



# **CALVIN COLLEGE**

**The college of the Christian Reformed Church**

**Catalog for 1980-81**

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1980

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# CALENDAR

## The Fall Semester 1980

SEPTEMBER	2	Tuesday	Faculty Conference
	3	Wednesday	Residence halls open
	4-6	Thursday-Saturday	Orientation and registration
	8	Monday	First semester classes begin 8 a.m.
			Convocation 9:45-10:40 a.m.
OCTOBER	20	Monday	Reading Recess
NOVEMBER	14-25	Friday-Tuesday	Registration for Interim and spring semester
	25	Tuesday	Thursday class schedule in effect
	26	Wednesday	Friday class schedule in effect
	26	Wednesday	Thanksgiving Recess 5 p.m.
DECEMBER	1	Monday	Classes resume 8 a.m.
	10	Wednesday	Classes end 10 p.m.
	11	Thursday	Reading Recess
	12	Friday	Examinations begin 9 a.m.
	17	Wednesday	Examinations end 9:30 p.m.
			Christmas vacation begins

## The Interim 1981

JANUARY	7	Wednesday	Interim term begins 8:00 a.m.
	28	Wednesday	Interim term ends 5:00 p.m.

## The Spring Semester

FEBRUARY	2	Monday	Spring semester classes begin 8 a.m.
MARCH	27	Friday	Spring vacation begins 10 p.m.
APRIL	7	Tuesday	Spring vacation ends 8 a.m.
MAY	13	Wednesday	Reading Recess
	14	Thursday	Examinations begin 9 a.m.
	20	Wednesday	Examinations end 4:30 p.m.
	23	Saturday	Commencement 3 p.m.



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# HISTORY

## The history of the college and its objectives

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

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

The Christian Reformed Church subscribes to three statements of faith (in addition to the early Christian Apostolic Creed) which stem from the Reformation period: the Heidelberg Catechism, which is the most famous and widely translated of all Reformation creeds; the Confession of Faith written by the Belgian theologian Guido de 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. The William Spoelhof College Center, the Bergsma Natatorium, the Knollcrest East apartment complex, and the recent addition to the Commons have been added, thereby providing for the potential of 4,000 students with over half living on campus.

## **Library**

The Calvin Library, at the center of the campus, serves students of both the college and the seminary. Its 315,000-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 1,940 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 100,000 items. The Cayvan Room with its many recordings and tapes is available for both the study and enjoyment of music.

## **Computer Center**

The Calvin College Computing Center is located in the William Spoelhof College Center. The center provides computing services to support instruction and research at the college as well as services to administrative offices of the college and the agencies of the Christian Reformed Church. The principal installations are PRIME 750 and PRIME 400 computer systems.

The PRIME 750 system consists of a central processing unit with 1.5 million bytes of error-correcting memory and 600 million bytes of disk storage. The system also includes two 1,000 line-per-minute printers, a 1,000 card-per-minute card reader, and two 9-track tape drives. It also has communications hardware to support more than 40 remote terminals. This system provides service for college administrative offices and is also connected by a communications link to the denominational headquarters of the Christian Reformed Church.

The PRIME 400 system consists of a central processing unit with 1 million

bytes of memory and 80 million bytes of disk storage. It provides service to Calvin students and faculty. Twenty remote terminals are available at various locations on campus. Languages supported include FORTRAN, COBOL, BASICV, and PASCAL. Several special software packages are also available including SPSS and Minitab.

### **Instructional Resources Center**

The college maintains an Instructional Resources Center in 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.

### **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 the seminary

are largely 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 and all the programs it offers are 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 consecutive three and a half week sessions; a student is permitted to register for one regular course during each session.

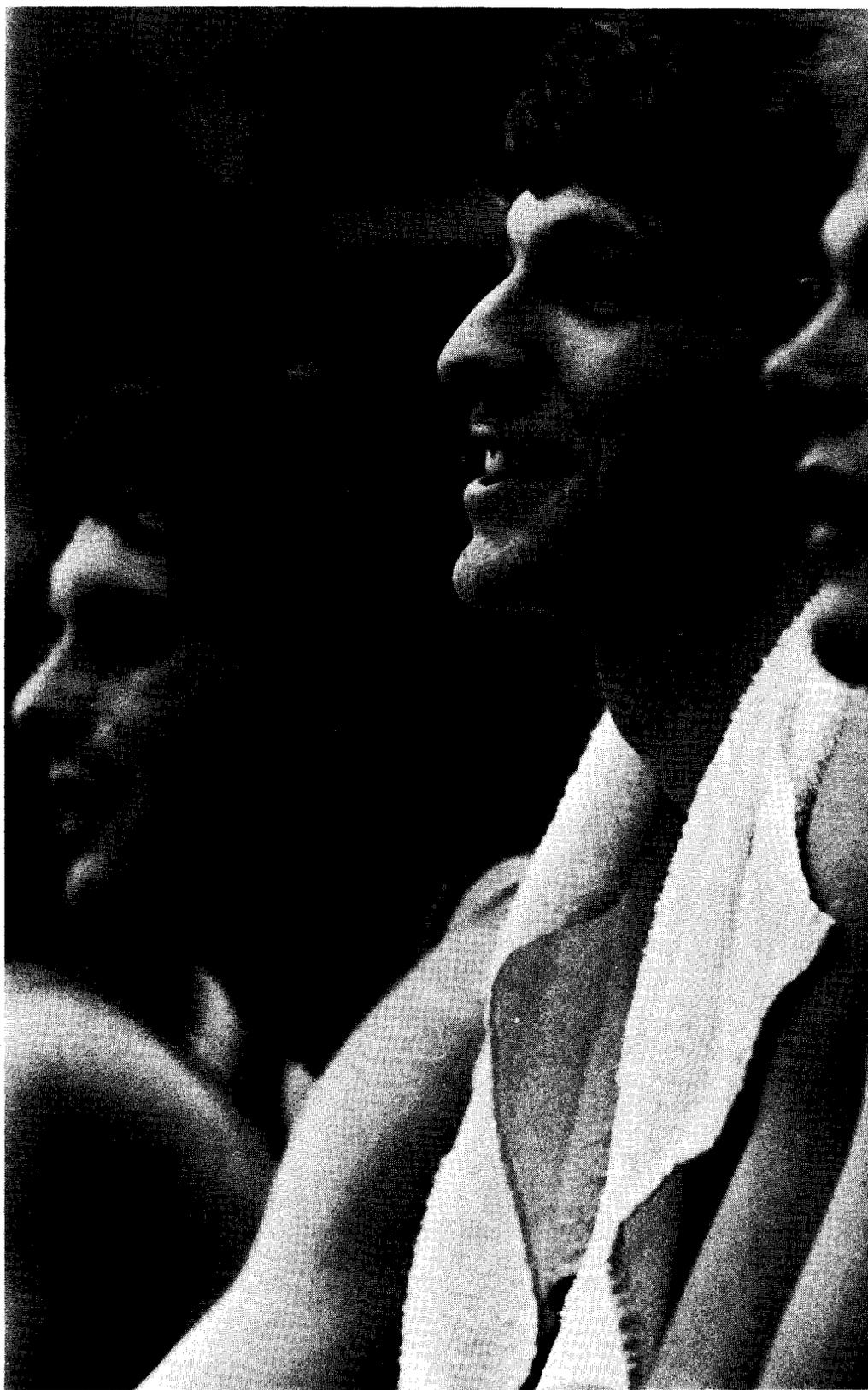
### **The Calvin Alumni Association**

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 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 unite all alumni in support of their alma mater, to provide an avenue for the exchange of ideas between Calvin and its alumni, to undertake projects that advance the college and seminary, and to be of service to Calvin's nearly thirty-thousand alumni around the world.

The Calvin Alumni Association is governed by a board of sixteen persons who serve for three years upon election by all alumni. The board meets five times during the year; the annual business meeting is held during the last week in May. Board meetings are open to all alumni and alumni chapters are urged to send representatives to the May meeting. The work of the association is supervised by the Director of Alumni Relations.

The association sponsors an alumni magazine, numerous programs, including Summerfest (the alumni vacation college), and contributes to faculty research projects. The alumni-financed program of freshmen grants and upper-division scholarships is of special interest to students. Information concerning all of these may be obtained from the Alumni Office.



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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.

### 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 Code*, approved by the Faculty, the Student Senate, and the Board of Trustees, is the official document which spells out college regulations and judicial processes. A copy of this code 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 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. 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 Intercollegiate 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 residence halls have their own governing councils and judiciary committees. These units work in cooperation with the staff members to enhance community life in the halls.

Numerous clubs and societies exist on campus, many of which are related to particular academic departments. All organized clubs and similar groups must have a faculty sponsor and must have formal approval through the dean of student life.

In addition, the Student Senate sponsors the Student Volunteer Service (SVS), a volunteer service group rooted in Christian social responsibility, which is directed by Mrs. Jane Vander Ploeg. It provides assistance to local schools, to non-profit agencies, to senior citizens, and to the community in general and provides a great variety of experience for the students involved. Students tutor children and adults, assist in special education, serve as big brothers and sisters, support art and recreational therapy programs, provide transportation for those who need it, and offer moving and home maintenance services for those in need.

## **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 SVS 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 offers career and personal counseling. The staff provides assistance for students searching for careers by helping them recognize their own resources and talents and by exploring with them the variety of careers available and appropriate for them. The career resource reference area contains a wide selection of career information. The staff also offers individual and group counseling and provides enrichment programs in the areas of interpersonal relationships, self-understanding, Christian self-image, communication skills, test anxiety, and values clarification. Students' concerns are kept confidential.

### **Counseling, Advising, and Orientation**

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.

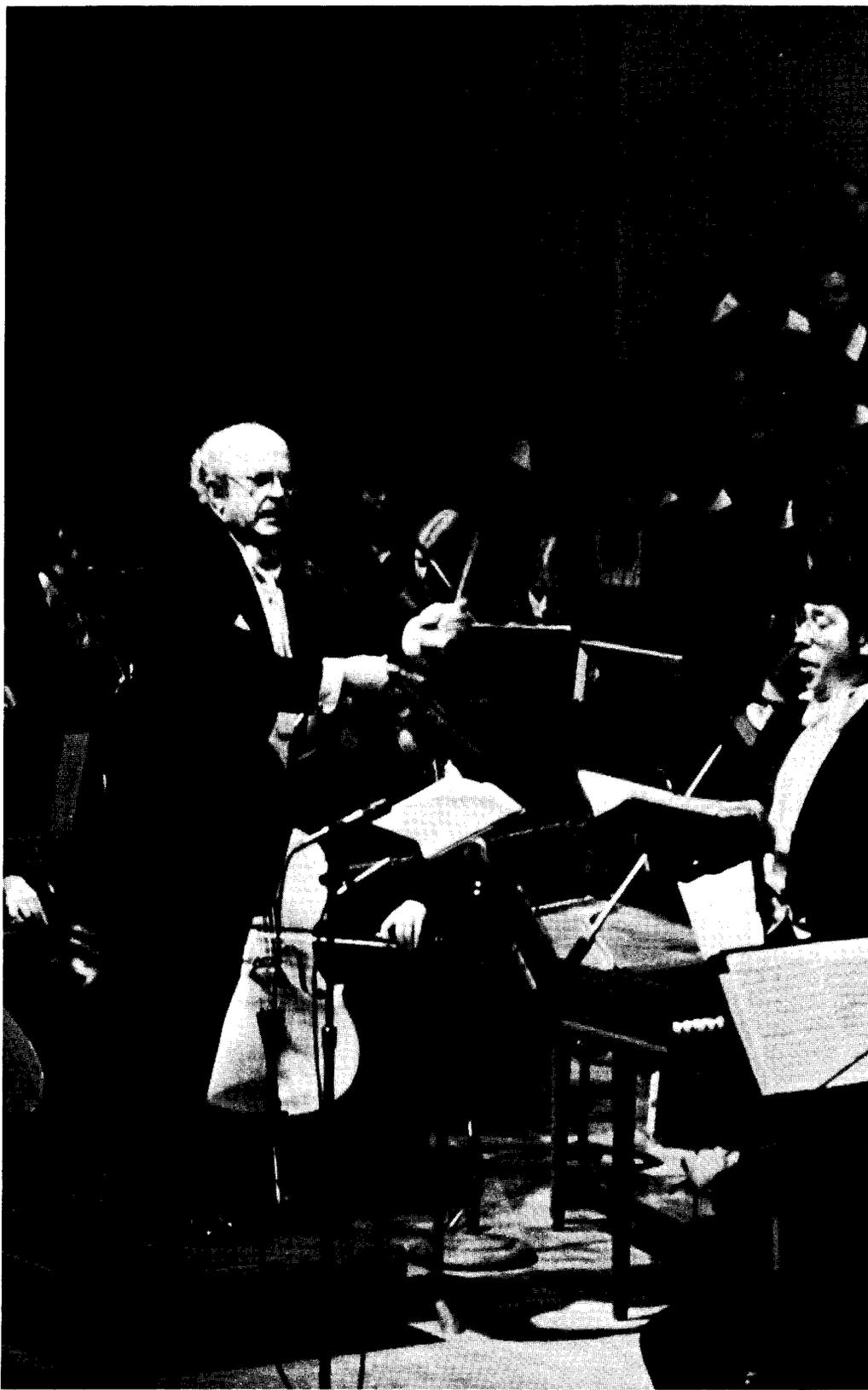
### **Graduate Placement and Fellowships**

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-graduation 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 Rhodes scholarships, the Marshall fellowships, the National Science Foundation fellowships, the various Fulbright grants, and many others. The conditions for these grants vary from year to year as do the deadlines. For most of them, however, application must be made early in the fall and students are advised to take the Graduate Record Examination at the earliest possible date.



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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.

Prospective students requesting application material will be sent the forms necessary to apply for both admission and financial aid. They will be notified concerning admission as soon as the Office of Admissions receives the following documents:

1. *A completed application form*
2. *Academic transcripts from high schools and colleges previously attended*
3. *Entrance examination results, either ACT or SAT*
4. *The recommendation of a pastor or spiritual counselor*

Candidates applying for scholarships should take their entrance examinations not later than December. All application forms received later than July 1 must be accompanied by a \$10 late registration fee.

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, subject to departmental approval.*

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 40 and 41 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 1980-81 academic year are October 18, December 13, February 14, March 28, and June 14.

The Scholastic Aptitude Test will be given this academic year on October 11, November 1, December 6, January 24, April 4, May 2, and June 6. 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, average scores have remained steady in recent years. In 1979 the average high school grade was B (3.09); the average SAT-V was 484 and the SAT-M was 524; and the average ACT-E was 21.1 and the average ACT-M was 22.9.

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.

### **Transfer Students**

Students transferring from other colleges or universities must follow the same procedures of applying for admission as freshmen, they should have a cumulative grade point average of C (2.0) or higher, but are not required to sit for entrance examinations. They will receive credit for work done in accredited institutions provided the courses were of an academic nature and the students have received an honorable dismissal. However, not more than sixteen credit

hours for each semester in attendance will be accepted. No more than seventy semester hours of advanced credit will be allowed for work completed at an accredited junior college. Furthermore, no matter how much work done at other institutions may be accepted, a student must complete his last year in residence and at least one upper-level course in his major to graduate from Calvin.

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

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

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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 39-41). Although in general narrow specialization is not desirable in high school, at least two years of Latin are recommended for those intending to become ministers and four years of mathematics for those with a professional interest in engineering, mathematics, or the sciences.

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

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### Admission Under Special Conditions

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

Applicants who have not met the requirements as to prescribed high school work or as to the distribution of that work may be admitted 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 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 carry a reduced load and to take appropriate non-credit courses in English as a Second Language along with regular courses. 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) 774-7898. Application forms with further directions are available beginning in August for entry the following year. Since the number of admissions is limited, application early in the fall is urged.

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

### **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.

### **Student Load and Classification**

The typical student load is four to four and one 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, basic 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 from the registrar 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.

## **Grading Systems**

Grades given during the regular semester are designated by letters A, excellent; B, good; C, average; D, just passing; and F, failure. An honor student taking a fifth course may elect to have it graded as 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 by December 1 of the first semester or by 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 and will then be given a grade of W in all courses. A student who discontinues classes without notification or permission is not entitled to a grade of W but will be given an F in each course.

A student may repeat any course by properly registering for it but must 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 by May 1 of the next spring semester; if given an I during the spring semester or summer session, he must make up the deficiency by 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 43 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. Such students are warned, offered special assistance and vocational counseling, and given an opportunity to improve their records. Failing that, however, they will be dismissed.

Applicants whose test scores or past records indicate the likelihood that they will experience academic difficulty will be given conditional admission, limited to three and one-half course units, and required to participate in the Academic Support Program.

The records of all students are reviewed after each semester, and the academic status of full-time students determined according to the following schedule. The performance of part-time students is judged on the basis of full-time equivalent enrollment.

<i>Semesters of full-time enrollment<sup>1</sup></i>	<i>Minimum cumulative grade point average needed for continuation</i>	<i>Minimum cumulative grade point average needed for good standing</i>	<i>Minimum credit units completed needed for good standing</i>
1	1.0	1.50	2
2	1.0	1.65	5
3	1.3	1.75	8
4	1.45	1.85	12
5	1.60	1.90	15.5
6	1.75	1.95	20
7	1.85	2.00	23.5
8	1.90	2.00	28
9	1.95	2.00	31.5
10	2.00	2.00	36

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<sup>1</sup>Interims are considered a part of the spring semesters for the purpose of determining academic status. Summers may be used to make up deficiencies. If a student discontinues prior to December 1 of the first semester, or prior to May 1 of the second semester, or at any time because of illness, that semester will not be counted.

Any student whose average falls below the minimum required for continuation is subject to dismissal. All students permitted to continue but not meeting the requirements for good standing are placed on probation. Freshmen placed on probation are limited to three and one-half course units and required to participate in the Academic Support Program. All students on probation are expected to limit extracurricular activities and part-time employment and to seek help in developing their academic skills either from a faculty adviser or from the staff of the Academic Support Program.

A student not permitted to continue 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. A 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 requirements for degrees described in the section on "The Academic Programs" beginning on page 39, students must satisfy certain technical requirements. Normally, they must have completed their last year in residence at Calvin. They must also have completed a Major Concentration Counseling Sheet and have had it signed by their departmental adviser and have met all of the conditions specified in that sheet. (These sheets normally are completed during the sophomore or junior year.) Finally, they must have filed a formal application for a degree at the Office of the Registrar not later than the beginning of the semester in which they expect to graduate. If they are completing teacher education programs, they must also file an application for Michigan certification at the same time they apply for a degree or not later than a semester before they complete the certification requirements.

Students desiring to graduate with an honors designation must have applied for admission to a departmental honors program and have met those requirements and must have met the general honors program requirements. Consult page 43 for details.



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# EXPENSES

## Tuition and fees

TUITION FOR THE ACADEMIC YEAR is \$3,000; room and board on campus is \$1,520; and the estimated cost for textbooks and classroom supplies is \$200.

Students taking fewer than four course units of credit in any semester may be charged on the per-course basis. The interim is considered a separate course for which there is no additional charge if a student is paying full tuition either semester or is paying for at least six course units during the academic year.

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.	\$1,500
Tuition, part time per course unit	390
Tuition, auditing, per course unit	195
Room and board, academic year	1,520

### SPECIAL FEES AND DEPOSITS

Visitor fee, per course	15
Directed teaching fee (Educ 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.	220
Half hour weekly lesson per sem.	110
For concentrates, per sem.	165
Vehicle registration fee	10
Residence hall social fee	15
Housing deposit	35
Physical education locker deposit	5

*Full-time tuition covers items not listed above including auditing and student activities such as the Student Senate and 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 \$1,000 for tuition, room, and board; the minimum for non-resident students paying tuition only is \$750. Denominational Grants and other financial aid are applied at the beginning of the semester and may be used to

reduce the down payment. 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. The financial aid of such students is reviewed and may be reduced.

## **Grants, scholarships, and awards**

ALTHOUGH THE COST of education has been increasing in recent years, the amount of financial aid has also increased. A Calvin College education is financially possible for almost any student and because of the various scholarship and grant programs may be no more 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 Letter 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 offsets part of the difference in tuition between public and private colleges. 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, sophomores, and juniors are eligible in 1980-81 and seniors will be eligible in 1981-82.

**Denominational Grants.** Students whose families are members of the Christian Reformed Church and who thus contribute regularly to Calvin College through denominational quotas receive a Denominational Grant. 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. For purposes of this grant, 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. However, out-of-state students who meet the residency requirements of the Michigan Competitive Scholarship, Tuition Grant, or Tuition Differential Grant Program must also be considered Michigan residents for purposes of the Denominational Grant. 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 Denominational Grant is reduced to keep the total amount of aid within the maximum permitted by state regulations.

The Denominational Grants for 1980-81 are:

	Grant per semester, if paying full tuition	Grant per course, if paying by course
For Michigan students		
Within 10 miles of the campus	\$200	\$25
From 10 to 150 miles	280	25
Beyond 150 miles	360	25
For out-of-state students		
Within 300 miles	500	35
From 300-1,000 miles	580	45
More than 1,000 miles	660	55
Manitoba, Ontario, Quebec	580	45
Alberta, British Columbia, Saskatchewan	660	55

## 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. There are opportunities for part-time employment off campus as well.

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, applications 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 Denominational Grants.) 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 should be received by February 1 and upperclassman applications should be received by March 1. Later applications will be considered only if funds are available.

## 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 on the basis of grade point average and ACT or SAT scores. Ordinarily, a grade point average of 3.5 or higher is required.

**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.

**Freshman Alumni Grants.** Since 1966 the Calvin Alumni Association has given a large number of freshman grants of \$150 or more to qualified high school seniors who are in need of special financial assistance. These grants are awarded after reviewing each student's eligibility for other aid.

**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 \$300 each; the third scholarship is a \$600 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; 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. Eligible freshmen must write a letter of application to the Office of Scholarship and Financial Aid to be considered.

**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 Soci-

ety 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 \$1,300 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 offset 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, sophomores, and juniors are eligible this year. In 1981-82 the program will be open to all undergraduates. The amount of the grant is expected to be \$500 for 1980-81.

**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 need 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 enter-

ing 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. Arrangements to take either of these tests must normally be made before December of the senior year of high school.

#### *Sophomore, Junior, and Senior Scholarships and Awards*

**Upperclassman Scholarships.** 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 annually.

**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 to encourage worthy students to prepare for positions in business and business education. One or more awards of \$300 each are 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.

**Peter and Margaret (Bell) De Haan Chemistry Award.** Mrs. De Haan has established a scholarship fund for the benefit of students in chemistry in memory of her late husband, Peter. Awards of \$400 each are based on Christian character, personality, possible financial need, and promise of growth. Selection is made by the Scholarship Committee.

**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. One or more grants of at least \$500 each are available annually. Recipients may apply for renewal.

**Dow-Employees Scholarship Fund.** The Dow-Employees Scholarship Fund provides Calvin College with one or more scholarships of \$500 each.

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.

**Dutch Immigrant Society Scholarship.** Each year the Dutch Immigrant Society offers 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 \$600. 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 Mrs. John Spalink, in memory of her 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.

**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.

**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.

**Ruth Zylstra Memorial Scholarship.** Each year Calvin College awards one scholarship of \$200 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.

