

Calvin

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

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Calendar

The Fall Semester 1976

SEPTEMBER	7	Tuesday	Faculty-Board conference
	8	Wednesday	Residence halls open
	9-11	Thursday-Saturday	Orientation and registration
	13	Monday	First semester classes begin 8 a.m.
OCTOBER	21-22	Thursday-Friday	Convocation 10 a.m.
			Reading recess
NOVEMBER	16-24	Tuesday-Wednesday	Registration for Interim and spring semester
	24	Wednesday	Thanksgiving recess 10 p.m.
	29	Monday	Classes resume 8 a.m.
DECEMBER	16	Thursday	Classes end 10 p.m.
	17	Friday	Examinations begin 10:30 a.m.
	22	Wednesday	Fall semester ends 5 p.m.
			Christmas vacation begins

The Interim 1977

JANUARY	4	Tuesday	Interim term begins 8 a.m.
	26	Wednesday	Interim term ends 5 p.m.

The Spring Semester 1977

	31	Monday	Second semester classes begin 8 a.m.
MARCH	18	Friday	Spring vacation begins 10 p.m.
	29	Tuesday	Spring vacation ends 8 a.m.
APRIL	8	Friday	Good Friday, classes dismissed at noon
MAY	12	Thursday	Classes end 10 p.m.
	13	Friday	Examinations begin 2 p.m.
	18	Wednesday	Last examination period 4:30 p.m.
	21	Saturday	Commencement 3 p.m.

The Summer Semester 1977

	23	Monday	First session begins 8:30 a.m.
JUNE	15	Wednesday	First session ends
	16	Thursday	Second session begins 8:30 a.m.
JULY	8	Friday	Second session ends
	11	Monday	Third session begins 8:30 a.m.
AUGUST	2	Tuesday	Third session ends
	3	Wednesday	Fourth session begins 8:30 a.m.
	25	Thursday	Fourth session ends

The Fall Semester 1977

SEPTEMBER	6	Tuesday	Faculty-Board conference
	7	Wednesday	Residence halls open
	8	Thursday	Orientation and registration begins
	12	Monday	Fall semester classes begin 8 a.m.



History

The history of the college and its objectives

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

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

The Christian Reformed Church subscribes to three statements of faith (in addition to the early Christian Apostolic Creed), which stem from the Reformation period: the Heidelberg Catechism, which is the most famous and widely translated of all Reformation creeds; the Confession of Faith, written by the Belgian theologian Guido de Brès in 1561; and the Canons of Dordt.

The Christian Reformed Church stresses the sovereignty of God in every part of life—in the family, the church, the state; in world affairs; in economic, social, and political life; in business; and in 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 library 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 teach-

ing or in preparing for preprofessional courses in the universities. By 1906 the Literary Department, which provided the four years of preparatory and two years of college work, became known officially as the John Calvin Junior College. The two-year college in time became a four-year college, and the preparatory department was discontinued. In 1921 Calvin College awarded its first Bachelor of Arts degree.

The school which had started with seven students grew slowly during the early years, but by 1930 it had reached its pre-World War II size of 350-450 students. By 1950 the enrollment had climbed to 1270 and last year was 3600.

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

LIBRARY

The Calvin Library, at the center of the campus, serves students of both the college and the seminary. Its 270,000 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 1790 current periodicals are available for use in the library. Two major microfiche collections, The Library of American Civilization and The Library of English Literature, are part of the 17,000 item collection of microfilm, microfiche, and microcards. The library, which is air conditioned, can seat 1100 persons, mainly in individual study carrels but in tables, lounge seating, and seminar rooms as well.

Several special collections are housed in the library. The Curriculum Center contains a wide variety of demonstration teaching material useful to teachers and prospective teachers. The H. H. Meeter Calvinism Research Collection, located on the balcony of Heritage Hall, is one of the most extensive collections of books and articles on John Calvin and Calvinism available anywhere. The lower level of Heritage Hall houses the Colonial Origins Collection, which consists of manuscripts, archives, and other records of the Christian Reformed Church, its leaders, its Dutch origins, and closely related institutions. The Calvin Library is a partial depository of government documents, holding approximately 40,000 items. The Cayvan Room with its many recordings and tapes is available for both the study and enjoyment of music.

AIM AND PURPOSE

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

The faculty members subscribe to the credal 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.

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

GOVERNMENT

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

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

ACCREDITATION

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

on the American Association of University Women list of institutions qualified for membership in the association. It maintains membership in the American Council on Education, the Association of American Colleges, American Association of Colleges for Teacher Education, College Entrance Examination Board, National Education Association, the Mathematical Association of America, and the American Mathematical Society.

CALENDAR, SUMMER SCHOOL

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

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

THE CALVIN ALUMNI ASSOCIATION

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

The purpose of this association is to provide an avenue for the exchange of ideas between the alumni and Calvin, to undertake projects which advance the college and seminary, to unite all alumni in support of their alma mater, and to be of service to the 24,000 alumni through a variety of contacts.

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

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

BROENE COUNSELING CENTER

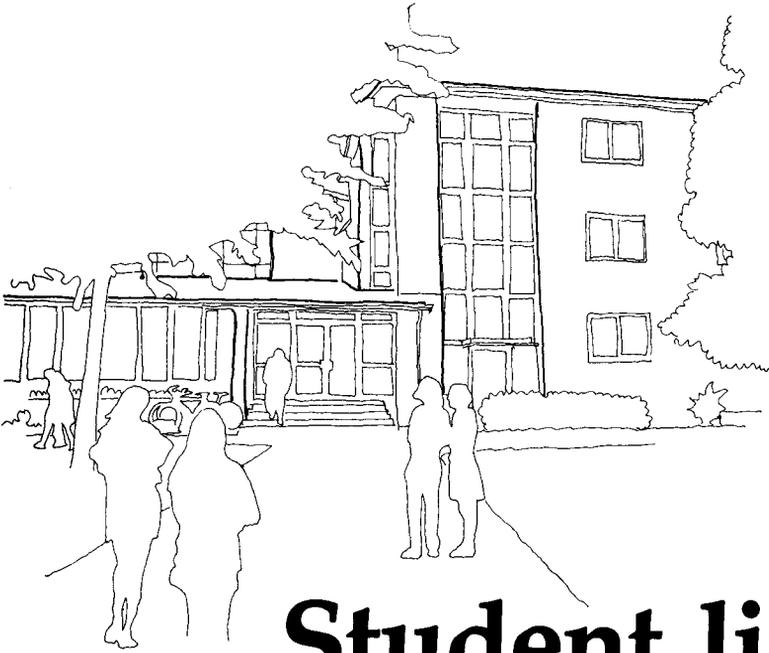
The Broene Counseling Center, a part of the Division of Student Affairs, provides a variety of services for the students. It offers vocational testing and counseling, tutorial assistance, and training for the residence hall staff, as well as individual and group counseling.

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

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

TEACHING-LEARNING MATERIALS CENTER

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



Student life

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 morning prayers, foreign language chapels, and group devo-

tions are held at other places at this time. Students are expected to attend some chapel services during the week. In addition there are many opportunities for voluntary religious activities. Bible study groups, student prayer groups, Christian service activities, and evangelistic outreach are a few of these voluntary programs. This part of campus religious life is supervised by the Student Affairs Division, various committees, and the college chaplains. The latter are available for counsel at any time.

MAINTENANCE OF COLLEGE STANDARDS

Admission to Calvin College is a privilege that may be withdrawn from any student who does not meet the academic standards of the college. In addition, the college not only expects a student to conduct himself both on and off campus in accord with his statement of religious commitment as he has indicated it in the application forms, but 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* describe the regulations and their implementation.

HOUSING

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

The college requires all students to register their place of residence with the Housing Office and to notify that office of all changes in residence during the period of their enrollment. Upperclass students may also arrange to work for their room and board. Information on available housing costs and further interpretation of these rules is available from the college Housing Office.

THE FINE ARTS

Many sorts of fine arts activities thrive at Calvin both as part of the academic life and as the result of spontaneous student interest. Bands, orchestras, choral groups, and chamber ensembles are part of the program of the Department of Music for the participation of all qualified students. The dramatic productions of the Thespians as well as intercollegiate debating and other forensic activities are sponsored by the Department of Speech. Students from all departments participate. The long Calvin tradition of creative writing for publication and for private reading is encouraged by the members of the Department of English. *Dialogue* and *Chimes* provide opportunities for student publication. The Department of Art seeks to arouse interest in the various graphic and plastic arts. Student creative work in all fields is stimulated by the Fine Arts Guilds, which present an annual Fine Arts Festival in the spring.

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

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

ATHLETICS

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

STUDENT SENATE AND OTHER ORGANIZATIONS

Elected from the four classes, the thirty-three member student senate has an important role in the life of the college. Not only does it serve as the official voice of the student body, but also it supervises most student activities. It oversees the budgets of student organizations and concerns itself with student publications, homecoming, the film arts, the Fine Arts Guild 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. There are also many volunteer service groups which attract student participation, such as KIDS (Kindling Intellectual Desire in Students), an organization of Calvin students that supplies teachers' assistants, "big brothers" and "big sisters" for the local courts, and tutors for high school students with disadvantaged backgrounds. All organized clubs or similar groups must have formal approval and sponsorship.

HEALTH SERVICES

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

A Group Accident and Sickness Expense Protection Plan is available to all

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

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

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

COUNSELING AND ADVISING

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

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

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

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

USE OF 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.

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 student access to their records, are available in the Office of the Registrar.

GRADUATE PLACEMENT AND FELLOWSHIPS

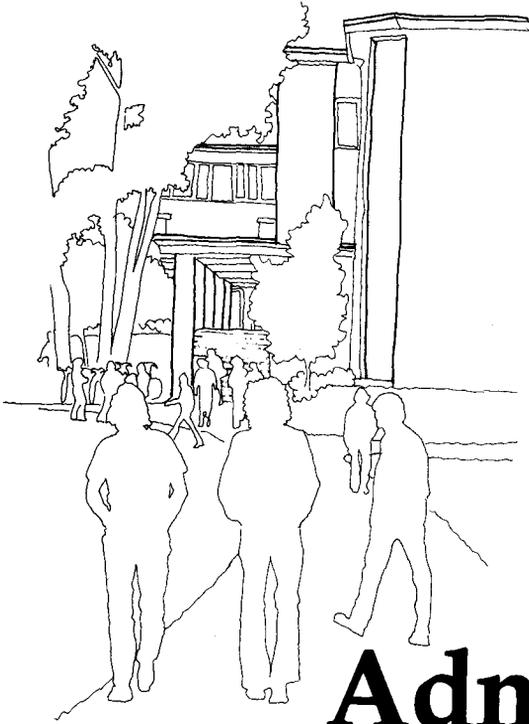
The college maintains a series of services for graduating students to assist them in securing fellowships to graduate school, teaching positions, and career placement.

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

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

Various graduate school and graduate fellowship programs are supervised by the coordinator of graduate fellowships. The broadest of these is the Michigan Scholars program, which attempts to identify and encourage students of promise who are interested in graduate education. This program is administered cooperatively by five Michigan liberal arts colleges and the University of Michigan. Students who show outstanding promise are eligible for graduate fellowships. A number of competitive national fellowships are available to Calvin seniors, and information on these is also available through the coordinator. These include the Danforth Foundation fellowships, the Rhodes scholarships,

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



Admission

Regulations concerning admission, grading, etc.

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

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

The following documents must support each application:

1. **SCHOLASTIC RECORD** The applicant's previous education must be reflected in a transcript from an accredited secondary school which shows the satisfactory completion of fifteen units of work and the school's appraisal of the candidate (a

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

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

The American College Test is given, normally, five times a year throughout the world. Application forms are generally available from high school principals and counselors but may be requested from the American College Testing Program, Box 168, Iowa City, Iowa 52240. This test is required by the State of Michigan for its competitive scholarship program. Testing dates for the next academic year are October 9, November 20, February 5, April 2, and June 18.

The Scholastic Aptitude Test will be given this academic year on November 6, December 4, January 22, March 26, and June 4. Application forms are generally available from high school principals and counselors but may be secured by students living east of the Rocky Mountains from the College Entrance Examination Board, Box 592, Princeton, New Jersey 08540. Those who live in the Rocky Mountain states or farther west, including those from Western Canada and foreign countries of the Pacific areas, should apply to the College Entrance Examination Board, Box 1025, Berkeley, California 94701.

3. APPLICATION FOR ADMISSION

4. PASTOR'S RECOMMENDATION

READMISSION

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

TRANSFER STUDENTS, ADVANCED STANDING

Students transferring from other college or universities must follow the same procedures of applying for admission as freshmen, but they are not required to sit for entrance examinations and should have a cumulative grade

point average of C (2.0) or higher. They will receive credit for work done in accredited institutions provided the courses were of an academic nature and 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 to graduate from Calvin.

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

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

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

Completion of certain high school courses will excuse a student from specific college graduation requirements. Most high school offer such courses in literature, foreign language, mathematics, and the various sciences. Students are encouraged to take such courses and in this way, as well as in others, to enter college with the strongest possible academic preparation. Consult pages 37 and 38 for a description how high school courses satisfy specific college requirements.

ADMISSION UNDER SPECIAL CONDITIONS

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

Applicants who have not met the requirements as to prescribed high school work or as to the distribution of that work may be admitted with conditions. If possible the applicants should make up any deficiencies during the summer preceding their enrollment as freshmen. If the deficiencies have not been removed before the student begins his first semester as a student the director of admissions will determine how they must be satisfied.

MODEL HIGH SCHOOL PROGRAM

High school students should recognize that the quality of their high school education will determine the ease with which they will do college work and their ability to follow certain courses of study. At Calvin, the nature and quality of a student's high school preparation may reduce his college graduation requirements (See pages 37-38). 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.

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

The Calvin College Summer Developmental Program aims to assist students with all sorts of backgrounds who have not yet met the academic admission requirements of the college. In 1977 the program meets during the four weeks of August. Through intensive testing, counseling, and personal teaching, students who have established marginal high school records are given the opportunity to develop themselves in areas in which they are deficient. Particular emphasis is made on developing basic English and basic mathematical skills. Those students who demonstrate ability to do college-level work are admitted to Calvin College.

ADMISSION OF FOREIGN STUDENTS

Calvin College welcomes foreign students who can demonstrate their potential ability to meet the academic standards of the college, who are prepared to do college-level work in English, whose application is supported by the results of the American College Test (ACT) or the Scholastic Aptitude Test (SAT), and who can show evidence of their ability to pay most of the cost of their education. The ACT and SAT are given in foreign countries but are not required of students presenting a Senior Matriculation Certificate or who transfer from another college or university where they have earned at least one semester of credit. Such students should be certain that Calvin College offers the program they need. The college is approved by the United States Immigration and Naturalization Service as an institution of higher education for the training of non-citizens who are in the United States on student visas.

When such an applicant is accepted for admission he will be sent a formal

letter of admission by the director of admissions and a copy of the required I-20 form. The prospective student should make application immediately with the United States Consul in his area for a student visa.

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

ADMISSION TO THE NURSING PROGRAM

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

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

ENROLLMENT IN SEMINARY CLASSES

Full-time college students may, as a part of a program worked out with their departmental advisers, carry up to two courses in the seminary in any one semester. Approval by the registrar of the seminary and the registrar of the college is required, and under no circumstances may credit for a single course be counted toward degree programs in both college and seminary. Full-time seminary students may enroll for not more than two courses in the college, provided the dean of the seminary and the college registrar approve.

STUDENT LOAD AND CLASSIFICATION

The typical student load is four courses a semester. The normal load, however, may range from three to four and a half courses with courses in applied music, drama, and speech and in required physical education not included in the maximum. A semester's participation in applied arts courses carries one-quarter course credit, but not more than two course credits thus acquired may be applied toward graduation, except for music majors in certain applied music concentrations. Not more than four semesters of basic physical education courses may be applied toward graduation. In exceptional cases a student may apply to carry more than four and a half courses; such an application requires the recommendation of his academic adviser or department chairman and the approval of the dean of the college.

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

GRADING SYSTEMS

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

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

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

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

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

Any student found guilty of dishonesty in any examination or test or in

written work of any character will be given F for the course and will be subject to disciplinary action.

HONORS, PROBATION, ELIGIBILITY

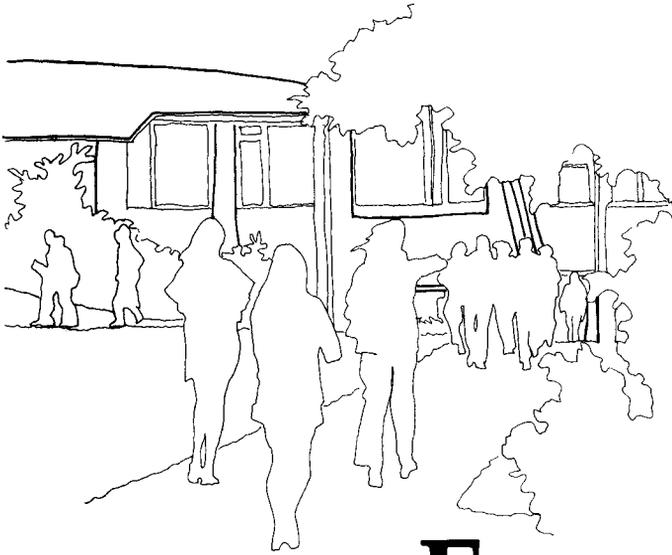
Full-time students with an average grade of A – (3.50) or higher for any semester and a cumulative average of 3.1 or higher will be placed on the Dean's List. Students with cumulative averages below C (2.0) are placed on probation. Part-time students and those on academic or disciplinary probation may not participate in any organized extra-curricular activity. For details of these regulations, see the *Student Handbook*.

Students desiring to graduate with an honor designation must participate in the honors programs. Consult page 41 for details.

APPLICATION FOR DEGREES AND CERTIFICATES

In addition to the formal academic requirements for degrees described in the section on "The Academic Programs" beginning on page 35, every student must satisfy certain technical requirements. Normally, he must have completed his last year in residence at Calvin. He must have completed with his departmental adviser a Major Concentration Counseling Sheet and have met all the conditions specified in it (these sheets are normally completed during the sophomore or junior years), and must have filed a formal application for a degree in the Office of the Registrar not later than the beginning of the semester in which he expects to graduate.

Students who meet the conditions for teacher certification in Michigan, as explained on pages 42–47, should apply for this certificate at the Department of Education at the end of the semester during which they have completed the requirements. They must apply within one calendar year after the completion of these requirements.



Expenses

Expenses, scholarships, and other financial aid

TUITION AND RELATED FEES

TUITION AND related fees are \$2,060 for the year and \$1,030 for a semester. This includes fees for student organizations such as *Prism* and *Chimes*. The **interim** is considered an extra course which a student may take without an **additional charge** if he pays full tuition for either semester; if he does not, he will be **charged** at the one-course rate.

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

grant-in-aid for Michigan students whose need is not met by a State of Michigan Scholarship or Tuition Grant is:

	per semester	per year
Within 10 miles of the campus	\$100	\$200
From 10 to 150 miles	140	280
More than 150 miles	180	360
The institutional grant-in-aid for out-of-state students is:		
From 0 to 300 miles	180	360
From 300 to 1000 miles	220	440
More than 1000 miles	260	520
Manitoba, Ontario, Quebec provinces of Canada	220	440
Alberta, British Columbia, and Saskatchewan provinces	260	520

The tuition rate for part-time students is \$265 for each course, with a \$25 institutional grant-in-aid for those who are members of the Christian Reformed Church. The auditing fee for part-time students is one-half of the regular tuition charge; there is no fee for auditing by full-time students.

TUITION, FEES

Tuition, per sem.*	\$1030.00	Late application fee	\$10.00
Tuition, part-time, per course*	265.00	Late registration fee	10.00
Auditing, per course	132.50	Late payment fee	5.00
Room and board, per year	1100.00	Physical education deposit	5.00
Teaching internship fee, per sem.	10.00	Vehicle registration fee	3.00
Individual music instruction, per sem.	75.00	Transcripts	1.00
Residence hall social fee	16.00	Exemption examination fee	5.00
		Course credit by examination fee	20.00

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

In addition to these direct charges, the student should allow about \$120 per year for the purchase of textbooks and classroom supplies. An annual budget for personal items such as clothing, transportation, entertainment, toilet articles, and miscellaneous supplies varies widely among students.

PAYMENT OF FINANCIAL OBLIGATIONS

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

The minimum down payment required at registration for resident students is \$510 for tuition, room, and board; and the minimum down payment for non-resident students is \$325 for tuition.

Accounts that are not paid on time will be subject to a \$5 late payment fee. A fee of 1 percent per month is charged on all balances unpaid at the end of the term. If a student discontinues, the charge for tuition and for room and board

will be prorated in proportion to the time the student has been officially in attendance.

