academic skills, forming romantic relationships, discerning social injustices, and explaining religious experience. Lectures, discussions of research, and student proposals for research on person perception. Prerequisite: 250. Mr. J. Brink, Mr. G. Weaver.

**I-55 Psychological Effects of the Schooling Process.** In examining the psychology of the learning process, educational psychology typically stresses the educational rather than the psychological outcomes. This course, however, focuses on the latter. Discussion topics include affective education, teaching styles, grading, self-concept, values, and the "hidden curriculum." Prerequisite: one previous course in psychology or education. Mr. A. Shoemaker.

**I-56 Yale University Psychophysical Research Seminar.** This course directly involves students in one or more research projects investigating sensory processes. In addition, a series of seminars on the various sensory modalities and informal discussions with staff researchers will be conducted. The course is held at the John B. Pierce Foundation Laboratory (Yale University) in New Haven, Connecticut, and places students in direct contact with some of the na-

tion's outstanding psychophysical researchers. Background reading required before the Interim. Fee for transportation and room and board. Prerequisite: 331 and permission of the instructor. Mr. D. Snuttjer, Mr. Sanderson.

**I-58 Exploring Behavior.** Some recent studies in psychology will be reviewed and their conclusions will then be tested in student-conducted experiments. A wide range of topics will be considered: what is the relationship between conformity and behavior? when do people help in a crisis? how does a person memorize? what type of person is prone to steal? In addition to regular course work, students should plan to spend two to three hours per day conducting experiments either in the laboratory or in the field. Not intended for students who plan to take 308. Prerequisite: 151. Mr. R. Terborg.

Idis I-23 **Having and Rearing Children.** Mr. R. Stouwie.

Idis I-26 **CPOP (Christian Perspectives on Parenting).** Mr. S. Stehouwer.

Idis I-51 **The Best of Bergman.** Mrs. M. Vander Goot.

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## Religion and theology

Professors W. De Boer (chairman), H. Hoeks, D. Holwerda, J. Primus, G. Spykman, C. Vos, L. Vos  
Associate Professor L. Sweetman

Assistant Professors P. Holtrop, H. Vander Goot

Instructors D. Timmer, C. Van Houten, R. Van Houten

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 103 or 108, 206, 207, 208, 301, 303, 308, and 396. 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. Henry Hoeks.

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 are 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. L. Sweetman.*

#### 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.*

**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.\*** 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 1979-80.

**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. L. Vos.*

### 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. G. Spykman.*

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. *Mr. G. Spykman.*

313 **Roman Catholic Theology.\*** S. The development of Roman Catholic theology from the medieval era to present times, finding its climax in contemporary changes growing out of Vatican II. The Council of Trent, Counter-Reformation theology, papal encyclicals, Vatican I, and major schools of thought and shifting practices will be examined. Prerequisite: junior or senior standing. *Mr. G. Spykman.* Not offered 1979-80.

### 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. J. Bratt.*

304 **American Religious History.\*** S, core. A study of the religious history of our country from the immigration period to the present. Attention is paid to the Euro-

pean 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. J. Primus.*

### 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 historically-oriented study of the Reformed Christian tradition in the Western world—its origin and development, its basic concepts and life-perspectives, its cultural impact and contemporary relevance. Not open to freshmen. *Staff.*

311 **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. Holthrop.*

### 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., re-nascent non-Christian religions, ecumenism, mission in the ferment of social revolution. Not open to freshmen. *Mr. L. Sweetman.* Not offered 1979-80.

204 **History of Missions.** F. The record of missionary history through the ancient, medieval, and modern periods is examined with a view to ascertaining the principles that come to expression, the methods employed, the areas covered, the chief figures, and the measure of success or failure. In the modern period the great missionary conferences of the twentieth century are analyzed and evaluated. Not open to freshmen. *Mr. J. Bratt.*

305 **World Religions.\*** F. An analytical and critical study of the phenomena, the conceptual pattern, and the sacred texts of the major non-Christian religions: "Primi-

tivism," Hinduism, Buddhism, Shinto, and Islam. Each religion is studied as a total perspective for life which is embodied in interpersonal 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.*

**307 Chinese Religion.\* S.** A survey of the beliefs and practices of Chinese religion and folklore. Students examine both the historical roots of Chinese religion and the more recent evidences of cultic practices. The course includes the religious foundation of such diverse topics as ancestor worship, sectarian movements, divination, and festivals. Not open to freshmen. *Mr. R. Van Houten.*