**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.

## 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 1980-81 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.

**Interim Grants.** The college provides need-based grants to students enrolled in off-campus interim courses when there is an additional cost involved. These funds are made available so that students who need an off-campus course for their academic program are not denied this opportunity because of a lack of financial resources.

Criteria used in awarding the grants include an evaluation of the importance of the interim course to the student's academic program and the student's need as determined from a financial statement. The amount of the grant depends on the cost of the interim course and on the student's need. The maximum grant is approximately \$600.

**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. Pref-

erence 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.

### *Student Awards*

**Anna Bruinsma Award in Music.** The interest on \$750, given by the late H. J. Bruinsma of Grand Rapids in honor of his deceased wife, one of Calvin's alumnae, is to be used in the Department of Music, two-thirds of it serving as first, and the remaining third, as second prize. These awards to seniors are granted for the student's contribution to musical life on campus and academic achievement.

**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.

**Ervina Boeve' Scholarship for Theatre Arts.** Through the generosity of former students and friends this scholarship honors Mrs. Ervina Boeve' for her contribution to the theater and the college while serving as Director of Thespians. Each year a scholarship of \$150, to be applied toward tuition, will be awarded by the Speech Department to a junior speech major with a theater arts con-

centration on the basis of academic record and proven ability and dedication in performance, production, or scholarly research in theater. Applicants for the scholarship must submit an application portfolio to the Speech Department by April 1.

**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 an interest in humane letters and a Christian concern for cultural and spiritual growth through literature. The English Department selects the person to receive the award.

**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 are awarded at the discretion of the Department of Religion and Theology.

**The William B. Eerdmans Literary Awards.**

The late Mr. William B. Eerdmans, Sr., established the William B. Eerdmans Literary Awards in the interest of encouraging original, critical, and creative writing among Calvin College students. The \$50 award is administered annually by the English Department.

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

**University of Michigan 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 consult with the chairman of the Engineering Department before March 1, 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 a 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 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 48-62) 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 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, religion); 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 core courses are described in the various departmental sections. The specific requirements are as follows:

### **1. Six courses are required in history, philosophy, and religion**

One course in history from 101 and 102.

One or two courses in philosophy, either 153 or 151 and 152.

One course in biblical studies from Religion 103, 108, 207, 208, 327, and 328.

One course in historical and theological studies from Religion 206, 301, 303, 304, 308, 311, and 312.

Two additional core courses from history, philosophy, religion, and Interdisciplinary 100 and 234, but not more than two of the required six may be in either history or philosophy or three in religion. Students in teacher education programs should take Philosophy 153 plus either Education 304 or Philosophy 209.

### **2. Three courses are required in mathematics and in the sciences**

One course in mathematics from 107, which is recommended in elementary teacher education programs, 109, 111, and 205.

One course in physical science from 110, 112, which is required in elementary education programs, 124, Astronomy 110, 201, and Geology 113.

One course in biology from 111, 115, which is recommended for elementary education

programs, 117, 121, which is required in pre dental and premedical programs, and 216. A student may also meet this requirement by completing both 105 and 106.

The two requirements in the biological and physical sciences may also be met by a year's work in Biology 121-122, Chemistry 103-104, 113-114, Geology 151-152, Physics 123-124 when accompanied by 181-182, 126-225, or 221-222.

Students who have completed with a minimum grade of C a course in Senior Mathematics in high school are excused from the mathematics requirement, those who have completed a year of standard high school physics (not physical science) are excused from the physics requirement, and those who have completed two years in high school biology concluding with Advanced Biology are excused from the requirement in biology. Students in elementary education programs who are excused from physics or who take a course other than 112 must take 113.

### **3. One course is required in economics or political science; one in psychology or sociology**

One course in economics or political science from Economics 151, Political Science 151, 201, 202, 203, and 210; 201 or 210 is recommended for elementary teacher education programs.

One course in psychology or sociology from Psychology 151, Sociology 151, 217, and Education 301, which is required for teacher education programs.

### **4. Three courses are required in literature and the other fine arts**

One course in literature taught in English from courses numbered 200 through 321. English 225, 235, 251, and 260 do not meet this requirement.

One course in the other fine arts or in literature taught in a foreign language. These may be from Art 151, 231, 232, 332, 335, 338, 340, Classics 221, 231, Music 103, 231, 232, 233, 234, 236, 238, 241, Speech 203, 219, 304, 317, 318, 325, 326, or foreign literature courses. Art 215 and Music 238 are acceptable only in elementary teacher education programs.

A third course is required of those students who did not take two semesters of literature, art, or music during their junior or senior years in high school. English 225 may be taken as this third course.

### **5. Competency is required in written rhetoric, spoken rhetoric, and physical education**

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

A course in speech from 100, 200, 240, or the passing of a competency examination. Speech 214 is acceptable only in elementary education programs.

A course unit in basic physical education from 102, 103, 104, or 105 with the additional credit from 110 through 198; 221 may substitute for one of the additional courses for students in teacher education and physical education. Not more than one course unit of basic physical education may be applied to graduation requirements.

### **6. Competency is required in one foreign language**

Students must demonstrate a competency in a foreign language that is equivalent to two year's study in college or four year's in high school. Normally this is demonstrated by completing 123- or 202-level courses or by examination.

Students are advised to continue in languages they have studied previously and will be placed in classes at their level of ability as determined by placement examinations. Special three-course sequences (121-122-123), involving two semesters and an interim, are available in French, German, and Spanish for students whose preparation is weak or who are in teacher education programs without having studied a foreign language previously. Lan-

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 but are required to take English core courses each semester until they have met their core requirements.

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 concentration 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 supplementary concentration in church education requires Art 231 or Music 236; Psychology 151 and 201, 204, or 207; Religion 319 and two half courses involving field work in church education; and Sociology 311. The adviser is Mr. Henry Hoeks of the Department of Religion and Theology. The supplementary concentration in journalism and mass communications requires English 260, an advanced course in reporting, Speech 230, and three additional courses from Art 350, 351, English 332, or an internship. The adviser is Mr. Steve Van Der Weele of the Department of English. The supplementary concentration in German studies requires German 123 or 201, 202 or 203, an additional German course from 215 through 308 or a German interim abroad, plus three courses from 361, History 223, Music 312, 313, Philosophy 331, 332, or 335. The adviser is Mr. Wallace Bratt of the Department of Germanic Languages.

The various programs of concentration are specified in the section of the catalog which describes departmental programs and course offerings, beginning on page 65. Group majors designed for teacher certification programs are described in the section on Teacher Education Programs, on pages 48 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 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 17.

### **The Honors Program**

Calvin College offers two types of honors programs. The General Honors Program provides flexibility and independence for the superior and self-motivated student. The 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 apply to their major departments, 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 reasoning 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 with conditional admission, 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.

## **Other degree programs: B.F.A., M.A.T., M.A. in 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 basic art courses (207, 208, 209, 210), four from introductory courses to the various media (310, 311, 320, 325, 350); three intermediate and advanced studio courses from 309, 312, 313, 314, 315, 321, 322, 326, 327, and 351; four courses in history of art including 231 and 232 with two others from 331, 332, 335, 338, and 340, 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. Three course units from English and American literature, music, and speech with courses in at least two departments and at least one in literature.
5. The basic core requirements in English 100, speech, and physical education.
6. A foreign language through the 202-level or two approved courses in foreign culture.

### **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**

After students are admitted to the program the dean for academic program administration assigns them to advisers in their 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:** Two courses are required. At least one course must be from those approved in psychology or sociology and education (Education 512, 513, 535, Sociology 501) and one must be from approved courses in history or philosophy and education (Education 510, 581, and Philosophy 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, biblical and religious studies, English, history, mathematics, music, fine arts, language arts, reading, social studies, and science. 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:** A course in curriculum must be completed in an area appropriate to the student's need and concentration.
4. **Project:** The student must complete a half or full course project which is planned to synthesize his graduate experiences.
5. **Electives:** A student must complete additional courses from the categories above or from elective courses to satisfy the nine-course requirement.

A M.A.T. program may be combined with one leading to a Michigan provisional teacher certificate. Such programs include Education 301, 303, Education 581 or Philosophy 501, and two to four course units of teaching internship and seminar or the equivalent. Prospective elementary teachers must also complete Education 305 and 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

The Master of Arts in Christian Studies program offers an opportunity to college graduates of any age or profession to spend one year, or the equivalent, in high-level study of the relationship of Christian faith to human understanding of reality. The director of the program is Mr. George Marsden of the Department of History.

De Vos or Vanderberg

### 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 should be received by February 1 for first consideration.

## **REQUIREMENTS FOR THE DEGREE**

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 interdisciplinary 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 behavioral sciences, the fine arts, 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.

## **Study-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 Department of Sociology.

### **Washington Semester Program**

Calvin College is a participant in the 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. To be eligible a student must have completed at least one course in American politics and earned a 3.0 grade point average or higher. Mr. Johan Westra of the Department of Political Science is the faculty adviser.

## **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 minor, 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 216.

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 February 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 a review 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 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, such students should consult the *Student Program Guide Book* . . . developed for that program.

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

**Elementary education.** The minimum elementary education program requires the completion of the general education requirements (See pages 39–41 for the courses recommended for 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

<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.

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; 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, 215, 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 Department of English.

**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, Geology 103 or 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 Geology 103 or 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 adviser, Mr. Samuel Greydanus of the Department of History.

**General Science Studies Group Major.** The four required courses for any concentration in this group are: Biology 111 or 121; Geology 103 or 113; Mathematics 107, 109, or 111; and Physics 112, 123, 222, or 225. The five-course sequence can be met by any of three broad programs or by narrower departmental ones. Programs should be worked out with the approval of the science adviser, Mr. Clarence Menninga of the Department of Physics.

The five-course biological science sequence requires Biology 107, 111, 115, 117, and 216. Certain interim courses may be substituted for one of these courses. The three course sequence may be chosen from any of the designated courses. The geological studies sequence requires Geology 103 or 113, 152, 312, and two approved electives; the three-course sequence consists of the courses listed. The physical science sequence is Astronomy 110, Chemistry 113, Geology 103 or 113, Physics 112, and one other.

The five-course departmental sequence in biology is 112, 122, 221, 222, and

216 or 340, with certain interim courses being possible substitutes; the three-course sequence is 121, 122, and 216. The five-course sequence in chemistry is 103, 104, and three others; the three-course sequence is 103–104 or 113–114 and one other. The five-course sequence in physics is 126, 225, 226, and two others or 181, 182, 123, 124, 225, 226, and one other; the three-course sequence is 181, 182, 123, 124, 126 or 221, 222, and one other. The five-course sequence in mathematics is 111, 112, and three others; the three-course sequence is 107 or 109 and two others or 111, 112, and one other.

**Fine Arts Studies Major.** Art 215, Speech 214, and Music 238 or, if the student is completing a sequence in music, Music 239 are required. Students majoring in this group must complete a five-course departmental sequence from: Art 207, 208, 215, 231, and 232; Music 103, 233, 234, 237, 239, 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 adviser, Mrs. Helen Bonzelaar of the Department of Art.

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, 117, or 216, English 100 and any literature course in English or in a foreign language; Geography 101, Geology 103 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 Religions 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 39–41 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 and have the approval of 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, which are 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 has requirements that differ from state and college requirements. It requires that teachers in the schools they accredit have the following minimum preparation in each of their teaching fields: *art*, 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, 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 elementary 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. Admission to this program is limited to students who wish to teach the hearing impaired, emotionally impaired, or the 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.

Students interested in the learning disability program should consult Miss

Corrine Kass. Those interested in either the mentally impaired program or in the consortium program with Grand Valley State Colleges should consult Mr. Thomas Hoeksema.

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

The additional course requirements for the seven-course program, which leads to an endorsement minor in bilingual education, are: Interdisciplinary 301, Introduction to Bilingual Education; English 329, Linguistics; Spanish 360, Spanish-English Linguistics; Spanish 371, Hispanic Culture in the United States; and either History 211, Survey of American History, if the student has little background in American history, or 356, Social and Cultural History of the United States.

The adviser for this program is Mrs. Edna Greenway of the Department of Spanish.

## **Professional and Preprofessional Programs**

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

### **Accounting**

An accounting emphasis 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 Department of Biology.

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 Department of Art or Mr. James Bosscher of the Department of Engineering. 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 (architect's section)	1
Computer Science 107	1/2
Mathematics 111, 112	2
Interdisciplinary 100, Christian Perspectives (interim)	1
Economics 151	1
Philosophy 153	1
Speech 100	1/2
Physical Education	1/2
<i>Second year</i>	COURSES
Art, studio drawing or design	2
Chemistry, if none in high school; biology; or psychology	1
Physics 221, 222	2

Economics, history, political science, or sociology	2
Literature	1
Religion and theology	1

### **Business Administration**

Balanced preparation for a business career is provided by meeting the general degree requirements (page 39) and the Business Economics concentration in the Department of Economics and Business. This program provides a minimum of twelve courses—the equivalent of forty-two semester hours—in business economics and related mathematics courses. See page 87 for a full description of departmental major and cognate requirements. This concentration along with the general graduation requirements provides a substantial undergraduate coverage of the functions of the business firm, an understanding of the environment of business and human behavior, and an opportunity to develop one's personal Christian commitment and ethical sensitivity. Completion of the program provides a proper preparation for entry into a variety of business occupations as well as a foundation for graduate study in business.

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

<i>First year</i>	COURSES
Idis 100 or another elective	1
Economics 151	1
English 100	1
History 101 or 102	1
Foreign language	2
Mathematics 205–206 or appropriate substitutes	2
Physical education	½
Religion and theology	1
Speech 100 or 240	½ or 1
<i>Second year</i>	COURSES
Art, music, or speech	1
Biology 111	1
Economics, 207, 212	2
Computer Science 106 or 107	½
Philosophy 151–152 or 153 and 205 or 207	2
Physical education	½
Physics 110, Physical Science	1
Psychology or sociology	1
Elective	1
<i>Third year</i>	COURSES
Economics 309	1
Economics 313	1
Economics 316	1
Economics 322	1
Literature	1
Religion and theology	1
Electives	3
<i>Fourth year</i>	COURSES
Economics 318	1
Economics 321	1
Economics 331–339 or 400	1
Electives	5–6

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

### Engineering

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

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

<i>First year</i>	<b>COURSES</b>
Chemistry 103	1
Engineering 101	1
Engineering 102	1/2
Mathematics 111, 112	2
Physics 126 and 186	1 1/4
Interdisciplinary 100 (Interim)	1
Economics 151	1
English 100	1
Computer Science 108	1/2
Physical education	1/2
 <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	1/2
 <i>Third year</i>	 <b>COURSES</b>
Engineering elective	1
Technical elective, from 200 to 300 level courses in biology, chemistry, engineering, mathematics, or physics	
Interim, engineering	
Philosophy, 200 series course	
Religion and Theology	1
Literature	1
Fine arts elective	1
Elective	1

By special arrangements with the University of Michigan, qualified engineer-

ing 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. Students 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 Department of Biology.

### **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 39. The pre-law adviser, Mr. Johan G. Westra of the Department of Political Science, can advise students on suitable electives and can help them plan programs which provide good preparation for law school. 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 pre dental programs should consult Mr. Peter Tigchelaar of the Department of Biology, faculty adviser of the premedical and pre dental programs. Students should also note the general college admission requirements on page 17.

A student may select any major concentration and still meet the entrance requirements for most medical and dental schools. However, for most students a group concentration in biology and chemistry is suggested.

The minimum science requirements for this program 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.

Premedical and pre dental 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 exceptionally high qualifications 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 of the Department of Biology. The following courses are prescribed: Biology 121, 122, 221, 324, 334, and 336; 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, 324, 334	2
Chemistry 253-254 or 301-302	2
Other required courses	4
Interim	1
Physical education	1/2

<i>Third year</i>	COURSES
Biology 336	1
Chemistry 201, 204, or other chemistry course	1
Other required courses	4
Physics 223	1
Free elective	1
Interim, biology	1

*Fourth year*  
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. A grade-point average of 2.67 or higher is required for admission. A student may present a concentration in either a single department or in a group of related departments, as permitted in the college curriculum, provided a minimum of seven courses is presented in a single department. Concentrations of particular relevance to theological studies are: English, Greek, history, philosophy, and also psychology and sociology.

Calvin Seminary requires the following courses for admission:

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

The seminary expects that Calvin College students planning to enter the seminary will satisfy the above requirements by including the following courses in their programs; 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 of the Department of Religion and Theology.

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

Students interested in any of the many fields of natural resources can attain their goals in a number of ways. Because of the variety of programs possible, such

students should consult with Mr. Al Bratt of the Department of Biology early in their college careers to determine the requirements of the program most appropriate for them.

Professional competence in most areas of natural resources requires work beyond the bachelor's level. Students interested in research and management in wildlife or fisheries should follow a program leading to a major in biology at Calvin, followed by specialization at the graduate level. Other opportunities which require less emphasis on biology and related sciences include regional planning, environmental education, outdoor recreation, resource ecology, resource economics and management, resource policy and law, and environmental advocacy. Entry to these fields often requires careful academic preparation that must be worked out with the adviser to meet the requirements of the graduate school selected.

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 54 prepares students to enter these programs. Students can transfer to other universities as well. The course requirements listed above are typical and serve as general guidelines.

## **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. One or two years of such programs typically may be completed at Calvin. Students interested in any of these programs should work out their program with the nursing adviser, Miss Beverly Klooster of the Department of Biology.

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. 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 Chemistry 101 at the college; and Fundamentals of Nursing II and Nutrition at the school of nursing.

Upon successful completion of this program, the student is awarded a dip-

loma 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 degree program in nursing, a Bachelor of Science in Nursing degree, may be begun at Calvin and 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 prenursing 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 prenursing students have completed 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, Northern Michigan University, Eastern Michigan University, Arizona State University, University of New Mexico, and the University of Arizona.

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 prenursing sequence. Students are encouraged to communicate, prior to enrolling at Calvin, with schools of their choice 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.

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.

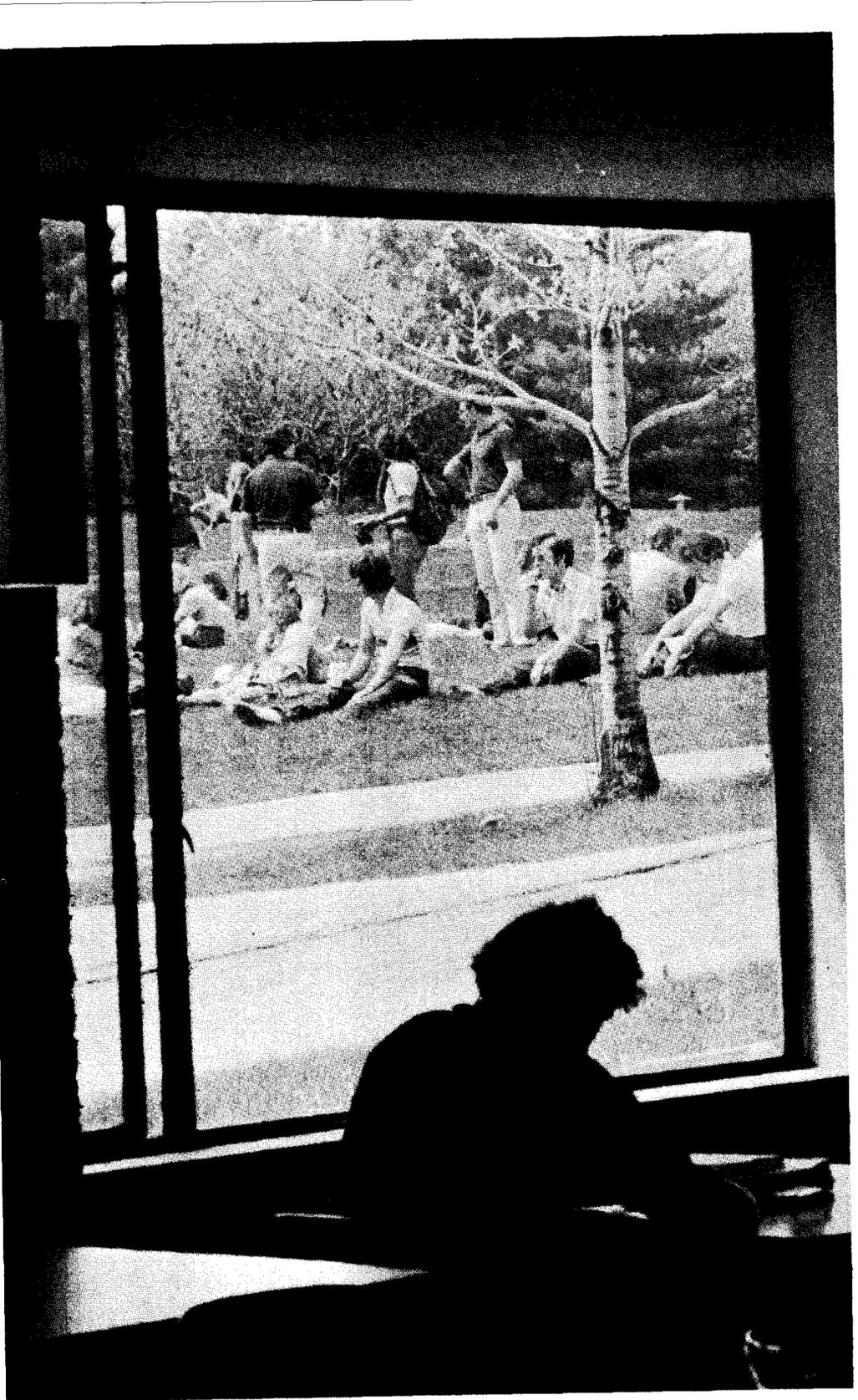
For the past several years a committee has been studying the possibility of introducing a program leading to the Bachelor of Science Degree in Nursing at Calvin College. This committee made its report to the faculty in May 1980, recommending that Calvin College work toward the introduction of a B.S.N. degree program to begin, if possible, in September of 1981. The faculty and Board of Trustees have concurred in the recommendation of the committee and if the necessary arrangements can be made Calvin College will offer a degree in nursing. Details of the program have not yet been determined.