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

SCHOLARSHIPS AND FINANCIAL AID

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

Scholarships

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

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

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

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

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

Freshman Scholarships and Awards

Freshman Honor Scholarships. Each year the college awards fifteen Honor Scholarships to students of superior academic achievement. The minimum stipend is \$150; it can be supplemented by an additional stipend up to 80 per cent of the student's unmet

need and by work opportunities and loans. A student will automatically be considered for this scholarship if he has applied for the Calvin College Freshman Scholarship

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

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

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

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

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

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

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

Freshman Scholarships and Grants not Administered by the College

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

school and engaged in a program which will be completed by the end of August, and (4) be a person of good moral character. Additional information and application forms can be secured from the counselor's office of any Michigan high school.

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

Calvin Alumni Chapter Scholarships. Various alumni chapters offer scholarships to Calvin students which are administered loc-

ally. 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 02-116.

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

Mission Society, La Grave Avenue Christian Reformed Church, 107 La Grave Avenue, Grand Rapids, Michigan 49503.

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

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

Sophomore, Junior, and Senior Scholarships and Awards

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

Alumni-Faculty Memorial Scholarships. The Calvin Alumni Association each year provides the college, in memory of deceased college faculty members, with annual scholarship grants. Candidates for these scholarships are selected by the Scholarship Committee and are interviewed by the Alumni Board. There are usually six scholarships of \$300 each awarded each year.

Bergsma Brothers, Incorporated, Scholarship Program. Bergsma Brothers, Incorporated, of Grand Rapids, Michigan, annually offers one scholarship of \$2,000 to a student planning to enter full-time Christian service with the Christian Reformed Church or its related agencies. This scholarship is awarded on the basis of academic achievement, character, promise of growth, and financial need. Priority consideration in the awarding of this scholarship will be given to a request for renewal if the student continues to qualify under the guidelines of the program.

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

Dr. Harry Kok Memorial Scholarship. A scholarship of \$400 is presented each year, in memory of Dr. Harry Kok, to a junior student for use in his senior year at Calvin College. The award is given primarily for achievement in scholarship, although other factors, such as financial need, will be taken into account. This scholarship is not limited to students who make formal application.

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

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

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

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

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

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

is eligible for this scholarship and indicate his need. The selection of candidates is made by the Scholarship Committee.

Spalink Memorial Missions Scholarship. An annual scholarship award of \$500 is presented by Mr. and Mrs. John Spalink, in memory of their son, John Spalink, Jr. Its purpose is to encourage superior students to enter missions. The scholarship is awarded to a student of either sex who shows a definite interest in a missionary vocation. The award is given primarily for academic achievement, although other factors, such as financial need, will be taken into account. Generally, members of the Christian Reformed Church who aspire to a career with that church's missions will be shown preference. The Scholarship Committee makes final determination of the award.

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

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

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

Talen Scholarship Program. Each year Mr. Clare Talen of Menomonie, Wisconsin, provides the college with \$900 to be used for three scholarships for upperclassmen. One scholarship is awarded to a junior pre-seminary student for use in his senior

year; the others are awarded to top students in any other area. Selection is made on the basis of academic achievement, potential, character, and financial need.

Ralph Gelmer Vander Laan Memorial Scholarship. Mr. and Mrs. Joseph W. Vander Laan, in honor of Mr. Vander Laan's brother, provide annually one scholarship of \$500 for a prospective junior or senior student who is pursuing a program in one of the health professions, with preference being given to those who are interested in missions or some sort of Christian service. Other criteria include the student's academic record, character, and need.

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

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

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

tion blanks should be obtained from the Department of Music office.

Alumni Players Upperclassmen Music Award. The Alumni Players of Calvin College have provided the Department of Music with funds to make one or more annual awards of \$200 each to an outstanding sophomore or junior music major for use in the junior or senior year. Applicants shall be judged by the following criteria: proficiency in performance, overall contribution to the musical life of the college, grade point average, particularly in music, and active participation in college ensembles. If this award affects the student's eligibility for a Michigan Scholarship or Tuition Grant, \$100 of the award shall be used for two semesters of private lessons. Application blanks should be obtained from the Department of Music.

Helene Hekman Gezon Voice Award. Contributions have been received by the college in memory of Mrs. Gezon which will provide the Department of Music with funds to make an annual award of \$300 to an outstanding sophomore or junior voice student for use in the junior or senior year. Applicants shall be judged on the basis of proficiency in performance as a singer, evidence of sound overall musicianship, and grade point average, especially in music. If this award affects the student's eligibility for a Michigan Scholarship or Tuition Grant, \$100 of the award shall be used for two semesters of private lessons. Application blanks should be obtained from the Department of Music office.

Summer School Scholarships. Twelve scholarships in the amount of \$200 each, one for each National Union of Christian Schools district, will be available to Christian school teachers for study at Calvin college during the summer of 1977. The National Union and Calvin College each contributes \$1,200 for this program. The cash awards must be used for payment of tuition and other expenses involved in work for personal and professional enrichment, work toward the validation of a teaching certificate, or toward a degree at Calvin College.

To be eligible for a scholarship the teacher:

1. Must have completed two years of successful teaching in the Christian schools.
2. Must be able to produce satisfactory evidence of possessing:
 - a. Ability to pursue academic work successfully.

- b. Qualities of personality, character, and conviction that are assets to a Christian teacher.
 - c. Loyalty to the Reformed faith.
 - d. Superior teaching ability.
3. Must agree to serve a National Union member school at least one year after receiving a scholarship.
 4. Must submit a statement of 250 words or less on the reason(s) for applying for a scholarship.

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

Application must be made by March 15.

Financial Aid

Calvin participates in a variety of financial aid programs sponsored by the state and federal governments or by private agencies and sponsors a number of its own programs as well in attempting to provide a broad program of financial assistance for its students. These include the Institutional Grand-In-Aid Program described on page 00, the scholarship, grant, and loan programs described on the following pages, and a placement service for part-time employment. The Office of Scholarships and Financial Aid places students in on-campus jobs and uses the services of the Michigan Employment Security Commission to place students in part-time off-campus jobs. The college urges each applicant to explore local or state sources of financial assistance as well.

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

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

Basic Education Opportunity Grant. The BEOG, funded by the federal government, is designed to provide grant assistance of up to \$1400 per year to students whose parents' ability to contribute is very limited. The amount of the grant is reduced proportionately if there are not sufficient funds to aid all eligible students. Applications for this grant must be made separately.

Supplemental Educational Opportunity Grant. This program, funded by the federal gov-

ernment, is for students of exceptional financial need. The maximum award a student can receive is \$4000 in four years or, in special circumstances, \$5000 in five years. The program is open to students at all undergraduate class levels.

Calvin College Grants. The college has established a program of grant assistance for students with good scholastic records who also have financial need. Prospective freshmen with a high school average of B or

better and upperclassmen with a cumulative grade point average of B or better will be considered for this grant if they have not been selected to receive a scholarship. Students with an academic record slightly below a B will also be considered for this grant program based on a review of other factors such as most recent grades, letters of recommendation, and, for prospective freshmen, admission test scores. The amount of this grant can be up to 40 percent of the student's financial need, with the remaining need being met with other grants, loans, and employment.

Calvin College Grants-In-Aid. Students with financial need who are not selected to receive a scholarship or grant from the college will be considered for a grant-in-aid. The amount of this grant can be up to 25 percent of the student's need, with \$800 being the maximum award.

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

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

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

National Direct Student Loan Program. This program, sponsored by the federal government for U.S. citizens, provides long term loans to students with financial need. There is no interest charge on this loan while the student is attending college, and repayments can be deferred as long as the

student continues to be enrolled at least half-time, or serves in the armed forces, in VISTA, or in the Peace Corps. After the borrower completes his service with one of the above mentioned organizations, or nine months after he ceases to be at least a half-time student, a ten-year repayment schedule commences with a 3 per cent interest charge. If the borrower becomes a full-time teacher of handicapped children or teaches in a school "with a high concentration of low income families" 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 \$2500 per year. Repayment of the loan is deferred as long as the student is enrolled at least half-time and until nine months after leaving school. The repayment period can be as long as ten years, if needed, although a minimum payment of \$30 per month is usually required. The loan can be interest-free until repayment if the adjusted gross income of the family is less than \$15,000 or if recommended by the college on the basis of financial need. Applications for these loans are available from local lending institutions.

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

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

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

Student Awards

Anna Bruinsma Award in Music. The interest on \$750, given by the late H. J. Bruinsma of

Grand Rapids in honor of his deceased wife, one of Calvin's alumnae, is to be used

in the Department of Music, two-thirds of it serving as first, and the remaining third, as second prize. This award is open only to seniors.

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

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

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

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

Broodman Oratorical Awards. Through the generosity of the Broodman family of Grand Rapids, Michigan, a gold medal and a \$25 Savings Bond are awarded to the first

place winner in a men's oratorical contest. Silver and bronze medals are given annually to the winners of the second and third places, respectively, in a men's oratorical contest. These awards are presented in memory of the late Dr. G. J. Broodman. The first-place winner represents Calvin College in the State Oratorical Contest of the Michigan Intercollegiate Speech League.

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

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

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

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

F. M. and E. P. ten Hoor Prize. The college has received a bequest from the late Mrs.

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

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

The first award winner represents Calvin College in the State Oratorical Contest of the Michigan Intercollegiate Speech League.

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

The William B. Eerdmans Literary Awards. The late Mr. William B. Eerdmans, Sr., es-

tablished the William B. Eerdmans Literary Awards in the interest of encouraging original, creative writing among Calvin College students.

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

The Rinck Memorial Award. A fund of \$2500 has been subscribed by former students and friends as a memorial to William Rinck, Professor of Mathematics at Calvin College (1905 to 1920). The income of this fund is devoted to an award for outstanding work in mathematics. The prize is awarded annually to the senior student majoring in the Mathematics Department who has, in the opinion of the members of the department, done superior work in undergraduate mathematics.

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

Post-Graduate Fellowships

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

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

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

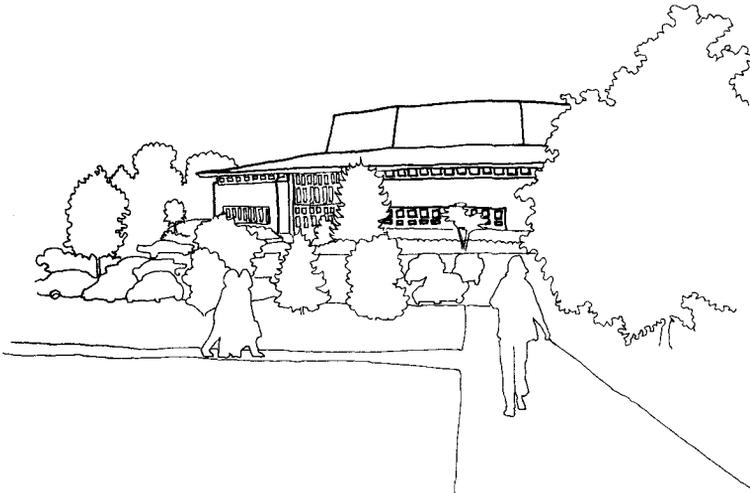
advised to consult their departmental chairmen and the assistant dean for academic affairs.

University of Michigan State College Fellowships. These competitive, prestige fellowships to the Graduate School of the University of Michigan, totalling \$2400 plus tuition for an academic year's work, are open to students nominated through the Scholarship Committee. Up to twenty-four grants are made by the university to students nominated by various Michigan colleges and universities. For information, consult the assistant dean for academic affairs.

University of Michigan Scholarships for Graduates of the Three-Year Engineering Course. The University of Michigan offers up to three scholarships to students who have completed their three-year engineering course at Calvin College and who transfer to the University of Michigan to complete their work for an engineering degree. Interested students should before March 1 consult with the chairman of the Engineer-

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

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



Academic

Requirements for degrees, honors, professional programs

THE PRIMARY FOCUS of a Christian liberal arts education at Calvin College is on teachers and students together engaging in the various scholarly disciplines, directed and enlightened in their inquiries by the Word of God. The faculty believes that in a complete liberal arts education the student should be introduced to the disciplines on two different levels.

In the first place, he should acquire a general or extensive education by following a rationally determined pattern of required and optional courses in the various major disciplines, the fundamental unifying element in this pattern being the Christian perspective within which all courses are presented. From this extensive study it is hoped that the student will acquire a knowledge of the more significant results or products of the various disciplines; an understanding of the methodologies of the disciplines, which will enable him to judge the products of the disciplines; and an acquaintance with alternative approaches to the same subject matter.

Secondly, the faculty believes that in addition to such a general or extensive education, each student should also be required to concentrate in some particular discipline and thus to supplement his extensive study of the disciplines with an intensive study of some one discipline. This intensive study will have fundamentally the same aims as those for the extensive study. In his field of concentration, however, the student can achieve the same aims more fully, more intensively, in more detail.

The Christian liberal arts philosophy permeates all of the degree programs of the college. Traditionally most students complete the Bachelor of Arts or the Bachelor of Science degree programs, either of which may include a teacher certification component. A Bachelor of Fine Arts degree with a professional art emphasis was introduced in 1974 and a Master of Arts in Teaching degree in 1976. Calvin College also offers a variety of cooperative bachelor of science degrees in conjunction with other institutions, in engineering, forestry, medical

technology, natural resources, nursing, and special education (see pages 47-55) as well as a Bachelor of Science in Education degree in a combined curriculum plan with the Grand Rapids Baptist College.

BACHELOR OF ARTS, BACHELOR OF SCIENCE DEGREES

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

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

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

I. PROGRAMS OF CONCENTRATION

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

To be eligible for acceptance in a given program of concentration, a student must have secured a minimum grade of C (2.0) in the course or courses designed by the department offering the program, he must maintain this average in the program, and he must present at least this average in his program of concentration at the time of his graduation. A student not maintaining a minimum grade of C (2.0) in his program of concentration may be permitted to remain in a program for a single semester of probation. Teacher education group majors and some departmental majors for teachers may be applied only to teacher certificate programs. The various programs of concentration are specified in the section of the catalog describing departmental programs and course offerings which begins on page 56.

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

II. INTERIM COURSES

A student must complete a minimum of three interim courses for graduation. (Transfer students must complete one interim course for each year in residence.) Interim courses are graded honors (H), satisfactory (S), or unsatisfactory (U), except those course which 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, the assistant dean for academic affairs.

III. THE LIBERAL ARTS CORE

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

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

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

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

History 101 or 102.

Philosophy 151-152, or 153.

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

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

The remaining courses may be Interdisciplinary 100 (Christian Perspectives on Learning), 234, or other courses from these departments; however, not more than two courses in history and philosophy and three in religion may be included in the required six courses. Philosophy 153 and Education 304 or Philosophy 209 are required in teacher education programs.

Three courses are required in the sciences and mathematics

Mathematics 109, 111, or 205.

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

Biology 111, 115, 116, 121, or any other course in biology (105-106 must be taken as a unit).

The two-course science requirement may also be met by a full year's work in one of the following sciences: Biology 121-122, Chemistry 103-104 or 113-114, Geology 251-252, Physics 123-124, 126-225, 221-222.

Students who have completed Senior Mathematics in high school with a minimum grade of C are excused from the mathematics requirement; those who have completed a year of high school physics (not physical science) are excused from the physics requirement; and those who have completed a second year-long course in high school biology (Advanced Biology) are excused from the requirement in biology.

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

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

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

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

Three courses are required in the fine arts

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

A course from Art 151, 215 (required in elementary education programs), 231, 232, 332, 340, Music 103, 231, 232, 233, 234, 235, 236, Speech 203, 219, 304, 317, 318, 325, 326, or a foreign language literature course.

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

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

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

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

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

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

Competency is required in one foreign language

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

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

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

core requirements and his schedule for completing them should be worked out early with his academic adviser.

BACHELOR OF FINE ARTS DEGREE

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

The program of concentration requires at least four courses in the history of art (231, 232, 332, 340); at least ten studio art courses (207, 208, 209, 210, 310, 311, 320, 325, and three from 312, 313, 321, 326, 327); two interim courses in art; and one course credit for a senior seminar which must include an exhibition. Not more than eighteen courses in art may be applied to the degree.

The liberal arts core must include six courses from the contextual disciplines (History 101 or 102; Philosophy 153 and 208; Religion and Theology 103 and 301; and one course from these departments or Interdisciplinary 101, Christian Perspective on Learning); one core course from mathematics and the natural sciences; one core course from economics, political science, psychology, and sociology; either one foreign language through the second-year college level or two courses taught by a foreign language department from foreign culture and foreign literature in translation; the core requirements in written rhetoric (typically English 100), speech (typically Speech 100, 200, or 240), and basic physical education; and a course in English or American literature and two additional fine arts core courses in literature, music, or speech. This last requirement is reduced to a single course if the student has completed a year's course in high school in literature, music, or speech with a minimum grade of C. This program is not intended for those seeking teacher certification.

MASTER OF ARTS IN TEACHING DEGREE

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

ADMISSION

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

REQUIREMENTS FOR THE DEGREE

Upon acceptance in the program a student is assigned by the director of graduate studies to an adviser in the student's declared area of interest. The

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

1. *Context of Education*: At least one designated course must be completed in psychology or sociology and education and another in history or philosophy and education. (Approved courses include Education 510, 511, 512, 513, 581; Philosophy 501, and Sociology 501.)
2. *Concentration*: At least three courses must be completed in an approved group or departmental concentration. Programs of concentration have been developed in art, English, history, mathematics, music, fine arts, language arts, social studies, and science studies. Additional programs and courses are under consideration. Courses designated with an asterisk, which are renumbered in the 400 series, and those numbered 500 or higher may be applied to M.A.T. programs.
3. *Methods and Materials Course*: A course in curriculum must be completed in an area appropriate to the student's need and concentration.
4. *Project*: The student must complete a half or full course project which is planned to synthesize his graduate experiences.
5. *Electives*: A student must complete additional courses from the categories above or from elective courses to satisfy the nine-course requirement.

A M.A.T. program may be combined with one leading to a Michigan provisional teacher certificate. Such programs include Education 401, 403, Philosophy 501, and two to four course units of teaching internship and seminar or the equivalent. Prospective elementary teachers must also complete Education 422. Major, minor, and general education requirements, usually met by undergraduate programs, must also be met. Such combined programs usually require more than the minimum of nine-courses.

EXEMPTION AND COURSE CREDIT BY EXAMINATION

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

Students should apply to the registrar by October 1 for the first semester or February 15 for the second if they wish to sit for either exemption or course credit examinations.

Entering freshmen are permitted to sit for a variety of examinations which either excuse them from taking a given course or which give them college credit for the course. These regulations are specified in the section on Advanced Standing on page 17.

THE HONORS PROGRAM

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

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

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

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

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

YEAR-ABROAD PROGRAMS IN FRANCE, SPAIN, AND AUSTRIA

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

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

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

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, eco-

nomics, psychology, and sociology. For details consult Mr. Ronald Vander Kooi of the Sociology Department.

WASHINGTON SEMESTER PROGRAM

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

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

TEACHER EDUCATION PROGRAMS

Students wishing to be teachers should apply for admission to a specific teacher education program at the Department of Education by April 1 of their sophomore year. At the time of admission and when applying for an assignment to a teaching internship (Education 345 or 346) a student must be maintaining a minimum cumulative average of C (2.0). Students entering the program after the sophomore year may need more than four years to complete their programs.

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

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

clarification, consult Miss Madge Strikwerda, director of teacher certification, or Mr. Charles J. Miller, assistant dean for academic affairs.

Graduates who have earned a Michigan Provisional Certificate since July, 1970, must complete 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 director of teacher certification, Miss Madge Strikwerda.

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

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

Elementary education. The minimum elementary education program requires the completion of the general education requirements (See pages 37-38 for the courses recommended for students in teacher education); either an approved group concentration of ten and a half courses or a departmental concentration of at least eight and a half courses; a planned program of six courses in other subjects which are related to elementary education or a six-course departmental minor; and six professional education courses. Students interested in elementary education should secure copies of the *Student Program Guide Book*. . .from the Department of Education. Programs should be worked out with Mr. Gilbert Besselsen, coordinator of elementary education, and have the written approval of an adviser in the area of concentration.

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

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

LANGUAGE ARTS STUDIES GROUP MAJOR. English 100 and Speech 214 are required. Students majoring in this group must also complete one of the following five-course departmental programs: English 100, 200, 225, and two others; Speech 203, 214, 215, and two others; German 201, 202, 215, and two from 216, 217, 218, 250; French 201, 202, 321, and two other advanced courses; 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 an adviser from the department in which the greatest number of courses is taken.

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

GENERAL SCIENCE STUDIES GROUP MAJOR. The four required courses for this major are: Biology 111 or 121; Earth Science 113; Mathematics 109 or 111; and Physics 112, 123, 222, or 225. The five-course sequence can be met by either of two broad programs or by narrower departmental ones. The biological science sequence requires Biology 111 or 121, 115, 116, or two others; the physical science sequence requires Physics 112, Earth Science 113, Astronomy 110, and one other. The departmental sequences are: Biology 121, 122, 221, 222, and one other; Chemistry 103-104 or 113-114 and three others; Mathematics 111, 112, and three others; Physics 126, 225, 226, and two others or Physics 123, 124, 225, 226, and one other. In addition, a student must complete a three-course departmental sequence of Chemistry 103-104 or 113-114 and one other; Mathematics 109 and two others or Mathematics 111, 112, and one other; Physics 123-124, 126-225, or 221-222 and one other; Earth Science 113 or Geology 251 plus Geography 201 and 210, or Geology 251-252 plus Geography 201 or 210. The remainder of the required ten and a half courses and the electives must be chosen from other departments in this group with the approval of the science adviser, Mr. Clarence Menninga.