## 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 involved in religious education. Not open to freshmen. *Mr. H. Hoeks.*

**346 Field Experience in Religious Education.** F and S. *Mr. H. Hoeks.*

**395 Seminar: Religion and Education.\* F.** A course for seniors in the Religion and Education program and those minoring in the Academic Study of Religion. It includes practical and bibliography work and concludes with a major research paper. *Mr. H. Hoeks.*

**396 Seminar: Religion and Theology.\* S.** A course for senior majors in Religion and Theology which provides a focus on significant theological issues and on theological bibliography. A major research paper is required. *Mr. G. Spykman.*

## 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 influ-

ence 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 1980 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 first two weeks of the course are devoted to reading, discussing, and being tested on the most significant parts of the Merton literary corpus. During the third week the class will travel to Kentucky for a "journey into solitude" by living at the contemplative monastery of Gethsemani, a community of Cistercian brothers where Merton himself lived during his final twenty-seven years. *Mr. D. Cooper.*

**I-11 Religion in the Public Schools.** An inquiry into the historical, legal, and educational dimensions of the role of religion in public education. After a short introduction to the historical rise of religion in American public schools, the demise of religious practices is studied in light of selected Supreme Court decisions. Students will then examine what is currently being offered under the guise of religion studies, nationally and locally. Readings, lectures, some research and field observations or interviews in area public schools. Applicable to the academic study of religions minor. *Mr. H. Hoeks.*

**I-12 Fiddlers on Our Roof: Jews in America.** A survey and analysis of American Judaism. Attention is given to the origin and development of the three main religious divisions: Orthodox, Conservative, and Reform, as well as to Reconstructionism and Zionism. Students will assess the reciprocal influences between Judaism and American culture and focus on contemporary problems. Papers and guest speakers. *Mr. J. Primus.*

**I-13 Jeremiah: Prophet for Today.** A study of Jeremiah's ministry using the perspective of the historical setting. To determine the relevancy of his book an assessment is made of the parallel between Israel's religious, social, and political conditions in pre-exilic times and the conditions in our time. Does

**Jeremiah**, in dealing with false prophets, offer **guidelines** for recognizing authentic voices today? Does his message to Israel and its kings speak to current conditions? In addition, **Jeremiah's** stance in his personal and **psychological** struggles is used as a model for Christians today. *Mr. C. Vos.*

**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. Students will use commentaries, be involved in class and group discussions, and write short papers. *Mr. W. De Boer.*

**I-50 From Calvin to Calvinism.** A study of what went right and what went wrong in

the development of Calvin's theology. The course concentrates on Calvin and the revision of his thought by his successor, Theodore Beza, and seeks to shed light on why we are where we are in current Reformed discussions. Calvin's "creation orientation" is contrasted with "predestination orientations" in later Calvinism. Assigned and optional readings in Calvin, Beza, Ames, Edwards, Hoeksema, Barth, Berkouwer, James Daane, and Harry Boer. References to current discussions in *The Banner, The Reformed Journal, The Outlook*, and other periodicals. Prerequisite: 206 or permission of the instructor. *Mr. P. Holtrop.*

**Idis I-27 Monkey: The Chinese Pilgrim's Progress.** *Mr. R. Van Houten.*

**Idis I-51 The Best of Bergman.** *Mr. H. Vander Goot.*

**Idis I-53 Allegorical Exegesis in Christian Theology.** *Mr. D. Timmer.*

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# Sociology

*Professors G. De Blaey, P. De Jong, H. Holstege, R. Rice, †T. Rottman, W. Smit, \*D. Wilson (chairman)*

*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, 380, and 381; 300 and 301 are taken in addition to the courses required for a sociology major.

The core requirements 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.* Not offered 1979-80.

**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*. Not offered 1979-80.

**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. R. Housekamp*.

**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. R. Housekamp*.

**302 Urban Sociology and Community Organization.\*** 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. *Mr. D. Smalligan*.

**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. This introduction to demographic analysis of society includes a consideration of the major demographic theories of population growth and how these contribute to an understanding of population explosion; a review of how the socio-cultural dimension of human society affects major sources of population growth (fertility, mortality, migration, and how variations in these reciprocally affect society); and an analysis of the causes and consequences of population size, distribution, and composition for human society. *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. *Mr. G. De Blacy*.