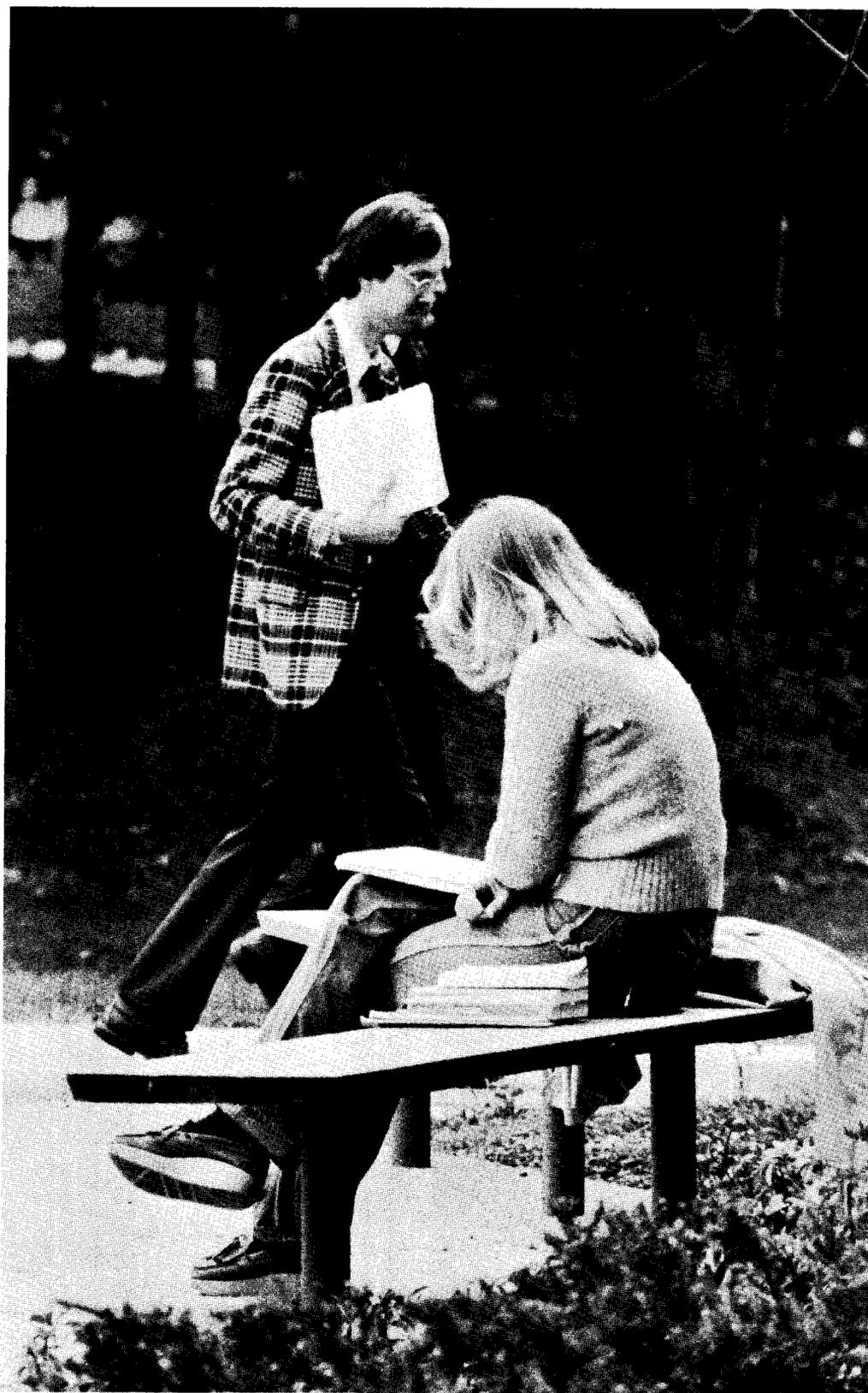
## **Recreation**

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 through I-49 have no prerequisites; those numbered I-50 through 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).*

**210 History of Science.** S. An examination of the emergence of modern science in the sixteenth and seventeenth centuries and of the major developments in the natural sciences since then. The focus is on physics, chemistry, natural history, and selected topics in biology. Particular attention is given to the philosophical and religious background of scientific ideas, to the concept of scientific revolution, and to the problems of periodi-

zation. Prerequisites: History 101 or 102 (preferred) and two courses in science or the consent of the instructor. Physics 110 or its equivalent should be one of the science courses taken by students not majoring in science. *Staff.*

**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 lan-

guage, 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

**561 Christianity, Learning, and Culture I. F.** This course deals both critically and constructively with two broad areas, Christianity and learning and Christianity and culture. It introduces students to the variety of approaches to these questions in the Christian tradition with particular attention to views in the Reformed tradition that have shaped the outlook at Calvin College. Prerequisite: admission to the Master of Arts in Christian Studies program. *Mr. G. Marsden, Mr. N. Wolterstorff.*

**562 Christianity, Learning, and Culture II. I.** This course is a continuation of the fall course, concentrating on more specialized topics chosen after consultation of professors and students. Prerequisite: 561. *Mr. G. Marsden, Mr. N. Wolterstorff.*

**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.*

**590 Independent Study. F, I, S.** Students normally register for this course in conjunction with a course in one of the disciplines. Prerequisite: admission to the Master of Arts in Christian Studies program. *Staff.*

**594 Thesis Prospectus. S.** A reading course directed by a thesis adviser preparing students for 595. Prerequisite: admission to the Master of Arts in Christian Studies program. *Staff.*

**595 Thesis. S.** Required by the Master of Arts in Christian Studies program and supervised by the designated thesis adviser. *Staff.*

## JANUARY 1981 INTERIM

**I-10 Our Daily Bread.** This course deals with aspects of food production, processing, and distribution in North America and selected Third World nations. Topics include: methods of food production ranging from subsistence agriculture to agribusiness, a consideration of the ecological and economic implications of each, and which proposed changes, if any, Christians should consider in order to bring about greater justice in the worldwide distribution of our daily bread? A paper is required. *Mr. G. Oosterman, Mr. U. Zylstra.*

**I-11 Vocabulary Building.** This course will help students increase their vocabulary through drill and by analyzing the Greek or Latin roots of much of the English language, including medical and scientific vocabulary. The course includes some discussion of word formation, semantic development, and the role and making of dictionaries. The computer will also be used for vocabulary drill and analysis if the necessary programs become available. The course aims to make students more sensitive to words, their etymologies, their appropriate, effective, and precise use, and to make them more appreciative of the phenomenon of human language. *Mr. R. Wevers.*

**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 \$70. 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. H. Van Till.*

**I-14 Clashes over Schools.** The course focuses on controversial issues relating to schools ranging from teacher power to students rights to citizen concern over moral education to the issue of locus of educational authority. The course is designed for the general college student who wants to be an informed citizen after a seventeen day tour through pairs of essays which take opposite sides on the issues selected. Major requirements include relevant participation in class debates and a significant paper taking a stand on one of the issues presented. *Mr. D. Opeval.*

**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-18 Contemporary Art and Drama in New York City.** Students will study Abstractionism and the problems related to the arts as displayed in the International Style of architecture of Le Corbusier and Gropius, the drama of Ibsen and Miller, and the paintings of Picasso and Mondrian. Students will also study Expressionism and the problems of emotional awareness as displayed by such architects, dramatists, and painters as Wright, Beckett, and Pollock. A week will be spent in New York visiting

architectural sites, attending plays, and visiting museums. A paper is required. Fee of approximately \$400. *Mrs. E. Boeve', Mr. E. Boeve'.*

**I-20 Choosing a Career: What One Needs to Know.** As students make important choices about their careers they need to know not only the process they are experiencing but how to use that process. This course is a study of the theoretical and practical dimensions of the career development process. It focuses on self awareness, information gathering, and decision making for the Christian with regard to work, abilities, interests, values, and needs. Students will understand the theoretical dimensions of the career development process and apply it to practical situations such as their own lives. Lectures, discussions, structured group activities, logs, a major summary paper, and career site visit reports. *Mrs. A. Joosse, Mr. L. Teitsma.*

**I-21 American English as it is Spoken.** A course for students whose native language is other than English and who want to increase their skills in speaking and understanding English. Small discussion groups, singing groups, and plays provide intensive practice in English conversation. Students will also attend lectures, films, and musical events to cultivate their listening skills. The class meets in the morning and afternoon; students will be required to demonstrate their improvement on oral English proficiency tests. Open only to students whose native language is not English. *Mrs. S. Horten.*

**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 open to students in the Academic Support Program. *Staff.*

**I-23 Acting Workshop.** This class will consist of two components—first, improvisa-

tional exercises to give the beginning actor a sense of security and to expand his emotional and sensory awareness and, second, work with makeup and masks to assist the student in making external his understanding of the characters portrayed. Students in both components will work with scenes and characters from assigned scripts. In addition, they will read and analyze scripts, learn traditional makeup techniques, perform in class, and submit written reports. *Mr. J. Korf, Miss M. A. Walters.*

**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 filmmakers 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 Introductory Radiochemistry.** A study of natural and induced radioactivity, including the detection and measurement of radiation and its effects on man and his environment. The laboratory will include some work with radioisotopes in chemical systems. In addition to morning class times, students should have two afternoons free for laboratory work each week, either Monday and Wednesday or Tuesday and Thursday. Satisfies medical technology program and science studies group major. Prerequisite: Chemistry 103 or 113 or high school chemistry. *Mr. H. Broene, Mr. C. Menninga.*

**I-53 Piety and Poverty: Perspectives on Justice and Stewardship.** A study of the biblical teachings on stewardship as these relate to justice in society both nationally and

internationally. Students will discuss the socio-economic-political aspects of Israel's theocracy and its critique by the prophets as well as the New Testament references to justice among men. The socio-economic-political systems of today and policies within them will be studied and evaluated in the light of these perspectives. The class includes speakers from various agencies such as Bread for the World, Christian Reformed World Relief Committee, etc. A project or paper is required. Prerequisites: Economics 151 and a course in religion or permission of an instructor. *Mr. E. Dykema, Mr. C. Vos.*

**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. A. Shoemaker.*

**I-55 The Queen Who Became a Slave: Theology's Domination by Philosophy Since Kant.** A survey of the most influential theologies of the nineteenth and twentieth centuries and the ways in which they reflect the philosophical trends of the same period. Topics include: Kant and liberalism; Hegel, naturalism and process theology, existentialism and neo-orthodoxy; Heidegger and the new hermeneutics; positivism, Wittgenstein and "God-talk" theology. The course also attempts to determine the relationship between theological orthodoxy and the varieties of philosophical approach: does a commitment to orthodoxy require the rejection of certain philosophical positions? Lectures, class discussions, daily reading assignments, and a paper. Prerequisites: some combination of two courses in philosophy and/or theology or permission of the instructor. *Mr. J. Cooper.*

**I-56 The Surrealist World.** Surrealists use painting, poetry, and film as a means to free themselves from restraint, to fulfill desire, and to express the "surreal." In order to develop a sensitive and responsible framework of aesthetic principle for evaluating surrealist expression, students will explore the often bewildering world of surrealism, identifying and examining common themes, images, and techniques. Students will study artists such as Arp, Dali, Ernst, Magritte, Masson, and Miro' and poets (in English translation) such as Aragon, Breton, Desnos, Eluard, and Péret. Students will also view films by Bunuel. A paper or report is required. Prerequisite: at least one course in the fine arts core. *Mr. A. Otten.*

**I-57 B.F. Skinner and His Box.** Is behaviorism a viable approach to the study of man? Can it avoid an impoverished view of man? Is it based on an adequate conception of science? In this course we will study the behaviorism of B.F. Skinner, the man who developed both an experimental method and a philosophy of that method. Students will outline Skinner's position, noting its assumptions and claims both with regard to human knowledge and reality. Students will also evaluate these claims in light of his experimental practice and sketch an alternative proposal to show that psychology can be empirical without being empiricist, scientific without being scientific, and critical

and normative as well as descriptive. Readings, lectures, and discussion. Two short papers are required. Prerequisite: one course in philosophy and some background in psychology. *Mr. A. Vos.*

**I-58 Exploring Employment for College Graduates.** Students are placed in full-time, unpaid internships with local businesses, industries, social agencies, or other institutions. Regular seminars on campus deal with job search studies, interviewing, resumé writing, self evaluation, and readings. 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. Verwolf.*

**I-59 Environmental Education.** This course explores the historical development of the term environmental education as well as the manifestations of the movement in both formal and non-formal education. Its major emphasis is on environmental education as a methodology and students will be involved in the observation, teaching, writing, and simulation of environmental education techniques. The class includes trips to area programs. Prerequisite: permission of the instructor (for students who intend to be teachers). *Mr. T. Oppewal.*

**562 Christianity, Learning, and Culture II,** *Mr. G. Marsden, Mr. N Wolterstorff.*

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# Art

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

Assistant Professor \*\*H. Bonzelaar, J. Kuiper

Instructors M. Borst, R. Pederson, †B. Van Halsema, T. Van Laar

THE ART DEPARTMENT of Calvin has been conceived within the framework of the liberal arts tradition and offers three distinct programs of concentrations for students with different interests. It also offers minors in art and in art history. Students must have earned a grade of at least C (2.0) in 207 before applying for admission to any concentration.

The minimum major program in art is 207, 208, 209, 210, 231, 232, 310 or 311, 320 or 325, and two courses from 309, 312, 313, 321, and 326. All art majors are required to participate in a senior exhibition during the spring semester of their senior year. The six course minor in art history requires 231 and 232 with the remaining courses from 332, 335, 338, 340, Classics 221, or a designated art history interim.

The ten and a half course major for teachers, k-12, must include 207, 208, 209, 215, 216, 231, 232, 310 or 311, and 320 or 325. The seven course teacher education minor is 207, 208, 209, 215, 216, 231, and 232. All art education students are required to participate in the senior exhibition during the spring semester of their senior year. The advisers for these programs are Mrs. H. Bonzelaar and Mr. J. Kuiper.

The Bachelor of Fine Arts (B.F.A.) program, which has a greater professional emphasis, is described on page 44. This program is not a preparation for teacher certification.

The core requirements in the fine arts may be met by 151, 231, 232, 332, 335, 338, 340, Classics 221, and, for students in elementary education programs, 215.

**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 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. *Mr. R. Jensen, Mr. R. Pederson, Mr. C. Huisman.*

**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. S. Overvoorde, Mr. T. Van Laar.*

**210 Intermediate Drawing.** S. A continuation of 209 further developing skills in the drawing media and the understanding of the proportion and volume of the human figure. Prerequisite: 209. *Mr. R. Jensen, Mr. C. S. Overvoorde, 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, demon-

strations, and art teaching experiences in the school situation. Research paper required. Not open to freshmen. *Mrs. H. Bonzelaar, Mr. J. Kuiper.*

**216 Principles of Secondary Art Education.** F. A course emphasizing methods and techniques of organizing and motivating art on the secondary school level. Media include clay, enameling, jewelry-making, weaving, batik, printmaking, and painting. Prerequisites: 207, 208, 209. *Mrs. H. Bonzelaar, Mr. J. Kuiper.*

**231 An Introduction to the History of Art.** 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, Mrs. M. Borst.*

**232 An Introduction to the History of Art.** S, core. Continuation of 231. The study of painting from 1500 to the present. *Mr. E. Boevé, Mrs. M. Borst.*

**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. *Mr. R. Jensen, Mr. C. S. Overvoorde, Mr. T. Van Laar.*

**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: 209. *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: 209. *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. Prerequisite: 311. *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: 209. *Mr. C. S. 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. S. 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. S. 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: 209. Mr. S. C. Overvoorde, Mr. T. Van Laar.

**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. Mr. C. S. Overvoorde, Mr. T. Van Laar.

**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. Mr. C. S. Overvoorde, Mr. T. Van Laar.

**332 History of Dutch Painting.\*** F, core. A historical survey of Dutch painting from the Gothic times through the seventeenth century. Emphasis on the images created and the ideas expressed by the major painters such as Van Eyck, Bosch, Brueghel, Rubens, and Rembrandt. Mr. C. S. Overvoorde. Not offered 1980-81.

**335 Renaissance Art.\*** F, core. A study of the painting, architecture, and sculpture of the fifteenth and sixteenth centuries, with a focus on the Renaissance of Italy. The course presents an historical survey of the art produced in the centers at Florence, Rome, and Venice from the late Gothic period to the High Renaissance, followed by a study of the Mannerism of the sixteenth century. Mrs. M. Borst.

**338 Nineteenth Century Art.\*** S, core. A study of the sculpture, painting, and architecture of nineteenth century Europe, with an emphasis on the artistic developments of Northern Europe. The course traces the successive stylistic movements of Neo-Classicism, Romanticism, Realism, Impressionism, Symbolism, and Expressionism as they emerge against the background of the official Academy of Art. Mrs. M. Borst.

**340 History of Modern 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, mate-

rials, and site, beginning with Sullivan, Eiffel, and Gaudi, and continuing into the twentieth century with Wright, Le Corbusier, Mies vander Rohe, and Saarinen. Mr. E. Boevé.

**350 Introduction to Graphics.\*** An introduction to graphic design and reproduction involving layout, typography, the use of photography, and illustration. The course introduces the student to the various printing processes. Projects include posters, brochures, pamphlets, and advertisements. Prerequisite: 210 or permission of instructor. Mr. C. S. Overvoorde.

**351 Intermediate Graphics.\*** A continuation of 350 with an emphasis on the production of illustrations and on the use of photography as they apply to specific problems of information and promotion. Prerequisite: 351. Mr. C. S. Overvoorde.

**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. Staff.

**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. Mr. C. S. Overvoorde.

*Classics 221, Graeco-Roman Art and Architecture, may be included in art concentrations. Art 358, Introduction to Graphics, and 351, Intermediate Graphics, may be part of supplementary concentrations in journalism and mass media.*

## 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 1981 INTERIM

I-10. **Ceramics—an Experience with Clay for the Non-Art Major.** Students learn basic handbuilding techniques such as pinch, coil, slab, hump-mold, paddle, and wheel to create functional and sculptural forms. Students will also apply prepared glaze to bisqued forms before final firing. Students should plan on spending a minimum of six hours per day in studio work and one hour per day in non-studio activities. Lectures, demonstrations, critiques, assigned readings. For non-art majors only. Fee of \$18. *Mr. C. Huisman.*

I-11 **Art of the Pharaohs.** Few nations have enjoyed as long or as illustrious a history as that of Egypt. This course examines Egyptian painting, sculpture, and architecture from its Pre-Dynastic through its New Kingdom periods. Students will pay special attention to the Imperial and religious framework in which Egyptian art existed; they will also explore significant archaeological finds. Slide lectures, guest speakers, field trips to the Detroit Art Institute and the University of Chicago's Oriental Institute, and a paper. *Mrs. M. Borst.*

I-50 **Cinematography as a Creative Art Form.** An introduction to the creative art of cinematography. Students will be introduced to the various techniques and structures of filmmaking in the context of the history of film production and theories of film evaluation. Members of the class will produce experimental Super-8 films while involved in the total filmmaking process—creating a shooting script, learning camera techniques, lighting systems, editing, splicing, and single and double system sound. The course includes lectures, presentations, example films, special resource personnel, and field trips. Studio work, out of class individual and group film production, and short critique papers. All necessary filmmaking equipment will be available to the class. Prerequisite: sophomore standing or above. *Mr. R. Jensen.*

I-51 **Collagraphy.** Collagraphy is a course designed for students with a background in printmaking who wish to study this latest technique. The course presents an introduction to and history of the collagraph but places the emphasis upon production of collagraphic prints. The word "collagraph" is a combination of the words collage and graphic, i.e., a printed collage. It can be practiced with the relief and the intaglio methods of printmaking or a combination of the two. Fee of approximately \$50. Prerequisite: 320 or permission of the instructor. *Mr. C. S. 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 of approximately \$600. Prerequisites: at least one advanced studio course (310, 311, 320, or 325) and permission of the instructor. *Mr. R. Pederson.*

I-54 **Teaching Art Appreciation in Elementary Schools.** Current school art programs have underdeveloped art appreciation activities; frequently the emphasis is on "doing" art rather than teaching children to "read" art. Therefore, students will consider possible methods for teaching art appreciation such as discussing reproductions of masterpieces, meeting artists and their original art work, visiting art in a museum, and establishing a model for art criticism on children's levels. The aim is to evaluate elementary students' responses to these exposures through participant observation. Students will test their proposed methods by teaching children and evaluating their attitudinal responses and by recording their conclusions. Classes will begin one evening a week during November. Prerequisite: art education major and permission of instructor. *Mrs. H. Bonzelaar.*

**I-55 Recipes of the Masters: Traditional Painting Methods and Materials.** Prior to the nineteenth century artists had to manufacture their own materials and pay careful attention to the chemistry and craftsmanship of their art but with the introduction of mass-produced and synthetic materials, many such techniques have died out or been lost. This course will investigate various traditional painting methods and materials, offering choices and opportunities not usually available in typical painting classes. Beginning with the fifteenth-century advice of Cennino Cennini and followed by that of

Vasari and others, students will attempt to use the various pigments, vehicles, grounds, and supports and gain experience in egg tempura, encaustic, and fresco painting. The relationship of material to image and idea will be stressed, i.e., how changes in material often accompany changes in style and vice versa. Some experience in painting or a strong interest in art history is highly desirable. Prerequisite: 209 or permission of instructor. *Mr. T. Van Laar.*

**Idis I-18 Contemporary Art and Drama in New York City.** *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, 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 alternate years, core. An introduction to modern

astronomy and astrophysics for students concentrating in the area of science and mathematics. Major topics include the nature of stars and galaxies, the physical processes occurring in various celestial objects, and the current cosmological theories. Lectures, laboratory exercises, and observing projects. Prerequisites: Mathematics 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

Associate Professor U. Zylstra

Assistant Professor H. Bouma

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 in biology except that one additional 300-level biology course is required. The 300-level courses must include 340 and either 341, 346, or 352. The interim course, Teaching Investigations in Biology, is recommended. The required cognates constitute a minor in the physical sciences. Juniors planning their directed teaching during their senior year must pass a screening test in biology not later than February 1 of their junior year. The adviser for elementary teacher education programs is Mr. Clarence Menninga of the Department of Physics.

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 cognate 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, 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.

## GENERAL COLLEGE 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.*

**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 physics before this course. *Staff.*

**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 is presented. Lectures and laboratory. Normally students should take the core courses in mathematics and physics before this course. *Staff.*

**216 Field Biology.** F. The study of organisms in their natural environment. Emphasis is on concepts of ecology relevant to field biology, field and laboratory examination and identification of organisms, and the study of major ecosystems. Lectures and laboratories. Prerequisite: 111 or equivalent. *Mr. A. Bratt.*

## 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. Tigchelaar.*

**324 Hematology.\*** S, half course. A study of the components of blood and the blood-forming tissues. Course topics include blood cell morphology, development, hemostasis, plasma composition, and

methods of blood analysis. Additional prerequisite: Chemistry 253 or 301. *Mr. H. Bouma.*

**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 253 or equivalent. *Mr. J. Beebe.*

**334 Immunology.\* S, half course.** An introduction to the study of immunology and serology. Course topics include innate, cellular, and humoral immunity, theories on the origin of antibody diversity, and the application of antigen-antibody specificity to serological assays. Additional prerequisite: Chemistry 253 or 301. *Mr. H. Bouma.*

**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.\* S.** 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.*

*Interdisciplinary 210, History of Science, may be included in concentrations in this department.*

#### 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 1981 INTERIM

**I-10 Investigations in Biology.** Core. A liberal arts core course in biology which emphasizes laboratory investigation. Students 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 Harn.*

**I-51 Seminar on Carnivorous Plants.** A study of research papers on and a class discussion of carnivorous plant anatomy, morphology, nutrition, physiology, growth, and development. Seminar participants will prepare and present reviews of the relevant biological literature. Satisfies the seminar course requirement in biology concentrations; those electing to meet the seminar requirement will receive regular letter grades. Prerequisite: 222 or permission of the instructor. *Mr. J. Beebe.*

**I-52 Introduction to Marine Biology.** An introduction to marine environments and the biotic and abiotic factors which influence the types and abundance of organisms which inhabit the ocean. Major marine habitats and the typical organisms which inhabit them are analyzed; the ecosystem 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. Tigchelaar.*

**I-54 Teaching Investigations in Biology.** This course will give experience in teaching beginning students in biology in a laboratory setting. Students will be involved in the preparation of laboratory materials, in as-

sisting 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. B. Ten Broek.*

**I-55 Human Genetics.** This course concentrates on the application of genetic principles to *homo sapiens*. Course topics include the history of human genetics, biochemical genetics, human evolution, genetics and human behavior, principles of genetic counseling, and ethical issues in human genetics. Lectures, some laboratory work, films, and a paper. Prerequisite: 221 or permission of the instructor. *Mr. H. Bouma.*

**I-56 Woody Plants.** A study of woody plants from the perspective of the plant geographer, forester, and landscape architect. Trees and shrubs will be studied as components of natural forests, as ornaments used in plantings and landscaping, and as timber and pulp sources for wood and paper. Laboratory work involves practice in tree and shrub recognition and identification by examination of woody plants in winter condition and through study of herbarium specimens. The course also includes some laboratory study of the anatomical structure of different woods and the uses of different woods. Intended primarily for students concentrating in natural resource studies. Prerequisite: 111, 117, 121, or permission of the instructor. *Mr. A. Gebben.*

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

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# Chemistry

Professors R. Albers, R. Blankespoor, H. Broene, R. De Kock, K. Piers, W. Van Doorne (chairman)  
Associate Professor A. Leegwater  
Assistant Professor L. Mehne

PREREQUISITE TO BEING admitted to a concentration in chemistry is a minimum average of C (2.0) in 104 and in 201, 253, or 301.