FINE ARTS STUDIES MAJOR. Required are Art 215, Speech 214, and Music 238 or, if the student is completing a sequence in music, Music 239. Students majoring in this group must complete a five-course departmental sequence from: Art 151, 207, 208, 215, and one other; Music 103, 104, 203, 234, and 239; 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, 232 and 238; Music 103, 104, and 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 an adviser from the department in which the greatest number of courses is taken.

The appropriate education courses for students in elementary education are 301, 303, 304, 305, 322, 345, and 355. The six-course planned program required for Michigan certification typically is met automatically by students meeting the general graduation requirements. Courses recommended for this dual function include: Art 215, Biology 111, 115, or 116, English 100 and any literature course in English or in a foreign language, Earth Science 101 or 113, History 101 or 102 and any other history course, Mathematics 109 or 111, Music 238 or 239, Physics 112, 113, Psychology 204, Political Science 151, 201, or 210, and Speech 214. Physical Education 221 is recommended as a substitute for one semester of basic physical education.

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

The requirements of both certification programs may be met by careful scheduling, permitting the student to defer choosing either an elementary or secondary certificate until graduation or until he has obtained a teaching position. The sections describing the requirements for elementary and secondary education refer to such middle school programs. A student internship seminar in middle school education will be scheduled during certain semesters. For information consult either Mr. Gilbert Besselsen, 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 37-38 for the courses recommended for students in teacher education); a departmental concentration of at least eight and half courses or a group concentration of at least ten and a half courses; a minor of six courses in another department or a group minor of seven; and six professional education courses. Programs should be worked out with the appropriate departmental adviser. For general questions or those involving the professional component of the program a student should consult Mr. Philip Lucasse, coordinator of secondary education.

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

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

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

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

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

Specific special education programs vary in length from a minimum of four years and one summer for those in the regular track programs to five years and three summers for those in the internship programs. Furthermore, the particular teaching major chosen and the type of certification and endorsement sought introduce variables. Students in special education fields requiring internships take their first Grand Valley course during the summer following their junior year; others take their first Grand Valley course during the first semester of their junior year. Students interested in special education should consult Mr. Thomas Hoeksema, coordinator of special education, as early as possible.

Endorsement can be obtained in the following combinations of disability areas:

1. Regular track: mentally impaired; emotionally impaired.
2. Regular track: mentally impaired; physically or otherwise health impaired
3. Internship program: learning disabled; emotionally impaired; mentally impaired.
4. Internship program: hearing impaired; mentally impaired.
5. Internship program: hearing impaired; emotionally impaired.
6. Internship program: hearing impaired; physically or otherwise health impaired.

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

The typical program given below suggests the desirable sequence of education and psychology courses:

<i>First year</i>	COURSES
English 100	1
History 101 or 102	1
Mathematics 109 or Physics 112	1
Philosophy 153	1

Physical education	1/2
Psychology 151 (first sem.), 204	2
Religion and Theology 103	1
Sociology 151	1
Elective	1
<i>Second year</i>	COURSES
Art 215	1
Earth Science 113 or other science core	1
Education 301-303 (second sem.)	2
Literature	1
Political Science 151 or Economics 151	1
Physical education	1/2
Psychology 211	1
Special Education 216 (first sem.)	1
Elective	1

PROFESSIONAL AND PREPROFESSIONAL PROGRAMS

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

ARCHITECTURE

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

<i>First year</i>	COURSES
Art 231	1
English 100	1
Engineering 101	1
Computer Science 107	1/2
Mathematics 111, 112	2
Interdisciplinary 100, Christian Perspectives (interim)	1
Economics 151	1
Philosophy 153	1
Speech 100	1/2
Physical Education	1/2
<i>Second year</i>	COURSES
Art, studio drawing or design	2
Chemistry, if none in high school; biology; or psychology	1
Physics 221, 222	2
Economics, history, political science, or sociology	2
Literature	1
Religion and theology	1

BUSINESS ADMINISTRATION

Balanced preparation for a business career is provided by meeting the general degree requirements (page 36) 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 73 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
Interdisciplinary 100, Christian Perspectives		1
Economics 151		1
English 100		1
History 101 or 102		1
Foreign Language		2
Mathematics 205-206 or 111-112		2
Physical education		½
Religion and theology		1
Speech 100		½
<i>Second year</i>		COURSES
Art, music, speech		1
Biology 111		1
Economics, 207, 212		2
Mathematics 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. Lambert Van Poolen, acting chairman of the Department of Engineering, when arranging their programs. Students wishing to graduate from Calvin College on the combined curriculum plan are advised to complete the twenty-eight course program below. (A minimum of twenty-seven courses and a minimum cumulative grade point average of C are required.) If a student completes this program and subsequently completes a degree program at a recognized school of engineering, which typically requires an additional three semesters, he will also receive a degree from Calvin College—Bachelor of Science in Letters and Engineering on the combined curriculum plan.

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

<i>First year</i>	COURSES
Chemistry 103	1
Engineering 101	1
Engineering 102	½
Mathematics 111, 112	2
Physics 126	1
Interdisciplinary 100, religion and theology, or approved history	1
Economics 151	1
English 100	1
Computer Science 108	½
Physical education	½
 <i>Second year</i>	 COURSES
Engineering 205	1
Engineering 202 or an engineering elective	1
Engineering 308	1
Mathematics 211, 212	2
Physics 225	1
Literature	1
Philosophy 153	1
Social science interim	1
Speech 100	½
 <i>Third year</i>	 COURSES
Engineering elective	1
Technical elective, from 200 or 300 level courses in biology, chemistry, engineering, mathematics, or physics	2
Interim, engineering	1
Philosophy, 200 series course	1
Religion and theology	1
Literature, if none in high school, or a non-technical elective	1
Fine arts elective	1
Elective	1

By special arrangements with the University of Michigan, qualified engineering students in certain fields can elect a five-year program leading to a

bachelor's degree from Calvin College and a master's degree in engineering from the university. Students should discuss this option with Mr. Lambert Van Poolen.

FORESTRY

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

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

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

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

LAW

There is no structured program specifically designed for the student planning to enter a law school after graduation. Law school applicants must have a college degree (B.A. or B.S.) and must take the Law School Admission Test. But law schools do not require that applicants have taken specific courses or have a particular major concentration. Prospective law students should complete the requirements for a Bachelor of Arts degree as they are listed on page 36. The pre-law advisers, Mr. Johan G. Westra or Mr. James De Borst, can advise students on suitable electives and can help them plan programs which provide good preparation for law school. Because admission to law schools has become very competitive, some students may be advised to plan programs that will also prepare them for alternate careers in other fields such as business, social work,

or teaching. Pre-law students are advised to consult one of the pre-law advisers before or during each semester's registration.

MEDICINE AND DENTISTRY

All students planning to enter the premedical or pre dental programs should consult Mr. Henry Bengelink, faculty director of the premedical and pre dental programs. Students should also note the premedical entrance requirements on page 00.

The minimum science requirements for these programs are Biology 121, 122, 221, and two courses from 323, which is recommended, 222, 331, or 336; Chemistry 103-104, 301-302, and one course from 201, 204, or 303; Physics 221-222 or the equivalent. Mathematics 111-112 is recommended and, ideally, should be taken before the physics course. Majors in any department are possible.

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

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

MEDICAL TECHNOLOGY

To qualify for the degree of Bachelor of Science in Letters and Medical Technology on the combined curriculum plan a student must complete twenty-seven courses plus twelve months of successful work in an accredited school of medical technology. Students wishing to enter the medical-technology program should consult Mr. Gordon Van Harn. The following courses are prescribed: Biology 121, 122, 221, 222, and 336; Chemistry 103, 104, 253, 254, and one other; one mathematics course from 109, 111, or 205; English 100; History 101 or 102; one course in philosophy; one course in religion and theology; one additional course from history, philosophy, religion and theology, and Interdisciplinary 100; two courses from economics, political science, psychology, and sociology; three courses from art, literature, music, speech, and foreign culture including one from English or American literature; the total of one course unit credit from the core courses in speech and basic physical education; and one foreign language through the first year college level, a requirement which may be fulfilled by two years of high school study.

A typical student program is as follows:

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

THE MINISTRY

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

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

Calvin Seminary requires the following courses for admission:

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

Science	2
Philosophy (excluding courses in logic)	3
Religion and theology	2
Speech	2

The seminary expects that Calvin College students planning to enter the seminary will satisfy the above requirements by including the following courses in their programs: Education 301 or Religion and Theology 319, Greek 205-206, History 301, at least two philosophy courses chosen from the Intermediate or Advanced Historical Courses, and Speech 100 and 200. Speech 203 and 240 are recommended and, in exceptional cases, either of these courses may be substituted for Speech 100. The preseminary adviser is Mr. L. Vos.

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

NURSING

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

The diploma program with Blodgett Memorial Medical Center School of Nursing requires thirty months, the first nine months of which involve courses in both the college and the school of nursing (see page 20.) The first semester courses at the college are Biology 105 and 107, English 100 or, if not required, some other course in English; and Psychology 151 with Fundamentals of Nursing I taught at the school of nursing. During the second semester students take Biology 106, Sociology 151, and Speech 100 at the college and Chemistry 101, Fundamentals of Nursing II, and Nutrition at the school of nursing.

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

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

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

Colorado State University, Northern Michigan University, and Eastern Michigan University.

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

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

<i>First year</i>	COURSES
Biology 121	1
Biology 122	1
Chemistry 103	1
Chemistry 104	1
English 100	1
Psychology 151	1
Mathematics 101, 102, or appropriate course	1
Fine Arts elective	1
Interim required but not designated	1
 <i>Second year</i>	 COURSES
Biology 221	1
Biology 336	1
Chemistry 253	1
Chemistry 254	1
Physics 223	1
Psychology 201	1
Sociology 151	1
Humanities elective	1
Interim on anatomy required	1

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

NATURAL RESOURCES

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

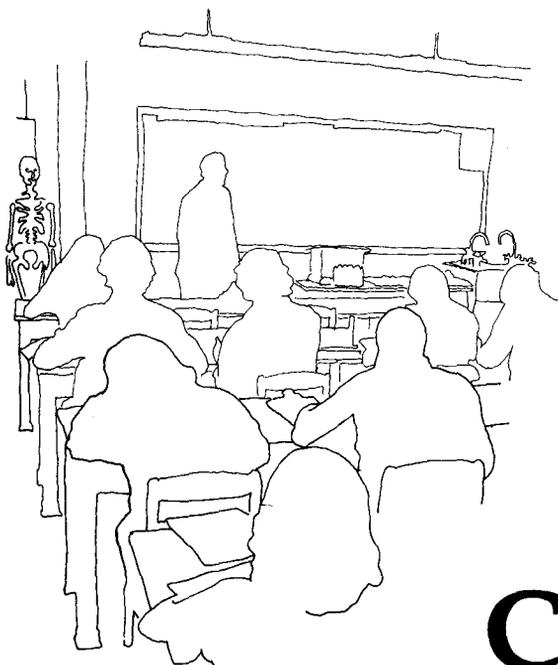
The basic courses required are: Biology 121, 122, 221, 222, 341, 346, 352, and Geology 251. Cognate courses typically include Chemistry 103-104; Physics 221-222 or Physics 112 and Chemistry 113; and Mathematics 111-112. Because there are different concentrations possible within the field of natural resources, individual programs must be worked out with the adviser. The liberal arts core requirements are the same as those specified for forestry.

A two-year program preparing for transfer to the wildlife management program at the university is also possible. Such students should complete: Biology 121, 122, 221, 222, and 321; Mathematics 111-112; and as many of the core requirements as possible. The university requires twelve semester hours in the humanities and twelve in the social sciences.

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

OTHER PROFESSIONAL PROGRAMS

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



Courses

Description of courses offered in departments and programs

The symbols F (Fall), I (Interim), and S (Spring) indicate when each course is offered. The term *core* designates those courses in each department which meet the general graduation or core requirements of the discipline. The few courses which carry more or less than a single course credit are indicated; all others carry a single course credit. Courses regularly offering honor sections are indicated; honor registration in any course is possible subject to the approval of the instructor. Interim courses numbered I10-149 have no prerequisites; those numbered I50-199 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 1975-76 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 asteriks (**).

Interdisciplinary

100 CHRISTIAN PERSPECTIVES ON LEARNING. I. An introductory study of the relationship between Christian faith and learning. Beginning with a consideration of some contemporary alternatives and challenges to Christianity, the course proceeds to an examination of current statements of the nature of Christian faith and discipleship. The course culminates in an examination of

how different views of Christian faith and its relation to culture produce different kinds of secular and Christian colleges. The ground is thus laid for a critical examination of one's academic experience at Calvin College. Taught by a committee representing the several disciplines and open to freshmen and sophomores. *Mr. G. De Blacy, Mr. R. De Kock, Mrs. E. Greenway, Mr. R.*

Griffioen, Mr. C. Sinke, Mr. L. Stegink, Mr. S. Vanderploeg, Mr. G. Van Harn (chairman), Mr. C. Walthout, Mr. J. Wiersma.

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

GRADUATE COURSES

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

JANUARY 1977 INTERIM

I10 **THE CHRISTIAN LITURGY.** This course explores the history and theology of Christian liturgy, and will also give attention to the role of the arts in the liturgy. Though the focus will be on the history, theology, and artistic dimension of the liturgy of the Reformed churches, this will be set within the context of a consideration of the Christian liturgy generally. The course will consist mainly of lectures, readings, and reports by students; but in addition there will be outside speakers. All members of the course will also be required to attend worship services in a variety of non-Reformed churches, and will be required to visit a variety of church buildings. Mr. N. Wolterstorff.

I11 **THE COLLEGE EXPERIENCE.** The primary goal of this course is to promote understanding of various dimensions of the college experience. Initially, reasons for going to college are contrasted with the goals of a Christian liberal arts college. Secondly, the determinants of academic performance (e.g., study skills) are analyzed. Psychological perspectives on late adolescence (e.g., increased self-direction, peer

relations and sexuality, the search for meaning, choosing a major and vocation, emotional adjustments and difficulties—in brief, one's evolving identity and life plan) are the third but perhaps primary emphasis. There will be a pervasive emphasis on Christian values and self understanding. Considerable reading, regular attendance, and small group involvement are expected. Mr. W. Joosse.

I12 **HOW THE MOVIES MEAN TO MOVE.** A close study of the rhetoric of film, concentrating chiefly on the emotive and persuasive properties of feature-length dramatic films, though documentaries, propaganda films, and commercials will also be studied. Films to be viewed include *The Battleship Potemkin*, *The Triumph of the Will*, *The Man Who Knew Too Much*; *The Battle of Algiers*, *Bonnie and Clyde*, evangelistic films, and others. The teaching method will be discussion and demonstration. Several short papers will be required. A lab fee of approximately \$10.00 should be expected. Mr. I. Kroese and Mr. L. Sweetman.

I13 **INTRODUCTION TO PHOTOGRAPHY.** Students will explore photography as an art form, as a means of creating images, and as a means of expressing and interpreting themselves and the world about them. Great photographers and their photographs will be studied, but the emphasis will be upon the work of the students. Daily assignments will be made, and students will be expected to do all their own camera and darkroom work. A portfolio of finished work will be required of each student. A fee of \$10.00 will cover darkroom expenses; students will incur additional expense in purchasing enlarging paper and film. Prerequisites: permission of an instructor; a good camera with a depth-of-field scale and means for manual control of focusing, shutter speed, and aperture; and a serious interest in photography as an art form. Mr. J. Korf, Mr. H. Van Till.

I14 **MEDICINE FOR THE LAYPERSON.** This course will attempt to explain in layman's language many common illnesses or maladies (e.g., strokes, heart attacks, migraines, diabetes, "high blood pressure," ulcers, cancer, allergies, etc.) The disease process, the current mode of therapy, and prognosis will be explained and discussed. Some myths and old wives' tales will be exposed. Lectures will be informal and discussion will be encouraged. Students will also be encouraged to present topics that

they wish discussed. (Not a course in first aid.) Biology 115 is a useful background but is not required. *Mr. P. Tigchelaar*

I15 SOME GREAT TRIALS. The underlying issues involved in four noteworthy trials—those of Socrates, Servetus, John Brown, and Eichmann—will be examined in historical content. The basic format used will be that of the mock trial. A paper will be required. May be applied to history and social studies minors. *Mr. D. Jellema.*

I16 WORDS AND LANGUAGE—A LINGUISTIC SMORGASBORD. This is not a structured linguistic course, but a study of a variety of things related to the broad field of linguistics. Questions we will ask and try to answer include the following: What is a grammar? What and how do words mean? Is language innate in people? Why are there controversies about dictionaries? What is good or bad in language usage, and how is this determined? What is the place of metaphor, dead or alive, in language? What is style, and can we, or how can we, measure it? (e.g., what is the style of this course description and other course descriptions in this catalog?) Various and frequent research projects and reports will be assigned, all designed to increase the students' alertness and sensitivity to the complexities and richness of linguistic phenomena our eyes and ears experience all around each day. The only prerequisite to this course is a desire to be enrolled in it. *Mr. R. Wevers.*

I50 CHRISTIAN EMPIRICISM AS AN INTEGRATING THEORY FOR PSYCHOLOGY AND CHRISTIAN THEOLOGY. This course will seek first to define a general philosophical perspective which could appropriately be denoted a "Christian empiricism." This perspective will then be discussed in connection with Wolterstorff's rejection of "foundationalism." Possible Christian control beliefs and their relevance to contemporary psychology will then be examined. The course will involve discussion in an in-

formal setting and daily papers relevant to assigned readings. Selected writings of Ian Ramsey, Berkhouwer, and Skinner will be discussed. Prerequisites: one course in psychology and one in philosophy. *Mr. C. Orlebeke, Mr. W. Sanderson.*

I51 CHRISTIAN RESPONSES TO CONTEMPORARY PROBLEMS. An examination of several important contemporary problems from a Christian perspective, intended to prepare students to deal intelligently with not only these issues but also with similar issues which they are likely to encounter during their lifetimes. Typical problems may include: the energy crisis, population problems, food shortages, disposal of solid waste, and nuclear warfare. The course has dual purposes—learning to understand the issues and learning how to develop problem-solving approaches to them. Multi-disciplinary in perspective; numerous guest lecturers from disciplines closely related to the problems studied. The last several days of the course will be devoted exclusively to detailed research on a particular problem, including preparation of a major term paper. Prerequisite: English 100. *Mr. V. Ehlers.*

I52 ELEMENTARY, MY DEAR WATSON. (The Science of Crime Detection.) Today's criminals face an increasingly complex and ingenious set of techniques used by law enforcement personnel to detect crimes and collect evidence. This course will survey some of the common scientific techniques for obtaining evidence, such as chemical and physical analysis of drugs and other materials, blood alcohol tests, polygraph tests, fingerprinting, ballistics, voice prints, etc. The capabilities and limitations of the method will be discussed as well as the proper evaluation of the data and the legal status of the information obtained. The course work will involve lectures, readings, and some laboratory or project work. Visits to forensic laboratories will be scheduled. Prerequisites: a college course in biology, chemistry, or physics. *Mr. W. VanDoorne.*

Art

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

THE ART PROGRAM at Calvin has been conceived within the framework of the liberal arts tradition. The department also offers a program for those who wish to

teach art in the elementary and secondary schools. Students intending to major in the field must secure a minimum grade of C (2.0) in 207. The minimum major program is 207, 208, 209, 210, 231, 232, 320, 325, one course from 326, 310, or 311 and either 332 or 340. During the spring semester of their senior year all art majors will be required to present an art exhibition on campus. The major program for elementary and secondary education is: 207, 208, 209, 215, 216, 231, 232, 310 or 311, and 320 or 325; the minor concentration is: 207, 208, 209, 216, 231, and 232. Advisers for these programs are Mr. Boevé, Mrs. Bonzelaar, and Mr. Jensen.

The Bachelor of Fine Arts (B.F.A.) program, with a greater professional emphasis, is fully described on page 39. This is not recommended as a preparation for a teacher certificate.