**310 Social Psychology.\*** F and S. Human behavior as a consequence of man's psychological make-up and his sociocultural 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 Blacy*.

**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 1979-80.

**314 Contemporary Social Problems: Cultural and Social Responses to Death and Dying.\*** F. This course begins with a discus-

sion 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 1979-80.

**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*.

**320 Sociological Research.\*** S. An assessment of the nature of the research process as applied to the study of theoretical problems in social science. Students are guided in designing and conducting a research project, involving definition of the problem, consideration of appropriate methods, and the collection and analysis of data. 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 1980 INTERIM

**I-10 Divorce.** Students will analyze the legal, sociological, psychological, and theological aspects of divorce. The legal analysis involves a discussion of the current court process in regard to divorce, the changes in divorce law over time, and a discussion of a model divorce law. The sociological analysis includes the impact of divorce on institutions in society and the cultural norms associated with divorce. The psychological analysis deals with the impact of divorce on the partners involved and their children. The theological analysis deals with the Biblical injunctions in reference to marriage and divorce. Guest lecturers, panel discussions, debates, audio-visual presentations, and presentations by the instructors. *Mr. R. Boer, Mr. H. Holstege*.

**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 be-

havior 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 required to work in a small group organizing one day's program and to write a term paper. *Mr. P. De Jong.*

**I-12 Alcohol in American Society.** A study of alcohol use and alcoholism in contemporary society which focuses on the implications of alcohol use in the Christian community. The social and physical effects are examined and applied to specific population groups. A thorough explanation of the effects of drinking on driving ability is included and popular misconceptions about drinking are analyzed. *Mr. R. Vermaas.*

**I-13 The Sociology of Sport.** This course focuses on the changing character of sports in our society and the sociological implications of such changes. Sports are analyzed from the perspective of increasing professionalization in all levels. Various theories of play are discussed in an attempt to better understand the characteristics of modern sport. In addition to readings, lectures, and class discussion, guest speakers will share their perspectives on specific issues related to sport. Students will be responsible for conducting a field observation and incorporating it into a term paper. *Mr. G. De Blaeu.*

**I-15 The Planned Family.** A study of some important decisions faced by people plan-

ning the size and composition of their families. Included are decisions about contraception, abortion, sterilization, artificial insemination, voluntary childlessness, adoption, and foster care. After an overview of the idea of a planned family students will devote most of their time to a study of the ethical, religious, legal, social, and psychological considerations of each decision. Readings and small group discussions on each topic and guest speakers from the community. *Mr. R. Rice, Mr. W. Smit.*

**I-50 Gerontology, A Study of Aging.** 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. D. Smalligan.*

**I-53 Missionary Anthropology.** Students will examine the process of cross-cultural communication as it relates to missionary work. The difficulties of communicating the Christian message to cultures which differ in world view, social structure, and thought and behavior patterns are examined. The nature of both Biblical norms and cultural norms, as well as the relationship between them, is considered. Prerequisite: 217 or permission of the instructor. *Mr. D. Wilson.*

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## Spanish

*Associate Professor D. Dunbar*

*Assistant Professors B. Class, E. Cortina*

*Instructors †S. Ariza, Y. Byam, E. Greenway (program coordinator)*

PROGRAMS FOR STUDENTS wishing to major in Spanish are worked out individually by departmental advisers. To be eligible a student must have completed at least two courses with a minimum average of C (2.0) and must have completed 101-102, 121-122, or the equivalent.

The typical major includes in addition to the introductory courses: 123 or 201-202, 217, 218, 321, 322, and four 300-level literature courses. The nine course

teacher education major requires 371 or 372 and only two 300-level literature courses. The six course teacher education minor must include 123 or 201-202, 217, 218, 321, and 322. Cognates are recommended in other foreign languages, European history, literature, philosophy, history of music, and history of art.

Calvin-sponsored programs are available in Mexico and Spain for the interim, a semester, or an academic year. Students interested in such programs should work out the details with the program coordinator and the registrar before making commitments.

The fine arts core may be met by 217, 218, and 300-level literature courses.