The major program for students who do not plan to pursue graduate study in chemistry is 103, 104, 201, 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 103, 104, 201, 277, 278, 301, 302, 309, 310, and 303, 305, 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 six course minor concentration consists of 103, 104, 201, 253 or 301, 204 or 277, and one course from 254, 278, 302, 309, 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.

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

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.

**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. L. Mehne.*

**101 Chemistry for the Health Sciences.** S. A one-semester survey of inorganic, organic, and biological chemistry as applied in the field of medicine. Laboratory. Prerequisite: one year of high school chemistry or permission of department. *Mr. T. Dirkse.*

**103 General Chemistry.** F. A study of the basic principles of chemistry, with emphasis

on the laws of chemical combination, theories of atomic structure and chemical bonding, the periodic law, kinetic theory, and chemical and physical equilibria. Laboratory. 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. 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 vari-

ous 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, core. A study of the fundamental class of organic compounds, their syntheses and reactions, followed by a survey of compounds and chemical changes occurring in living systems, of photosynthesis, metabolism, respiration, etc. Laboratory. Prerequisite: 113. *Mr. R. Blankespoor.*

**201 Quantitative Analysis.** F. A study of the theory and practice of titrimetric and gravimetric methods of analysis. Laboratory. Prerequisite: 104. *Mr. W. Van Doorne.*

**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. K. Piers.*

**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. R. Albers.*

**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 ther-

modynamic point of view. Laboratory consists of a study of experimental methods used in these areas and their application to analytical chemistry, including work in polarography, potentiometric titrations, and amperometric titrations. Prerequisite: 201 and 277. *Mr. L. Mehne.*

**301 Organic Chemistry.** F. A detailed study of organic compounds, their synthesis and reactions, presented within the framework of modern physico-chemical theory, together with an introduction to modern methods of analysis and identification. Laboratory. Prerequisites: 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.\*** F. A study of proteins, carbohydrates, lipids, enzymes, coenzymes, hormones, vitamins, metabolism, biosynthesis, and bioenergetics. 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. A. Leegwater.*

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

**309 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. *Mr. L. Mehne.*

**310 Advanced Inorganic Chemistry.\*** S. A study of the chemical elements from the standpoint of periodicity and the nature of chemical bonding. Crystal field theory and

ligand field theory are discussed in connection with the chemistry of the transition elements. Laboratory. Prerequisite: 278. *Mr. W. Van Doorne.*

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

**395 Research-Seminar.** F, I, S, full or half course. Library and laboratory research on an assigned problem. In addition, each student will be required to present a seminar in the departmental seminar series. Open to juniors and seniors by permission of the chairman and instructor under whom the work will be done. *Staff.*

*Interdisciplinary 210, History of Science, may be included in concentrations in this department.*

#### JANUARY 1981 INTERIM

**I-10 Chemistry, Man, and Society.** A course designed to explore the role of chemistry and its resulting technologies in contemporary society. Students will discuss some of the basic ideas and methodologies of chemistry in an analysis of our current stewardship of material resources and their use as synthetic materials and chemicals. Satisfies physical science core. *Mr. A. Leegwater.*

**I-50 The Nucleic Acids.** A treatment of the structure, biochemical origin, function, and relationship of nucleic and polynucleic acids (DNA and RNA). Lectures and readings; useful for biology majors. Prerequisite: 254 or 302. *Mr. R. Albers.*

**I-54 Structural Determination of Compounds Using Spectrometric Methods.** The structures of many compounds can be determined from their NMR, IR, UV, and mass spectra. Although this course introduces the theory and principles underlying proton and carbon-13 NMR spectroscopy, high resolution mass spectrometry and fragmentation patterns, visible and UV spectroscopy, and IR spectroscopy, the main emphasis is on the practical application of these spectral methods of elucidating molecular structure. If time permits, ESR spectroscopy will also be included. The course involves lectures and problem-working sessions, but no laboratory. Prerequisite: 253 or 301. *Mr. R. Blankespoor.*

**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-52 Introductory Radiochemistry.** *Mr. H. Broene.*

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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 and for any others wishing to concentrate in Latin language and literature. 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, the registrar.

The Greek minor requires five language courses and one Classics course. Not more than one language course may be in New Testament Greek. The Latin minor, which also fulfills the minimum requirements for state teacher certification, requires five language courses beyond the 100-level and one Classics course. The specific courses for either the Greek or Latin minor should be chosen in consultation with a department member.

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

231 **Classical Mythology.** S, 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. *Mr. R. Otten.*

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 1980-81.

312 **Roman History.\*** S. The history of Rome from the foundation of the city to A.D. 565, the death of Justinian. The emphasis is 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 1980-81.

## GREEK

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

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

201 **Intermediate Greek A.** F. Readings in the early dialogues of Plato. Special emphasis is put on gaining reading proficiency in Greek prose. Prerequisite: 102. Not offered 1980-81.

202 **Intermediate Greek A.** S, core. Readings in Homer's *Iliad*. Attention is given to the characteristics of Homer's world. Prerequisite: 201 or 203. Not offered 1980-81.

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

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

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

206 **New Testament Greek: The Epistles.** S. A study is made of some of the Pauline Epistles. Prerequisite: 205. *Mr. R. Otten.*

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*. Pre-

requisite: 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 years of high school Latin or two courses of college Latin. *Mr. R. Wevers.*

**202 Intermediate Latin.** S, core. A study of the *Aeneid* and of selected poetry and prose in Latin. Prerequisite: three years of high school Latin or three courses of college Latin. *Mr. R. Wevers.*

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

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

**301 Latin Epistolary Literature.** Core. Readings from the letters of Cicero and

Pliny. The letters are read as social and political documentation for issues, movements, and conditions of the Late Republic and Early Empire and as commentaries on the careers and personalities of their authors. Prerequisite: 205 or 206. Offered in alternate years. Not offered 1980-81. *Mr. R. Wevers.*

**302 Latin Philosophical Literature.** Core. Texts selected from such authors as Lucretius, Cicero, Seneca, Lactantius, and St. Augustine to illustrate the Latin contribution to Western culture, particularly in ethical and social thought. Prerequisite: 205 or 206. Offered in alternate years. Not offered 1980-81. *Mr. R. Otten.*

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

**304 Latin Historical Literature.** S, core. Intensive reading in the major Roman historians of the Late Republic and Early Empire. Emphasis is placed upon the proper interpretation of these writers as sources for our understanding of the political movements of the period. Collateral reading and reports. Prerequisite: 205 or 206. Offered in alternate years. *Mr. G. Harris.*

### JANUARY 1980 INTERIM

**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. K. Bratt.*

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

**Idis I-11 Vocabulary Building.** *Mr. R. Wevers.*

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# Computer Science

Professors S. Leestma (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 a concentration in computer science consisting of 108, 251, Mathematics 111, 112, 211, and six additional courses from 243, 252, 370, Mathematics 341, 343, 352, Physics 285, and 385. The six-and-a-half course minor is 107 or 108, Mathematics 111 or 205, one from 206, 341, 343 or 352, and four from 243, 251, 252, 370, Physics 285, and 385.

A minor concentration requires six courses from Computer Science 243, 252, 370, Mathematics 251, Physics 285, and 385. Students not majoring in mathematics may count Mathematics 111 or 205 and one from 206, 341, 343, and 352 in the required six.

**106 Computer Programming for Business.** S, half course. Introduction to computer programming using the COBOL language. Applications will be taken from business data processing including accounting, inventory control, file maintenance, and report generation. *Mr. L. Nyhoff.*

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

**108 Computer Programming for Sciences and Mathematics.** F and S, half course. Instruction in BASIC and FORTRAN languages, with applications of numerical methods to problems in biology, chemistry, engineering, mathematics, physics. Intended for students majoring in mathematics and science. Prerequisite: Mathematics 111, which may be taken concurrently. *Mrs. D. Wolthus.*

**243 Computer Organization and Assembly Language Programming.** A study of the structure and organization of the basic components of a computer system. Topics cov-

ered include binary representation of data, arithmetic and logical operations, principal machine instruction types and their formats, addressing schemes, and assembly language programming. Prerequisites: 107 or 108 and Mathematics 111 or 205. *Staff.*

**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. *Staff.*

**252 Data Structures.** An analysis of structures for storing data and of algorithms for manipulating these structures. Data structures studied include lists, stacks, queues, and trees. Various algorithms for sorting, searching, and updating these structures are developed and analyzed. Prerequisite: 251. *Staff.*

**370 Language Structures and Compiler Design.** An introduction to the basic constructs of modern programming languages and to the techniques for implementing these in the machine language of a typical computer. Topics include grammatical structure, syntax, semantics, parsing, storage allocation, error detection, and object code generation. Prerequisites: 243 and 252. *Staff.*

**390 Independent Study.\*** F, I, S. *Staff.*

The following courses are also part of computer science offerings: *Mathematics* 341, 343, 352, *Physics* 285, and 385.

## 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.*

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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 H. Joldersma*

**PREREQUISITE** to a 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 one. In addition to this basic language foundation a student must complete three courses from the 300 level and two interims approved by the department.

**101 Elementary Dutch.** F. An introductory course in the comprehension and use of spoken and written Dutch. *Staff.*

**102 Elementary Dutch.** S. Continuation of 101. *Staff.*

**201 Intermediate Dutch.** F. Selected readings of modern Dutch prose and poetry. Review of grammar and syntax. *Staff.*

**202 Intermediate Dutch.** S. Continuation of 201. *Staff.*

**203 Intermediate Dutch.** F. 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. 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. *Mr. W. Lagerwey.*

**306 Dutch Classics.\*** Core. A continuation of 305. *Mr. W. Lagerwey.*

**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. *Mr. W. Lagerwey.*

**308 Readings in Dutch Church History.\*** S. A continuation of 307 for the period 1700-1945. *Mr. W. Lagerwey.*

**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. *Mr. W. Lagerwey.*

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

## JANUARY 1981 INTERIM

**I-10 The Promised Land: Saga of Dutch Emigration to America.** A course in the life and times of Dutch settlers of the nineteenth and twentieth centuries as told in tales both old and new. Students will read prose and poetry written by members of the Dutch ethnic community such as D. C. De Jong, F. Fiekema Manfred, S. Wiersma, and B. Kruithof. This literature serves as a mirror, often friendly but sometimes hostile, usually serious but occasionally humorous, which may or may not faithfully represent life within that Puritan Dutch Reformed community. Conducted in English. *Staff.*

**I-11 Introduction to Frisian.** A course de-

signed to give the beginning student some elementary facility in the reading, writing, and speaking of Frisian. *Mr. B. Fridsma.*

**I-50 Listening in on the Dutch.** Students will listen to a varied program of recordings in the Dutch language including short stories, interviews with celebrities, radio commentaries, devotional talks, popular songs, biblical drama, musical shows, and cabaret selections. The primary aim of the course is to develop listening comprehension without reliance on a printed text but students will also expand their writing and speaking skills. Prerequisite: three semesters of Dutch or the equivalent. *Staff.*

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# Economics and business

*Professors G. Monsma, D. Pruis (chairman)*

*Associate Professor E. Beversluis*

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

*Instructors W. Bobbitt, J. Dodge, D. Rietberg, S. Roels*

*Visiting Calvin Fellow A. Storkey*

**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 major concentration must be selected from the four listed below: the economics concentration provides thorough coverage of economic theory and analysis, the business economics concentration is the usual business administration program, an economics-mathematics concentration joins the study of mathematics and of economics and business, and a group concentration involves economics and another social science. Either of the first two concentrations is appropriate for teacher certification.

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 plus 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 emphasis may be added to this concentration by electing six courses from 209, 307, 308, 309, 310, 311, and 312.

A twelve course interdisciplinary group concentration in economics and mathematics is 151, two courses from 207, 321, 322, and three others chosen with the departmental adviser and Mathematics 111, 112, 211, 212, and two additional 300-level courses. Economics 207 is recommended for those interested in business and both 321 and 322 for those interested in economic theory. Mathematics 343 and 344 or 352 are also recommended.

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 by the end of 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.

The chairman will assist students in working out appropriate teacher education minors. The minimum requirements are 151, 321 or 322, and four additional courses, which may include two interims. An economics minor requires 151, 321, 322, and three courses from 207 and 331-342. A business minor requires 151, 207, 313, and three from 212, 309, 316, 318, 321, 322. An interim course may be substituted for an elective course with the adviser's approval.

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

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

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

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

**212 Financial and Managerial Accounting.** S. Continuation of 207. Interpretation of published financial statements. Introduction to cost accounting and to reporting to management. Prerequisite: 207. *Mr. K. Kuipers, 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 Ac-

countant. Prerequisite: completion of or concurrent registration in 307. *Mr. K. Kuipers*.

**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. Prerequisite: 151. Not open to freshmen. *Mr. W. Bobbitt*.

**314 Personnel Management.\*** S. A study of the principles and problems involved in personnel management in an organization, including recruitment, selection, training, evaluation, motivation, compensation, human resource planning, career development, and collective bargaining. Prerequisite: 313 or permission of the instructor. *Mr. W. Bobbitt*.

**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. D. Rietberg*.

**317 Financial Instruments and Markets.\*** S. An extension of 316 into topics such as leasing, mergers, and multinational finance; application of the theory of finance to investment instruments, including stocks, bonds, options, futures markets, and commodities, and to financial markets and institutions, including investment companies and the stock exchanges. Prerequisite: 316. *Mr. K. Kuipers*.

**318 Marketing.** F and S. A study of the principles and problems involved in the optimal administration of the marketing function in the firm, including production and promotional policy, price determination, and distribution channels. Prerequisite: 151. Not open to freshmen. *Mr. D. Rietberg, 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. J. Dodge, Mr. G. Monsma*.

**331 Credit and Monetary Theory.\*** F. A study of the principles of money, banking, and credit with emphasis on monetary theory and policy and their role in domestic and international economics. Prerequisite: 151. *Mr. J. Dodge*.

**334 Industrial Markets and Public Control.\*** S. A study of the structure, control, and market behavior of American industry, and the public policies for the control of economic power. Prerequisite: 151. Not offered 1980-81.

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

**336 Comparative Economic Systems.\*** S. A comparison of various forms of economic organization, such as capitalist and socialist types, and an evaluation of their performance in theory and practice. Prerequisite: 151. *Mr. E. Beversluis*.

**337 World Poverty and Economic Development.\*** S. 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. E. Dykema*.

**338 International Economics.\*** F. A study of international economic relations, stressing the fundamentals of trade theory, the balance of payments, problems of international disequilibrium, trade barriers, and efforts to promote international economic stability and growth. Prerequisite: 151. *Mr. J. Tienstra*.

**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.\*** F. An examination of the development of economic ideas, mainly in the last two hundred years, in the context of the philosophical and historical conditions in which they emerged. Prerequisite: 151 or the permission of the instructor. *Mr. E. Dykema.*

**390 Independent Study.\*** 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 1980-81.

#### JANUARY 1981 INTERIM

**I-10 Economics and Education.** The world of education provides a case study to introduce the economic way of thinking and the nature of an economic society. Within a supply and demand framework, students will discuss questions such as: Why does not the private "market" provision of education suffice in modern society? What are the causes of the current crisis in public school finance? Has education really become more expensive? What are the economics of Christian schools? What light can economic analysis of education shed on issues of equal educational opportunity? What are the relations between education and "macro" concepts such as unemployment rates, inflation, and growth of GNP? What is the relation between education and development, particularly in the Third World? In looking at *demand* for education students will develop a theoretical framework for estimating both the costs and benefits of education and pay particular attention to the uses and limits of the ideas of human capital and return on investment in connection with educational demand. Likewise the demand of individuals for education will be distinguished from that of society. In looking at the *supply* of education students will focus on reasons for different sources of supply

(public, private non-profit, proprietary), the nature of educational costs, and the market for teachers. Readings, lectures, class discussions, and tests. *Mr. E. Beversluis.*

**I-11 Collective Bargaining.** An introduction to the process, procedures, problems, and issues in the negotiation and administration of collective bargaining agreements. Students will discuss both economic and non-economic aspects of industrial relations policies and practices; they will also participate in the negotiation of a written collective bargaining agreement. The course is appropriate for students in business, economics, social and behavioral sciences, and for those in education who may someday be working under a collective bargaining agreement. *Mr. W. Bobbitt.*

**I-50 Financial Institutions and Markets in a Rapidly Changing Economy.** This course presents an overview of the financial system and the role it plays in our economy. Students explore recent innovations, major trends, and current problems (such as equity and efficiency) in the performance of financial institutions. They will pay particular attention to investment instruments in order to understand how prices are determined and how a balance is achieved between risk and return. Includes a week visit to New York to meet with financial executives and to visit the stock exchanges, the Commodities Exchange, the Federal Reserve Bank, the Conference Board, the New York Society of Security Analysts, etc. Fee of approximately \$400. Prerequisites: 151 and permission of instructor. *Mr. K. Kuipers.*

**I-51 Accounting Issues and Institutions.** This course considers current issues in accounting standards in the light of accounting theory and the process by which generally accepted accounting principles are developed. A joint study of the issues is followed by individual research. Includes week visit to New York to visit the Financial Accounting Standards Board, the American Institute of CPAs, the National Association of Accountants, the New York Society of CPAs, and a leading CPA firm headquarters, etc. Fee of approximately \$400. Prerequisites: 207 and permission of instructor. *Mr. D. Pruis.*

**I-52 Business Taxation.** A study of a variety of federal, state, and local payroll, excise, property, franchise, income and other

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

I-53 **Environmental Economics: How Can It Work?** The first Earth Day and the En-

vironmental Protection Agency made their appearance in 1970. Has the past decade of study and policy made an impact on the quality of life? Students will examine some theoretical tools in the study of environmental policy, look at current policy goals and programs, and examine alternative policies. Final exam and a short position paper. Prerequisite: 151. *Mr. J. Dodge.*

Idis I-53 **Piety and Poverty: Perspectives on Justice and Stewardship.** *Mr. E. Dykema.*

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# Education

*Professors G. Besselsen, 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 48-53. Prospective elementary teachers should consult Mr. William Hendricks, coordinator of elementary education. Those interested in secondary education should initially consult the teacher education adviser of the department in which they expect to major. Mr. Philip Lucasse is the coordinator of secondary education. Students intending to enter special education should consult either Mr. Thomas Hoeksema, coordinator of special education: mentally impaired, or Miss Corrine Kass, coordinator of special education: learning disabilities.

The elementary teacher education program requires nine course units: 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. Students in special education must also complete the elementary education requirements.

**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 and a laboratory experience to develop competence in the classroom use of audio-visual equipment. 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. P. De Boer, Mr. D. Oppewal.*

**305 Elementary Teaching Methods.\*** F and S. A study of the methods of teaching

each of 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. A seminar taught in conjunction with 345 involving the practical problems of pedagogy in the elementary classroom, including those related to the student's directed teaching experience, as well as a systematic expansion of the discussion of elementary teaching methods in-

itiated in 305. Large and small discussion groups led by the college supervisors of directed teaching. *Staff.*

**356 Seminar in Secondary Teaching Methods.\*** F and S. A seminar taught in conjunction with 346 by the supervisors of secondary directed teaching involving general problems of pedagogy at the secondary level as well as of the methods of teaching the specific subject of the student's classroom. The seminar provides a forum for the discussion of problems that develop during directed teaching. *Staff.*

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

## SPECIAL EDUCATION

**216 Education of Exceptional Children.** 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. *Mr. T. Hoeksema.*

**310 Diagnosis and Prescription in Special Education.** F. This course is designed to acquaint students with the basic terminology and theory of assessing specific learning problems. Skill will be developed in the selection, administration, and interpretation of formal and informal, standardized and non-standardized assessment devices for the purpose of determining educational prescriptions. Prerequisite: 216. *Staff.* Not offered 1980-81.