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

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

207 **TWO DIMENSIONAL DESIGN.** F and S. Discovery of design through the use of the basic art elements: line, color, shape, texture, space, value. *Staff.*

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

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

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

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

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

231 **AN INTRODUCTION TO THE HISTORY OF THE FINE ARTS.** F, core. A survey of the history of architecture, painting, and sculpture in Ancient, Medieval, and Renaissance times. A study of the character of ancient art from Egypt through Rome is followed by a study of medieval art from its beginning in the early days of the Christian era to its climax in the Gothic period of the thirteenth century. *Mr. E. Boevé, Miss B. Van Halsema.*

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

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

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

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

construction, and modeling. Prerequisite: 310. *Mr. R. Jensen.*

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

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

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

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

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

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

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

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

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

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

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

GRADUATE COURSES

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

JANUARY 1977 INTERIM

I10 CINEMATOGRAPHY AS A CREATIVE ART FORM. An introduction to the art of cinematography. The various techniques of film-making will be explored as well as film history, film production, and film criticism. Members of the class will produce experimental super-8 films while involved in the total film-making process—creating a shooting script, learning camera techniques, lighting, editing, splicing, and sound synchronization. The course will include lecture/discussion, laboratory work, out of class individual and group film production, lectures by special resource personnel, example films, and field trips. *Mr. R. Jensen.*

I50 CLASSICAL ARTS IN ITALY. The course will pursue the relationship of the ancient Classical arts to the Renaissance arts as found in their original forms in Italy. The early Roman art will be examined at Herculaneum and Pompeii and the archeologi-

cal museum in Naples (3 days). The relationships of Roman art to Renaissance art will be further pursued in Rome (5 days). From there the group will travel to Assisi, Perugia, Siena, and Florence (6 days). In Florence it will concentrate on the churches and museums. Travel to Ravenna will be to study the Byzantine mosaics and effects of Roman art on the church architecture of the period. The class will go to Venice (2 days), Padua, Verona, Vicenza, Sabbioneta, Parma, Bergamo, and end in Milan. Archeological sites, theaters, churches, and museums of the Classical tradition will be the resources for study. Lectures by Ervina and Edgar Boevé on location, required readings, and testing. Prerequisite: permission of instructor; preference will be given to students who have taken art history or Speech 318. Satisfies fine arts core and speech interim requirements. Cost of approximately \$1000. Mr. E. Boevé and Mrs. E. Boevé.

I51 FORMS IN FIBERS. The course will encourage the combination of simple textile techniques, imaginative images, and two or three dimensional designs to create visual statements. Textile techniques will include batik, fiber printing, and off-loom weaving. Statements will be in the form of wall hangings, soft sculpture in relief or the round and functional forms. Research papers or primitive and contemporary fiber art forms will be presented by students and instructor. Prerequisite: Art 207. Mrs. H. Bonzelaar.

I52 SMALL SCULPTURAL FORMS IN METAL. A studio course in which the student will explore one or two methods of sculpting with metals. These methods are soldering,

welding, modeling, and investment casting. Students will gain knowledge and skill in using metal as a medium for personal expression. Assigned readings, lecture-demonstrations, projects, critiques, and discussion will be used to achieve the goals of the course. Satisfies teaching major. Prerequisite: Art 311 or permission of the instructor. Mr. C. Huisman.

I53 GRAPHIC ARTS: PROBLEMS IN DESIGN AND REPRODUCTION. An exploration and discussion of the graphic arts, such as posters, trademarks, logos, and other promotional materials. The student will be challenged to create a concept in a visual form and translate the visual form into an economically feasible medium of reproduction. The student will be required to work out the preparation needed for reproduction. Class assignments, reading and research, and visits to local printing firms, advertising agencies, and lithography workshops will make up the activities of this interim. Prerequisite: Art 209. Mr. C. Overvoorde.

I54 ANATOMY FOR ART STUDENTS. This is a studio course in which art majors will be introduced to the anatomy of the human form. This will be done in two ways. First through textbook readings the student will become familiar with the skeletal structure and the major muscle forms which give the figure its own peculiar shape. With this will be drawing from a model with various kinds of media. The last thing to be considered will be the effect of the human form on draperies. Prerequisite: sophomore or higher standing; Art 209 or permission of instructor. Mr. N. Matheis.

Astronomy

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

STUDENTS INTERESTED in graduate work in astronomy should major in physics and should plan their program with the chairman of the Physics Department. The sixteen-inch telescope in the observatory and portable telescopes are available for student use through the director of the observatory, Mr. Van Till.

110 PLANETS, STARS, AND GALAXIES. F and S, physical science core. A survey of the major astronomical objects, such as planets, stars, and galaxies; a study of their characteristics and their organization into a

dynamic, structured universe; an investigation of the processes now occurring in the universe and the methods used to study them. The course includes a presentation of the evidence of the history and develop-

ment of the universe, a description of cosmological models, and a discussion of possible Christian responses to them. *Mr. H. Van Till.*

201 CONTEMPORARY ASTRONOMY. F, core. An introduction to modern astronomy and astrophysics for students concentrating in the area of science and mathematics. Major topics include the nature of stars and galaxies, the physical processes occurring

in various celestial objects, and the current cosmological theories. The course includes lectures, laboratory exercises, and observing projects. Prerequisites: Mathematics 111 and one course in college physics other than 110 or 112. *Mr. H. Van Till.*

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

Biology

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

Associate Professors J. Beebe, B. Klooster, P. Tigchelaar

Assistant professors H. Bengelink, U. Zylstra

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. Students who have previously been admitted to a concentration in the department may satisfy the requirements which were in effect when they enrolled.

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

The core requirement in biological science may be met by Biology 105–106 or by any other course in biology. Most students satisfy this requirement by completing 111, 115; 116, or 121. The requirement may also be met by completing two years of biology in high school concluding with the course, Advanced Biology.

NURSING PROGRAM COURSES

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

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

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

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

GENERAL COLLEGE COURSES

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

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

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

PROGRAM OF CONCENTRATION COURSES

Basic Courses

121 **CELL BIOLOGY.** F. The structure and function of procaryotic and eucaryotic cells are examined at the molecular, subcellular, and whole cell levels. The plant cell is emphasized in the discussion of eucaryotic cells and the laboratory work includes plant cells as units of structure and function within multicellular plants. *Staff.*

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

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

Investigative Courses

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

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

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

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

Advanced Courses

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

323 **COMPARATIVE VERTEBRATE ANATOMY.*** S. A study of the comparative anatomy of vertebrates. *Mr. H. Bengelink.*

331 **COMPARATIVE ANIMAL PHYSIOLOGY.*** F. A comparative study of basic functional mechanisms of animals. Additional prerequisites: Chemistry 254 or equivalent. *Staff.*

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

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

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 one on Saturday. *Mr. A. Gebben.*

Seminar and Research Courses

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

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

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 em-

phasize the methods of inquiry of biology especially as they pertain to the concepts of biology which are being taught in the elementary and junior high schools. Prerequisite: at least three courses in biology including either Biology 111 or 121. *Staff.*

JANUARY 1977 INTERIM

150 INVESTIGATIONS IN MAMMALIAN GROSS ANATOMY. Basic mammalian anatomy will be discussed in class. Students will then investigate these structural relationships in the laboratory. The course is intended for prenursing students and others who need credit in gross anatomy. Prerequisite: at least one course in biology. *Mr. H. Bengelink.*

151 PARASITOLOGY. An introduction to parasitology. Parasitism, as a type of symbiosis, will be examined. Organisms of medical importance will be stressed. Morphology and life cycles of parasites, reactions of host, and control methods will be covered. Lectures and films in the morning and four afternoon laboratory periods will be required. Intended primarily for the pre-medical technology student. Prerequisite: a course in biology. *Mr. A. Bratt.*

152 WOODY PLANTS. A study of woody plants from the perspectives of the phytogeographer, the dendrologist, the forester, the orchardist, the landscape architect, and the wood technologist. During classroom sessions, trees 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 will involve practice in tree and shrub recognition and identification by examination of woody plants in winter condition and through study of herbarium specimens. Some laboratory study of the anatomical structure of different woods and the uses of different wood will be included. Field trips to wood and paper industries, to tree nurseries, and to orchards are planned. This course is intended primarily for students concentrating in natural resource studies. Satisfies teacher education concentrations. Prereq-

uisite: Biology 111, 116, or 121. *Mr. A. Gebben.*

153 HUMAN HEALTH AND NUTRITION. The major topics discussed include human biology, medicine and preventive medicine, including communicable and non-communicable diseases, mental illness, drugs, tobacco, alcohol as well as health and the community. An analysis of dietary intake with respect to several nutrients will be part of the course work. Satisfies elementary teacher education concentrations. Prerequisite: at least one course in biology. *Miss B. Klooster.*

154 LABORATORY EXPERIENCES IN BIOLOGY. Questions that can be answered experimentally arise from laboratory exercises. If you have had such questions in Biology 111, 121, 122, 221, 251, or 252 this is your chance to work on them in a laboratory setting. This course will also be designed to familiarize the student in medical technology programs with the basis for some of the diagnostic techniques used in the clinical laboratory (such as hematology and microbiology.) *Mr. J. Beebe and Mr. B. Ten Broek.*

155 SUPERVISION OF LABORATORY WORK IN BIOLOGY. This course is an opportunity to gain valuable experience preparing materials for biology exercises while assisting a group of less experienced students to do experiments in biology (Biol. 154). Students will work closely with the instructor of the course and will be responsible for a team of students. Prerequisite: junior or senior biology major status or equivalent. May be applied to major. *Mr. J. Beebe or Mr. B. Ten Broek.*

390 INDEPENDENT STUDY IN BIOLOGY. A course based on a laboratory project resulting from a literature survey. The project will be conducted in consultation with an instructor. Group meetings will include progress reports and a final report session. At this final report session, a paper will be presented by each summarizing the literature on the topic and the accomplishments made on the project during the Interim. Prerequisites: Biol. 395 and permission of the instructor and departmental chairman. Satisfies teaching concentrations. *Mr. J. Beebe and Mr. B. Ten Broek.*

Chemistry

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

Associate Professor R. DeKock

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

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

For students preparing for graduate study in chemistry, the certification requirements of the American Chemical Society for professional training in chemistry may be met by completing the eleven courses: 103–104, 201, 277–278, 301–302, 305, 309, 310, and 303 or 306. Mathematics 111–112, 211–212; Physics 126, 225, 226 or 123, 124, 225. A reading knowledge of German is required and of French is recommended.

The nine-course chemistry major for teacher education students includes 103–104, 201, 204 or 277, 253–254 or 301–302, two courses in physics other than 110 or 112, and one chemistry course chosen from 278, 303, 305, 309, 310, or an approved interim course. The teaching minor is 103–104, 204, 253–254 or 301–302, and either an elective or an approved interim course.

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

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

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

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

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

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

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

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

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

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

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

254 ORGANO-BIOCHEMISTRY. S. A continuation of 253, concluding with a study of the chemistry of metabolism and the application of quantitative methods to biochemical analyses. Laboratory. Prerequisite: 253. *Mr. 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 thermodynamic point of view. Laboratory consists of a study of experimental methods used in these areas and their application to analytical chemistry, including work in polarography, potentiometric titrations, and amperometric titrations. Prerequisite: 277. *Mr. T. Dirkse.*

301 ORGANIC CHEMISTRY. F. A detailed study of organic compounds, their synthesis and reactions, presented within the framework of modern physico-chemical theory, together with an introduction to modern methods of analysis and identification. Laboratory. Prerequisite: 104 and preferably 201. *Mr. K. Piers.*

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

303 BIOCHEMISTRY.* F. A study of proteins, carbohydrates, lipids, enzymes, coenzymes, hormones, vitamins, metabo-

lism, biosynthesis, and bioenergetics. Laboratory. Prerequisite: 254 or 302. *Mr. R. Albers.*

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

306 QUANTUM CHEMISTRY. S. An introduction to the principles of quantum mechanics, with special emphasis on their application to a variety of problems in atomic and molecular structure and reaction mechanisms. Prerequisites: 301 and either Physics 126 and 225 or 123 and 124. *Mr. R. DeKock.*

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

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

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

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

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150 CLINICAL CHEMISTRY. A survey of the principles and methods used in clinical analyses with emphasis on enzymatic analysis of common, biochemically important substances. Daily lectures and labora-

tory. **Appropriate** for programs in medical technology and some nursing programs. **Prerequisites:** Chemistry 114 and 253 or 301. *Mr. R. Albers.*

I51 INTRODUCTORY RADIOCHEMISTRY. A study of natural and induced radioactivity, including the detection and measurement of radiation, and its effects upon chemical and biological systems. Laboratory work will include the use of radioisotopes in chemical experimentation. The prospects for an environmental impact of nuclear power development will be discussed. Satisfies teacher education and medical technology concentrations. **Prerequisite:** high school chemistry, Chemistry 103, or Chemistry 113. *Mr. H. Broene.*

I52 FROM WHENCE COMETH THE MIGHTY ATOM. A history of chemistry from the Age of Alchemy to the present. The significance of changing concepts will be noted and the use of scientific procedure will be discussed. The approach used in this course will

be to examine the contributions of some individuals and to describe and interpret some of the classical or more significant experimental work. The course will be taught by means of lectures and assigned readings. **Prerequisite:** some previous work in chemistry. Satisfies teaching concentrations. *Mr. T. Dirkse.*

I53 CHEMICAL STIMULATION OF INSECT EROTICA. The role that chemicals play in insect reproduction and behavior is a relatively new field of research. This area is not only theoretically fascinating, but is of potentially great practical significance in the control of insect pests. We will examine the isolation, structure, and synthesis of several of these substances, as well as attempts to utilize them in the practical control of pests. The course will consist of both lecture sessions and laboratory projects which will be assigned on an individual basis. **Appropriate** for pre-medical and similar group concentrations. **Prerequisite:** Chemistry 253 or 301. *Mr. K. Piers.*

Classical languages

Professors G. Harris, R. Otten, R. Wevers (chairman)

Assistant Professor E. Van Vugt

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

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

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

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

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

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

The core requirements in the fine arts may be met by Greek 202, 204, 301, 302, any Latin course numbered 202 through 304, and designated interims. The Interim course, Classical Mythology, may be part of the teaching minor in the Academic Study of Religions.

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

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

201 INTERMEDIATE GREEK A. F. Readings in the early dialogues of Plato. Special emphasis is put on gaining reading proficiency in Greek prose. Prerequisite: 102. Not offered 1976-77.

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 1976-77.

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

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

205 NEW TESTAMENT GREEK: THE GOSPELS. F. The Gospel according to St. Mark is read with some notice of the parallel passages in the other Gospels. A study is made of the special features of Hellenistic Greek. The significance of lexical and syntactical detail for the interpretation of the text is everywhere emphasized. Prerequisite: 102. Mr. R. Otten, Mr. R. Wevers.

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

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

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

311 GREEK HISTORY.* F. The political, social, and cultural history of the Greek City-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 1976-77.

LATIN

101 ELEMENTARY LATIN. F. For students who have had only one unit of high school Latin or who have had no Latin. Emphasis is placed on the essentials of grammar and a basic vocabulary with constant comparison to English. *Sententiae* from the principal Latin authors will be read. Staff.

102 ELEMENTARY LATIN. S. A continuation of 101. Emphasis is placed on grammar and the early reading of longer selections of authentic Latin dealing with Roman history and culture. Prerequisite: 101 or its equivalent. Staff.

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

202 INTERMEDIATE LATIN: VERGIL AND THE ANCIENT EPIC. S, core. A study of the *Aeneid* and the ancient epic in translation.

Selected books in the *Aeneid* will be read in Latin with a study of the prosody of Vergil. Prerequisite: three units of high school Latin or three courses of college Latin. Staff.

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

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

301 LATIN PHILOSOPHICAL LITERATURE: LUCRETIUS AND SENECA.* F, core. Selections from Lucretius and Seneca, designed to portray some of the major ethical and political issues raised in Roman thought. Collateral reading and reports. Prerequisite: 205 or 206. Alternates with 303. Not offered 1976-77.

302 LATIN PHILOSOPHICAL LITERATURE: CICERO AND AUGUSTINE.* S, core. Readings in Cicero and Augustine, selected to complete the survey begun in 301 and to present the first major Christian critique of classical thought. Collateral readings and reports. Prerequisite: 205 or 206. Alternates with 304. Not offered 1976-1977.

303 LATIN LYRIC POETRY.* F, core. A study of Latin lyric poetry from Catullus through the elegiac poets, with some attention to early Christian and medieval poetry. Collateral reading and reports. Prerequisite: Latin 205 or 206. Alternates with Latin 301.

304 TACITUS AND PLINY.* S, core. Readings in the historical works of Tacitus

and the correspondence of Pliny as sources and commentary on the political issues and movements of the Early Empire. Collateral reading and reports. Prerequisite: Latin 205 or 206. Alternates with Latin 302. Staff.

312 ROMAN HISTORY.* S. The history of Rome from the foundation of the city to A.D. 565, the death of Justinian. The emphasis falls on the development of the constitution and its effect upon, and how in turn it was affected by, the expansion of Rome over the Mediterranean. Economic, social, and literary history studied in their relation to the political. The decline of paganism and the rise of Christianity are viewed in their relation to each other. Prerequisite: Greek 311. Not offered 1976-77.

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150 REVIEW GREEK. This course is intended for students who have completed Greek 101, and will involve no assignments beyond what can be done in the hours when the class actually meets. An afternoon session will be available for students whose regular interim class meets in the morning, and a morning session for those with afternoon interim classes. Non-credit. Prerequisite: successful completion of Greek 101. Mr. G. Harris.

151 MEDIEVAL LATIN. An introduction to the Latin of the Medieval period, designed to prepare students for reading in the literature of this period. The course will assume a minimal background in Latin and will proceed from a review of basic Latin to the reading of selections in the areas of poetry, history, philosophy, and theology, with the emphasis on whatever area meets the major interests of the class. Prerequisite: two years of high school Latin or one college year. Mr. R. Otten.

Computer science

Professors L. Nyhoff, C. Sinke (chairman, Department of Mathematics)
Associate Professor S. Leestma (Director of Academic Computer Services)

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

The Honeywell 656 computer, located in the College Center, is available for use by the students via teletypes located in various places on campus. Students not enrolled in a computer science course and who wish to use the computer should consult Mr. S. Leestma.

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

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

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

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

GRADUATE COURSES

511 COMPUTING AND COMPUTER SCIENCE FOR TEACHERS. This course includes a discussion of computer organization and operation and the applications of computing to science and mathematics. Some of the topics to be considered are: nondecimal numeration systems, especially binary, octal, and hexadecimal; digital representation of data; Boolean algebra and its application to design of arithmetic units; machine language and assembly language programming; computer system software. This will provide a basis for an introduction to computer programming using the BASIC language, including flow-charting and development of algorithms. Programs will be written for solving problems in areas such as number theory, matrix algebra, and numeric calculus. Special attention will be given to applications in secondary education. Prerequisite: some knowledge of calculus and linear algebra. *Staff.*

JANUARY 1977 INTERIM

150 COMPUTER MODELS IN MANAGEMENT. A study of computer models for use in management analysis and decision-making. Several management problems will be posed and in each case a computer model will be developed to assist in the analysis of the problem. The assumptions which are made in constructing the model and the resulting limitations of the model will be discussed. Finally, the student will be expected to propose a solution to the problem based on his analysis of the output from the model. Prerequisite: Mathematics 111, 205, or consent of instructor. *Mr. S. Leestma.*

Dutch

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

Instructor W. Wierenga

PREREQUISITE to concentration in Dutch is a minimum average of C (2.0) in 101, 102, 201, and 202 for students without a background in the language or in

203 and 204 for those with. In addition to this basic language foundation a student must complete three courses from the 300 level and two interims approved by the department.