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 but who, on the basis of a placement test, are not prepared for 201. The course is also open with the permission of the department to students in the teacher education programs who have had no foreign language in high school. *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 other equivalents. *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 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 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. Pre-

requisite: 321 or equivalent. *Mrs. E. Cortina.*

## LITERATURE

217 **Readings in Spanish Literature.** F. An introduction to the major writers and movements in Spanish literature from the Middle Ages to the present. Conducted in Spanish. Prerequisite: 202. *Mr. B. Class.*

218 **Readings in Latin American Literature.** S. An introduction to the major writers and movements in Latin American literature from the New World conquest to the present day. Conducted in Spanish. Prerequisite: 202. *Mr. B. Class.*

303 **The Spanish Novel.** F. A study of the Spanish novel from *La Celestina* to the present requiring the reading and interpretation of selected chapters from outstanding novels as well as of complete works. The emphasis is on the chief characteristics of the various types of novels. Conducted in Spanish. Prerequisite: 217. Not offered 1979-80.

305 **Spanish Poetry.** F. A study of the characteristics of Spanish poetry by means of extensive readings and detailed examination of the works of the major poets from the Middle Ages to the present. Conducted in Spanish. Prerequisite: 217. *Staff.*

306 **Latin American Poetry.** S. A study of the history and characteristics of Latin American poetry from the colonial period to the present. Conducted in Spanish. Prerequisite: 218. *Staff.*

307 **The Latin American Novel.** S. A study of the novels of Latin America with particular emphasis on those written during the last two centuries. Attention is given to the historical setting and to the intrinsic literary value of each novel. Conducted in Spanish. Prerequisite: 218. *Mr. D. Dunbar.*

309 **Spanish Drama.** F. A study of the

dramatic expression of Spain in the Golden Age and through the post-Civil War era. Conducted in Spanish. Prerequisite: 217. *Mrs. E. Cortina.*

**360 Spanish-English Linguistics.** An examination of the differences between the English and Spanish languages, particularly those involving sound, spelling, structure, and vocabulary. Students will investigate stress, pitch, juncture, rhythm, phoneme, allophone, morpheme, and the diagramming of grammatical constituents in order to improve their own communication skills in both languages and to understand the errors made by those learning a second language. Testing and assessment of language skills is discussed. The course is planned primarily for those interested in bilingual education but it is useful for others wanting to understand linguistics. Prerequisite: 202. *Staff.*

**371 Civilization of Spain. S.** A study of the non-literary expressions of the Spanish mind and culture, of the history of Spanish social, political, and religious institutions, and of current problems in Spanish life. The course complements and enriches literary studies. Conducted in Spanish. Prerequisite: 202 or the equivalent. *Mrs. Y. Byam.*

**372 Latin American Civilization.** This course introduces the students 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 1979-80.

**373 Hispanic Culture in the United States.** A study of the history and culture of Hispanic groups in the United States, their political, social, and religious institutions, and their value systems. The course is planned to assist students in understanding the cultural contributions of each Hispanic group within the broader American culture. Reading materials include literary and non-literary sources. Prerequisite: 202. *Staff.*

**390 Readings and Research.\*** F, I, S. Pre-

requisite: permission of the chairman.

395 Seminar.\*

## JANUARY 1980 INTERIM

**I-11 Chicano Literature (in English).** A study of the contemporary Chicano mind using the works of Chicano poets, dramatists, essayists, and novelists. Chicano literature, a relatively new phenomenon, has grown rapidly since the 1960's and is becoming a distinct literary force. The selections present a southwestern USA perspective and also reflect a socio-economic-political protest. Special attention is given to the spiritual values expressed in the literature. Lectures, literary analysis, films, guest speakers from *La Raza Unida*, and a research paper. *Mr. B. Class.*

**I-50 Street Spanish.** An intensive course in colloquial Spanish for students who, having completed 202 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 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: 202 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 \$975 will be charged. Prerequisites: 201 or the equivalent, and approval of instructor. Satisfies departmental concentrations. *Mrs. E. Cortina.*

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# Speech

Professors *M. Berghuis (chairman), A. Noteboom, †D. Nykamp, M. Vande Guchte*

Associate Professor *D. Holquist*

Assistant Professors *E. Boevé, †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 Communication 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.

## COMMUNICATION 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. *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 1979-80.