**320 Theories of Learning Disabilities.** F. 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.** F. 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. *Mrs. B. Bosma.*

**330 Curriculum and Instruction: Mentally Impaired.** F and S. 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: 301, 303, 306; 305 is recommended. *Mr. T. Hoeksema.*

**332 Curriculum and Instruction: Learning Disabilities.** F and S. 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: 301, 303, 320; 305 is recommended. *Miss C. Kass.*

**347 Directed Teaching: Mentally Impaired.** S. Two course units. *Mr. T. Hoeksema.*

**348 Directed Teaching: Learning Disabilities.** F and S. Two course units. *Miss C. Kass.*

**357 Directed Teaching Seminar: Mentally Impaired.** One half course unit. *Staff.*

**358 Directed Teaching Seminar: Learning Disabilities.** One half course unit. *Staff.*

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

**512 Theories of Schooling.** This course examines psychological, socio-psychological, and educational concepts relevant to an analysis and evaluation of the schooling process. Intellectual skills required for the construction of micro-theory and the interpretation and implementation of research will also be stressed. *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. *Miss C. Kass.*

**515 Moral Education.** The study of two theories of moral education, one of which stresses the cognitive approach and the other the affective. The Kohlberg and the Roths and Simon theories are examined. 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 ap-

proaches 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. *Mrs. 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 administration of an appropriate battery of tests, the designing of a remedial program, and creation of an evaluation procedure. Prerequisite: 513, 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. Prerequisite: at least one course in philosophy or philosophy of education. *Mr. D. Oppewal.*

**590 Independent Study.** 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 1981 INTERIM

**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 of approximately \$240. Exact

dates to be announced. Prerequisite: permission of the instructor. *Mr. C. Mulder.*

**I-14 Exceptional Children Come in Small Packages.** Students will examine current practices in the education of handicapped infants and preschool children, identify their needs, and develop strategies to meet those needs. The course includes a review of normal infant development, a survey of exceptionality, and observation of children—in class, via films, and through visits to regular and special preschool programs. Topics include educational assessment of young handicapped children, home teaching, parent involvement, and the benefits of early intervention. Observational logs and a research paper. *Mrs. C. Rottman.*

**I-50 Mastery Learning: Arithmetic.** Students will study Benjamin Bloom's theory of mastery learning and its application to a specific subject in the curriculum: elementary school arithmetic. The mastery model of learning holds that virtually all students can learn excellently if the instruction meets the principles of the model. Students will study the research of the seventies to uncover these principles and construct teaching materials that meet the criteria of mastery learning to improve personal knowledge of arithmetic concepts. Prerequisite: 301/303 or its equivalent in aiding experience. *Mr. G. Besselsen.*

**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 using 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. Fee of approximately \$150. 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 use 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. Dr. Lucasse will lead a concluding seminar during the first week of second semester. Fee of approximately \$260. Prerequisite: permission of the coordinator. *Mr. P. Lucasse.*

**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 services which are available to teachers in deal-

ing with children's physical disabilities. Prerequisite: junior or senior special education status or permission of instructor. *Mr. H. Triezenberg.*

**I-56 Education in the Inner City.** Students will have a first hand experience in a multicultural, inner-city school situation, explore wider aspects of the problems through group visits and special speakers representing various cultural perspectives, and investigate various dimensions of such education through readings and seminar discussions. During daily morning sessions students will be placed as an assistant in a multicultural, inner-city classroom or school-related agency. Monday, Wednesday, and Friday afternoons will be used for group visits, special speakers, films and discussion groups that deal with books and issues related to multicultural, inner-city education. Prerequisite: sophomore status or above. *Mr. W. Hendricks.*

**I-57 Clinical Teaching of Learning Disabilities.** Students will work on a one-to-one basis with learning-disabled children, will be given specific educational prescriptions to carry out, and will tutor an hour a day. Demonstrations, lectures, readings, and clinical demonstrations of teaching techniques. Prerequisite: 320 or permission of instructor. *Miss C. Kass.*

**Idis I-14 Clashes Over Schools.** *Mr. D. Oppewal.*

**Idis I-58 Exploring Employment for College Graduates.** *Mr. P. Lucasse.*

**Idis I-59 Environmental Education.** *Mr. T. Oppewal.*

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# Engineering

*Professors J. Bosscher (chairman), H. Van Poolen  
Instructors R. Hoeksema, K. Peterson, 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 56 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 or architectural drawing to provide facility in the transmission of ideas through accepted graphical means. Areas covered include orthographic projection, free-hand sketching, pictorial representation, auxiliary views, sections and conventions, and basic dimensioning; an introduction to the design process by means of lectures and assigned architectural or engineering projects. Readings are also assigned in design-related areas of creative thinking, aesthetics, models, economics, and human satisfaction. *Staff.*

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

**202 Statics and Dynamics.** S. A study of fundamental principles of mechanics and their application to the problems of engineering. Vector algebra, forces, moments, couples, friction, virtual work, kinematics of a particle, kinematics of a rigid body, dynamics of particles and rigid bodies, impulse, momentum, work and energy are presented in two and three dimensions. Prerequisites: Physics 126, 182, and concurrent registration in 211. *Mr. R. Hoeksema.*

**205 Principles of Materials Science.** F. An introductory course in the science of en-

gineering 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 the solution of problems in stress and strain of engineering materials, including resistance to force, bending, torque, shear, eccentric load, deflection of beams, buckling of columns, compounding of simple stresses, introduction to 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. *Mr. N. Van Gaalen.*

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. K. Peterson.*

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.** I, 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. *Mr. J. Bosscher.*

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. K. Peterson.*

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

#### JANUARY 1981 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. This course also includes an introduction to finite element method. Prerequisite: 305. *Mr. R. Hoeksema.*

316 **Heat Transfer.** *Mr. J. Bosscher.*

318 **Control Systems Analysis.** *Mr. K. Peterson.*

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## English

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

*Associate Professor J. H. Timmerman*

*Assistant Professors G. Bordewyk, J. Snapper, W. Vande Kopple*

*Instructor R. Fry*

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.

The recommended program for a major requires one course from 202, 305, 306, and 307; one from 203, 308, and 309; one from 313, 314, 315, and 321; and one from 302, 329, 330, and 331. In addition, the major program requires 303, 310, 311, and three other courses, including not more than one interim course and excluding 100, 212, 225, 235, and 251.

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, 220, 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.

**001 Intermediate English as Second Language I.** F, non-credit Academic Support Program course. 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.*

**002 Intermediate English as Second Language II.** S, non-credit Academic Support Program course. Continuation of 001. *Mrs. S. Horton.*

**003 Advanced English as Second Language.** F and S, non-credit Academic Support Program course. 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.*

**007 Laboratory for Written Rhetoric.** F and S, non-credit Academic Support Program course. Laboratory sections, which are coordinated with certain sections of 100, provide supplementary exercises in grammar, reading skills, and vocabulary development. *Staff.*

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

**200 Introduction to Literature.** F and S. A study of the forms and genres of literature, with critical exercises, selected readings, and a course paper. *Staff.*

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

**203 A Survey of English Literature.** S. A continuation of 202. The course proceeds from Wordsworth through Eliot. *Staff.*

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

**220 World Literature.\*** F and 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: 100 or its equivalent. *Mrs. P. Tigchelaar, Mrs. J. Walhout, Mrs. M. Zylstra.*

**235 Practice in Composition.** S. A second course in rhetoric and composition designed for students who wish additional practice in basic writing skills but who do not qualify for 332. Includes readings, a review of basic principles of rhetoric, and extensive practice in writing a variety of short papers. *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.*

**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. P. Ope-wall.*

**302 Medieval English Literature.\*** F. A study of Chaucer's *Canterbury Tales* and *Troilus and Criseyde* as reflecting his literary genius and the major cultural phenomena of his time. Supplementary study in translation of *Beowulf*, *Gawain and the Green Knight*, and portions of *Piers Plowman*. Not offered 1980-81.

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

**304 English Literature of the Renaissance.\*** F. 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. Vander Weele.*

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

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

**307 English Literature of the Eighteenth Century.\*** F. 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.* Not offered 1980-81.

**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.* Not offered 1980-81.

**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 Harmself.*

**315 Modern British and American Fiction.\*** F and S. Intensive reading of selected works of major twentieth-century British and American novelists. *Mr. P. Oppewall.*

**318 Studies in American Literature.\*** S. Intensive studies of three or four American writers selected from different periods of American literary history, with the selection changed from year to year. Typical groupings are: Hawthorne, James, Faulkner; Whitman, Dickinson, Frost, Stevens; Thoreau, Twain, Ellison, Baldwin; or 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, and 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. W. Vande Kopple.*

**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. W. Vande Kopple.*

**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. Walhout.*

**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 Independent Study.\*** 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 cur-

ricular 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.** 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 1981 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 William Carlos Williams and the American Scene.** Williams sums up the issues and concerns of the early twentieth century; his own achievement is as impressive and perhaps as important as that of any other poet of his generation. In addition, he was an important part of the artistic community of his day. He was an experimentalist and an inventor but he also saw himself as part of the American mainstream, rethinking and reshaping the tradition. Students will study Williams' work from the early poetry through *Paterson* and will examine the relationships between his work and the work of the artists and writers who were his friends. Lectures, discussions, and stu-

dent reports, projects, and slides. *Mr. C. Walhout.*

**I-13 The Black American Experience Through Literature.** An exploration of the uniqueness of the black American experience as interpreted by its most gifted literary representatives. Students will read and discuss poetry, fiction, and autobiographies by W.E.B. DuBois, Claude McKay, Langston Huges, Richard Wright, James Baldwin, Malcolm X, Eldridge Cleaver, Ralph Ellison, Gwendolyn Brooks, and others. *Mr. P. Oppewall.*

**I-15 Great Short Stories of North America.** Students will read the best short stories by Canadian and United States authors such as Margaret Laurence, Margaret Atwood, Mordecai Richler, Hugh Hood, John Updike, Flannery O'Connor, Saul Bellow, and John Cheever. Students will also compare and contrast Canadian and United States writing, focusing on technique and theme. Lectures, films, discussions, and dramatics. *Mr. H. Baron.*

**I-16 Stop Me If You've Heard This One: American Literary Humor.** A chronological survey of humorous American writing from colonial wit and satire to the black humor of the 1970's. The course will explore the devices of plot, characterization, and language and will examine recurring comic themes. Students will encounter some remarkable characters: Poor Richard, Sam Slick, Paul Bunyan, Pudd'nhead Wilson, Satan, Br'er Rabbit, Alibi Ike, Walter Mitty, and many others. *Mr. G. Bordewyk.*

**I-17 Dostoevsky and Solzhenitsyn.** The literary tradition in Russia has always been influential in developing Russian thought and culture. Dostoevsky and Solzhenitsyn both stand squarely in that tradition and have similar artistic techniques. Therefore, it is appropriate to study them together and focus on two different moments in that development—one in the nineteenth century and one in the twentieth. A tentative reading list is Dostoevsky's *Notes from Underground*, *Crime and Punishment*, and *The Brothers Karamazov* and Solzhenitsyn's *One Day in the Life of Ivan Denisovich*, *The First Circle*, and *Cancer Ward*. The course includes some lectures but will be primarily discussion. Because of the amount of reading, students are strongly urged to do some of the reading before the course begins; reading

lists will be available at the English Department before Christmas vacation. *Mr. E. Ericson.*

**I-51 Six Shakespeare Plays.** This course is designed for those students who cannot fit a regular Shakespeare course into their schedules but who will consider themselves culturally deprived if they do not read Shakespeare in college. By studying film and television performances, recordings, and histories of famous stage productions, students will feel something of the extraordinary impact that Shakespeare continues to make on an audience through his dramatic art and will catch a glimpse of his imagination and "apprehend some joy." The course includes six plays covering comedy, tragedy, history, and romance. Lectures, films, recordings, discussions, reports, and possibly guest lecturers and/or a trip to a performance. Prerequisite: 100. *Mrs. C. Otten.*

**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 Harnscl.*

**I-53 Victorian Literature and the Visual Arts.** An examination of selections from British Victorian poets and prose writers Tennyson, Ruskin, the Pre-Raphaelites, and Hardy; the paintings of Turner, the Pre-Raphaelites, and others; and the book illustrations of Hablot Brown and George Cruikshank. The study will be conducted mainly as a seminar with lectures and one or

two field trips to Toronto and Chicago to view paintings and illustrated first editions. Students will prepare a project, paper, or catalog. Prerequisite: 100. *Mr. G. Harper.*

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

**I-55 American English: Barbarizing the King's English.** Since the English language was brought to America by the colonists it has changed in many ways. Speakers have altered the meanings of many words, borrowed words from Indians and immigrants, invented words for unfamiliar landscape features, animals, and institutions, and developed new systems of slang and argot. Using lectures, readings, exercises, records, and short papers, students will examine the English of the colonists, the changes since the seventeenth century and current variations from region to region, the socio-cultural factors which caused those changes, and American English as it will be in the future. This process will also demonstrate some general principles of socio-historical and structural linguistics. Prerequisite: 100. *Mr. W. Vande Kopple.*

**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-23 Acting Workshop.** *Miss M. A. Walters.*

**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

Instructors C. Gallouët-Schutter, D. Traas

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, 215, 216, 217, 218, 311, 312, 313, and 314. The major program for prospective teachers requires 201, 202, 215, 216, 217, and 218, and three from the following: 311, 312, 313, 314, 372, and French Interim Abroad. The minor program for prospective secondary teachers requires 201, 202, 215, 216, 217, 218. 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, Mrs. D. Traas.*

102 **Elementary French.** S. Continuation of 101. Prerequisite to a program of concentration are 101 and 102. *Mrs. D. Traas.*

122-122-123 **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. Further training in spoken and written French, study of the structure of the language, and reading of important literary texts. Conducted in French. *Mrs. D. Traas.*

202 **Intermediate French.** S. Continuation of French 201. *Mrs. D. Traas.*

215 **Advanced French.** F. 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. Work 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. Work in written French stresses competence through the systematic study of vocabulary, grammatical structures, and a progression of written assignments designed to develop the student's capacity to write in the different genres, including the *dissertation*. Prerequisite: 202. *Mrs. C. Gallouët-Schutter.*

216 **Advanced French.** S. Continuation of 215. *Mrs. C. Gallouët-Schutter.*

## 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. 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. Not offered 1980-81.

**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. Not offered 1980-81.

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

**314 French Prose.\*** S even years. A study of major writers expressing French thought, spirit, and sensibility in nonfiction from Montaigne to Sartre. Special attention is paid to Calvin, Pascal, *les philosophes*, and the existentialists. Conducted in French. *Mrs. C.-M. Baldwin.*

**371 Literary Doctrines and Problems.\*** S even years. An advanced course devoted largely to literary theory, using as its point of departure a selection of such significant documents in the history of French literature as Du Bellay's *Défense et illustration de la langue française*, the various statements relating to the *Querelle des anciens et des modernes*, Hugo's *Préface de Cromwell*, the transcript of Flaubert's trial, and others. This course in-

cludes 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 1980-81.

**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 1980-81.

## JANUARY 1981 INTERIM

**I-50 Quebec: Alive and Kicking!** Quebec has come of age. Since 1945 Quebec has emerged as a dynamic and self-conscious culture from its ultra-conservative and oppressed past. Her singers, poets, dramatists, and novelists have been at the forefront of this rapid metamorphosis. Students will study the development of French-Canadian literature during the past thirty-five years by reading key works of poetry, drama, and prose. Lectures, films, and discussions; conducted in French. Prerequisite: 201 or the equivalent. *Mrs. C.-M. Baldwin.*

**Idis I-56 The Surrealist World.** *Mr. A. Otten.*

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# Geology, geography

Professors R. Griffioen (chairman, Department of Physics), C. Menninga  
Associate Professor D. Young

COURSES IN geology and geography are offered to serve the needs of teachers, of students wishing to broaden their perspective and strengthen their general science knowledge, and of those wishing a minor concentration in the area.

The six-course minor consists of Geology 151 or an appropriate alternative, 152, 261, 312, plus additional courses approved by the adviser. Group majors involving geology and chemistry, engineering, or physics are also available.

A group major in science and mathematics meets the needs of some students, particularly those in professional programs. Such group majors require twelve courses in the sciences and mathematics, ten of which must be from two departments with no fewer than four from either, with the remaining two courses chosen from a third department. The chairmen of the three departments involved must approve such programs.

Prospective elementary and secondary teachers may minor in geology and geography. Elementary science studies group majors require either Geology 103 or 113 and social studies group majors require Geography 101 or a three-course sequence involving Geology 103 or 113, Geography 201, and 210. The teacher education adviser is Mr. Clarence Menninga of the Department of Physics.

The core requirement in the physical sciences may be met by Geology 103 or by 151 and 152.

## GEOGRAPHY

**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.*

**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: 103 or 113. *Mr. G. Oosterman.*

**210 Geography of North and South America.\*** F alternate years. A comparative study of the physical, cultural, and economic aspects of both North and South America. Ecological and demographic factors will be considered in some detail. Prerequisite: 113. Not offered 1980-81.

## GEOLOGY

**103 Man and the Earth.** F and S, core. An introduction to geology. A study of the materials and processes of the Earth leading to a responsible Christian appreciation for and use of the Earth. The principles of geology are explored through a survey of the history of the ideas about the Earth. Basic insights of chemistry, biology, physics, and mathematics are applied to the solution of practical geological problems, with emphasis on such geological hazards as earthquakes, volcanic eruptions, floods, marine erosion, and mass wasting and on the nature and distribution of fossil fuels, metals, ground water, and other mineral resources. Laboratory. *Mr. D. Young.*

**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, atmosphere, oceans, and processes giving rise to changes in earth's crustal and surface features. Includes laboratory. *Mr. C. Menninga.*

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. D. Young.*

152 **Historical Geology.** S, core. A study of geological structures that have existed in the past and of the changes and development that have taken place in the earth's crust. Evidences for these past structures and events are taken from present rock strata, including the fossil record. Includes laboratory. Prerequisite: 151. *Mr. D. Young.*

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, and 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. Not offered 1980-81.

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. Not offered 1980-81.

390 **Independent Study.\*** F, I, S. Full 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 research projects are reviewed. The course highlights ideas resulting from studies in earth sciences which have increased our understanding of the relationship between the earth and its human inhabitants. Topics include applications of geology to environmental problems, contributions of space research to understanding the earth, and the relationship between the results of geological study and teachings of the Bible. Special attention is given to topics and concepts which can be incorporated into elementary, middle, and secondary school materials and activities. Prerequisite: 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.*

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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.

### LANGUAGE

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. Prerequisite: 102, or four units (two years) of high school German. *Staff.*

202 **Intermediate German.** S, core. Continuation of 201. Prerequisite: 201. *Staff.*

203 **Intermediate German.** F, core. A one-semester course intended specifically for students who have successfully completed three years (six units) of high school German. Selected readings and continued language study. *Mr. W. Bratt.*

215 **Intermediate Oral and Written Composition.** F. Exercises, compositions, and drills designed to develop in the student intermediate competence in speaking and writing idiomatic German. Prerequisite: 202. *Mr. J. Lamse.*

216 **Advanced Oral and Written Composition.** S. Continuation of 215. *Mrs. B. Carvill.*

### LITERATURE

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.*

250 **German Civilization.** F, odd years, 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.* Not offered 1980-81.

301 **Classicism.\*** F, even years. A study of the origins, nature, and literary manifestations of the classical ideal in eighteenth-century Germany. Readings from Lessing, Goethe, and Schiller. Prerequisite: 217, 218, or permission of the instructor. *Mr. J. Lamse.*

303 **Romanticism.\*** S, odd years. The literary theory and philosophical-religious basis of the German romantic movement as reflected in representative works of both earlier and later Romanticists. Prerequisite: 217, 218, or permission of the instructor. *Mr. J. Lamse.* Not offered 1980-81.

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

Prerequisite: 217, 218, or permission of the instructor. *Mr. C. Hegewald.*

305 **Nineteenth Century Drama.\*** S, even years. 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. *Mrs. B. Carvill.*

306 **Literature of the German Democratic Republic.** F. A survey of East German literature from its beginnings in the late 1940's to the present. The course includes an analysis of the relationship of the literature to the literary theories of Socialist Realism as well as to the political and social structure of the German Democratic Republic. Prerequisites: 217, 218, or permission of the instructor. *Mrs. M. J. Lamse.*

307 **Early Twentieth Century Literature.\*** F, odd years. 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.* Not offered 1980-81.

308 **Postwar Literature.\*** S, odd years. 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.* Not offered 1980-81.

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.\***

## CIVILIZATION

361 **Introduction to Modern German Culture.** S. 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 1981 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. Hegewald.*

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 \$1,050. *Mrs. M. 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, R. Johnson, G. Marsden, H. Rienstra, F. Roberts, D. Van Kley, E. Van Kley, R. Wells  
Associate Professors D. Diephouse, H. Stout  
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, 102, or 101 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.*

101 **Honors Western Civilization.** F, core. A study of the twelfth century in Europe.

The emphasis is on the emergence of Humanism and the discovery of the Individual. Readings in classical secondary accounts and in original sources are the basis for writing four papers. No examination. Enrollment limited to students with a 3.3 cumulative grade point average. *Mr. H. Rienstra.*

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.*

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

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 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. *Staff.*

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. *Staff.*

## 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. Johnson, Mr. H. Stout.*

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. Greжданus.*

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.* Not offered 1980-81.

220 **France.\*** S. A survey of the history of France from the "new monarchy" of Louis XI to the present. Particular attention is given to the religious wars of the sixteenth century, the growth of the French monarchy at the expense of other institutions, the character and influence of the French Enlightenment, the nature and repercussions of the French Revolution, and the causes of France's political decline in the late nineteenth century. *Mr. D. Van Kley.*

221 **The Netherlands.\*** S. An introduction to the history of the Netherlands; the medieval times; the Burgundian period; the Reformation; the Dutch "Golden Age"; the French Revolution; the revival of Calvinism during the later nineteenth century; the changing role of the Netherlands in the twentieth century. *Mr. D. Jellema.* Not offered 1980-81.

223 **Germany.\*** S. A survey of German history with particular attention given to the period from the Reformation to the present. Included in the course are medieval background, the Reformation and its impact on later German developments, the religious wars, intellectual developments of the eighteenth and nineteenth centuries, the movement toward political unity in the nineteenth century, World War I, the Weimar Republic, and 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. 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 science. 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. D. Van Kley.*

305 **Modern Europe.\*** F and S. The history of Europe from the French Revolution to World War I. Special attention is paid to social and cultural developments, including the rise of industrial society, ideologies and protest movements, nation-building, mass politics, materialism, and the *fin de siècle* revolution in art and thought. *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, Mr. R. Johnson.*

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

312 **Twentieth Century United States.\*** F and S. A study of politics, diplomacy, labor, industry, and scientific achievement since the 1890's with emphasis on such developments as the Progressive movement, World War I, the retreat from international responsibility; the roaring twenties, the Great Depression, the New Deal, World War II, and domestic and foreign developments since World War II. *Mr. R. Bolt.*

320 **Contemporary World.\*** F and S. A topical analysis of twentieth century history, stressing Europe's place in a global civilization. Major themes include the growth of collectivism; the impact of mass democracy; the "international civil war"; the emergence of Third World societies; and the character of contemporary art, thought, and popular culture. *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 1980-81.