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

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

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

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

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

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

305 **DUTCH CLASSICS.*** Core. Study and discussion of several Dutch literary texts representative of the classical and modern periods of Dutch literature. *Staff.*

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

307 **READINGS IN DUTCH CHURCH HISTORY.*** F. A study in the Dutch language of

source documents pertaining to the history of the Reformed churches in the Netherlands during the period 1450-1700. *Staff.*

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

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

JANUARY 1977 INTERIM

150 **THE NETHERLANDIC MUSE FROM THE FORESTS, PLAINS, AND CITIES OF AMERICA BETWEEN 1850 AND 1975.** A study of the Dutch immigrant community in America, beginning with the New Migration about 1850 and continuing until the present, as reflected in its literature in the Dutch language, which includes memoirs, reminiscences, editorials, essays, serials, and sketches by both clergymen and laymen. The period after World War II deals with the writings of several significant writers such as Leo Vroman, Marnix Gijsen, and Jan de Hartog. Satisfies departmental concentrations. Prerequisite: a reading knowledge of Dutch. *Mr. W. Lagerwey.*

Earth science, geography, geology

Professors V. Ehlers (chairman, Department of Physics), C. Menninga

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

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

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

the context of world regional studies. The course seeks to develop a geographic perspective on current ecological and de-

mographic problems using the principles and procedures of the discipline. *Mr. G. Oosterman.*

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

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

210 **GEOGRAPHY OF NORTH AND SOUTH AMERICA.*** S. A comparative study of the physical, cultural, and economic aspects of both North and South America. Ecological and demographic factors will be considered in some detail. *Mr. G. Oosterman.*

251 **PHYSICAL GEOLOGY.*** F. A study of the geological structure of the earth. Topics included are: minerals and rocks; formation and alteration of rocks in the earth's crust; earth's interior and surface structure; processes producing geological changes; earth as a representative planetary body in space. Includes laboratory. Prerequisite: previous or concurrent study in chemistry. *Mr. C. Menninga.*

252 **HISTORICAL GEOLOGY.*** S. A study of geological structures that have existed in the past and of the changes and development that have taken place in the earth's crust. Evidences for these past structures and events are taken from present rock strata, including the fossil record. Includes laboratory. Prerequisite: 251. *Mr. C. Menninga.*

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

GRADUATE COURSES

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

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

JANUARY 1977 INTERIM

110 **A TALE OF THREE CITIES: URBAN GEOGRAPHY AS EMBEDDED IN CHICAGO, GRAND RAPIDS, AND DETROIT.** A study of what constitutes a city, its historic role, its changing demographics, transportation, and commercial patterns, as well as the differing life-styles of urban areas. Changing urban patterns and functions will be analyzed in terms of traditional as well as emerging models. The course will include a two-day field trip to either Detroit or Chicago, lectures, readings, films, and the writing of papers on selected aspects of the cultural, physical, or economic geography of one of these three cities. No prerequisites, but Geography 101 is desirable. Satisfies teaching concentrations in science studies. Fee to cover travel costs. *Mr. G. Oosterman.*

150 **WORLD VIEWS IN COLLISION.** This course examines and evaluates the writings and ideas of Immanuel Velikovsky. Students will do this study from the perspective of their major, whatever that may be. Velikovsky's writings deal with ideas and topics from physics (astronomy), history (especially ancient history of Egypt and Israel), and geology. His impact on society and science attracts the interest of sociology and philosophy of science. Everyone will read *Worlds in Collision* and at least one other major work by Velikovsky. Additional reviews, journal articles, and recorded proceedings of conferences on Velikovsky will be assigned. The major activity of the course will be a detailed examination and evaluation of one idea from Velikovsky's writings or one aspect of his impact on science and society. Each student will be expected to complete such a project, and submit both an oral and a written report. Not open to freshmen. Satisfies physical science core. *Mr. C. Menninga.*

Economics and business

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

Assistant Professors E. Dykema, K. Kuipers, J. Tiemstra

Instructor P. Vander Nat

Lecturer H. Petersen

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

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

Business Economics concentration requirements are 151, 207, 212, 313, 316, 318, 321, 322, two other courses including at least one from 331–339 and 395 (one other course from 331–339 and 395 for teacher education), and the mathematics cognate.

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

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

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

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

The core requirement in the social 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 prob-

lems and to prepare them for further work in economics, history, and government. Mr. E. Dykema, Mr. J. Tiemstra, Mr. J. Wasenaar, Mr. P. Vander Nat.

207 INTRODUCTION TO FINANCIAL ACCOUNTING. F. An introduction to accounting with emphasis on principles of asset

valuation and income determination. *Mr. K. Kuipers, Mr. L. De Lange, Mr. D. Pruis.*

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

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

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

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. A study of the principles and problems of organization and management for optimal administration of the general management function in the firm, with emphasis on effective utilization of the human resources of the firm. Prerequisites: 151 and 207. *Mr. H. Petersen.*

316 FINANCIAL PRINCIPLES. S. A study of the principles and problems involved in the

optimal administration of the finance function in the firm, including financial aspects of the form of organization, and the allocation of capital to and within the firm. Prerequisites: 151 and 207. *Mr. K. Kuipers.*

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

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

322 THE PRICE SYSTEM.* An intermediate course in microeconomic theory, emphasizing economic activity and an evaluation of its efficiency and equity. Prerequisite: 151. *Mr. P. Vander Nat.*

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. Tienstra.*

334 INDUSTRIAL MARKETS AND PUBLIC CONTROL.* S. A study of the structure, control, and market behavior of American industry, and the public policies for the control of economic power. Prerequisite: 151. *Mr. E. Dykema.*

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

338 INTERNATIONAL ECONOMICS.* S. A study of international economic relations, stressing the fundamentals of trade theory, the balance of payments, problems of international disequilibrium, trade barriers, and efforts to promote international economic stability and growth. Prerequisite: 151. *Mr. J. 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. *Staff.*

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

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

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

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150 FEDERAL INCOME TAXES. A study of Federal Income Tax Law to develop an understanding of the provisions and rate structure of the tax code and to develop competence in the preparation of income tax returns. The emphasis will be on taxation of individuals, with limited coverage of partnership and corporate taxation. Daily class sessions will require tax readings and problem preparation. Official tax return forms will be used for some of the problem work. The course grade will be based upon timely submission of homework problems and a satisfactory open-book examination. Honors candidates will also complete a selection of short tax research problems. Volunteers will be solicited for tax preparation assistance at Baxter Community Center. Prerequisite: Economics 207. *Mr. L. De Lange, Mr. D. Pruis.*

151 INTERNSHIP IN BUSINESS. Full-time work as a staff member of a cooperating business firm during the interim and in some cases continuing on a part-time basis into the Spring semester. Participating students are required to submit a paper describing their internship experience and its

relationship to their academic studies. All participants are required to attend a group meeting to discuss and evaluate their experiences. Grades will be based upon the paper, group meeting participation, and a report from the sponsoring employer. Prerequisites are junior or senior business economics major status and departmental approval. Enrollment will, of course, be limited to the number of satisfactory internship positions available, and no student may intern with a prior employer. Application for the internship must be made by September 30 on forms available from the department. *Mr. K. Kuipers, Mr. D. Pruis.*

152 THE ECONOMICS AND OPERATION OF FINANCIAL MARKETS. This course will begin with a survey of the economic logic of the various financial markets including the stock exchanges. The description and analysis of financial market operations will be concluded with an evaluation of the social utility of financial markets based on their past performances. Understanding the whole system of financial markets prepares the student for a more significant study of one of its parts, namely investments. The remainder of the course will examine the role of investments in the American economy and analyze and evaluate the latest theoretical and practical developments in the investment field. Questions and problems related to the required reading will be assigned daily. In addition, each student is required to apply the concepts of this course to a particular company in a written report. Prerequisite: Economics 151. *Mr. K. Kuipers.*

153 EXHAUSTABLE RESOURCES AND ECONOMIC GROWTH. This course involves consideration of the interaction of the problems of resource exhaustion, economic growth, and the quality of life. It includes the Club of Rome models of growth, the critiques of that approach, and neoclassical economic growth models. An examination of the theoretical support for different kinds of policy recommendations and an evaluation of the duties of Christians with respect to conservation and policy formation. Option of paper or essay exam. Prerequisite: Economics 151. *Mr. J. Tiemstra.*

Education

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

Assistant Professors B. Bosma, K. Blok, *W. Hendriks, T. Hoeksema, L. Stegink, †D. Westra

Director of Teacher Certification and Placement M. Strikwerda

THE VARIOUS TEACHER EDUCATION PROGRAMS are described in detail on pages 41–47. Prospective secondary teachers should consult with an adviser in the department in which they expect to major. The coordinator of secondary education is Mr. Philip Lucasse. Prospective elementary teachers should consult with Mr. William Hendriks, coordinator of elementary education.

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

220 TEACHING ARITHMETIC IN ELEMENTARY SCHOOLS. Both content and methods in arithmetic as it is taught in the grades will be considered. Prerequisite: 301 or equivalent. Not offered 1976–77.

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

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

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

305 ELEMENTARY TEACHING METHODS.* F and S. A study of the methods of teaching

the various subjects taught in the elementary school. Prerequisite: 303. *Staff.*

307 TEACHING READING SKILLS IN CONTENT AREAS.* F and S, one half course. An analysis of the problems encountered by students reading in typical expository texts; a presentation of the responsibilities and qualifications of teachers in content fields for applying principles of reading in daily assignments; demonstrations of techniques that can be used to meet the wide range of reading levels found in the average classroom. Optional tutoring experiences. A recommended elective for students in secondary teacher education and any student interested in refining college-level reading skills. *Mrs. B. Bosma.*

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

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

346 **TEACHING INTERNSHIP FOR SECONDARY TEACHERS.*** F and S, three courses. Includes classes and seminars in teaching the various disciplines. Each course unit of 346 and 356 involves at least ninety clock hours of practice teaching. Prerequisites: approval of the department, approval of the major department, cumulative grade point average of C. (2.0). *Staff.*

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

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

SPECIAL EDUCATION

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

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

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

GRADUATE COURSES

510 **HISTORY OF AMERICAN EDUCATION.** A study of the American school systems in their historical setting from colonial times to the present. Special attention is given to the ways in which social and intellectual movements affect educational theory and practice. Satisfies context of education requirement in education and history. *Staff.*

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

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

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

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

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

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

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

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

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

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 Christian curriculum theories, with special emphasis on the way curriculum theory is related to the religious vision and the major learning goals of education. Satisfies context of education requirement in education and philosophy. Prerequisite: at least one course in philosophy or philosophy of education. *Staff.*

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I10 INFORMAL CLASSROOMS, A SIMULATION. A study of the informal classroom and its impact upon the way students and teacher perceive their work of learning the required curriculum, including its methods, materials, and some implications and assumptions of using such a teaching style. The college student will be both student and teacher in this environment prepared by the instructor. The work of an elementary student will be stimulated by using a contrived alphabet (learning to read again) and a contrived number system (learning to compute again). The student as teacher will prepare the materials that are needed to teach in an informal classroom. The effect of method upon desirable student attributes in a Christian school community will be measured. *Mr. G. Besselsen.*

I11 MORAL EDUCATION. This course will provide the student with several conceptual tools for handling moral dilemmas and other value questions and will provide insights in how to lead others, as parent or teacher, into greater moral awareness. The course will focus on correlating the developmental learning theory of Lawrence Kohlberg and the values clarification approach of Louis Rath and Sidney Simon. Simulations of ethical situations will be used in the application of each of these two main theories. The moral standards implicit in these systems will be evaluated from a Christian perspective. A paper will be required and an extensive bibliography of reading in this area will be available for individual research. *Mr. D. Holquist and Mr. D. Oppewal.*

I12 APPALACHIAN INTERIM. This course provides a cross-cultural, teacher-aiding experience in the Appalachian region of Western North Carolina, using Mars Hill College as a base. Students will serve as teacher aides three days a week in a mountain community school and will spend two days in seminars discussing appropriate learning theory, developing instructional materials, and examining the culture. Additional work will be done with the Mars Hill College Appalachian Studies Group. Background reading required before the interim. Fee for transportation, materials, etc. \$100; for room and board, \$90.00. January 3 to 21. Prerequisite: permission of the instructor. *Mr. P. Lucasse.*

I50 SECOND STEPS IN SOCIAL STUDIES. A consideration of curriculum materials and methods of teaching social studies in grades k-6 which builds on the foundation of social studies in Education 305. The course includes review and evaluation of a wide variety of printed materials and other media. Students are expected to develop a teaching unit on the grade level of their area of interest. Current trends in curriculum development such as concern for integration of subject matter fields, economic education, and career education will be included. Field trips to selected community resources, observations of teaching in selected classrooms and micro-teaching of student-developed units will be included. Prerequisite: Education 305. Mr. W. Hendricks.

I51 MAINSTREAMING HANDICAPPED CHILDREN. Designed for the regular classroom teacher, this course will explore the concept of mainstreaming handicapped children using a study of existing models and observation in local schools. Implications of the application of mainstreaming to Christian schools will be considered. Students will develop strategies for dealing with a wide range of individual differences within the regular classroom. Not open to students in the special education program. Prerequisite: at least one course in the Education Department. Mr. T. Hoeksema.

I52 WORKSHOP AND PRACTICUM IN INSTRUCTIONAL DEVICES. A study of the devices all teachers use in the classroom with a discussion of the appropriate criteria for selecting such devices, practice in using them, and the sources of those which are commercially available, with particular emphasis on those teaching aids presently used in elementary classrooms. How teachers can construct their own instructional aids and how they can be field-tested and modified for greater effectiveness. Each student will prepare a manual which will describe each device, will define its objective in behavioral terms, and will recommend how it can best be used. The class meets all day. Prerequisites: tutoring or teacher-aiding. Mrs. K. Blok.

I53 USE OF CHILDREN'S LITERATURE IN THE ELEMENTARY CLASSROOM. Lectures, demonstrations, and workshop activities to develop the interest in and appreciation for children's books as an important element in a stimulating teaching experience. The use of children's books will be evaluated particularly as it relates to the reading program and to the learning of other classroom subjects. Activities will be planned for integrating the reading of such books into the child's total experience. Extensive reading of children's books is required. Students should have such knowledge of children's literature as is provided by English 225. Mrs. B. Bosma.

Engineering

Professor *tj. Bosscher* (chairman)

Associate Professor *L. Van Poolen* (acting chairman)

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 49 and 50.

101 GRAPHICAL COMMUNICATION AND CONCEPT DESIGN. F. Graphical techniques for spatial analysis; a study of basic topics in engineering and architectural drawing to provide facility in the transmission of ideas through accepted graphical means. Areas covered include orthographic projection, free-hand sketching, pictorial representa-

tion, auxiliary views, sections and conventions, and basic dimensioning; an introduction to the design process by means of lectures and assigned architectural or engineering projects. Readings are also assigned in design related areas of creative thinking, aesthetics, models, economics, and human satisfaction. Mr. L. Van Poolen.

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

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

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

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

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; oscil-

lators; operational amplifiers and their applications; logic elements and digital circuits. This course assumes a prior knowledge of basic D.C. circuit concepts, including node and loop methods and transient circuits, but begins with a brief review of these topics. Individualized laboratory stations are utilized to emphasize basic concepts. Prerequisites: Mathematics 211 and Physics 225. *Staff.*

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

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. Kevin Zondervan.*

312 PRINCIPLES OF ANALOG COMPUTATION. F and S, half course. An introduction to the theory and techniques of analog computation, including computer solutions for representative forms of linear and non-linear differential equations. Includes introduction to iterative analog computation using the AD-256 computer. Prerequisites: Mathematics 212 or permission of the instructor. Not offered 1976-77.

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

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

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

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

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150 CONTROL SYSTEMS ANALYSIS. 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. Satisfies major. Prerequisite: Mathematics 212 and Physics 225. Mr. Kevin Zondervan.

151 VIBRATION ANALYSIS. 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. Satisfies major. Prerequisites: Mathematics 212 and Physics 225. Mr. L. Van Poolen.

English

Professors G. Harper, I. Kroese, K. Kuiper, P. Oppewall, H. Ten Harmsel (chairman), R. Tiemersma, S. Van Der Weele, **C. Walhout, S. Wiersma

Associate Professors H. Baron, M. A. Walters

Assistant Professor R. Meyer

Instructors L. Spoelman, D. Vander Meulen

Assistant Instructor M. Hietbrink

THE ENGLISH DEPARTMENT offers a major in English, a minor in English, and a major in English Education. To become eligible for any of these programs, a student must complete 100 and 200 with a minimum average of C (2.0).

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

The recommended program for secondary education is 100, 200, 202, 203, 310, 311, 313 or 315, 329, and 336. Students for this program must pass a screening test, which is given in November, April, and July. Senior majors in teacher education programs must take 336 in the fall and Education 346 and 356 in the spring. The program for elementary education requires 212 and 225 instead of 310 and 311. The adviser with particular concern for these programs is Mr. K. Kuiper.

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

English 320 and the interim course The Bible as Literature may be part of the teaching minor in the Academic Study of Religions.

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

- 100 WRITTEN RHETORIC. F and S. A study of written English rhetoric, including a review of grammar, extensive practice in writing expository essays, and the preparation of a research paper. *Staff*.
- 200 INTRODUCTION TO LITERATURE. F and S. A study of the forms and genres of literature, with critical exercises, selected readings, and a course paper. *Staff*.
- 202 A SURVEY OF ENGLISH LITERATURE. F. A comprehensive study of English literature from Chaucer through Johnson. The course is conducted intensively in the major authors rather than inclusively. *Mr. S. Vander Weele*.
- 203 A SURVEY OF ENGLISH LITERATURE. S. A continuation of 202. The course proceeds from Wordsworth through Eliot. *Staff*.
- 212 AMERICAN LITERARY CLASSICS. F and S. A critical study of American masterpieces as the literary embodiment of the evolving minds, ways, and values of the American cultural process. Emphasis upon eight major authors. Not open to students who have had 310 or 311 or to English majors. *Staff*.
- 214 BLACK AMERICAN WRITERS. S. An intensive study of the selected works of major Black American writers against the background of the development of Black American writing. *Mr. P. Oppewall*.
- 225 CHILDREN'S LITERATURE. F and S. Through intensive reading this course develops the history of children's literature, some standards for evaluating children's books, and knowledge of some of the best literature for children. Prerequisite: English 100 or its equivalent. *Mrs. M. Zylstra*.
- 251 INTRODUCTION TO CINEMA. S. A study of the development and structure of cinema as an art form and as a cultural medium. The course aims to develop the student's understanding of cinematic language and to guide him in assessing films and film values. Course work includes readings in film history, and criticism as well as the viewing and analysis of movies. *Mr. I. Kroese, Mr. L. Sweetman*.
- 302 MEDIEVAL ENGLISH LITERATURE.* F. A study of Chaucer's *Canterbury Tales* and *Troilus and Criseyde* as reflecting Chaucer's literary genius and the major cultural phenomena of his time. Supplementary study in translation of *Beowulf*, *Gawain and the Green Knight*, and portions of *Piers Plowman*. *Mr. J. Timmerman*.
- 303 SHAKESPEARE.* F and S. A study of selected works of William Shakespeare. *Staff*.
- 304 ENGLISH LITERATURE OF THE SIXTEENTH CENTURY.* S. A study of the lyricists and sonneteers, the prose writers, and the dramatists (exclusive of Shakespeare). An intensive study of the poetry of Spenser and the drama of Marlowe. *Mr. S. Wiersma*.
- 305 ENGLISH LITERATURE OF THE SEVENTEENTH CENTURY.* F. A study of important poetry and prose in England from Donne to Dryden, with particular emphasis upon the poetry of Donne, Herbert, Vaughan, Traherne, and Herrick, and upon the prose of Donne, Browne, and Taylor. *Mr. R. Meyer*.
- 306 MILTON.* S. An intensive study of the poetry and prose of John Milton. *Staff*.
- 307 ENGLISH LITERATURE OF THE EIGHTEENTH CENTURY.* S. A study of English poetry and prose in the eighteenth century, with emphasis on the neoclassicists, Pope, Addison, Swift, and Johnson, and a study of the beginnings of the romantic outlook in Gray, Thomson, and Cowper. *Mr. S. Vander Weele*.
- 308 ENGLISH LITERATURE OF THE NINETEENTH CENTURY.* F. A study of the Romantic writers of England in both poetry and prose, with intensive critical work on Blake, Wordsworth, Coleridge, Byron, Shelley, and Keats. *Mr. I. Kroese*.
- 309 ENGLISH LITERATURE OF THE NINETEENTH CENTURY.* S. A continuation of 308. A study of the Victorian writers of England in both poetry and prose, with intensive critical work on Tennyson, Browning, and Arnold among the poets, and Arnold, Newman, Huxley, and Ruskin among the prose writers. Not offered 1976-77.
- 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 dra-

matic poetry of England and America from 1890 to the present. *Staff*.

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

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

318 **STUDIES IN AMERICAN LITERATURE.*** S. Intensive studies of three or four American writers selected from different periods of American literary history, with the selection changed from year to year. Typical groupings are: Hawthorne, James, Faulkner; Whitman, Dickinson, Frost, Stevens; Thoreau, Twain, Ellison, Baldwin; and Melville, Hemingway, O'Neill. Prerequisites: 310, 311. *Mr. J. Timmerman*.

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

321 **MODERN DRAMA.*** F. Plays by the following authors are read and discussed in relation to the major movements in modern drama: Ibsen, Chekhov, Shaw, Brecht, Pirandello, Beckett, O'Neill, Miller, Williams, Albee, Pinter. *Miss M. A. Walters*.

329 **LINGUISTICS.*** F. A course that requires previous mastery of a traditional grammar as background to assigned readings in scholarly non-structural, structural, and transformational grammars. The course gives attention to assumptions informing the nomenclature, methodology, and scope of the assigned grammars. The course incidentally considers the relationship of these grammars to the study of composition and literature. Not offered 1976-77.

330 **HISTORY OF THE ENGLISH LANGUAGE.*** F and S. An analysis of the changes that have occurred throughout the history of the English language, based on an intensive

study of selected portions of the *Oxford English Dictionary* and passages from Chaucer, Shakespeare, and various English translations of the Bible. *Mr. S. Wiersma*.

331 **LITERARY CRITICISM.*** S. A course in critical theory, historically and normatively pursued. Analysis of the principal contributions to Western literary criticism, as well as some practice of criticism on very recent literature. Not offered 1976-77.

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

333 **THE WRITING OF PLAYS, POEMS, AND STORIES.*** S. A course in the principles of composition of plays, poems, and stories. Works by contemporary authors are analyzed in the light of these principles. Students will practice writing in all three forms. Admittance to the class may be granted by the instructor on the recommendation of the student's instructor in 100. Prerequisite: a grade of B (3.0) in 100. *Staff*.