**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. Not offered 1979-80.

**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. Not offered 1979-80.

**240 Group Communication.** F and S, competency core. Communication in the small group. Major topics include role development, cohesiveness, and group norms. Participation in experimental group situations, reading in group communication theory, and analysis of group communication are required. *Staff.*

**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. Not offered 1979-80.

**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. Not offered 1979-80.

**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. Not offered 1979-80.

**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 1979-80.

**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 1979-80.

#### 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. Not offered 1979-80.

**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. Not offered 1979-80.

#### 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.** F and 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. *Mrs. H. Van Halsema.*

**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 but not more than two course units of credit in Thespians and applied music may be applied to the minimum requirements for graduation. *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. *Mrs. A. Noteboom.*

**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.* Not offered 1979-80.

**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.*

**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 presenta-

tion of the results in a departmental seminar. Prerequisite: permission of the department. *Staff.*

#### JANUARY 1980 INTERIM

**I-50 Shakespeare's Heroes and Heroines.** Students will study two tragedies and two comedies intensively for purposes of oral interpretation. Each student will present a short scene from each play for the class; daily assignments include group interpretations of scenes. The term project involves choosing one hero or heroine and presenting a unified longer program centered on the chosen character. Satisfies fine arts core. Prerequisite: 203, 214, English 303, or permission of the instructor. *Mrs. A. Noteboom.*

**I-51 Communication Problems of Senior Citizens: Stroke, Counter Stroke, Muted Voices, and Lost Chords.** Students will investigate the communication problems of older persons—a growing percentage of the US population. A survey of the aging process is followed by a study of the effects of aging on speech and hearing mechanisms and processes. Students will make a detailed analysis of four major communication disorders affecting older persons: aphasia, Parkinsonism, voice disorders, and hearing loss. Each disorder is discussed in terms of (1) causation, (2) inhibiting psychological, social, and vocational effects, and (3) rehabilitation programs. Lectures and films are supplemented with presentations by visiting experts regarding current problems and practices; field trips provide students with observation of and direct contact with persons undergoing therapy. Reading and observational reports are required. Prerequisite: 215, Sociology 151, Psychology 151, or permission of the instructor. *Mr. M. Vande Guchte.*

**Idis I-11 Development through Puppetry.** *Mr. D. Holquist.*



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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-

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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., *Director of Computing*  
Evelyn Jean Diephouse, M.Ed., *Director of the Academic Support Program*  
Madge Strikwerda, M.A., *Director of Teacher Certification*  
Samuel J. Anema, *Computer Center Director*  
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, *Controllor*  
Edward Timmer, *Chief Accountant*  
Jay Timmer, *Director of Physical Plant and Security*  
Keith Johnson, 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*  
Mary Hekman, B.A., *Admissions Counselor*  
Aileen Van Beilen, 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*  
 Richard J. Eppinga, Ph.D., *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*  
 Donald L. Boender, M.A., *Dean of Men*  
 Marilyn De Boer, M.S.W., *Dean of Women*  
 William K. Stob, B.D., Th.M., Ed.D., *Dean of Student Life*  
 Dale Jay Cooper, B.D., *College Chaplain*  
 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*  
 John Rupke, M.D., *College Physician*  
 Clarence Beets, M.D., *College Physician*  
 Annette Steenwyk, R.N., *College Nurse*  
 Ann Hein, M.A., *Coordinator, Knollcrest East Residence Center*  
 Margaret Kuiken, M.A., *Resident Director, Bolt-Heyns Halls*  
 Dale Kuiper, B.S., *Resident Director, Schultze-Eldersveld Halls*  
 Barry Loy, M.A., *Resident Director, Beets-Veenstra Halls*  
 Russell Rogers, M.A., *Resident Director, Boer-Bemink Halls*  
 Michaël Van Denend, B.A., *Resident Director, Rooks-Van Dellen Halls*  
 Rita Vander Ven, B.S., *Resident Director, Noordewier-Vander Werp Halls*