336 **The History of Journalism and Communications in America.** S. This course introduces the student to the development of public communications in America from the seventeenth century to the present. It traces the evolution of journalism and its implications for the social, political, and economic life of American society. *Mr. H. Stout.*

## GRADUATE COURSES

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.\*** S. An analysis of the changing intellectual patterns in American society as exemplified in religious, philosophical, political, social, and scientific thought. Emphasis is placed on the interaction of thought and society and some attention is given to European influence on American thought. A general knowledge of American history is assumed. *Mr. G. Marsden.*

356 **Social and Cultural History of the United States.\*** F. A study of the development of American society from 1776 to the present with reference to developments other than those primarily political or intellectual, such as social reform movements, popular culture, art and architecture, educational developments, the labor movement, immigration, nativism and racism, and urban problems. Prerequisite: a general knowledge of American history. *Mr. R. Wells.*

360 **Afro-American History.\*** S. An intensive inquiry into the role of the Afro-American in the history of the United States, including an evaluation of past and present assumptions of the place of the Afro-American in American life, and an acquaintance with the historiography on this subject. *Mr. S. Greydanus.*

380S **Field Work in Middle East Archaeology.** An on-site introduction to archaeological field work in the Middle East designed to expose the student to the methodologies involved in stratigraphic excavation, typological and comparative analysis of artifacts, and the use of 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 in historiography, the philosophy of history, historical bibliography, and the writing of history. *Staff.*

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 which students will relate to the curriculum and philosophy of social studies teaching from a Christian perspective. *Mr. S. Greydanus.*

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. *Staff.*

590 **Independent Study** 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 1981 INTERIM

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 civilian society, particularly in Europe. 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-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 Baak, Mr. E. Van Kley.*

**I-50 Florence in the Renaissance.** An inquiry into the relationship between material culture, political institutions, religious attitudes, and intellectual and artistic flowering. The course focuses on civic humanism in Florence between 1300 and 1600 but contrasts Florence to other contemporary cities such as Rome and Venice. There will be assigned reading in both the writings of the civic humanists and in documents illustrating Florentine institutions. Each student will write a paper on some aspect of Florentine social or intellectual life. Prerequisite: 101 or 102. *Mr. H. Rienstra.*

**\*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 of 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 Voice of the Past—Oral History.** An introduction to the acquisition and use of oral records for personal, community, and institutional history. Students will arrange, prepare, and conduct interviews and write a paper based on the accumulated information. The course includes a field trip to Detroit. Prerequisite: sophomore standing or 101 or 102. *Mr. H. Ippel.*

**I-53 Progressive Presidents and Their Age: Roosevelt, Taft, and Wilson.** A study of the first three American presidents of the twentieth century and of the Progressive Era with which they are associated. This course will concern itself with the American politics, society, and diplomacy of that time and will use the work of writers such as Hofstadter, Kolke, Geldman, Mowry, and Link. A research project is required. Prerequisite: 101 or 102. *Mr. R. Bolt, Mr. C. Bult.*

**I-54 From Brutus to Oswald: Political Assassinations Past and Present.** A study of political assassination attempts from Roman times to the present. The course includes lectures on Robert-Francois Damien's attempt to assassinate the king of France in 1757 as well as student reports on famous cases. These case studies will be a means of focusing on a variety of general themes: conspiracy theories, the assassin's personality, the political climate and structure in which the assassinations occur, theories justifying political assassination, etc. Prerequisite: one course in history. *Mr. D. Van Kley.*

**I-55 The Irish in Ireland and America.** Both the population explosion and Irish union with Britain in the nineteenth century serve as a backdrop to the famine and subsequent mass emigration to the United States. This course considers the resulting social dysfunction and adaptation patterns of Protestant and Catholic Irish in both the United States and Ireland during the "modernization" of the nineteenth and twentieth centuries. Students will also focus on the impact of events in Ireland on Irish-Americans and their contribution to the resolution of the ethno-religious conflict in Ireland. Some knowledge of modern history is assumed. Readings, class discussions, and a short paper. *Mr. R. Wells.*

**Idis I-50 Christianity, Learning, and Culture II.** *Mr. G. Marsden.* (M.A. in C.S.)

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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, T. Jager, S. Leestma (chairman), \*\*L. Nyhoff, C. Sinke, G. Van Zwalenberg, P. Zwier

Associate Professor J. Kuipers

Assistant Professors D. Brink, D. Reber, G. Venema

Instructors J. Dersch, D. Wolthuis

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 of the Department of Physics.

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 Academic Support Program course. 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 Academic Support Program course. This course is an intensive study in the mechanics of algebra, equation solving, graphing, and numerical trigonometry of right triangles. Some atten-

tion is paid to calculations with hand-held calculators. This course is intended to be a prerequisite 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 programming, 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, honors 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, honors 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, parallelism, similarity, measure, coordinate geometry, and plane transformations. Other topics will depend on the students' background. These may include probability, statistics, computer programming, and introduction to BASIC. 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: 211. *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 distri-

butions, 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.*

**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. D. Reber.*

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

**321 Foundations of Geometry.\*** S. Consideration of Euclidean geometry as an axiomatic system, introduction to non-Euclidean geometry, the Poincaré model. Prerequisite: 112. *Mr. P. Boonstra.* Not offered 1980-81.

**331 History of Mathematics.\*** S. A study of the historical development of certain basic mathematical concepts from early times to the present, with consideration of the problems that mathematicians have faced in each age. Prerequisite: 211. *Mr. P. Boonstra.*

**341 Numerical Analysis.\*** S. Analysis of errors in numerical methods, real roots of equations, approximations using polynomials, calculus of finite differences, numerical methods for differentiation and integration, applications to differential equations, applications to matrix algebra, inversion of matrices, characteristic values. Prerequisites: Computer Science 107 or 108 and Mathematics 212. *Mr. 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: 211. *Mr. P. Zwier.*

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

**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. L. Nyhoff.*

**352 Advanced Linear Algebra.\*** S. Vector spaces, matrices, linear equations, linear transformations, determinants, polynomial algebras, eigenvalues and eigenvectors, inner-product spaces, spectral decompositions, canonical forms for matrices. Prerequisite: 211. *Staff.*

**361 General Topology.\*** F. Elementary set theory, topological spaces, separation properties and connectivity, continuous mappings, homeomorphisms, product and quotient spaces, invariants under continuous mappings, compactness, metric spaces and completeness. Prerequisite: 211. *Staff.*

**362 Real Analysis.\*** F. The real number system, Lebesgue measure and integration, differentiation and integration of real functions, classical Banach spaces, abstract measure theory. Prerequisite: 212. *Mr. T. Jager.*

**381 Advanced Logic.\*** S. Topics include the formalization of propositional and quantificational logic. Taught jointly with the Philosophy Department and also listed as Philosophy 381. *Mr. T. Jager.* Not offered 1980-81.

**390 Independent Study.\*** F, I, S. Independent study of topics of interest to particular students, under supervision of a member of the department staff. Open to qualified students with permission of the 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.*

*Interdisciplinary 210, History of Science, and certain courses listed under computer science*

may be included in certain mathematics concentrations.

## 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.** 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 1981 INTERIM

I-10 **Mathematics and Culture.** This course considers the impact of culture on mathematics and that of mathematics on culture. It examines both the historical facts

important to the development of fundamental concepts of mathematics and the concepts themselves. Other topics include the number system, axiom systems, infinite sets, the history of mathematics, algebraic and transcendental numbers, and the world through simple equations. Satisfies mathematics core. *Mr. G. Van Zwalenberg.*

I-50 **Computer Generated Imagery.** Computer graphics include almost any non-alphanumeric display of information which is computer generated and, particularly in this course, the realistic, time-varying representation of three-dimensional (dynamic), physical situations. The objective in this course is not necessarily to search out and employ state-of-the-art methods but to provide an environment for exercising individual creativity. The class will discuss mathematical models for graphics, algorithms for certain applications, and the application of microprocessors, etc. for special purpose computation. Each of the participants is expected to share his particular interest and to help one another in generating mathematical models, algorithms, programs, micro-processor design suggestions, etc. Prerequisites: 108 and 212. *Mr. J. Kuipers.*

I-51 **Discovering, Invention, and Problem-Solving in Mathematics.** It has often been said that the art of problem-solving cannot be taught; a person either "has it" or "does not have it." Yet there are principles that have been listed by outstanding practitioners of mathematics (such as George Polya of Stanford University) which should be helpful to those who are beginning careers where mathematical problem-solving is used. The course includes a study of Polya's heuristics; it also provides opportunities to solve problems using Polya's principles both individually and in small groups. Students work with mathematical communication and writing style and keep a psychological record of the ways in which they arrived at solutions so that the class may better understand the process. Students who know BASIC or FORTRAN may use the computer to make computations, investigate patterns, or to make conjectures. Prerequisite: one year of calculus. *Mr. P. Zwier.*

I-54 **Topics in Approximation Theory.** This course introduces elementary topics in approximation theory. It begins with a

rationale for approximation and a discussion of choice of form and norm. It also considers the existence theorems for best approximation in various settings; Weierstrass and Jackson-Bernstein theorems; the alternation theorem for characterization of best polynomial approximations; and corresponding results on uniqueness. A discussion of Chebyshev polynomials and orthogonality leads to best least squares

approximation and to a comparison of best uniform approximation. Some computational algorithms for best approximation will be analyzed and run. Prerequisite: 211; knowledge of the BASIC computer language is helpful but not essential. *Mr. D. Brink.*

111 **Calculus I.** *Mr. T. Jager, Mr. S. Leestma.*

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# Music

*Professors J. Hamersma, H. Slenk, C. Stapert, D. Topp (chairman), J. Worst*  
*Associate Professors D. De Young, G. Huizenga, C. Kaiser*  
*Assistant Professor R. Rus*  
*Instructor A. Armstrong*

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, 213, 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, 314, or an approved interim; 338; 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 fewer 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 six-course minor in church music includes 103, 113, 123, 236, 237, and three additional course units in organ or choir. The organ group requires six semesters of 110; 130; 131 or 141; and an interim in church organ music. The choir group requires four semesters of 130, two semesters of 131 or 141, two semesters of 110 or 120, and an interim in church choral music.

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. *Mr. C. Kaiser.*

**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. *Mr. C. Kaiser.*

**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. A. Armstrong.*

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 1980-81.

236 **Church Music.\*** F, 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. 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. *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. *Mr. A. Armstrong, Mrs. G. Huizenga.*

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. *Mrs. G. Huizenga, Mr. C. Stapert.*

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. *Mr. D. Scripps.*

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. *Mr. D. Scripps.*

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. *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. *Mr. J. Worst.*

**213 Keyboard Harmony III.** F, quarter course. A continuation of 114. To be taken concurrently with 203. Prerequisite: 114. *Mr. D. Scripps.*

**214 Keyboard Harmony IV.** S, quarter course. A continuation of 213. *Mr. D. Scripps.*

**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. *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. *Mr. C. Stapert.*

#### ADVANCED COURSES

**311 Vocal Polyphony of the Renaissance\*.** S. A study of the vocal style of Palestrina. Exercises in modal counterpoint. Listening repertory of compositions. Prerequisite: 303. *Mr. J. Hamersma.*

**312 Instrumental and Vocal Polyphony of the Late Baroque\*.** S. 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.* Not offered 1980-81.

**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.* Not offered 1980-81.

**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 1980-81.

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

**319 Advanced Church Music\*.** 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 1980-81.

**337 Instrumental Conducting.** F, half course. A course in advanced conducting techniques appropriate to bands and orchestras. Prerequisite: 237. *Mr. D. De Young.*

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

**390 Independent Study\*.** F, I, S. *Staff.*

#### 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.) Only open to freshmen with permission of instructor. *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 edu-

cation 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. T. Hoekman, Miss S. Kleinhuizen, Mrs. B. Mustert, Mrs. R. Rus, Mrs. M. Vanden Berg.*

130 **Voice.** Quarter course. Individual lessons in voice. *Mrs. T. Haan, Mrs. G. Huizenga, Mr. C. Kaiser, Mrs. M. Winter.*

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. Vasilaki, Mr. Y. Yankelev.*

170 **Woodwinds.** Quarter course. Individual lessons in flute, clarinet, bassoon, saxophone, or recorder. *Mr. R. Anderson, Mr. B. Weinsma, Mr. C. King, Mr. L. Lieberman, 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. Indi-

vidual 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. *Staff.*

### CLASS LESSONS

180 **Repertory Class and Studio Classes.** F and S, no credit. Performance classes for students of applied music for the purpose of gaining experience in public performance and increasing knowledge of music literature. Attendance is required of all music majors and students registered for individual lessons in applied music. *Staff.*

197 **Strings and Brasses.** F odd years, 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.* Not offered 1980-81.

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. *Staff.*

### ENSEMBLES

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

111 **Women's Choir.** F and S, no credit. Open to general college students. *Mr. A. Armstrong.*

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 per-

formed. 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. *Mr. D. De Young, Mr. C. Stapert, Mr. J. Worst.*

**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. A. Armstrong.*

**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. M. Colley.*

**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.** 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 1981 INTERIM

**I-12 Afro-American Music.** An introductory study of Afro-American music designed to explore its African and European origins and to examine its development in the United States during the past 125 years. In addition, the class will study Afro-American composers and performers with respect to both the socio-political and musical contribution they have made in American history. Topics for discussion include spirituals, black minstrels, jazz and its related forms, gospel music, and blacks in art music. *Mr. A. Armstrong.*

**I-13 American Popular Music: Research and Performance.** This is a performance oriented course in popular and traditional genres of music which gives considerable attention to research in gaining an understanding of and in establishing some authenticity for a particular musical style. The course is open by audition in late November to vocalists and instrumentalists who would like to research, compose, rehearse, and perform any of the several main styles of American secular and sacred music. Enrollment is limited to a chorus of sixteen and an instrumental ensemble of guitars, drums, piano, plus one or two each of brass, woodwind, and string. *Mr. J. Worst.*

**I-14 The Symphony.** A course in music appreciation using the form of the symphony as a unifying theme. Students will study symphonies from Haydn through Mahler and develop skills in listening to music from the late seventeenth century through the early twentieth century. Lectures, listening, and attendance at two or three live symphony concerts. No previous musical background is necessary. Fee of approximately \$25-30. *Mr. D. De Young.*

**I-50 Opera Workshop.** This course allows qualified students to combine an academic study of opera with practical experiences in performing selected scenes from familiar operas. Students spend approximately one third of their time in class studying opera and the remainder of the time preparing for public performance. Open, with permission of instructors, to solo singers (with at least two semesters of private voice study in col-

lege), choral singers (with two semesters of college choir participation), student directors (with at least two semesters of college drama participation), and orchestra players. *Mr. D. Scripps, Mr. C. Kaiser.*

**I-51 Early Music Performance.** A course designed to give performers some knowledge of performance practices in Medieval, Renaissance, and Baroque music, to acquaint them with the methods of research necessary to gain such knowledge, and to give them the opportunity to put that knowledge into practice. Students will be exposed to some of the major considerations and problems of performance practice in all three eras by means of lectures and textbook readings. Students will also do reading and research assignments in their area of interest and put their knowledge into practice in rehearsals which will lead to a performance at the end of the interim. Open to singers, performers of early wind, string, and keyboard instruments, and performers on modern flute, oboe, bassoon, and strings. Prerequisite: permission of the instructor. *Mr. K. Otten, Mr. C. Stapert.*

**I-52 Playing the Piano for Pleasure.** A course designed to inspire students who stopped taking piano lessons when they were younger and have since regretted it. The course emphasizes basic technical skills and their application to the interpretation of classical piano literature. It includes class lessons, demonstrations, recordings, and displays of available literature and materials. There is a practice break built into the daily class schedule but additional practice will be required. Students will keep a journal of their technical and musical progress. Prerequisites: some previous piano instruction and permission of the instructor. *Mrs. R. Rus.*

**I-53 Bach, The Teacher.** A study of Bach's interpretations of Lutheran doctrines in the prelude, fugue, duets, and chorale preludes of part three of the *Klavierübung*. In addition to detailed analysis of the twenty-seven compositions, the study includes a background on the late Baroque era, the Baroque organ, the chorale prelude, symbolism in music, the Lutheran liturgy, and Luther's *Catechism*. Class reports, record listening, score study, reading, and quizzes. Satisfies advanced music elective requirement. Prerequisite: 104 or permission of the instructor. *Mr. J. Hamersma.*

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# Philosophy

Professors P. De Vos, K. Konyndyk (chairman), †R. Mouw, C. Orlebeke, †A. Plantinga, E. Runner, N. Wolterstorff

Associate Professors G. Mellema, A. Vos

Assistant Professors J. Cooper, T. Plantinga, D. Ratzsch

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, core. A year-long introduction to philosophy which aims to give the student a Christian philosophical framework for his thinking, along with some awareness of important alternative philosophical perspectives. It also aims to give the student some sense of the history of philosophy. 151 is a prerequisite to 152. Mr. E. Runner, Mr. N. Wolterstorff.

153 **Introduction to Philosophy.** F and S, core. A one-semester introduction to philosophy, with fundamentally the same aims as the Perspectives in Philosophy course, except that it will not aim to acquaint the student with the history of philosophy. Staff.

171 **Introduction to Logic.** F and S. A course in elementary deductive and inductive logic with emphasis upon the use of logic in evaluating arguments. Suitable for freshmen; not recommended for students majoring in philosophy. Mr. C. Orlebeke.

173 **Introduction to Symbolic Logic.** F and S. A course in elementary symbolic logic,

including some modal logic. This course is designed for students majoring in philosophy, science, and mathematics. Open to qualified freshmen. Mr. K. Konyndyk, Mr. G. Mellema.

## INTERMEDIATE SYSTEMATIC COURSES

All intermediate courses presuppose one course in philosophy.

202 **Philosophy of Law.** A consideration of such topics as: the nature and types of law; sources of law; and the basis of a legal system, of legal and political authority, of obedience to law, and of human rights. Mr. P. De Vos. Not offered 1980-81.

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. D. Ratzsch.

205 **Ethics.\*** F and S. A course designed to deal both historically and situationally with

the persistent problems of the moral life. *Mr. C. Van Reken.*

206 **Philosophy of History.\*** F. An examination of several topics in both the speculative and analytical philosophy of history. *Mr. T. Plantinga.*

207 **Political and Social Philosophy.\*** F and S. A systematic study of the problems of social and political thought, historically oriented, with emphasis on political and social ideals, such as political and social justice; equality and the law; the basis of social and political authority; rights and obligations. *Mr. J. Cooper.*

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. Vos.*

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

240 **History of Contemporary Philosophy.** A study of major movements in recent and contemporary Anglo-American philosophy. Preparation in the history of philosophy is strongly recommended. Not offered 1980-81.

243 **American Philosophy.\*** S. Not offered 1980-81.

#### 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.*

322 **Thomas Aquinas.** F. A course in Thomistic thought which includes an analysis of portions of the *Summa Theologiae*. *Mr. A. Vos.*

331 **Kant.** A study of the *Critique of Pure Reason*. Not offered 1980-81.

332 **Hegel.** S. A study of Hegel's philosophy. *Mr. T. Plantinga.*

333 **Kierkegaard.** S. Not offered 1980-81.

335 **Nineteenth Century Philosophy.** F. A study of the major figures in nineteenth century continental European philosophy. *Mr. E. Runner.*

340 **Twentieth Century Continental Philosophy.** S. A study of major figures in recent phenomenology and existentialism. Suggested preparation: 335. *Mr. E. Runner.*

#### ADVANCED SYSTEMATIC COURSES

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

371 **Epistemology.\*** F. A study of the nature, sources, types, and limits of human knowledge. *Mr. N. Wolterstorff.*

375 **Philosophical Anthropology.\*** S. A critical examination of major philosophical discussions of the nature of man, with special attention to the concepts of mind, body, action, soul, and immortality. *Mr. J. Cooper.*

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. Not offered 1980-81.

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

395 **Ontology.\*** S. A study of selected topics of ontology. *Staff.* Not offered 1980-81.

#### GRADUATE COURSES

501 **The Educational Enterprise: A Philosophical Perspective.** An examination of factors presently operative in the educa-

tional enterprise from the perspective of the history of Western 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 1981 INTERIM

I-10 **Socrates.** The course stresses the philosophy of Socrates but not to the neglect of his life and times. The trial of Socrates provides a natural focus. What convinced a majority of his Athenian jurors that philosophizing is a capital offense? Why did Socrates' life, death, and teaching create a legend that will not die? Resources include films, fiction, writings by classical authors (especially Plato and Xenophon), and recent commentators. Lectures, class reports, and a paper. A previous study of philosophy or

classics is highly recommended. *Mr. C. Orlebeke.*

I-11 **Imagination, Sympathy, and Evil.** Are we ennobled or debased by beholding and reliving the sufferings of others? What is appropriate and inappropriate in depicting evil and suffering? How can good be depicted apart from evil as a background? The course deals with evil as a theme in literature and historical narratives and covers such topics as pornography, war as a spectacle, and detachment versus emotional involvement in knowledge. Lectures, readings, presentations by students, and a paper. *Mr. T. Plantinga.*

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

Idis I-50 **Christianity, Learning, and Culture II.** *Mr. N. Wolterstorff.* (M.A. in C.S.)

Idis I-55 **The Queen Who Became a Slave: Theology's Domination By Philosophy Since Kant.** *Mr. J. Cooper.*

Idis I-57 **B. F. Skinner and His Box.** *Mr. A. Vos.*

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## Physical Education

*Professors B. Steen, J. Timmer, M. Zuidema (chairman)*

*Assistant Professors R. Honderd, J. Pettinga, D. Tuuk, G. Van Anel, D. Vroon, D. Zuidema*  
*Instructors E. Driesenga, N. Meyer, H. Van Noord, 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, and 380 for one course unit of credit. 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, and 380 as a half course. 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 major concentrations, 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 core 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 nutritional 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 initial personal inventories, aims to give each student 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 edu-

cational 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: a biology core course. *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: a biology core course. *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.* Not offered 1980-81.

231 Basketball. F. *Mr. D. Vroon.*

232 Baseball/Softball. S. *Mr. J. Pettinga.*

233 Track and Field. S. *Mr. R. Honderd.* Not offered 1980-81.

234 Soccer. F. *Mr. M. Zuidema.*

235 Volleyball/Tennis. S. *Mr. D. Vroon, Mrs. K. Wolters.* Not offered 1980-81.

236 Football. F. *Mr. J. Pettinga.* Not offered 1980-81.

237 Gymnastics. S. *Staff.*

238 Wrestling. F. *Mr. J. Pettinga.*

**301 Measurement and Evaluation in Physical Education.\*** S. A study of the evaluation techniques in physical education. Emphasis on evaluation of physical fitness, body mechanics, growth, motor ability, sport skills, knowledge of health practices and sports activities, and program evaluation. Consideration is given to the organization of evaluation programs and the use of such programs. The course gives opportunity for practical experience in administering tests. *Mr. M. Zuidema.*

**302 Organization of the Curriculum and Programs of Physical Education.** S. A study of the structure and curricula of modern physical education programs of elementary and secondary schools and the closely-related areas of administration of athletics, intramurals, recreation, and health programs. Opportunity is given to construct total programs of physical education for selected schools. *Mr. B. Steen.*

**303 Leadership in Recreation Programs.** S, half course. This course studies the organization of recreation programs and gives opportunity for observing programs in action, for structuring new programs, and for developing leadership skills. *Mr. D. Tuuk.* Not offered 1980-81.

**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: a biology core course. *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.*

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

## PROFESSIONAL COURSES IN RECREATION

**304 Systems and Structures of Recreation.** I. F. 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. *Mr. G. Van Andel.*

**305 Systems and Structures of Recreation**  
II. I. Continuation of 304. *Mr. G. Van Andel.*

**310 Theories of Play.** F. 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. *Mr. G. Van Andel.*

**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. *Mr. G. Van Andel.*

**346 Field Internship in Recreation and Seminar,** 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. *Mr. G. Van Andel.*

### JANUARY 1981 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.*

**I-51 Laboratory Testing in Exercise Physiology.** This course provides students with objective stress testing experience and exhaustive exercise conditioning. Testing includes oxygen consumption, blood pressure, ECG readings, heart rate, etc. in a pre-exercise setting and after three weeks of heavy aerobic endurance conditioning. Reading, laboratory reports, and an examination. Prerequisite: 215. *Miss N. Meyer, Mr. J. Timmer.*

**305 Systems and Structures of Recreation II.** *Mr. G. Van Andel.*

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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)*

*Assistant Professors R. Manweiler, D. Van Baak*

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 382, 365 or 379, 395 and 396 or an interim course in research, and Mathematics 313.

The nine-course unit secondary education concentration requires Interdisciplinary 210 or Philosophy 203, Physics 123, 124, 181, 182, 225, 226, 380 or 381, one advanced theory course from 335-380, a half course unit of 382, a half unit of 390 involving a study topic appropriate for students planning to teach high school physics, and approved electives from advanced physics courses, Astronomy 201, or Geology 312.

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 382. 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.

A six-course minor concentration, which is also appropriate for teacher education, consists of 123, 124, 181, 182, 225, 226, 382, plus one and a half course units approved by the department chairman.