336 **TEACHING OF WRITING.*** F. An introduction to various approaches to composition in the secondary school English curricula with an emphasis on pedagogy in the teaching of writing. Extensive reading and frequent exercises in composition, revision, and evaluation. Senior majors in teacher education programs must take this course in the fall and Education 346 and 356 in the spring semester. *Mr. H. Baron*.

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

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

GRADUATE COURSES

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

511 **STUDIES IN ANALYTICAL APPROACHES TO THE TEACHING OF LITERATURE.** An examination of the theoretical considerations

underlying various approaches to teaching literature at the secondary level, and application of critical approaches to selected literary works. The specific subject matter will be defined each time the course is offered. *Staff.*

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.*

JANUARY 1977 INTERIM

I10 ERNEST HEMINGWAY: THE MAN AND HIS WORK. This course is designed to meet the interests of general students as well as those of English majors. Students will read five of Hemingway's novels, one of his plays, many of his short stories, and one biography. The course will focus on three major themes which take expression in his works: war, love, and the good life. There will be daily discussions, some lectures, and several important films. The reading list for the course is available in the English Department Office. *Mr. K. Kuiper.*

I11 EARLY AMERICAN DRAMA: 1760 TO 1910. A course in the reading of popular American plays written before 1910. Because they exhibit notions about society, politics, and morality commonly held by Americans in the eighteenth and nineteenth centuries, these plays constitute a social history of the United States during that time. Students should be prepared to have their heart strings plucked as they read about the trials and triumphs of American life on the frontier, on the battlefield, on the farm, and in the city. The course will include a thorough study of the common themes and stereotypes found in early American drama; special emphasis will be placed on those themes and stereotypes which are distinctly American. Students will read a play every day from a collection including melodramas, social dramas, minstrel shows, patriotic plays, and regional plays. Short papers and outside readings will be required. *Mrs. L. Spoelman.*

I12 WORDS, WORDS, WORDS. A wide-ranging study of diction calculated to in-

crease the student's awareness of the meanings of words, both in isolation and in certain contexts. Besides dealing with word origins and usage, the course will include the study, collection, and composition of such linguistic phenomena as euphemisms, malapropisms (including the subspecies Archie-Bunkerisms), spoonerisms, puns, Tom Swifities, higgledy-piggledies, palindromes, acrostics, and whatever interesting oddities may surface in the course of the study. Open to all who have successfully completed English 100 or have otherwise satisfied the requirements. Students with some background in a foreign language are particularly invited, but the chief requisite is an interest in and respect for language. A paper is required for an honor grade. *Mr. R. Tiemersma.*

I13 ALEKSANDR SOLZHENITSYN. Extensive reading of Solzhenitsyn's texts, with an option of some other reading in Russian literature and culture. The course will focus on locating Solzhenitsyn's significance in the contexts of Russian and world literature, current world politics, Christian thought, and contemporary culture. *Mr. E. Ericson.*

I17 THE LITERATURE OF TRAVEL. A study of travel literature from Mandeville and Marquette to last year's Kiwanis Travelogue, including accounts that are satirical, fictionalized, and imaginary as well as those that are merely incredible though true. Authors include William Bligh, James Boswell, John Wesley, Mark Twain, Jonathan Swift, Jules Verne, and Norman Mailer. *Mr. D. Vander Muelen.*

I50 THE WRITINGS OF JAMES JOYCE. A study of the writings of James Joyce, against the background of his life especially in Dublin. The course will concentrate on *The Portrait of the Artist as a Young Man* and *Dubliners*, with some attention to *Finnegan's Wake*. It will be taught by a combination of informational lectures and small-group discussions over the open text, with the aid of films and records, and, especially, the wealth of background materials on Dublin and the Irish at the turn of the century. A qualified lecturer will appear at some point—it is to be hoped a leading Joycean. Desirable background: Irish parentage, or a willingness to explore the fact of Irishness; a good knowledge of *The Odyssey* and the Latin Missal; some knowledge of Aquinas;

some acquaintance with *wit*, oral or verbal. Prerequisite: At least English 100 and 200. Mr. G. Harper.

I51 THE ENIGMA OF EMILY DICKINSON. A fresh look at Emily Dickinson's life and work in the light of recent biographical and critical studies. Representative poems will be studied intensively, comparing various methods of approach: historical, textual, oral interpretative, and psychoanalytical. Special attention will be paid to her religious influences, struggles, and commitment. Discussions, reports, and interpretative readings. Prerequisite: English 100. Mrs. A. Noteboom and Mr. P. Oppewall.

I52 THE BIBLE IN LITERARY PERSPECTIVE. The emphasis of this course is on literary study and analyses of selected portions of biblical literature. The implications of the fact that the Bible is *written* revelation, a book, that it uses language and, therefore, literary structures and patterns, will be explored. The Bible will be the primary text; some recently published textbooks will also be used as secondary sources for exploration of various literary approaches to and interpretations of Biblical narratives. Biblical allusions in fiction, poetry, and drama (some on film) will also be examined. Lectures, readings, discussions, short papers,

and critiques. Prerequisite: a college literature course in any language. Satisfies teacher education concentrations in English or the academic study of religion. Mr. H. Hoeks and Mr. S. Vander Weele.

I53 T. S. ELIOT: THE PERSON, THE POEMS, AND THE PLAYS. A chronological reading of the major poems and plays of T. S. Eliot. The poet's intellectual development and other biographical data will be used to illumine the poetry and the plays. Daily lectures and discussion groups. Tutorials, student papers, guest lecturers, a film, and a concluding production prepared by students: *An Afternoon with T. S. Eliot*. Prerequisite: one college-level literature course. Mr. S. Wiersma and Miss H. Ten Harmsel.

I54 STEREOTYPES OF WOMEN IN LITERATURE AND POPULAR CULTURE. Since literature and popular culture both reflect and create reality, this course will focus on the ways in which women internalize the stereotypes presented to them by serious literature, popular fiction, media advertising, films, and popular psychology. The course will include reports, selected readings, projects, and discussions of issues of current importance to women. Mrs. J. DeJong, Miss M. A. Walters.

French

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

Assistant Professor L. Read

Instructor †E. Monsma

Assistant** C.-M. Baldwin

STUDENTS may declare for a program of concentration in French after having completed two units of college French with a minimum average grade of C (2.0). The program of concentration includes 201, 202, 217, 218, 311, 312, 313, 314, 321, and 322. The major program for prospective teachers requires 201, 202, 217, 218, 321, 322, and three from the following: 311, 312, 313, 314, 372, and French Interim Abroad. The minor program for prospective secondary teachers requires 201, 202, 217, 218, 321, 322. Programs for students beginning French in college, including prospective secondary teachers, should be worked out with the 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. In order to take into account differences in student needs, abilities, and interests, instruction is individualized. With close guidance and help from the instructor and from assistants, the student determines the pace and method which will best help him meet the goals of the course. *Mrs. C.-M. Baldwin.*

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

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

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

202 INTERMEDIATE FRENCH. S. Continuation of French 201. *Mrs. L. Read.*

321 ADVANCED FRENCH. F, half or full course. For the advanced student who wishes to improve his facility in the language to an exceptional degree, or who is preparing for graduate study or for the teaching of French. The student may register either for both the spoken and written sections or may elect one section per semester, thus completing the two-course sequence (321-322) over a two-year period. The section in spoken French stresses oral fluency through a variety of activities such as topical discussions based on selected readings by modern authors, basic and idiomatic vocabulary drills, and pronunciation work in the laboratory. The section in written French stresses competence through the systematic study of vocabu-

lary, grammatical structures, and a progression of written assignments designed to develop the student's capacity to write in the different genres, including the *dissertation*. Prerequisites: 202. *Mrs. C.-M. Baldwin.*

322 ADVANCED FRENCH. S, half or full course. Continuation of 321. *Staff.*

LITERATURE

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

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

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

311 FRENCH DRAMA.* F odd years. A study of dramatic literature from the Middle Ages to the present day, with emphasis on classical and contemporary drama. Conducted in French. Not offered 1976-77.

312 THE FRENCH NOVEL.* S odd years. A study of fiction from the Middle Ages to the present day with special emphasis on the nineteenth and twentieth centuries. Conducted in French. Not offered 1976-77.

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

314 FRENCH PROSE.* S even years. A study of major writers expressing French thought, spirit, and sensibility in nonfiction from Montaigne to Sartre. Special attention is paid to Calvin, Pascal, *les philosophes*, and the existentialists. Conducted in French. Not offered 1976-77.

371 LITERARY DOCTRINES AND PROBLEMS. Seven years. An advanced course devoted largely to literary theory, using as its point of departure a selection of such significant documents in the history of French literature as Du Bellay's *Défense et illustration de la langue française*, the various statements relating to the *Querelle des anciens et des modernes*, Hugo's *Préface de Cromwell*, the transcript of Flaubert's trial, and others. This course includes an examination of the situations and writings which elicited these documents. Normally this course should be taken after completion of the genre courses. Conducted in French. *Mr. A. Otten.*

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

395 SEMINAR.*

CIVILIZATION

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

expressions of the French mind in painting, architecture, and music, and of French religious, political, and social institutions. Designed to enhance the student's knowledge of French culture and to enrich his literary studies, this course is a complement to, rather than a substitute for, literary studies. Conducted in French. Not offered 1976-77.

JANUARY 1977 INTERIM

150 THEN AND NOW, OR, "PLUS ÇA CHANGE..." A study of selected topics in recent French art, civilization, and life, examining developments resulting from protest, reform, revolution, and other causes of change. Source materials include literary texts, periodicals, feature films, and recordings, all in French. Available topics include the new novel, the theater of the absurd, the music of Brassens and others, *franglais*, the poetry of Prévert and others, *Taizé*, structuralism, and the like. In addition to regular class work, each student will study a topic of his choice for possible presentation to the class. This course will also be the occasion for the student to use and improve his capacities in the French language. Prerequisite: French 201 or the equivalent. Satisfies teaching major. *Mr. A. Otten.*

Geography and geology

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

German

Professors W. Bratt, J. Lamse (chairman, Department of Germanic Languages)
Associate Professor C. Hegewald
Instructors S. DeHaan, W. Wierenga

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

adviser early in their programs. A year-abroad program is available in Austria and Germany.

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

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

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

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

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

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

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

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. *Staff.*

217 **READINGS IN MAJOR GERMAN AUTHORS.** F, core. Basic introduction to German literature. Selected readings in major German authors from 1750 to 1850. Assigned readings and papers. Prerequisite: 202. *Mr. W. Bratt.*

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

250 **GERMAN CIVILIZATION.** F, odd years, fine arts core. A study of the German spirit as it finds expression particularly in social customs and institutions, religious and political life, and the fine arts. Lectures and discussions. Prerequisite: 202. *Mr. C. Hegewald.* Not offered 1976-77.

301 **CLASSICISM.*** F, even years, core. A study of the origins, nature, and literary manifestations of the classical ideal in eighteenth-century Germany. Readings from Lessing, Goethe, and Schiller. Prerequisite: 202. *Mr. J. Lamse.*

303 **ROMANTICISM.*** S, odd years, core. The literary theory and philosophical-religious basis of the German romantic movement as reflected in representative works of both earlier and later Romantics. Prerequisite: 202. *Mr. J. Lamse.* Not offered 1976-77.

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

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

307 **EARLY TWENTIETH CENTURY LITERATURE.*** F, odd years, core. Selected readings in German and Austrian literature from 1890 to 1940, with special emphasis on the works of Hofmannsthal, Mann, Kafka, Brecht, and Hesse. Lectures, discussions, and assigned papers. Prerequisite: 202. *Mrs. M. J. Lamse.* Not offered 1976-77.

308 **POSTWAR LITERATURE.*** S, odd years, core. Readings in German literature from 1945 to the present from such writers as

Andersch, Frisch, Böll, and Grass. Seminar papers are required. Prerequisite: 202. Mrs. M. J. Lamse. Not offered 1976-77.

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

395 **SEMINAR.***

COURSES IN ENGLISH

361 **INTRODUCTION TO MODERN GERMAN CULTURE.** S, fine arts core for students in designated preprofessional programs. A survey of the German cultural tradition of the past two centuries as it finds expression in the various arts, with particular emphasis on representative works of literature in translation. Open to all students, but planned primarily for those in designated preprofessional courses whose programs include the "foreign culture" option. No knowledge of German is required. Mr. W. Bratt.

JANUARY 1977 INTERIM

I01 **NAZI GERMANY.** A study of Nazi Germany, 1933 to 1945, concentrating on the origins and growth of Nazism, life in Hitler's Germany, and the last days of the Third Reich. The course will be conducted in English. The following instructional techniques and media will be employed: slides, movies, demonstrations, records, textbooks, quizzes, conversations, lectures, presentations of projects, and eyewitness reports. Mr. C. Hegewald.

I50 **GERMAN INTERIM ABROAD.** This course will be approximately five weeks in length, and will be conducted in West and East Germany. A brief tour through Northern Germany will be followed by ten days of study in Husum, Schleswig-Holstein. A second study-phase of the course will be conducted in West Berlin, and will be followed by a tour of East Germany. Course participants will be given five days for independent study and travel prior to returning to the U.S. Satisfies departmental concentrations. Prerequisites: permission of instructor and German 215 or the equivalent. Fee of approximately \$725. Mr. J. Lamse.

Greek

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

History

Professors R. Bolt, †H. Brinks, H. Ippel, D. Jellema, †G. Marsden,

H. Rienstra, E. Van Kley (chairman)

Associate Professors B. De Vries, F. Roberts, †D. Van Kley, †R. Wells

Assistant Professors D. Diephouse, S. Greydanus, W. Te Brake, J. Van Engen

Instructor J. Carpenter

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. 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. A 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, or 312 or 211 and one from 355, 356, and 360. 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. Students seeking special advice on teacher education programs, including group majors for middle school teaching, should consult Mr. S. Greydanus.

The core requirement in history must be met by 101, 102, or 102 Honors; any other regular course in the department will satisfy the additional requirements in the contextual disciplines. Upperclass students who have not completed their core requirements in history should discuss alternative ways of satisfying the requirement with the chairman. History 201, 202, 203, and 204 may be part of a teaching minor in the academic study of religions.

AREA SURVEYS

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

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

101 HONORS WESTERN CIVILIZATION. F. Core. An intensive study of the last century of the Roman Republic. This is not a survey course in the traditional sense. Rather, the focus will be on the problems of reconstructing the history of the ancient world from sources such as Cicero, Sallust, and other Roman writers and historians. The course will require two or three papers, but no examination. Enrollment is limited to students with a 3.3 grade point average or higher. *Mr. H. Rienstra.*

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

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

203 TRADITIONAL EAST ASIA.* F. An introduction to the history of East Asian

civilizations from the earliest times to the nineteenth century. Primary emphasis is placed on the civilization of China and Japan. Study of the growth and development of traditional East Asian society is supplemented by topical discussions of religion, philosophy, art, music, and literature. *Mr. E. Van Kley.*

204 **MODERN EAST ASIA.*** S. A study of the transformation of East Asian society resulting from the intrusion of the West, from the sixteenth century to the present. Primary emphasis is placed on the civilizations of China and Japan and on the contacts between East Asia and the West. Topics on East Asian religion, philosophy, art, literature, and music are included. Not offered 1976-77.

NATIONAL HISTORIES

211 **SURVEY OF AMERICAN HISTORY.** F and S. Selected themes in American history from colonial times to the present. This course is not intended for those who plan to take period courses in American history. *Mr. R. Bolt.*

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

215 **CANADA.*** S. A tracing of the founding and character of New France and a more careful examination of nineteenth and twentieth century Canada. Not offered 1976-77.

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

220 **THE HISTORY OF FRANCE.*** A survey of the history of France from the "new monarchy" of Louis XI to the present. Particular attention is given to the religious wars of the sixteenth century, the growth of the French monarchy at the expense of other institutions, the character and influence of the French Enlightenment, the nature and repercussions of the French Revolution, and the causes of France's political de-

cline in the late nineteenth century. Not offered 1976-77.

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

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

STUDIES OF HISTORICAL PERIODS

301 **CLASSICAL HISTORY.*** F and S. A study of the history of Greece and Rome from the Minoan Age through the reign of the Emperor Theodosius. The emphasis is on the political and economic changes which were the background for the shifts in intellectual styles. Particular problems are studied in depth: the emergence of the city-state; the Periclean age of Athens; the age of Alexander; the crisis of the Roman Republic; and the Decline. The two units of Greek 311 and Latin 312 may be substituted in history concentrations for this one-unit course. *Mr. B. De Vries, Mr. G. Harris.*

302 **MEDIEVAL EUROPE.*** F and S. A study of European society from 400 through 1350. The broad sweep of political, economic, and intellectual change is focused on the analysis of particular topics, such as the emergence of a Christian society, the rise of Feudalism, the tensions between asceticism and humanism, the Crusades, and the Regnum-Sacerdotium controversy. *Mr. H. Rienstra, Mr. J. Van Engen.*

303 **RENAISSANCE AND REFORMATION EUROPE.*** F and S. Studies in topics in European history from 1300 to 1650. Attention to such problems in intellectual history as the nature of humanism, the character of religious reform, and the rise of science. Requires readings in narrative histories and sources. *Mr. F. Roberts.*

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

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

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

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. J. Carpenter.*

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

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

TOPICAL STUDIES

334 UNITED STATES CONSTITUTIONAL HISTORY.* F. A study of the development of American legal and political traditions using the constitution as the focal point. Emphasis is on such themes as the inter-relationship among the three branches of government and the relationship between legal education and the decisions of the courts. Particular attention is given to the Supreme Court decisions as they have reflected or molded social, intellectual, economic, and political change. Not offered 1976-77.

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

355 INTELLECTUAL HISTORY OF THE UNITED STATES.* F and S. An analysis of the changing intellectual patterns in American society from about 1790 to the present as exemplified in religious, philosophical, political, social, and scientific thought. Emphasis is placed on the interaction of thought and society and some attention is given to European influence on American thought. A general knowledge of American history is assumed. Not offered 1976-77.