## Committees

#### ACADEMIC AFFAIRS COMMITTEES

- Academic Standards Committee*, J. Hamersma (1981, chairman), D. Lautenbach (secretary), P. Oppewall (1982), B. Ten Broek (1981), J. Tiemstra (1980), E. Van Vugt, one student.
- College-Seminary Library Committee*, H. Brinks (1981), C. Bult, P. De Klerk, F. Klooster, J. Kromminga, W. Lagerwey (1982), M. Monsma, J. Vanden Berg, B. Van Elderen, C. Walhout, one seminary student, one college student.
- Computer Services Committee*, L. Nyhoff (1981, chairman), R. De Kock (1980), H. De Wit, G. Mellema (1981), W. Smit (1982), J. Vanden Berg.
- Educational Policy Committee*, P. De Vos (chairman), P. De Jong (1981), A. Diekema, C. Menninga (1981), G. Monsma (1980), J. Primus (1980), J. Vanden Berg, R. Wevers (1982), one student.
- Interim Term Committee*, J. Bosscher (1981, chairman), D. Jellema (1980), C. Miller (secretary), A. Otten (1982), G. Van Zwalenberg (1982), D. Westra (1982), one student.
- Professional Programs Committee*, G. Van Harn (1982, chairman), H. Broene (1980), W. De Boer (1981), P. De Vos, D. Smalligan (1980), J. Timmer (1981), E. Van Vugt (secretary), one student.
- Teacher Education Committee*, H. Hoeks (1982, co-chairman), C. Orlebeke (1980, co-chairman), P. De Boer (1981), V. Ehlers (1981), E. Greenway (1982), C. Miller (secretary), C. Mulder (1980), J. Van Zytveld (1981), one student.

#### BUSINESS AFFAIRS COMMITTEES

- College Store Committee*, J. Timmerman (1981, chairman), D. Ebels (1980), K. Johnson (secretary), two students.

*Special Projects Committee*, B. Steen (1981, chairman), A. Bratt (1980), H. Faber, K. Kuipers (1982), C. Miller (secretary), one student.

#### COLLEGE AFFAIRS COMMITTEES

*College Relations Committee*, G. Harris (1980, chairman), H. Bloem, D. Distelberg, R. Eppinga (secretary), P. Harkema, T. Ozinga, P. Vande Guchte, S. Wiersma (1982), D. Young (1981), one student.

*Priorities Committee*, E. Van Kley (1981, chairman), J. Beebe (1982), Edgar Boevé (1980), P. De Vos, H. De Wit, A. Diekema, K. Konyndyk, R. Lankheet, G. Niemeyer, B. Pekelder, L. Tamminga, R. Tiemersma (1980), P. Vande Guchte, J. Vanden Berg.

*Special Events Committee*, H. Bonzelaar (1981, co-chairman), D. Holquist (1982, co-chairman), J. Benthem (1980), D. Cooper (1981), S. Greydanus (1981), S. Lambers (1980), C. Overvoorde (1982), C. Stapert (1982), D. Tuuk (1981), G. Weaver (1982), E. Weidenaar (1980), K. Wolters (1980), one student.

#### CULTURAL AFFAIRS COMMITTEES

*Cultural Affairs Coordinating Council*, K. Bratt (1980, chairman), W. Stob (secretary), M. Walters (1982), two students, non-voting representatives from Communications Board, Film Arts Committee, Fine Arts Guild, Homecoming Committee, and Lectures Committee.

*Communications Board*, E. Ericson (1980, *Chimes*), K. Kuiper (1980, *Dialogue*), A. Noteboom (1981, secretary), D. Snuttjer (1980, *WCAL*), H. Van Till (1980, *Prism*), six students (one as chairman).

*Film Arts Committee*, L. Sweetman (mentor), I. Kroese (1982), M. Vander Goot (1981), one additional faculty member, five students (one as chairman).

*Fine Arts Guild*, D. Diephouse (mentor), S. Wiersma (fine arts editor of *Dialogue*), the chairman and business manager of the Fine Arts Guild, a representative from each of the guilds.

*Homecoming Committee*, B. Bosma (1981), R. Eppinga (secretary), W. Stob, three students (one as chairman).

*Lectures Committee*, K. Piers (mentor), R. Meyer (1980), three students (one as chairman).

#### FACULTY AFFAIRS COMMITTEES

*Committee on Committees*, A. Diekema (chairman), H. Beversluis (1980), H. Holstege (1980), K. Kuiper (1980), L. Sweetman (1980), H. Van Till (1980), one student.

*Professional Status Committee*, A. Diekema (chairman), R. Bolt (1980), J. De Borst (1981), P. De Vos, J. Lamse (1982), R. Rice (1980), C. Sinke (1982), J. Vanden Berg.

#### STUDENT AFFAIRS COMMITTEES

*All Campus Discipline Committee*, J. Kuipers (1980, chairman), J. Brink (1980), G. Huisman (1982), E. Monsma (1981), S. Stehouwer (1982), W. Stob (secretary), M. Zuidema (1981), five students; T. Dirkse as alternate.