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 103, 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 investiga-

tions 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. Pre-

prerequisites: high school algebra and Mathematics 107, 109, or the equivalent. *Mr. C. Menninga and 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. 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. V. Ehlers, Mr. R. Manweiler.*

**113 Scientific Processes and Science Teaching.** F and 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, 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. H. Van Till.*

**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 rota-

tional 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.*

**195 Physics Student Seminar.** F and S, no credit. An introduction in a seminar format to recent developments in physics. Both readings and laboratory topics are available for study and discussion. Junior and senior physics majors must attend each semester; freshmen and sophomores intending to major are encouraged to attend. *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. Not open to those who have taken or plan to take 221. *Mr. R. Griffioen.*

**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 registra-

tion in Mathematics 211. *Mr. A. Kromminga, Mr. D. Van Baak.*

**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 Schrodinger theory. Einsteinian relativity is also considered. Prerequisites: 225, Mathematics 211, and Computer Science 108. *Mr. R. Griffioen.*

**285 Introduction to Digital Electronics.** F, alternate years. An introduction to digital electronics for students with little or no background in physics or electronics. Topics include: basic circuit elements and laboratory instruments, discrete circuits for digital functions, Boolean algebra for circuit design, logic circuit analysis and design, and integrated circuits. Not intended for students who have taken or plan to take 380, 381, or Engineering 208 or 308. Laboratory. Prerequisite: Mathematics 111 or 205. *Mr. R. Griffioen.*

### ADVANCED COURSES

*Prerequisites for all of the 300-level physics courses are Computer Science 108 or its equivalent and Mathematics 212.*

**335 Classical Mechanics.\*** F. The motion of particles, of systems of particles, and of rigid bodies is studied by Newtonian and Lagrangian techniques. Topics included are: oscillatory motion, motion in a central force field, motion in non-inertial reference frames, motion of charged particles, and the inertia tensor of rigid bodies. Hamilton's canonical equations are developed and applied to simple systems. Prerequisite: 124 or 126. *Mr. R. Manweiler.*

**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. *Staff.*

**346 Electromagnetism.\*** F. A continuation of 345, which is a prerequisite. *Mr. A. Kromminga.*

**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. Not offered 1980-81.

**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. D. Van Baak.*

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

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

**385 Introduction to Microprocessors.** F, alternate years. An introduction to microprocessors, including the following topics: technology of microprocessor development, microprocessor architecture, programming, systems design, interfacing, and peripherals. Laboratory. Prerequisite: 285 or its equivalent and programming experience. *Staff.* Not offered 1980-81.

**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. D. Van Baak.*

## LABORATORY COURSES

**181 Basic Electrical Measurements.** F, quarter course. An introduction to basic D.C. electrical measurements including Kirchhoff's Laws, potentiometer circuits, and bridge circuits. Techniques of data handling and analysis and a brief introduction to A.C. circuits are included. *Mr. H. Van Till.*

**182 Electrical Measurements.** S, quarter course. Applications of D.C. electrical measurements; A.C. circuits, including experiments on frequency response and resonance; and an introduction to digital circuitry. Prerequisites: 181 and Mathematics 111. *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. Prerequisites: 380, 381, Engineering 308, or a year of college physics and permission of the instructor. *Mr. D. Van Baak.*

**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. Prerequisites: 382 and the approval of the department. *Mr. D. Van Baak.*

*Interdisciplinary 210, History of Science, and certain other courses listed in other departments may be included in certain departmental programs.*

## 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: 112 or its equivalent. *Staff.*

**590 Independent Study.** 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 1981 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. The course considers the role of models in science, the nature and limitation of science, and the relationship between science and Christianity. Satisfies the physical science core. *Mr. R. Griffioen.*

**I-11 The Life and Times of Albert Einstein.** Albert Einstein is the most widely known scientist of all time. This course will investigate several facets of his life beginning with his education as a youth. It will also consider his contributions to physics with emphasis on special relativity and the photoelectric effect and the underlying philosophical basis for his dissatisfaction with quantum theory. Students will discuss the causes he supported (pacifism, Zionism, and intellectual freedom) and the contributions he made to each. They will also consider Einstein as a folk hero, his reaction to that situation, and his disinterest in material possessions. *Mr. A. Kromminga.*

**I-51 Modern Physics Laboratory.** An in-

roduction 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. D. Van Baak.*

**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. D. Van Baak.*

**395 Physics Seminar and Research.** *Mr. D. Van Baak.*

Idis I-10 **Our Daily Bread.** *Mr. G. Oosterman.*

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

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

Idis I-52 **Introductory Radiochemistry.** *Mr. C. Menninga.*

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# Political Science

*Professors J. De Borst, J. Westra (chairman)*  
*Associate Professors R. De Vries, J. Penning*  
*Assistant Professors C. Smidt, 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, core. A study of American national politics. Emphasis is on the social context, constitutional foundations, and the major institutions, processes, and functions of American politics. *Staff.*

**202 American State and Local Politics.** S, core. 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.** F and S, core. A study of the government and politics of four major European states: Great Britain, France, Germany, and the Soviet Union. *Staff.*

**207 Introduction to International Politics.** F. A study of power relations among nation-states analyzing different theoretical approaches to the study of international politics, describing the state system and its

basis in the doctrine of sovereignty, and examining the phenomena of nationalism, imperialism, and war. Included are the problem of war and peace and how states try to resolve conflicts peaceably through diplomacy. *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.*

**302 Public Opinion and Electoral Behavior.** Analysis of American public opinion and electoral behavior. Particular attention is given to such topics as the formation and change of public opinion, stability and change in American patterns of political participation, and the role that elections and public opinion play in making public policy. In addition, attention is given to the theory and methods of the behavioral orientation in political science. *Mr. C. Smidt.*

**303 Comparative Government—The Non-Western World.\*** F. A study of the politics of Asian and African states. Emphasis is on the issues and problems posed by the modernization process. *Mr. R. De Vries.*

**305 History of Political Thought to the Reformation.** F. The development of political thought from ancient Greece to the sixteenth century. *Mr. 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; the process of formulating policy; the instruments of American diplomacy; the nature of U.S. re-

lations 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 is examined, as well as economic and political integration within the North Atlantic area, among Communist states, and in the Third World. *Mr. R. De Vries.* Not offered 1980-81.

**310 The Judicial Process and Civil Liberties.\*** S. A study of the judicial process in American politics. Special attention is given to the role of the Supreme Court, the power and practice of judicial review, and the Court's interpretations of the Constitution, especially in the area of freedom of expression and defendant rights. *Mr. J. De Borst.*

**312 Legislative Behavior.\*** S. A study of legislatures, legislators, and the legislative process including the impact of institutional structures, political parties, interest groups, and personal norms on the legislative process in democratic political systems. The emphasis is on the federal Congress, but non-American legislatures are considered for comparative purposes. *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. Smidt.*

**315 The American Presidency.\*** F. An historical and critical study of the American presidency including an analysis of the growth of the office, the selection process, the nature of presidential power, the domestic and international pressures and constraints on the office, and the relationship of the presidency to other agencies and branches of government. *Mr. J. De Borst.*

**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 1981 INTERIM

**I-11 The Americans in Vietnam.** This course examines and reflects upon the Vietnam War; a general historical review provides the background necessary for an examination of the events, attitudes, and individuals who contributed to the buildup of American military presence in Southeast Asia. Students will discuss the effects of American presence on the Vietnamese, on American domestic politics, and on the role of the United States in international politics. They will also discuss the moral and ethical questions raised by American involvement and study the manner in which various groups confronted or supported Vietnam policy. Books, articles, films, and a paper. *Mr. C. Strikwerda.*

**I-12 Community Power in the United States.** This course focuses on the question of who governs America's cities and towns. It considers the controversy between the pluralist and power elite perspectives as well as alternative methods for locating community leaders; it also explores the implications of power structures for urban policy-making in such areas as land use, transportation, and education. Students will participate in a simulation game demonstrating urban power relationships. Reading, films, and student reports on community power in Grand Rapids and other cities. *Mr. J. Penning.*

**I-50 United Nations Interim in New York.** A study of the activities, functions, and structure of the United Nations system through an extensive series of briefings with personnel of the U.N. secretariat and specialized agencies as well as with members of some of the national missions to the U.N. Readings and seminars will be integrated with the briefings. Some of the areas

of study will include peacekeeping, disarmament, the role of the secretary-general, economic development, population, food, and the environment. Students will prepare a report on one of these topics. Prerequisites: permission of the instructor and one course in political science. Fee of approximately \$520. *Mr. R. De Vries.*

**I-51 The Constitutional Rights of Women.** Students will examine women's rights from the perspective of American constitutional law and discuss the Supreme Court's role as an agent of social change. Court opinions are used to uncover the role that legal argument plays in the interpretation of the fundamental law of the land. Students will also analyze changing societal mores and assumptions and the impact of organized interest groups on the shaping of public policies. Under the due process and equal protection clauses, students will consider sex as a classification, legislative discrimination against women, protection from discrimination, sterilization, contraception, abortion, and penalties for pregnancy. Library research and extensive reading. Community resource persons will be used in class and a limited number of films will be shown. Prerequisite: one course in political science. *Mr. J. De Borst.*

**I-52 Mass Media and American Politics.** A survey of the relationships between the operation of mass communications and the functioning of American politics. Major topics include: the processes by which news is created and transmitted; the effects of mass media in structuring political attitudes and opinions; the impact of the mass media on the conduct of electoral politics; and the ethical and legal considerations concerning the need for governmental secrecy and the public's right to know. Prerequisite: 201 or permission of the instructor. *Mr. C. Smidt.*

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# Psychology

*Professors M. Bolt, W. Joosse, A. Reynolds, R. Stouwie, R. Terborg*  
*Associate Professors J. Bentham, \*\*J. Brink, W. Sanderson (chairman), D. Snuttjer, M. Vander Goot,*  
*G. Weaver*  
*Assistant Professors C. Bennink, †S. Stehouwer*  
*Instructor A. Shoemaker*

STUDENTS INTENDING TO MAJOR in the department must complete 151 with a minimum grade of C (2.0). The nine course major consists of 151, 250, 306, three

300-level electives, one of which must be chosen from 330 through 334, and three additional courses from the department, excluding 313. Not more than one interim may be included in the nine-course major nor may 390 be counted as a 300-level elective.

Students intending to do graduate work in psychology or related fields should include 395 in their program of concentration and should plan their programs with a departmental adviser.

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 an orientation to the field of psychology. 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. A. Shoemaker, Mr. R. Stouwie, Mrs. M. Vander Goot.*

**207 Developmental Psychology: Adolescent.\*** F. A study of the transitional years of human development from puberty to early adulthood. Emphasis is on developmental changes and on the tasks which the adolescent faces in his different roles. Prerequisite: 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. G. Weaver.*

**216 Psychology of the Exceptional Child.\*** S. A basic overview of children who differ physically, mentally, or behaviorally from "normal" children. Emphasis on causal factors, characteristics, and diagnosis. Prerequisite: 151. *Mr. R. Stouwie.*

**250 Statistics and Research Design.\*** F and S. An introduction to scientific research in psychology including the formulation of hypotheses, the design and execution of experiments, the analysis and interpretation of data through statistical procedures, and the communication of results. Two-hour laboratory each week. Prerequisite: 151. *Mr. C. Bennink, Mr. D. Snuttjer.*

**306 History and Systems 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.*

**313 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. (Previously 335.) *Mr. A. Shoemaker.*

**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, 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 stand-

ing; departmental approval; 151, 212, 311. *Mr. J. Benthem.*

**322 Perspectives of Psychology.\*** S. The purpose of this course is to explore the relationship of psychology to—or its involvement in—such areas as literature, religion, art, and morality. In 1980–81 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. Two-hour laboratory each week. Prerequisite: 151. *Mr. G. Weaver.*

**331 Psychology of Sensation and Perception.\*** F. A detailed examination of the theories and research pertaining to various sensory and perceptual processes in human beings. Methodological, physiological, and pretheoretical issues are addressed. Two-hour laboratory each week. Prerequisite: 151. *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 Cognitive Psychology.\*** F. A survey of research and theory in the study of human thinking. The course covers the acquisition, representation, and use of knowledge with emphasis on the process of attention, memory, language, and problem solving. Prerequisite: 151. *Mr. C. Bennink.*

**390 Independent Study.\*** F, I, S. Prerequisite: permission of the chairman.

395 **Research Seminar.\*** F and S. The preparation, presentation, and discussion of papers based on current psychological literature and upon individual empirical research on selected topics. Prerequisite: 250. *Mr. C. Bennink, Mr. D. Snuttjer.*

### 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.*

590 **Independent Study.** 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 1981 INTERIM

I-50 **The Psychology of Consciousness.** Consciousness is a dimension of the human psychological experience that has received little attention in psychological literature. Students examine the historical causes for this lack of attention, cross-cultural views of consciousness and altered states, and current approaches within psychology to the study of consciousness. Several topics will be considered within this context: meditation techniques, drugs, split-brain research, brain stimulation investigations, mind-brain relationships, information processing abilities of individuals, and biofeedback. Assigned readings, student reports, and class discussions. Prerequisite: 151. *Mr. D. Snuttjer.*

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-52 **The Psychology of the Human Infant.** Infancy—from birth to fifteen or eighteen months of age—is viewed by many as the most critical segment of life, the period in which the basic frameworks for later development are established. This course considers sensory, motor, perceptual, cognitive, social, and emotional aspects of infant development and will use theory and research papers, demonstrations, and observations as resource materials. Prerequisite: two courses in psychology. *Mr. R. Stouwie.*

I-53 **The Psychology of Close Personal Relationships.** An investigation of our most personal relationships, those that are one-to-one, their initiation, their development, and their structure. This study of dyads involves lectures and discussions, the exploration of psychological literature and artistic media, and small group dynamics. Written work. Prerequisite: 151 or permission of the department. *Mr. L. Vande Voort.*

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. They will also consider the processes of person perception in diagnosing mental illness, evaluating academic skills, forming romantic relationships, discerning social injustices, and explaining religious experience. In exploring the implicit rules by which people explain behavior the course presents an alternative

to behavioristic and mechanistic explanations. Lectures, discussions of research, and student proposals for research on person perception. Prerequisite: 250. *Mr. J. Brink, Mr. G. Weaver.*

**I-55 University of Louisville Research Seminar in Cognitive Psychology.** This course will involve students directly in one or more projects investigating cognitive processes. Students will participate in a special seminar devoted to theory and research pertaining to the specific problems under investigation and will participate in ongoing research. The course is held in the Department of Psychology, University of Louisville, and provides the opportunity for students to engage in in-depth research at a large university under the supervision of two prominent researchers in the field of cognitive psychology. Background reading is required before the interim. Fee of \$600.

Prerequisite: permission of the instructor. *Mr. C. Bennink.*

**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 2-3 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-51 **The Best of Bergman.** *Mrs. M. Vander Goot.*

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

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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 Professors L. Sweetman, H. Vander Goot*  
*Assistant Professor P. Holtrop*  
*Instructors J. Bolt, H. Lederle*  
*Multicultural Lecturer A. Boesak*

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 for 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.

### 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. *Staff.*

**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, and 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 1980-81.

**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. D. Holwerda.*

**312 Early Christian Theology.\*** S, core. A study of the growth of the church and its self-conscious commitment to an articulation of its faith; from the sub-apostolic age through St. Augustine. Development and growth of thought will be emphasized and selected writings of major theologians will be studied. Prerequisite: junior or senior

standing. *Mr. G. Spykman.* Not offered 1980-81.

313 **Roman Catholic Theology.\*** F. The development of Roman Catholic theology from the medieval era to present times, finding its climax in contemporary changes growing out of Vatican II. The Council of Trent, Counter-Reformation theology, papal encyclicals, Vatican I, and major schools of thought and shifting practices will be examined. Prerequisite: junior or senior standing. *Mr. G. Spykman.*

### HISTORICAL STUDIES

303 **General Church History.\*** S, core. A survey of the history of the Christian Church from its beginning to the present time, noting deviations from apostolic faith and practice, the interplay with the political, the great Church councils, the crises that emerge, divisions and reunions, and the confluence of forces that determine the complexion of the Christian Church today. Not open to freshmen. *Mr. F. Roberts.*

304 **American Religious History.\*** F, core. A consideration of the religious history of our country from the immigration period to the present. Attention is paid to the European background, the early church beginnings in their diversity, the colonial era, the westward movement, current ecumenism, and the major social and political developments in their influence upon the American religious scene. Consideration will also be given to the historical antecedents and the development of the Christian Reformed Church in America. Not open to freshmen. *Mr. J. Primus.*

### RELIGIO-CULTURAL STUDIES

*Interdisciplinary 234 The Contemporary American Religious Situation may be applied to certain concentrations in this department.*

220 **The Church Struggle in South Africa.** S. An introduction to the history and development of the church in South Africa which leads to an examination of the options available to the church in the present circumstances. The sociological, theological, and economic contexts of the church today are examined as well as the several fundamental questions which the church faces—church-state relations, the church and military power, the church and liberation, the use of violence and the commitment to non-violence. Several theological models

will be proposed for the church as she faces the future. *Mr. A. Boesak.*

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.** F. 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.*

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. *Staff.* Not offered 1980-81.

305 **World Religions.\*** F. An analytical and critical study of the phenomena, the conceptual pattern, and the sacred texts of the major non-Christian religions: Primitivism, Hinduism, Buddhism, Shinto, and Islam. Each religion is studied as a total perspective for life which is embodied in inter-personal and communal life, in cult, and in ideology. The study includes popular as well as official expressions of the religions. Not open to freshmen. *Mr. L. Sweetman.*

### RELIGION AND EDUCATION

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.*

**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.*

**390 Independent Study.\*** F, I, S. *Staff.*

**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. P. Holtrop.*

#### GRADUATE COURSES

**580 Perspectives, Programs, and Practices in Bible and Religion Curriculum.** A study of various approaches in the schools to curriculum and teaching in biblical studies, church history, Reformed thought, and world religions. Consideration is given to the way fundamental differences of perspective on biblical Christianity influence the selection and use of curriculum designs, materials, and teaching techniques. Course content is adapted to the various

grade levels of particular interest to enrollees. *Mr. H. Hoeks.*

**590 Independent Study.** 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 adviser. *Staff.*

#### JANUARY 1981 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. Fee of \$125. *Mr. D. Cooper.*

**I-11 Between the Testaments.** Turning just one page in the Bible turns over 400 years of silence. This 400 years was a period of political tumult for Palestine but it brought forth considerable theological development and literary production from the Jews. This course will study Jewish history, theology, and literature (apocryphal and other writings) of this period and will seek to lay the background for understanding the New Testament. Readings, lectures, discussions, research in special areas, and short papers. *Mr. W. De Boer.*

**I-12 Children in the Church's Worship.** How can our young children be meaningfully involved in public worship services? Should we insist that the whole family pray, praise, and listen together or should the youngsters worship separately "on their own level?" Is there a better middle way? The course will explore certain corporate worship practices regarding children in the biblical, Reformation, and contemporary eras and will include theological, developmental, and pedagogical reflection on this issue. Members of the course will observe and reflect upon two or three children's

church activities in local Protestant Christian churches, write liturgies for children, and engage in readings, lectures, and reports. *Mr. H. Hoeks.*

**I-13 "The Women Should Keep Silence..."** A course in Biblical interpretation using the single issue of women in church office as a case study. Biblical material is studied and interpretations are analyzed. Students will make critical evaluations of all aspects of Biblical interpretation from translation to application. *Mr. L. Vos.*

**I-14 The Christian Church in Canadian Life.** A study of the formative role of the Christian church on Canadian identity. We will probe such questions as the Roman Catholic/Quebecois and Anglican/English Canada connections, the social gospel's influence on political life (CCF, DNP), and the unique contributions of various ethnic and religious communities (including the Reformed Christian community). General knowledge of Canadian history is helpful

but not required. Readings, lectures, discussions, and a research paper. *Mr. J. Bolt.*

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

**Idis I-53 Piety and Poverty: Perspectives on Justice and Stewardship.** *Mr. C. Vos.*

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## Sociology

*Professors G. De Blacy, 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, 307, 380, and 381; 300, 301, and 307 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 of-

fers a rational interpretation of issues current in our society. *Staff.*

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

**217 Social Anthropology.** F and S, core. A study of the historical trends in anthropol-

ogy that have led to its present day perspective. The concepts of functionalism and cultural relativism are examined and evaluated. The course surveys various cultural patterns around the world. *Mr. D. Wilson.*

**300 Social Welfare Policy and Services.** F. An analysis of the social welfare system. The institutions in which social welfare policy is carried out and specific policy areas which influence current social work services are examined. The application of specific policies to income maintenance, mental health, poverty programs, and corrections are some of the areas covered. Students who have taken 300 prior to September, 1980, should not take this course. Prerequisite: 151 or permission of instructor. *Mr. R. Houskamp.*

**301 Social Work Practice.** S. Students are taught the techniques of social work with an emphasis on how basic social work concepts are related to professional practice. Prerequisite: 300 or permission of instructor. *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.*

**307 The History of Social Welfare and Social Work.** F. A historical overview of the development of social welfare and social work, primarily in the United States. Included in the overview is a study of the social, cultural, political, and economic factors which have influenced the development of social welfare and the professionalization of social work. Prerequisite: 151 or permission of instructor. *Mr. R. Houskamp.*

**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.* Not offered 1980-81.

**310 Social Psychology.\*** F. Human behavior is a consequence of man's psychological make-up and his socio-cultural environment. Attention is given to social interaction as it occurs in small group settings. Attention is also given to theoretical frameworks emphasizing self-concept and role playing. Students may not receive credit for this course and Psychology 310. *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 1980-81.