356 SOCIAL AND CULTURAL HISTORY OF THE UNITED STATES.* S. A study of the development of American society from 1776 to the present with reference to developments other than those primarily political or intellectual, such as social reform movements, popular culture, art and architecture, educational developments, the labor movement, immigration, nativism and racism, and urban problems. Prerequisite: a general knowledge of American history. *Mr. J. Carpenter.*

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. Summer. An on-site introduction to archaeological field work in the Middle East designed to expose the student to the methodologies involved in stratigraphic excavation, typological and comparative analysis of artifacts, and the use of non-literary sources in the writing of Middle East history. Prerequisite: consent of the instructor. *Mr. B. De Vries.*

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

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

GRADUATE COURSES

571 STUDIES IN HISTORY: Students will engage in a concentrated investigation of a particular topic or period of history. Advanced reading and discussion of the source materials, literature, problems, interpretations, and more recent findings on a selected period or topic are included. Topic will be selected each time the course is offered. *Staff.*

580 RESOURCES FOR TEACHING HISTORY AND THE SOCIAL STUDIES. An exploration of research in the various approaches to the teaching of history and the social studies on the secondary level. Course requirements include the development of a bibliography of resources for the teaching of history and the social studies and will relate these to the curriculum and philosophy of social studies teaching from a Christian perspective. *Staff.*

581 HISTORIOGRAPHY. The course focuses on historical writing as reflective of different personal and cultural styles and on the role of history in the intellectual adventure of man. Historians will be studied to determine their diverse opinions and interpretations. The focus is on understanding historical writing so that it can be taught more effectively. Assigned readings, seminar participation, and papers are required. *Staff.*

JANUARY 1977 INTERIM

I10 RELIGION AND THE AMERICAN REVOLUTION. Topics to be considered include: 1. the "religious" causes of the American Revolution, 2. the attitude of American and British Christian leaders to the American

Revolution, 3. the impact of the American Revolution upon British and American church history, and 4. the American Revolution as a case study in the question of the "right of revolution". Readings, reports, papers. Satisfies history and social studies minors. *Mr. H. Ippel.*

I11 THE AMERICAN INDIAN: TRAVEL DOWN THE LONG TRAIL OF INJUSTICE. The story of the native American, both past and present, will be explored. The clash of White and Red cultures will be emphasized. "We talk, you listen" will be one of the primary objectives of the course. Included will be readings, films, outside speakers, and the writing of a research paper. May be applied to history and social studies minors. *Mr. S. Greydanus.*

I12 GALILEO GALILEI AND THE SCIENTIFIC REVOLUTION. Through the reading of one of the major works of Galileo an approach to understanding the man and his time will be made. There will be three components to the course: 1. understanding the life and work of Galileo (1564-1642); 2. understanding the religious and scientific context of his life; and 3. examination of the concept of a "scientific revolution." Galileo's *Dialogue Concerning the Two Chief World Systems: Ptolemaic and Copernican* and some of his letters will be read in conjunction with the following: Giogio de Santillana's *Crime of Galileo*; Hugh F. Kearney's *Science and Change: 1500-1700*; and Thomas S. Kuhn's *The Structure of Scientific Revolutions*. May be applied to a history or social studies minor. *Mr. H. Rienstra.*

I13 THE RADICALS OF THE PROTESTANT REFORMATION. A study of the major movements and figures within the left-wing of the Protestant Reformation. The course deals primarily with the development of the Anabaptist and Spiritualist movements, with some consideration also being given to the Revolutionaries and Anti-Trinitarians. Each student will write a paper. Guest speakers and some class reports by students will also be included as a part of the course. May be applied to history minors and social studies majors and minors. Satisfies interim requirement for majors in history. *Mr. F. Roberts.*

I14 THE RENAISSANCE OF THE TWELFTH CENTURY. This course will treat the notable changes in Medieval culture which Haskins fifty years ago named the "Renaissance of the Twelfth Century". In so far as possible,

the works of major representatives of this Renaissance will be read in English translation. Emphasis will be on the lives and works of leading Churchmen such as Anselm of Canterbury, Abelard, and on the anti-clerical and satirical poetry which began to flourish at the same time will also be read. A general background in Medieval history is desirable but not required. Satisfies interim requirement for majors in history and may be applied to history minors and social studies majors and minors. *Mr. J. Van Engen.*

150 RELIGION OF THE AMERICAN PRESIDENTS. A study of the religious and moral beliefs of each of the American presidents. This study concerns itself not only with what the presidents believed but also with the influences that shaped their religious thinking. An attempt will be made to determine how the moral and religious beliefs of each president influenced his official policies and behavior. Each student will be expected to choose certain presidents and present written and oral reports on them. Satisfies departmental concentrations. *Mr. R. Bolt.*

151 HISTORY OF MIDDLE EAST ARCHEOLOGY. A history of archeological work in Egypt, Iraq, and Syria-Palestine from 1800 to the present. The course will survey the careers of major archeologists, the methods they developed, and the influence their work has had on the writing of ancient Middle east history. Satisfies concentrations in history. Prerequisite: 101 and 102. A nominal fee. *Mr. B. De Vries.*

152 HITLER'S SOCIAL REVOLUTION. A reading seminar designed to acquaint students

with significant questions and interpretations in the history of National Socialism. Intensive study of the social and economic factors involved in Hitler's rise and fall, relating German conditions to the general crisis of European liberal society in the early twentieth century. After considering the major conceptual models applied to Nazism (fascism, totalitarianisms, counter-revolutions, etc.), seminar members will explore recent scholarship on such topics as the social bases of German "illiberalism," interest groups in the Weimar Republic, the social structure of the Third Reich, the Church Struggle, and denazification. Assigned readings and student reports will provide the basis for class discussions; possibly one or more films. Prerequisite: History 102. Some knowledge of German is helpful but not essential. May be applied to history and social studies minors. *Mr. D. Diephouse.*

153 PEASANT SOCIETY. Using readings from both anthropology and history, this course examines the role of peasants in traditional, agricultural societies. Too often seen simply as a uniform and unchanging backdrop to the history of diplomacy and high cultures, peasant societies have, in fact, undergone important historical developments which have varied remarkably from nation to nation and from region to region. Particular emphasis is on the turbulent history of the European peasantry and the different ways in which peasants helped to create modern European industrial society in an area where the remnants of earlier peasant societies have all but disappeared. Readings, lectures, short papers, and student reports. Prerequisite: 101 or 102. *Mr. W. Te Brake.*

Latin

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

Mathematics

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

Associate Professors T. Jager, †J. Kuipers, S. Leestma

Assistant Professor D. Brink

Instructor G. Talsma

FRESHMEN DESIRING TO MAJOR in the department should have completed four years of high school mathematics; those with deficiencies in algebra or trigonometry should complete 101 or 102. A minimum grade of C (2.0) in 211 is required of all students applying for a program of concentration in the department. The program includes 111, 112, 211, 212, 351, three additional courses numbered 300 or above, and one upper-level interim course. 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. 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.

The chairman of the department will assist any student wishing to develop a group concentration combining mathematics with biology, economics, philosophy, or physics. Such programs must meet the requirements for cross-disciplinary concentrations.

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

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

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

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

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

205 ELEMENTARY ANALYSIS. F and S, core. Real number system; field properties; polynomial, exponential, and logarithm functions and their graphs; elementary differential calculus; rules for differentiation; applications of the derivative to maximum-minimum problems; elementary integral calculus; definite and indefinite integrals; rules for integration; applications of the integral to area problems; some elementary differential equations and application to problems such as population growth. Intended for students other than mathematics and science majors. Prerequisite: Two years of high school mathematics. *Staff.*

206 FINITE MATHEMATICS, PROBABILITY AND STATISTICS. S. Sequences including arithmetic and geometric progressions, ap-

lications 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*.

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

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

313 TOPICS IN ADVANCED ANALYSIS.* F. Fourier series, Laplace transform, series methods in ordinary differential equations, orthogonal functions, vector field theory, and partial differential equations. Intended for engineers, physicists, and others interested in applications of analysis. Prerequisite: 211. *Mr. G. Van Zwalenberg*.

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

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

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

331 HISTORY OF MATHEMATICS.* S. A study of the historical development of certain basic mathematical concepts from early times to the present, with consideration of the problems that mathematicians have faced in each age. Prerequisite: 211. *Mr. 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: 212. *Mr. C. Sinke*.

351 ABSTRACT ALGEBRA.* F. Set theory, relations and functions, equivalence relations; the integers, mathematical induction, and elementary number theory; groups, rings, fields, and polynomials. Prerequisite: 211. *Mr. T. Jager*.

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

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. *Mr. S. Leestma*.

362 REAL ANALYSIS.* F. The real number system, Lebesgue measure and integration, differentiation and integration of real functions, classical Banach spaces, abstract measure theory. Prerequisite: 212. Not offered 1976-77.

390 READINGS IN MATHEMATICS.* F, I, S. Independent study of topics of interest to particular students, under supervision of a member of the department staff. Open to qualified students with permission of the chairman. *Staff*.

395 SENIOR THESIS IN MATHEMATICS.* F, I, S. The course requirements include an expository or research paper and an oral presentation on a selected topic in mathematics. Open to qualified students with the permission of the chairman. *Staff*.

GRADUATE COURSES

510 ADVANCED GEOMETRY FOR TEACHERS.

A study of geometry from the point of view of groups of transformations, including considerations of isometries, translations, glide reflections, and similarities. Applications to theorems in Euclidean geometry. Consideration of affine, projective, hyperbolic, and elliptic geometries, and models for each. Prerequisite: Mathematics 321 or its equivalent. *Staff.*

512 PHILOSOPHY AND FOUNDATIONS OF MATHEMATICS.

A study of the philosophical problems which arise in the context of mathematics; logicism; intuitionism, and formalism; metamathematics and the theorems of Gödel, Church, and Tarski; some philosophical implications of these theorems. Some attention is paid to the philosophical stance of materials and texts written for the classroom. Prerequisite: undergraduate mathematics minor or permission of instructor. *Staff.*

513 REAL ANALYSIS AND TOPOLOGY FOR TEACHERS.

Construction of the real number system; metric space topology with applications to Euclidean spaces, limits, continuous functions, differentiation, and Riemann-Stieltjes integration. Prerequisite: Math 211. *Staff.*

580 METHODS AND MATERIALS FOR TEACHING 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.*

JANUARY 1977 INTERIM

110 GREAT MOMENTS IN MATHEMATICS.

This course is designed for the non-mathematics major who is interested in learning about great moments in the development of mathematics. The emphasis will be upon mathematical inventions and discoveries which have had profound and lasting implications in areas other than mathematics. It will highlight the personalities involved and the cultural setting in which the contributions were made. Some of the personalities to be studied are Pythagoras, Euclid, Archimedes, Descartes, Newton, Gauss, Bolyai, Cantor,

Hilbert, and Russell, and will include a description of the work of some present day mathematicians. A course paper will be required. *Mr. P. Zwier.*

111 MATHEMATICS IN THE MODERN WORLD.

This course is based upon mathematical articles that have appeared in *Scientific American* between 1948 and 1968, which have been compiled in a book used as the main text. Another reference is *Mathematics in Western Culture* by Morris Kline. The instructor will serve as a mathematical resource person, presenting mathematical concepts and ideas to the group. There will be an opportunity for the participants to do some independent work, possibly relating mathematics to their main interest area. Core credit. *Mr. G. Van Zwalenberg.*

150 MATHEMATICS EDUCATION INTERIM ABROAD.

The students will be visiting schools within a hundred miles of London, England. Each of the schools to be visited has been a pilot school for the Nuffield Project, an experimental program for teaching elementary school mathematics using manipulative materials. Each student will spend a week at each of two different schools to determine the effect of Nuffield on its program. In addition, students will attend lectures in London at places involved with Nuffield. May be applied to an elementary group concentration in science. Fee: approximately \$800. Prerequisite: permission of instructor and a teacher education program involving the teaching of mathematics. *Mr. P. Boonstra.*

151 GALOIS THEORY.

One of the classical problems of elementary algebra concerns polynomial equations which can be solved by purely algebraic means. It is well known that any equation of the second degree can be so solved using the quadratic formula; similar, though more complicated, formulas exist which solve equations of the third and fourth degree. Whether or not formulas exist giving solutions to equations of larger degree was an unsolved problem for almost three hundred years. In the nineteenth century it was shown that no algebraic means existed to solve general polynomial equations of degree greater than four. The theory developed to solve this problem will constitute the subject matter of this course and is one of the most elegant theories that mathematics has to offer an undergraduate. The topics to be covered include: polynomial rings, field ex-

tensions with applications to the classical construction problems of Greek geometry, Galois groups, the fundamental theorem, and applications to polynomial equations. Satisfies departmental concentrations. Prerequisite: Mathematics 351. Mr. T. Jager.

153 NUMBER THEORY AND COMPUTING. This course covers the usual topics of elementary number theory, such as divisibility properties of the integers (primes, GCD, Euclidean Algorithm, unique prime factorization theorem), Pythagorean triples, continued fractions. Students will be divided into groups, each group being responsible for finding and presenting in class solutions to problems and proofs. Each group will also be responsible for writ-

ing and running programs for problems which will illustrate the theory, how the computer is used in number theory to test conjectures, and how a computer investigation may lead to formulation of a conjecture which may then be proved deductively. This course can serve as a good introduction to, or application of, abstract algebra, because many of the results are really algebraic in nature. At the same time, many of the problems in number theory are computational in nature and thus lend themselves readily to computer solution and/or investigation. Satisfies departmental concentrations. Prerequisites: Mathematics 112 and knowledge of BASIC computer language. Mr. L. Nyhoff.

Music

Professors J. Hamersma, H. Slenk, D. Topp (chairman)

Associate Professors H. Geerdes, C. Stapert, †J. Worst

Assistant Professor G. Huisman

Professional Staff T. Knol, R. Rus

STUDENTS must complete 103, 104, 113, and 123 with a minimum average of C (2.0) before applying for admission to a major concentration in music. In addition, those interested in teacher certification must consult Mr. Topp.

The recommended program for students preparing for graduate study is 103, 104, 113, 114, 123, 124, 203, 204, 213, 214, 223, 224, 303, 304, 180 each semester, participation each semester in an appropriate faculty-directed ensemble, and four courses from one of the following areas: *music history*—311, 312, 313, 314, or approved interim courses; *theory and composition*—311, 312, and any two from 315, 316, 317, or approved interim courses; *applied music*—four courses of individual instruction in a single instrument or voice, culminating in a solo recital.

Students desiring a certificate to teach music from the kindergarten through the secondary level should complete the following fifteen-course concentration: 103, 104, 113, 114, 123, 124, 203, 204, 223, 224, 237, 303, 304, 180 each semester, participation each semester in an appropriate faculty-directed ensemble, and the completion of one of the following programs in either instrumental or vocal music. *Instrumental music* requires 197, 198, 315, four semesters of 140, 150, 160, or 170, and the completion of the ensemble requirements by 161 or 171. *Vocal music* requires two semesters of 110 or 120 and four semesters of 130, 213, 214, 311 or 312, 313 or 314, and one additional course from 311, 312, 313, 314, 315, 317, 318, or from an advanced interim course; and the completion of the ensemble requirements by participation in 131 or 141. If core courses are chosen with care they can provide the basis for a teacher education humanities minor.

A nine-course major for students in the elementary education program consists of 103, 104, 113, 114, 123, 124, 203, 234, 237, 239, 180 each semester and

completion of one of the following programs in either vocal or instrumental music. *Vocal music* requires two semesters each of 120 and 130 and either 131 or 141, and one advanced elective or advanced interim course. *Instrumental music* requires 197, 198, and two semesters of 140, 150, 160, or 170. In addition, 161 and 171 are highly recommended. For group majors involving music, see page 00. If a student does at least part of his teaching internship at a junior high or high school level, he can be certified to teach music k-12.

A suggested minor in music education includes 103, 104, 203, 234, 237, 239, and two semesters of individual lessons in piano, organ, or voice, and two semesters of participation in some faculty-directed ensemble. Those primarily interested in elementary education may substitute 238 for 239.

A nine course major concentration is possible for students not expecting to teach or to enter graduate school. The recommended program is 103, 104, 113, 114, 123, 124, 203, 234 (or 204, 303, and 304 in lieu of 234), and the total of one course credit in applied music (excluding 190, 191), 180 each semester, with electives chosen from 213, 214, 223, 224, 236 or 319, 237, 311, 312, 313, 314, 316, 317, and approved interim course or additional work in individual lessons not to exceed one course unit.

All transfer students must meet with Mr. J. Hamersma at the time of their first registration. During their first semester at Calvin College they must validate their transfer credits by means of examination; in keyboard harmony with Mrs. Thelma Knol and in aural perception with Mr. Howard Slenk.

All music majors must successfully complete the Princeton Comprehensive Music Examination during the April of the spring in which they enroll for 234 or 304.

The fine arts core requirement is normally met by 231 or 232 but may also be met by 103, 233, 234, 235, or 236.

GENERAL COURSES

231 **AN INTRODUCTION TO MUSIC LITERATURE.** F, core. For students with limited musical background who are interested in increasing their knowledge and enjoyment of music. The emphasis is on intelligent and perceptive listening. This year the course will concentrate on music from the Baroque and Classical periods. Listening, term paper, concert attendance. No prerequisite. *Mr. D. Topp.*

232 **AN INTRODUCTION TO MUSIC LITERATURE.** F, core. A course similar to 231 but with different content. Includes the music of representative composers of the Romantic and Modern-Contemporary Periods. Listening, term paper, concert attendance. No prerequisite. *Mr. J. De Jonge.*

233 **HISTORY OF MUSIC.** F, core. A study of the art of music from its origins through the Baroque. Score studies, listening repertory, and reading. Not offered 1976-77.

234 **HISTORY OF MUSIC.** S, core. A study of the art of music from Bach to the present.

Score studies, listening repertory, and reading. *Mr. C. Stapert.*

235 **CHAMBER MUSIC.** F odd years, core. A general course designed to provide the historical and musical background necessary for perceptive listening to music for small ensembles. The Cayvan Collection of recordings and scores will be used to give the student an insight into music written for trios, quartets, and quintets of string or wind instruments. Not offered 1976-77.

236 **CHURCH MUSIC.** I, F odd years, core. A historical survey of the worship music of the Hebrews, early Christian church, the Roman church, and the churches of the Reformation. Principles of appropriate worship music are discussed in the light of the history of church music. No prerequisite. Recommended for pre-seminary students. Not offered 1976-77.

237 **CONDUCTING.** F and S, half course. A course in basic, general conducting leading to the conducting of either instrumental or choral literature. Two hours of class and

two hours of conducting laboratory per week. Should be taken by instrumental music education majors, nine-course majors, and music minors during the spring semester of their sophomore year and by fifteen-course vocal music education majors during the fall semester of their junior year. Prerequisite: 104. *Mr. H. Geerdes, Mr. H. Slenk.*

BASIC COURSES

103 THE VOCABULARY, LITERATURE, AND MATERIALS OF MUSIC. F, core. An introduction to the art of music by means of a consideration of the elements of music as observed in a select repertory of works from the Middle Ages to the present. The fine arts core requirement is usually met by 231 or 232. Students intending to major in music must take 113 and 114 concurrently. *Miss T. Huisman, Mr. B. Mackus.*

104 THE LITERATURE AND MATERIALS OF MUSIC. S. A continuation of 103. A coordinated study of the historical, theoretical, and practical aspects of music by means of lectures, score study, written exercises, listening, performance, and reading. A study of the music of the Middle Ages. Students intending to major in music must take 114 and 124 concurrently. Prerequisite: 103. *Miss T. Huisman, Mr. C. Stapert.*

113-114 KEYBOARD HARMONY, ELEMENTARY. F and S, quarter course. Class instruction in piano will be required concurrently for students failing to meet departmental piano requirements. To be taken simultaneously with Music 103-104. *Mrs. T. Knol.*

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

203 THE LITERATURE AND MATERIALS OF MUSIC. F. A continuation of 104. An introduction to tonal counterpoint. A study of the music of the Baroque era. Students intending to major in music, excepting concentrators in instrumental music education, must take 213 and 223 concurrently. Prerequisite: 104. *Mr. C. Stapert.*

204 THE LITERATURE AND MATERIALS OF MUSIC. S. A continuation of 203. A study of the materials of traditional harmony. The study of the music of the Classic period. Students intending to major in music, ex-

cepting concentrators in instrumental music education, must take 214 and 224 concurrently. Prerequisite: 203. *Mr. C. Stapert.*

213-214 KEYBOARD HARMONY, ADVANCED. F and S, quarter course. Continuation of 113-114. To be taken simultaneously with music 203-204. Prerequisite: 113-114. *Mrs. T. Knol.*

223-224 AURAL PERCEPTION, ADVANCED. F and S, quarter course. Continuation of 123-124. To be taken simultaneously with Music 203-204. Prerequisite: 123-124. *Mr. H. Slenk.*

303 THE LITERATURE AND MATERIALS OF MUSIC. F. A continuation of 204. Completion of the study of the materials of traditional harmony. A study of the music of the Romantic period. Prerequisite: 204. *Mr. C. Stapert.*

304 THE LITERATURE AND MATERIALS OF MUSIC. S. A continuation of 303. A study of post-romantic and contemporary music. The class presents a concert of contemporary and *avant garde* music in early May. Prerequisite: 303. *Mr. C. Stapert.*

ADVANCED COURSES

311 VOCAL POLYPHONY OF THE RENAISSANCE. F even years. A study of the vocal works of sixteenth century composers, especially Josquin, Lassus, Palestrina, Victoria, Byrd, Hassler, and Gibbons. Exercises in modal counterpoint. Singing and drill in aural perception. Listening repertory of compositions. Prerequisite: 104. *Mr. J. Hamersma.*

312 INSTRUMENTAL AND VOCAL POLYPHONY OF THE LATE BAROQUE. S odd years. A study of contrapuntal practice of late Baroque composers, principally J. S. Bach. Exercises in tonal counterpoint. Listening repertory of compositions. Prerequisite: 203. Not offered 1976-77.

313 MUSIC OF THE CLASSICAL PERIOD. F odd years. A study of the principal forms of the Classic period from the keyboard music of Couperin, K.P.E. Bach, and Scarlatti through the major works of Haydn and Mozart to the late works of Beethoven. Analytic score studies of representative works. Listening repertory of compositions from the period. Several short papers. Prerequisite: 204 or 203 and 234 or permission of the instructor. Not offered 1976-77.

314 MUSIC OF THE ROMANTIC PERIOD. S even years. A study of the principal forms

of the Romantic period from Schubert and Schumann through Wagner. Analytic score studies of representative works. Listening repertory of compositions. Several short papers. Prerequisite: 303 or 203 and 234 or permission of instructor. *Mr. H. Slenk.*

315 **ARRANGING, ORCHESTRATION, AND SCORING.** F. Survey of the history of the orchestra and orchestration, and problems involved in writing for orchestra, band, and stage band. A survey of the technical limitations of each instrument and the human voice. Projects written by class members will be performed by department organizations whenever practicable. Prerequisite: 104. Not offered 1976-77.

316 **ARRANGING, ORCHESTRATION, AND SCORING.** S. Continuation of 315, which is prerequisite. Not offered 1976-77.

317 **COMPOSITION.** F. Writing in contemporary forms and according to contemporary practice. Prerequisite: 104 or permission of the instructor. Not offered 1976-77.

319 **CHURCH MUSIC FOR CONCENTRATES.** I, S odd years. A study of the worship music of the major Christian traditions in relation to their liturgies. Principles of appropriate worship music are discussed in the light of the history of church music. Prerequisite: 204. Not offered 1976-77.

MUSIC EDUCATION

238 **ELEMENTARY SCHOOL MUSIC.** F and S. 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.) *Miss T. Huisman, Mr. D. Topp.*

239 **SCHOOL MUSIC.** S. A study of the philosophy, methods, and materials for teaching elementary and secondary school music with emphasis upon research, planning, and teaching. This course is required of secondary music education majors, music minors, and elementary music education majors, and is also open to elementary education majors with a background in music. *Mr. D. Topp.*

APPLIED MUSIC

INDIVIDUAL LESSONS

Students enrolling in any course in this section must also register for 180.