*Athletics Committee*, S. Leestma (1981, chairman), G. De Blaey (1981), B. Klooster (1980), J. Pettinga (1982), two students.

*Chapel Committee*, L. Vos (1981, chairman), Ervina Boevé (1982), B. Pekelder (secretary), six students.

*Resident Services Committee*, K. Blok (1981, secretary), D. Boender, M. De Boer, H. De Wit, four students (one as chairman).

*Scholarships and Aids Committee*, B. De Vries (1981, chairman), P. Boonstra (1982), W. Hubers (secretary), A. Kromminga (1981), D. Lautenbach, C. Miller, A. Reynolds (1980), two students.

*Student Conduct Committee*, J. Wiersma (1980, chairman), B. Carvill (1982), B. Pekelder (secretary), P. Tigchelaar (1982), U. Zylstra (1981), four students.

*Student Development Committee*, T. Hoeksema (1982, chairman), D. Boender, M. De Boer, D. Dunbar (1981), H. Ippel (1981), B. Pekelder (secretary), W. Stob, L. Teitsma, M. Vande Guchte (1982), E. Van Vugt, two students.

*Student Life Committee*, M. Bolt (1980, chairman), R. Blankespoor (1982), W. Stob (secretary), C. Vos (1982), three students.

#### AD HOC COMMITTEES

*Governing Board, Calvin Center for Christian Scholarship*, R. Griffioen (1980, chairman), J. Bratt (1982), P. DeVos, A. Diekema, W. Joosse (1982), G. Niemeyer, H. Ten Harmsel (1980), J. Vanden Berg, H. Vander Goot (1982), and a representative from the Alumni Board.

*Committee on International Affairs*, J. Westra (chairman), D. Bratt, B. Carvill, S. Greydanus, C. Overvoorde, K. Piers, E. Runner, L. Sweetman, G. Van Zwalenberg, D. Wilson, two students.

#### DEPARTMENTAL AND DIVISIONAL ORGANIZATION

The various departments are related as divisions: Division I, education, physical education, philosophy, and religion and theology; Division II, language, literature, and the arts; Division III, the natural sciences and mathematics; Division IV, the social sciences.

Art (II), Chris Overvoorde, *chairman*  
Biology (III), Alan Gebben, *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*  
French (II), Arthur Otten, *chairman*  
Germanic Languages (II), Wallace Bratt, *chairman*  
History (IV), Bert DeVries, *chairman*  
Mathematics (III), Sanford Leestma, *chairman*  
Music (II), Dale Topp, *chairman*  
Philosophy (I), Kenneth Konyndyk, *chairman*  
Physical Education (I), Marvin Zuidema, *chairman*  
Physics (III), Roger Griffioen, *chairman*  
Political Science (IV), Johan Westra, *chairman*  
Psychology (IV), William Sanderson, *chairman*  
Religion and Theology (I), Willis De Boer, *chairman*  
Sociology (IV), Donald Wilson, *chairman*  
Spanish (II), Edna Greenway, *program coordinator*  
Speech (II), Melvin Berghuis, *chairman*

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# 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*
- Harold Paul Geerdes, M.Ed.  
*Associate Professor of Music, Emeritus*
- James P. Hoekenga, M.A.  
*Executive Director of Alumni Relations, 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*
- 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*
- Earl Strickwerda, M.A., Ph.D.  
*Professor of History, Emeritus*
- Seymour Swets, M.A.  
*Professor of Music, Emeritus*
- John Johnson Timmerman, M.A., Ph.D.  
*Professor of English, 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, M.A. (Michigan State, 1977)  
*Visiting Assistant Professor 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)  
*Assistant Professor of Psychology*  
 James Alan Benthem, M.A., Ph.D. (Wayne State, 1976, 1978)  
*Assistant Professor of Psychology*  
 Melvin Earl Berghuis, M.A. (Michigan, 1949), Ph.D. (Michigan State, 1964)  
*Professor of Speech*  
*Chairman of the Department 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)  
*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*  
 Ervina 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*