**314 Contemporary Social Problems: Cultural and Social Responses to Death and Dying.\*** F. This course begins with a discussion of various theoretical orientations to the study of social problems generally. It then relates these theories to the particular problems associated with death and dying from the perspectives of contemporary culture and society, of those close to the dying person, and of the dying person himself. Special attention will be given to the extent to which the conceptions and customs surrounding death and dying are functional in their own terms and compatible with biblical norms. *Mr. T. Rottman.*

**315 Sociology of Sport.** S. A study of the social and social-psychological dynamics of sports in modern society. Areas receiving special attention are youth sports, interscholastic sports, and professional sports. Emphasis is put on describing and understanding sports participants and observers and the relationship of sport as an institution to the rest of social structure. *Mr. G. De Blacy.*

**318 Sociological Theory.\*** F. An assessment of sociological theory in terms of its historical development and current role in understanding human behavior. Particular attention is given to the function of theory in the research process. Direction is given to the student in the formulation of sociological hypotheses from data. Prerequisite: 151. *Mr. H. Holstege, Mr. T. Rottman.*

**320 Sociological Research.\*** S. An assessment of the nature of the research process as applied to the study of theoretical problems in social science. 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, 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. *Staff.*

**590 Independent Study.** 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 1981 INTERIM

**I-15 The Planned Family.** A study of some important decisions faced by people planning the size and composition of their

families. Students will consider contraception, abortion, sterilization, artificial insemination, voluntary childlessness, adoption, and foster care. Readings and small group discussions on each topic and guest speakers from the community. *Mr. P. De Jong, 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. This class will meet occasionally with Speech I-51. Prerequisite: 151. *Mr. H. Holstege, Mr. D. Smalligan.*

**I-51 The Criminal Justice System.** This course highlights the historically changing and currently diverse expectations placed on police, the court, and prison personnel. It considers the nature of crime and criminal law, the meaning of justice, and the place of the community in the development and maintenance of a true system of justice. Students will also discuss the ethical and moral obligations of both citizens and career professionals. Lectures, assigned readings, presentations by criminal justice personnel, and field observations. Prerequisite: permission of instructor with priority given to those who have a serious career interest in criminal justice. *Mr. T. Rottman.*

**I-52 Radical Resocialization—A Social-Psychological Perspective.** A study of the social-psychological components of resocialization as they relate to a variety of formal organizations and informal groups which specialize in such activity. Students will examine a cross-section of material dealing with the process of resocialization including secular-humanistic groups, religious and quasi-religious groups, and political groups, all of which offer the promise of a new life (conversion). Examples of such

groups are Synanon, Teen Challenge, the Unification Church, the Patty Hearst kidnapers, and the People's Temple. Students will also question the reasons for joining such groups, the techniques or methods used to "convert" the person who has joined, and the ways in which groups maintain a commitment to the "faith." How does the Christian address such group efforts? What similarities or differences exist between these groups and the more mainline, societally sanctioned agents of behavior change? Prerequisite: 151 or Psychology 151. *Mr. R. Houskamp.*

**I-53 Margaret Sanger—Birth Control Advocate: Should the Church Have Listened?** The course has two major objectives. First, it will introduce the student to the writings of Margaret Sanger on birth control. Second, the course will examine the response of the Christian church. We shall ask why the church opposed her ideas, whether its position was defensible, and whether the church might have adapted justifiably a receptive stance toward birth control. Students will gain an understanding of the ideology of the birth control movement in the United States and the ways in which that stimulated the feminist and eugenics movements. Students will also examine the response of the institutional church as it was forced to struggle with the modern ideology of birth control and they will better understand their own position as they learn to locate it in social history. Extensive reading, participation in seminar discussion, tests, and a term paper. Prerequisite: 151 and at least sophomore standing. *Mr. R. Rice.*

**I-54 Church and Culture in Liberia.** This course examines the culture of Liberia, the nature of the Christian church, and the relationship between the church and the culture. The four weeks spent in Liberia will be divided between a modern African city (Monrovia), a small town presently being influenced by a large multinational corporation, and a small village in the interior. The course includes lectures by Liberians on various topics relating to their cultures as well as visits to significant cultural places and events. Fee of approximately \$1,450. Prerequisite: 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 217, 218, 371 or 372, and 360. 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 offered in conjunction with Universidad Iberoamericana are available in Mexico for the interim or a semester. 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.

## LANGUAGE

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 Grammar and Conversation.\*** F. A course for the student who

wishes to improve his facility in the language, who is preparing for graduate study, or who expects to teach Spanish. The course includes the intensive study of grammar, vocabulary, and idioms as well as intensive use of drills and exercises to develop competence in speaking and writing idiomatic Spanish. The emphasis is on improved pronunciation and fluency through conversation, debates, and oral presentations. Prerequisite: 202 or its equivalent. *Mrs. Y. Byam.*

322 **Advanced Composition and Translation.\*** S. Extensive work in composition and translation to develop skill in written communication for students interested in teaching or in continuing their studies in graduate school. Reading selections by well known writers from various genres serve as models. A major paper in Spanish is required. Prerequisite: 321 or approval of instructor. *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. D. Dunbar.*

**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. D. Dunbar.*

**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. *Mrs. S. Ariza.*

**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. *Mr. B. Class.*

**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.* Not offered 1980-81.

**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.* Not offered 1980-81.

**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.* Not offered 1980-81.

### CIVILIZATION

**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. Not offered 1980-81.

**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. *Mrs. E. Greenway.*

**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 Independent Study.\*** F, I, S. Prerequisite: permission of the chairman.

**395 Seminar.\***

### JANUARY 1981 INTERIM

**I-10 The Hispanic Ballad in the United States.** The Hispanic ballad, transmitted through and modified by Latin America, has given North America a significant artistic expression. This course will explore the literary origins and forms of the Hispanic ballad, briefly trace them through Latin America, and then assess the ballad's influence on the Chicano and Anglo cultures of the United States. The course will be of interest to students who wish to probe the ways in which poetry is manifested in popular culture. A reading knowledge of Spanish and an awareness of basic poetic theory would be ideal. Guest speakers 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 in Mexico.** Students will spend four weeks in Mexico City living with Mexican families and studying at the Universidad Iberoamericana. Students will also hear lectures on selected topics in Mexican culture, spend three hours in class daily, and visit monuments, museums, and pyramids in the area. Fee of \$975. Prerequisites: 201 or equivalent and permission of instructor. *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 college is a member of the Michigan Intercollegiate Speech League and students participate in debate tournaments, forensic contests, and an interpretative reading festival sponsored by the league.

The core requirements in spoken rhetoric may be met by 100, 200; 214, if the student is in an elementary education program; 240; 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, core. The primary aim of

this course is to increase competence in oral communication. The major emphasis is on the composition and delivery of speeches. 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 is examined. Not offered 1980-81.

**200 Advanced Oral Rhetoric.** F and S, 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.** S, 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. *Staff.*

**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. *Staff.* Not offered 1980-81.

**240 Group Communication.** F and S, 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. *Mr. D. Nykamp.*

**250 Semantics.** S. Study of verbal and nonverbal symbols used in communication. Primary emphasis is on the effect of symbols. Major topics include relationships between symbols and referents and on problems in human communication. *Staff.* Not offered 1980-81.

**305 Persuasion.\*** S. Communication as influence at intrapersonal, interpersonal, group, mass, and cultural communication levels. Emphasis is on increased understanding and competence. Prerequisite: 100 or equivalent. *Mr. D. Nykamp.*

**311 Argumentation.\*** F. Study of rational

discourse and its uses. Methods of investigation, analysis, and the use of evidence and logic. Regular application of theory to the student's own communication is required. *Mr. D. Nykamp.*

**312 Intercollegiate Debate.** F and S, half course. Students involved in intercollegiate debate throughout the year should register for this course. Not more than two units of credit for such applied speech and music courses may be applied to the graduation requirements. *Staff.*

**325 History of Rhetorical Theory.\*** S, core. Major issues in the history of oral rhetoric and communication. Classical, medieval, and early modern theories will be compared to twentieth century approaches. Theorists studied include Plato, Aristotle, Bacon, McLuhan, Burke, Goffman, and representatives of various contemporary schools. *Staff.* Not offered 1980-81.

**326 History of Public Address.\*** F, 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. *Staff.* Not offered 1980-81.

*History 336, The History of Journalism and Communications in America, is also appropriate for concentrations in speech.*

## SPEECH EDUCATION AND SPEECH CORRECTION

**214 Speech for the Elementary Teacher.** F and S, core. Designed to familiarize the prospective teacher with the speech arts used in the elementary classroom and to improve the prospective teacher's use of voice and articulation. *Staff.*

**215 Principles of Speech Correction.** F and S. A study of the child's speech development and the types of speech defects that may occur. The course is designed to help the classroom teacher understand and correct minor defects and to handle speech improvement in the classroom. The course will also serve to introduce the student to

the profession of speech pathology and audiology. *Mr. M. Vande Guchte.*

**307 Fundamentals of Speech Pathology.** F. A study of the anatomy and physiology of the speech mechanisms, the involvement of the nervous system in the control of speech, and the acoustic characteristics of speech production. Prerequisite: 215. *Mr. M. Vande Guchte.*

**308 Basic Audiology and Audiometry.** S. A study of the fundamental aspects of hearing; the physics of sound, the anatomy of the ear, the nature of hearing and hearing impairment, and the testing of hearing. Prerequisite: permission of instructor. *Mr. M. Vande Guchte.*

### THEATER, DRAMA, AND ORAL INTERPRETATION

**203 Interpretive Reading.** F and S, 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, core. A study of the theory and principles of drama as revealed in representative plays from the Greek through the modern period. With a view to training the prospective director, attention will be given to the technical aspects of production. Students will be trained in acting and in directing by means of classroom presentations of dramatic scenes. *Mr. J. Korf.*

**220 Thespian Productions.** Half course for the year. Membership in the Thespian group is limited and is determined annually by tryout. The members will be given training in the various practical aspects of the production of drama. Students may participate more than one year but not more than two course units of credit in Thespians and applied music may be applied to the minimum requirements for graduation. *Mr. J. Korf.*

**304 Advanced Interpretation.** S, core. Continuation of 203. Application of its principles to the novel and drama. Intensive study in preparation for a reading program. Prerequisite: 203. *Mrs. A. Noteboom.*

**317 History of Theater and Drama.** F, core. A historical and analytical study of theater and drama from its origins to 1800. *Mrs. E. Boevé.*

**318 History of Theater and Drama.** F,

core. A continuation of 317. An historical and analytical study of theater and drama from 1800 to the present. *Mrs. E. Boevé.* Not offered 1980-81.

**390 Independent Study.\*** F, I, S. Independent study of topics of interest to particular students, under the supervision of a member of the department. Prerequisite: permission of the department. *Staff.*

**395 Seminar.\*** Research of an approved topic or topics under the supervision of a member of the department, and presentation of the results in a departmental seminar. Prerequisite: permission of the department. *Staff.*

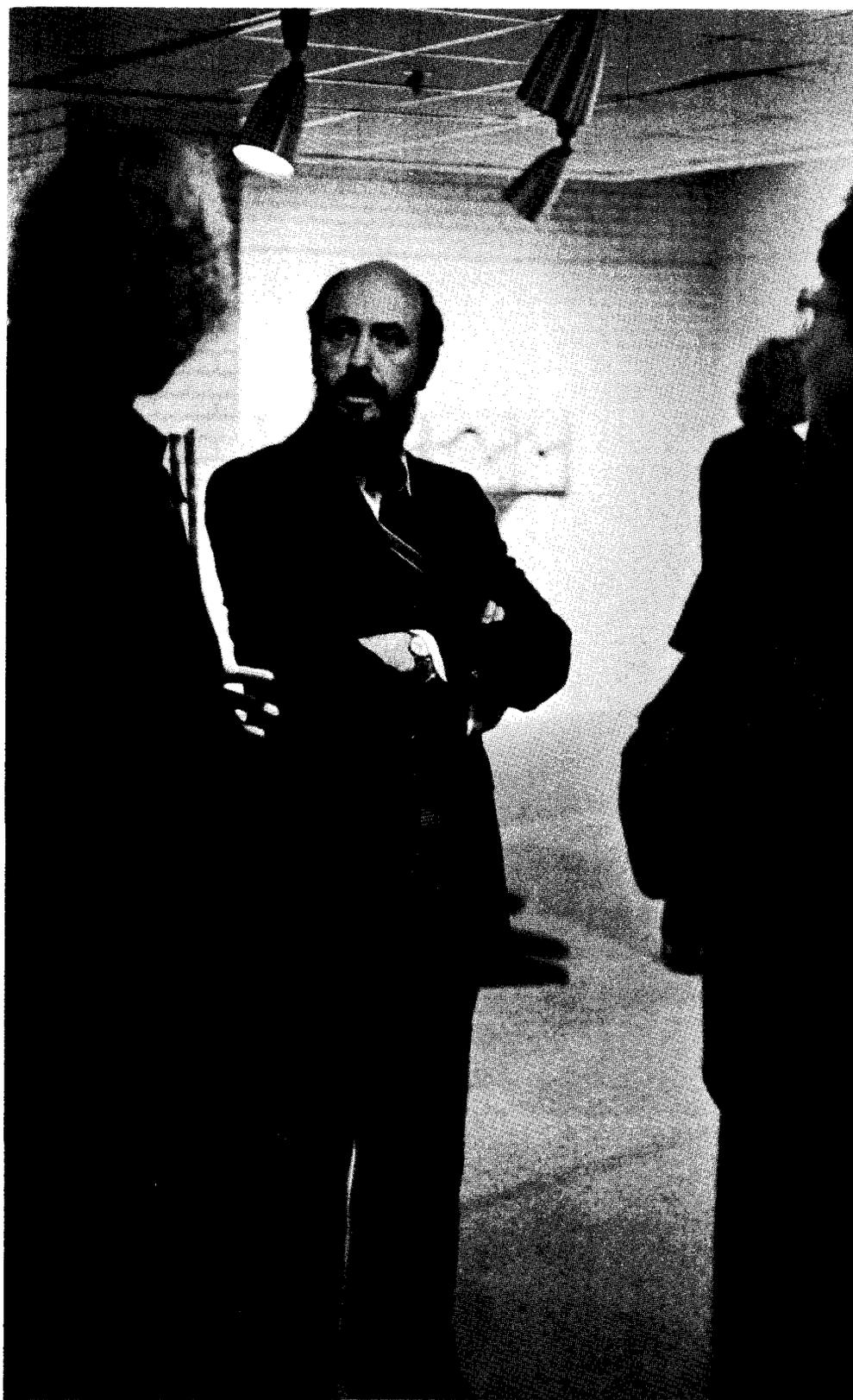
### JANUARY 1981 INTERIM

**I-10 Managing Conflict and Decision Making.** Conflicts are inevitable; destructive conflicts are not. Conflict management involves knowing how to make decisions when feelings are strong because decision making under pressure is often erratic or erroneous. This course provides students with simulated conflict and decision making experiences. Students will write analyses of the simulations and will also observe and write formal evaluations of on-going real-life situations. Students will develop increased decision-making skills and increased abilities to use those skills in managing conflicts between individuals, within groups, and within organizations. *Mr. D. Nykamp.*

**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. Lectures, films, presentations by visiting experts regarding current problems and practices; and field trips. Reading and observational reports are required. This class will meet occasionally with Sociology I-50. Prerequisite: 215 or Sociology 151 or Psychology 151 or permission of the instructor. *Mr. M. Vande Guchte.*

**Idis I-18 Contemporary Art and Drama in New York City.** *Mrs. E. Boevé.*

**Idis I-23 Acting Workshop.** *Mr. J. Korf.*



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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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Harry Faber, *Conference Coordinator*

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- Master of Arts in Christian Studies Committee*, G. Marsden (1982, chairman), E. Ericson (1981), A. Leegwater (1981), T. Rottman (1983), J. Vanden Berg, N. Wolterstorff (1982).
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- Communications Board*, C. Bennink (1981, WCAL), D. Jeltema, R. Kamphuis, J. Korf (1981, *Prism*), J. Timmerman (1981, *Chimes*), C. Walhout (1981, *Dialogue*), R. Wolterstorff, G. Zuiderveen.
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*Student Life Committee*, C. Vos (1982, chairman), R. Blankespoor (1982), D. Cooper, T. Hoeksema, H. Ippel (1983), W. Stob (secretary), L. Teitsma, three students.

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#### 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.

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Biology (III), Alan Gebben, *chairman*

Chemistry (III), William Van Doorne, *chairman*

Classical Languages (II), Richard Wevers, *chairman*

Economics and Business (IV), Donald Pruis, *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), Brent DeVries, *chairman*

Mathematics (III), Sanford Leestma, *chairman*

Music (II), Dale Topp, *chairman*

Philosophy (I), K. 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

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*Librarian, Emerita*
- Henry Bengelink, M.S.  
*Assistant Professor of Biology, Emeritus*
- Nicholas Henry Beversluis, Th.B., Th.M., M.A., Ed.D.  
*Professor of Education, 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*
- Theodford P. Dirkse, M.A., Ph.D.  
*Professor of Chemistry, Emeritus*
- Bernard Jay Fridsma, Sr., M.A., Ph.D.  
*Professor of Germanic Languages, Emeritus*
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*Professor of Chemistry*

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Donald L. Boender, M.A. (Michigan, 1965)  
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*Multicultural Lecturer, Religion and Theology*
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*Associate Professor of Art*
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- John Bolt, B.D., Th.M. (Calvin Theological Seminary, 1973, 1977)  
*Instructor in Religion and Theology*
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*Professor of History*
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*Assistant Professor of English*
- Marilyn J. Borst, M.A. (Michigan State 1980)  
*Instructor in Art*
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*Professor of Mathematics*
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*Assistant Professor of Education*
- James Peter Bosscher, M.S. (Purdue, 1957), Ph.D. (Michigan 1968)  
*Professor of Engineering*  
*Chairman of the Department of Engineering*
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*Assistant Professor of Biology*
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- Kenneth Dale Bratt, M.A. (Princeton, 1973)  
*Assistant Professor in Classical Languages*
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*Professor of Germanic Languages*  
*Chairman of the Department of Germanic Languages*
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*Assistant Professor of Mathematics*
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*Associate Professor of Psychology*
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*Professor of History*  
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*Assistant Library Director for College Related Matters*
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- Bradley Mellon Class M.A. (Oregon, 1967), Ph.D. (New Mexico, 1974)  
*Assistant Professor of Spanish*
- Dale Jay Cooper, B.D. (Calvin Theological Seminary, 1968)  
*College Chaplain*
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*Assistant Professor of Philosophy*

- Elsa Cortina, Doctora en Pedagogia (Universidad Habana, 1951)  
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- Gordon Lee De Blaey, M.A., Ph.D. (Western Michigan, 1967, 1970)  
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- Willis Peter De Boer, Th.B. (Calvin Theological Seminary, 1951), D.Th. (Vrije Universiteit, Amsterdam, 1962)  
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*Professor of Political Science*
- Peter Ymen De Jong, M.A., Ph.D. (Western Michigan, 1969, 1972)  
*Professor of Sociology*
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*Professor of Chemistry*
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*Dean of the Faculty*
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*Chairman of the Department of History*
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*Visiting Associate Professor of Music*
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*President*
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- Evelyn J. Diephouse, M.Ed. (Rutgers, 1976)  
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*Visiting Instructor in French*
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*Coordinator of Elementary Education*
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*Associate Professor of Education*  
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*Counselor in the Broene Center*
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*Assistant Professor of Physical Education*
- Richard Edwin Houskamp, M.S.W. (Chicago, 1961), D.S.W. (Tulane, 1976)  
*Associate Professor of Sociology*
- Carl John Huisman, M.F.A. (Michigan State, 1967)  
*Associate Professor of Art*
- Gertrude Ann Huizenga, M.A. (Ohio State, 1963), M. Mus., Ph.D. (Michigan State, 1969, 1980)  
*Associate Professor of Music*
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*Professor of History*
- Thomas Leigh Jager, M.S., Ph.D. (Chicago, 1967, 1971)  
*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*
- Hermina Joldersma, M.A. (Princeton, 1979)  
*Instructor in Germanic Languages*
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*Counselor in the Broene Center*
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*Professor of Psychology*
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*Professor of Education*  
*Coordinator of Special Education: Learning Disabilities*
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*Professor of Biology*  
*Director of Health Sciences Programs*
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*Professor of Philosophy*  
*Chairman of the Department of Philosophy*
- James Dale Korf, M.A. (Michigan, 1970)  
*Assistant Professor of Speech*
- Irvin Bertus Kroese, M.A., Ph.D. (Ohio, 1964, 1966)  
*Professor of English*
- Albion Jerome Kromminga, Ph.D. (Minnesota, 1961)  
*Professor of Physics*
- Kenneth Wayne Kuiper, M.A., Educ., M.A., English, Ed.D. (Michigan, 1955, 1959, 1963)  
*Professor of English*
- James Alan Kuiper, M.F.A. (Michigan State, 1976)  
*Assistant Professor of Art*
- Jack Kuipers, M.S.E., Info. and Cont. E. (Michigan, 1959, 1966)  
*Associate Professor of Mathematics*
- Kenneth Jay Kuipers, M.B.A. (Michigan State, 1968)  
*Assistant Professor of Economics and Business*
- Walter Lagerwey, M.A. (Columbia, 1951), Ph.D. (Michigan, 1958)  
*Professor of Germanic Languages*
- Stephen Lambert Lambers, M.A., M.A.L.S. (Michigan, 1958, 1969)  
*Librarian*
- James Lawrence Lamse, M.A., Ph.D. (Michigan, 1963, 1975)  
*Professor of Germanic Languages*

- Mary Jane Lamse, M.A., Ph.D. (Michigan 1963, 1969)  
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*Professor of Mathematics*  
*Chairman of the Department of Mathematics*  
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*Professor of History*
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*Visiting Assistant Professor of Chemistry*
- Gregory Frank Mellema, Ph.D. (Massachusetts, 1974), M.B.A. (Michigan, 1978)  
*Associate Professor of Philosophy*
- Clarence Menninga, M.A. (Western Michigan, 1959), Ph.D. (Purdue, 1966)  
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- Nancy L. Meyer, M.S. (Arizona, 1979)  
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- Charles J. Miller, Ph.D. (Northwestern, 1947)  
*Dean for Academic Program Administration*
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*Professor of French*  
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*Professor of English*

- Robert Theodore Otten, M.A., Ph.D. (Michigan, 1951, 1957)  
*Professor of Classical Languages*  
*Secretary of the Faculty*
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*Chairman of the Department of Art*
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*Visiting Assistant Professor of Mathematics*
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*Professor of Psychology*
- Rodger Reid Rice, M.A., Ph.D. (Michigan State, 1962, 1968)  
*Professor of Sociology*
- M. Howard Rienstra, M.A., Ph.D. (Michigan, 1954, 1963)  
*Professor of History*
- Dale R. Rietberg, M.B.A. (Michigan, 1980)  
*Instructor in Economics*
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*Professor of History*
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- Theodore Allen Rottman, M.A., Ph.D. (Michigan State, 1955, 1965)  
*Professor of Sociology*
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- Ruth K. Rus, M.Mus. (Eastman School of Music, 1951)  
*Assistant Professor of Music*
- William A. Sanderson, B.D., S.T.M. (Faith Theological Seminary), 1950, M.A.  
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*Associate Professor of Psychology*  
*Chairman of the Department of Psychology*
- Carl James Sinke, M.S., Ph.D. (Purdue, 1951, 1954)  
*Professor of Mathematics*  
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- Allen L. Shoemaker, M.S. (Illinois, 1979)  
*Instructor in Psychology*
- †Howard Jay Slenk, M.A., Ph.D. (Ohio State, 1961, 1965)  
*Professor of Music*
- Barbara Betty Sluiter, M.A.L.S. (Michigan, 1956)  
*Librarian*
- Donald Henry Smalligan, M.B.A., M.S.W. (Michigan, 1948, 1954)  
*Associate Professor of Sociology*
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*Assistant Professor of Political Science*
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*Professor of Sociology*
- John Nelson Snapper, M.A., M.A. (San Diego State, 1971, English; 1975, education)  
*Assistant Professor of English*
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*Assistant Professor of Education*
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*Dean of Student Life*
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*Professor of Psychology*
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*Assistant Professor of Political Science*
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*Professor of Biology*

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*Professor of Psychology*
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*Chairman of the Department of Music*
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*Visiting Instructor in French*
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*Assistant Professor of Physical Education*
- Glen E. Van Andel, M.S. (North Carolina, 1969)  
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- David Alan Van Baak, M.A., Ph.D. (Harvard, 1975, 1979)  
*Assistant Professor of Physics*
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*Professor of Speech*
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- Mary Elizabeth Vander Goot, M.A., Ph.D. (Princeton, 1969, 1971)  
*Associate Professor of Psychology*
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*Instructor in Biology*
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