- Bette DeBruyn Bosma, M.A. (Michigan State, 1972)  
*Assistant Professor of 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*
- Kenneth Dale Bratt, M.A. (Princeton, 1973)  
*Assistant Professor in Classical Languages*
- Wallace Henry Bratt, M.A., Ph.D. (Michigan, 1956, 1966)  
*Professor of Germanic Languages*  
*Chairman of the Department of Germanic Languages*
- Daryl Myron Brink, M.A. (Western Michigan, 1968), Ph.D. (Michigan State, 1972)  
*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*
- David C. Brooks, M.S., Ph.D. (Washington, 1960, 1978)  
*Visiting Associate Professor of Mathematics*
- 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., candidate (Toronto)  
*Assistant Professor of Germanic Languages*
- Nancy L. Chadburn, M.A., Ph.D. (Indiana, 1974, 1979)  
*Visiting Instructor in Germanic Languages (Dutch)*
- 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)  
*College Chaplain*
- Elsa Cortina, Doctora en Pedagogia (Universidad Habana, 1951)  
*Assistant Professor of Romance Languages*
- Gordon Lee De Blaeij, M.A., Ph.D. (Western Michigan, 1967, 1970)  
*Professor of Sociology*
- Marilyn E. De Boer, M.S.W. (Denver, 1972)  
*Dean of Women*
- 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*  
*Chairman of the Department of Religion and Theology*
- James Henry De Borst, M.A., Ph.D. (Michigan, 1965, 1972)  
*Professor of Political Science*
- 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*  
*Chairman of the Department of History*
- Robert Lee De Vries, M.A., Ph.D. (Michigan 1964, 1974)  
*Assistant Professor of Political Science*
- Henry De Wit, M.B.A. (Michigan, 1948), C.P.A.  
*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)  
*Associate Professor of History*
- Theodford P. Dirkse, M.A., Ph.D. (Indiana, 1938, 1939)  
*Professor of Chemistry*
- Esther F. Driesenga, M.S. (Michigan State University, 1979)  
*Instructor 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*
- Edward E. Ericson, Jr., M.A., Ph.D. (Arkansas, 1963, 1967)  
*Professor of English*
- Alan Irwin Gebben, M.A.T. (George Peabody and Vanderbilt, 1955), M.S., Ph.D. (Michigan, 1959, 1965)  
*Professor of Biology*  
*Chairman of the Department of Biology*
- Edna Carol Greenway, M.A. (Texas Christian, 1972)  
*Instructor in Romance Languages*  
*Program Coordinator, Department of Spanish*
- Samuel Everett Greydanus, Jr., M.A. (Edinburgh, 1951)  
*Assistant Professor of History*
- Roger Duane Griffioen, Ph.D. (Purdue, 1960)  
*Professor of Physics*  
*Chairman of the Department of Physics*
- 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*
- 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 and Religion and Education programs*
- Robert James Hoeksema**, M.S.E. (Michigan, 1978)  
*Instructor in Engineering*
- Thomas Brian Hoeksema**, M.A., Ph.D. (Michigan State 1972, 1975)  
*Associate 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)  
*Associate Professor of Speech*
- Henry Holstege, Jr.**, M.A., Ph.D. (Michigan State, 1958, 1966)  
*Professor of Sociology*
- David Earl Holwerda**, B.D. (Calvin Theological Seminary, 1956), D.Th. (Vrije Universiteit, Amsterdam, 1959)  
*Professor of Religion and Theology*  
*Fellow, Calvin Center for Christian Scholarship*
- 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*
- Kathleen A. Hubers**, B.S. (Calvin, 1977)  
*Instructor in Chemistry*
- \*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. Joosse**, M.A., Ed. S. (Michigan State, 1971, 1972)  
*Counselor in the Broene Center*
- Wayne George Joosse**, M.A., Ph.D. (Michigan State, 1965, 1975)  
*Professor of Psychology*
- Carl William Kaiser**, M. Mus. (Catholic University, 1961)  
*Associate Professor of Music*
- Corrine E. Kass**, M.A. (Michigan, 1955), Ph.D. (Illinois, 1962)  
*Professor of Education*
- Beverly Jane Klooster**, M.S., Ph.D. (Michigan State, 1961, 1972)  
*Professor of Biology*  
*Director of Health Sciences Programs*
- Kenneth J. Konyndyk, Jr.**, Ph.D. (Wayne State, 1967, 1970)  
*Professor of Philosophy*  
*Chairman of the Department 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)  
*Assistant Professor of Speech*

- Irvin Vertus 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*
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