110 **ORGAN.** Quarter course. Individual lessons in organ. *Mr. J. Hamersma and Staff.*

120 **PIANO.** Quarter course. Individual lessons in piano. *Mrs. R. Rus, Mrs. T. Knol.*

130 **VOICE.** Quarter course. Individual lessons in voice. *Mr. B. Mackus.*

140 **BRASSES.** Quarter course. Individual lessons in cornet, horn, baritone, trombone, or bass horn.

150 **PERCUSSION.** Quarter course. Individual lessons in snare drum, tympani, and other percussion instruments.

160 **STRINGS.** Quarter course. Individual lessons in violin, viola, violoncello, or bass viol.

170 **WOODWINDS.** Quarter course. Individual lessons in flute, oboe, clarinet, bassoon, or saxophone.

210 **ADVANCED ORGAN.** Half course. Individual lessons for the music major concentrating in organ. *Mr. J. Hamersma.*

220 **ADVANCED PIANO.** Half course. Individual lessons for the music major concentrating in piano. *Mrs. R. Rus, Mrs. T. Knol.*

230 **ADVANCED VOICE.** Half course. Individual lessons for the music major concentrating in voice. *Mr. B. Mackus.*

240 **ADVANCED BRASSES.** Half course. Individual lessons for the music major concentrating in cornet, horn, baritone, trombone, or bass horn.

260 **ADVANCED STRINGS.** Half course. Individual lessons for the music major concentrating in violin, viola, violoncello, bass viol, or classical guitar.

270 **ADVANCED WOODWINDS.** Half course. Individual lessons for the music major concentrating in flute, oboe, clarinet, bassoon, or saxophone.

CLASS LESSONS

180 **REPERTORY CLASS AND STUDIO CLASSES.** F and S, no credit. Performance classes for students of applied music for the purpose of gaining experience in public performance and increasing knowledge of music literature. Attendance is required of all music majors and students registered for individual lessons in applied music. *Staff.*

197 **STRINGS AND BRASSES.** F odd years. Class lessons in string and brass instruments for the music major concentrating in

instrumental music education and others wishing to learn a secondary instrument. Not offered 1976-77.

198 WOODWINDS AND PERCUSSION. Four years. Class lessons in woodwind and percussion instruments for the music major concentrating in instrumental music education and others wishing to learn a secondary instrument. *Mr. H. Geerdes.*

ENSEMBLES

121 COLLEGIUM MUSICUM. Quarter course. Music for small instrumental and/or vocal ensembles from all periods is studied and performed. This is an honors ensemble open to singers and instrumentalists who also participate in the choir, band, or orchestra. It is also open to keyboard, woodwind, and brass instrumentalists who are interested in performing on old wind and keyboard instruments and who meet the demands of musicianship. *Staff.*

131 CAMPUS CHOIR. Quarter course. Representative works in the field of choral literature are studied and sung. Emphasis given to the development of singing and sight-reading skills as well as to regular performances. Open to music majors and others who meet the requirements of voice and musicianship. *Mr. M. Mustert.*

141 CAPELLA. Quarter course. Representative works in the field of choral literature are studied and a limited number of selections are prepared for concert performance. Membership is maintained at a set limit and is open only to those who meet the demands of voice, sight reading, and choral musicianship. *Mr. H. Slenk.*

151 STUDIO LAB BAND. No credit. Representative works from traditional, contemporary, and experimental jazz and rock music are studied and prepared for public performance. Open to a limited number of instrumentalists who meet the demands of musicianship. Does not meet the music major ensemble requirement.

161 CONCERT BAND. Quarter course. Representative works in the field of band literature are studied and prepared for concert performance. Open to all students who meet the demands of musicianship. Three rehearsals a week. *Staff.*

171 ORCHESTRA. Quarter course. Representative works in the field of chamber and symphony orchestra literature are studied and prepared for concert performance.

Open to all students who meet the demands of musicianship. One full orchestra rehearsal per week, plus one string orchestra rehearsal. *Mr. H. Geerdes.*

181 ORATORIO CHORUS. No credit. The study of representative works of the great masters of choral writing with a view to public performance. Handel's *Messiah* is performed annually at Christmas time and another oratorio is presented in the spring. Open to all who meet the requirements of voice and musicianship. One rehearsal a week. *Mr. H. Geerdes.*

GRADUATE COURSES

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.*

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.*

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.*

581 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 organi-

zation of programs for personal and professional growth. *Staff.*

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I10 MUSIC APPRECIATION CAFETERIA
STYLE: A basic course in music appreciation in which students at any class level and with any musical background may build their own course sequence from units such as vocal solos, choral music, chamber music, program music, symphony, acoustics, listening to the church organ, and folk music. The course will include readings from a basic text and listening to records purchased by the students. Either may be supplemented by additional listening and reading assignments. Satisfies fine arts core. *Mr. H. Geerdes, Mr. J. Hamersma, Mr. H. Slenk, and Mr. D. Topp.*

I11 MUSIC IN RECREATION AND LEISURE. This course is intended as an introduction to the use of music in recreation and leisure. It will explore the various kinds of recreation in which music plays a role, such as those involved in senior citizens groups, summer camps, clinical institutions, parks and playgrounds, community centers etc. Instructional ideas and resources will be presented in lecture, and class participation

will provide laboratory experiences. Topics covered will include group singing, song leadership, simple instrumental accompaniments to songs, and folk and square rhythmic. If arrangements can be made, the course will involve going into the community for practical experience in musical activity in community groups. Not open to music majors or to those who have completed Music 222. *Miss D. Hageman and Miss G. Huisman.*

I12 ELEMENTARY MUSIC THEORY. A study of scales, intervals chords, melodies, harmony, rhythm, and key signatures for the complete novice or the person wishing a solid review of fundamentals. Class time will be devoted to lectures, demonstrations, chalkboard work, keyboard practice, games, quizzes, drill, and singing. *Mr. J. Worst.*

I50 BACH'S MASS IN B MINOR. An intensive study of Bach's *Mass in B Minor* devoted primarily to structural analysis of the work but including lectures on the history of musical settings of the Ordinary of the Mass, the history of the *B Minor Mass*, performance practice, parody, symbolism, and Bach's religion. Prerequisite: Music 204. Satisfies major concentration in music. *Mr. C. Stapert.*

Philosophy

Professors P. De Vos, C. Orlebeke (chairman), R. Mouw, A. Plantinga, E. Runner,

***N. Wolterstorff*

Associate Professor K. Konyndyk

Assistant Professor W. S. Vanderploeg

BEFORE APPLYING for admission to a major program a student must have completed either 151 or 153 with a minimum grade of C (2.0). The program of concentration requires eight courses including one course in logic, two courses in **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.

Philosophy 204, 205, and 207 may be a part of the teaching minor in the academic study of religions.

If a student wishes to present one course toward the core requirement in philosophy, it should be 153. If he wishes to present two courses, they should be: 151 and 152; 153 and either 171 or 173; 153 and any intermediate level course; or, if he is in teacher education, 153 and Education 304.

ELEMENTARY COURSES

151 and 152 PERSPECTIVES IN PHILOSOPHY. F and S. A year-long introduction to philosophy which aims to give the student a Christian philosophical framework for his thinking, along with some awareness of important alternative philosophical frameworks (philosophical perspectives), and of important alternative answers to some of the fundamental problems. It also claims to give the student some sense of the history of philosophy. 151 is a prerequisite to 152. *Staff.*

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

171 INTRODUCTION TO LOGIC. 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. K. Konyndyk.*

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

INTERMEDIATE SYSTEMATIC COURSES

All intermediate courses presuppose one course in philosophy.

203 PHILOSOPHY OF SCIENCE.* F. A study of philosophical problems arising out of the methods and results of modern science. *Mr. C. Orlebeke.*

204 PHILOSOPHY OF RELIGION.* F. A study of some philosophical questions arising from religious belief. *Mr. A. Plantinga.*

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

206 PHILOSOPHY OF HISTORY.* S. An examination of several topics in both the speculative and analytical philosophy of history. Some consideration will be given to individual thinkers such as St. Augustine, Hegel, and Collingwood, but the course will be structured around questions

of the nature and meaning of historical knowledge. *Mr. M. H. Rienstra.*

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

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

209 PHILOSOPHY OF EDUCATION.* A study of the nature, aims, and principles of education. Not offered 1976-77.

INTERMEDIATE HISTORICAL COURSES

All intermediate courses presuppose one course in philosophy.

210 HISTORY OF ANCIENT PHILOSOPHY. F. A history of philosophy in the Greek and Hellenistic periods. *Mr. C. Orlebeke.*

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

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

240 HISTORY OF CONTEMPORARY PHILOSOPHY. S. A study of major movements in recent and contemporary Anglo-American philosophy. Preparation in the history of philosophy is strongly recommended. *Mr. P. De Vos.*

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

ADVANCED HISTORICAL COURSES

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

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

331 KANT. S. A study of the *Critique of Pure Reason*. Not offered 1976-77.

335 NINETEENTH CENTURY PHILOSOPHY. F. A study of the major figures in nineteenth century continental European philosophy. Mr. E. Runner.

336 STUDIES IN MODERN PHILOSOPHY: HUME. S. A study in the philosophy of David Hume. Mr. W. S. Vanderploeg.

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. K. Konyndyk.

375 PHILOSOPHICAL ANTHROPOLOGY.* F. A critical examination of major philosophical discussions of the nature of man, with special attention to the concepts of mind, body, action, soul, and immortality. Mr. R. Mouw.

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

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

395 ONTOLOGY.* S. A study of selected topics of ontology. Mr. A. Plantinga.

GRADUATE COURSES

501 THE EDUCATIONAL ENTERPRISE: A PHILOSOPHICAL PERSPECTIVE. An examination of factors presently operative in the educational enterprise from the perspective of the history of Western philosophy. Satisfies context of education requirement in education and philosophy. Staff.

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I10 PHILOSOPHY OF CONSCIOUSNESS. A series of explorations into traditional and contemporary accounts of the nature of human consciousness, including: normal vs. abnormal modes of consciousness; mysticism;

chemically altered states of consciousness; the alleged consciousness of plants, animals, and robots; Oriental vs. Occidental modes of consciousness; parapsychology and ESP; the basis of consciousness in the brain and nervous system; mind-body theories, etc. Lectures, research projects, student presentations in class. Mr. C. Orlebeke.

I50 BELIEF. An examination of some interesting and connected philosophical questions about belief. What is belief? Is it an act, a state, or a disposition? Or is it a relationship between a person and a . . . ? What are the relationships between belief and commitment, faith, knowledge, and holding an opinion? What makes belief rational or irrational? Are there good (skeptical) reasons for not adopting certain kinds of beliefs? Can a person believe anything he chooses, or are there beliefs we cannot help holding, or are none of our beliefs voluntary? Is there an "ethics of belief"? Can believing something bring about its truth? Is there a fundamental difference between believing that . . . and believing in . . . , or can one be explained in terms of the other? Is belief in God a "special" kind of belief? Satisfies departmental concentrations. Prerequisite: one course in philosophy. Mr. K. Konyndyk.

I51 ROUSSEAU AS A SOCIAL PSYCHOLOGIST. An examination of the political philosophical writings of Rousseau (*Social Contract*) with an eye to some themes discussed by contemporary theorists in "social psychology." Topics to be considered include: the nature of human sociality, the foundations of societal authority, the proper origins of a sense of "belonging," the extent of human selfishness, etc. In addition to works by Hobbes and Rousseau, writings of Piaget, Erikson, Kurt Back, and others will be read and discussed. Research paper required. Prerequisites: two courses in philosophy. Satisfies departmental concentrations. Mr. R. Mouw.

I52 PHILOSOPHY OF LAW (Legal Philosophy). The course includes topics in the philosophy of law such as: basis of a legal system, of legal and political authority, of obedience to law, the nature and foundations of positive laws, and the like. Prerequisite: one course in philosophy. Mr. De Vos.

I53 FOUNDATIONALISM AND CHRISTIAN PHILOSOPHY. This course begins by explor-

ing the objections to natural theology (proofs of God's existence) offered by such Reformed thinkers as Calvin, Kuyper, Bavinck, and Barth, suggesting that the

basis for such Reformed objection to natural theology can be construed as a rejection of *foundationalism*. Mr. A. Plantinga.

Physical education

Professors †B. Steen, M. Zuidema (chairman)

Associate Professor J. Timmer

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

Instructors N. Van Noord, D. Hageman

Assistant Instructor K. Hoesch

THE DEPARTMENT SERVES dual functions—it provides a required but flexible two-year sequence of physical education for all students; it also offers professional training for physical education teachers and coaches.

Admission to the professional concentration, which also satisfies the certification requirements for teaching at both the elementary and secondary level, requires the approval of the department chairman. The nine-course program includes 201, 212, 215, four courses from the 230 series, 301, 302, 380, and Biology 115. Physical Education 221 is also required and may be substituted for one quarter-course in basic physical education or for one of the 230 courses. The six-course teaching minor includes three quarter-courses from 100–199, 201, 212, 221, 302, 380 as a half course, and Biology 115.

BASIC PHYSICAL EDUCATION COURSES

The Basic Physical Education program is part of the liberal arts core and consists of an initial personal inventory (101) followed by four quarter courses (normally three from 190–198 plus 199). Veterans with two or more years of military experience will be exempted from the core requirements in physical education if they present discharge papers at the Registrar's Office.

All students must register for PE 101 (Diagnosis-Classification) as their first physical education course. The first four weeks of this course are devoted to a diagnostic inventory to determine fitness, skills, understanding of physical education, psycho-social needs, and recreational goals. On the basis of the results, the student and his instructor plan an appropriate sequential program of courses including fitness and skill developmental activities, aquatics, and recreational sports. Older or handicapped students typically satisfy the requirements with courses from the Adaptive Program (110). All students must register for Physical Fitness (199) as the fourth quarter course in the sequence.

Physical Education majors and minors and elementary education students may substitute 221 for one quarter course in basic physical education (110–198).

101 DIAGNOSIS-CLASSIFICATION. F and I, non-credit. This course substitutes for the first four weeks of the student's first basic physical education course. Each student undergoes a thorough diagnostic inventory to assist him and his instructor in planning an appropriate program of college physical education for the student. *Staff.*

110 ADAPTIVE PROGRAM. F, I, and S, quarter course. This is a specialized program for older students and those with physical handicaps whose needs cannot be met in the regular programs (120–198). Adaptive and corrective activities are developed for each student. Students are assigned to regular activities or special programs. The col-

lege physician is consulted in the cases of physically handicapped students. Students who are eligible for this course should consult the departmental representative at registration. The course may be repeated. *Mr. M. Zuidema.*

120-159 GUIDED INSTRUCTIONAL PROGRAM. F, I, and S, quarter courses. Various developmental and recreational courses planned to develop one or more aspects of personal efficiency are offered. Examples of such courses are: physical conditioning, weight training, motor training, rhythmic, wrestling, gymnastics, badminton, bowling, tennis, golf, handball, paddleball, and volleyball. Up to three quarter courses may be taken in this program. *Staff.*

160-198 SPECIALIZED INSTRUCTIONAL PROGRAM. F, I, and S, quarter course. Specific courses are developed with a departmental representative and may include, among others, aerobic fitness, individual and group experience in creative movement expression, and programmed learning in self-defense, skiing, cycling, or mountain climbing. Such programs may be arranged by individuals or groups and for more advanced students may include instructional clubs in various leisure time sports. Up to three quarter courses may be taken in this program. *Staff.*

199 PHYSICAL FITNESS. F and S, quarter course. This course is the final one in the basic physical education sequence and, accompanied by a review of the results of the student's initial personal inventory, aims to give him a basis for maintaining life-long physical fitness. Students must meet programmed fitness standards or engage in fitness building programs until they can meet such standards. *Staff.*

221 ELEMENTARY SCHOOL ACTIVITIES AND PROGRAMS. See description under Professional Courses.

PROFESSIONAL COURSES

201 HISTORY AND PERSPECTIVE.* F. The course deals with two areas—the history of physical education in the civilized world, and the problems, purposes, and philosophical implications of physical education as they affect man in general and educational institutions in particular. *Staff.*

212 KINESIOLOGY. F. A study of human motion from the scientific standpoint. Par-

ticular attention is given to a mechanical analysis of musculoskeletal movements as applied to games, sports, and daily living. Prerequisite: Biology 115. *Mr. R. Honderd.*

215 PHYSIOLOGY OF PHYSICAL ACTIVITY.* S. A study of physical efficiency and physiological principles involved in human exercise. Emphasis will be placed on the responses of the respiratory, cardiovascular, and muscular systems. The course includes the physiology of factors affecting performance such as the environment and the use of tobacco, alcohol, and drugs. Prerequisite: Biology 115. *Mr. J. Timmer.*

221 ELEMENTARY SCHOOL ACTIVITIES AND PROGRAMS.* F and S, half course. The course provides a working knowledge of the fundamentals of physical education planning for elementary school children. It substitutes for one quarter course in basic physical education (110-198) for physical education majors and minors, and for elementary teacher education students. *Mrs. D. Hageman, Miss K. Hoesch, 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. *Mr. M. Zuidema.*

LB Psychology of Teaching/Coaching. *Mrs. D. Hageman.*

230 Field Hockey. *S. Mrs. D. Hageman.*

231 Basketball. *Miss D. Zuidema.*

232 Baseball/Softball. *S. Mr. M. Zuidema.*

233 Track and Field. *S. Mr. D. Tuuk.*

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

235 Volleyball/Tennis. *F. Miss K. Hoesch, Mr. D. Vroon.*

236 Football. *F. Mr. J. Timmer.*

237 Gymnastics. *S. Miss N. Van Noord.*

238 Wrestling. *S. Staff.*

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

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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. *Staff.*

303 LEADERSHIP IN RECREATION PROGRAMS. S, half course. This course studies the organization of recreation programs and gives opportunity for observing programs in action, for structuring new programs, and for developing leadership skills. *Mr. D. Tuuk.*

312 PHYSIOLOGY OF CONDITIONING AND INJURIES. F, half course. The study of physiological principles as they apply to physical training and rehabilitation from injury. Specific types of training programs are studied. Laboratory topics will include athletic injury treatment, taping techniques, and first aid procedures. May substitute for 230 in major programs with the approval of the department. Prerequisite: Biology 115. *Mr. J. Timmer.*

380 INDIVIDUAL COMPETENCES. F, I, and S, full or half course. This course offers opportunity for physical education majors and minors to develop the physical condition and skill necessary to be beginning teachers in physical education. It requires active participation and competence in a variety of physical education skills. Students should register for this course when they are admitted to a major or minor in the department and remain registered for it until they have completed the other departmental requirements. Majors, who need a full course credit, must earn 210 points and minors, who receive a half course credit, must earn 105. Periodic competency examinations are given. Elements of this course are prerequisites for 230 courses. *Miss N. Van Noord, Mr. D. Vroon.*

I10 SPORT FACILITIES AND EQUIPMENT FOR THE FUTURE. This course is concerned with the design, function, construction, and maintenance of the sorts of new outdoor and indoor facilities and equipment that have recently become available. Included will be multipurpose indoor facilities for schools and recreation programs, outdoor areas and facilities, and new ideas in play equipment. Students will be expected to develop a skill in reading blueprints and for understanding construction processes. Resource people will be drawn from sports figures, suppliers, and contractors. Field trips to model facilities. *Mr. D. Tuuk.*

I50 OUTDOOR EDUCATION. This course is designed to give the student opportunities to develop knowledge and appreciation for the out-of-doors through direct experiences, research projects, and field trips. Direct experiences may include: cross-country skiing, orienteering, snow shoeing, ice fishing, tracking, hiking, and winter camping. Visiting lecturers and field trips to area nature centers will also be included. Nominal fees for equipment. Prerequisite: sophomore or higher classification. *Miss K. Hoesch and Miss D. Zuidema.*

I51 WHAT RESEARCH TELLS THE PHYSICAL EDUCATOR AND COACH. This course offers an opportunity to investigate current research findings with a view toward teaching and coaching applications. There will be a serious attempt to investigate, evaluate, and interpret research studies that are published in *Research Quarterly; Quest; AAHPER Research Proceedings; National College Physical Education Association Proceedings; Medicine and Science in Sports; Journal of Educational Psychology; Journal of Applied Physiology; Journal of Experimental Psychology; Perception and Motor Skills; American Journal of Physiology; and American Physical Education Review.* The course will begin with an overview of research methods and statistical techniques. Students are expected to be able to handle mathematical concepts and be able to do independent investigation. *Mr. M. Zuidema.*

Physics

Professors V. Ehlers (chairman), R. Griffioen, A. Kromminga, C. Menninga, H. Van Till, J. Van Zytveld

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 planning to pursue graduate study in physics should take, in addition to the introductory courses, 335, 345, 346, 375, 376, 380 or 381, a minimum of a half course credit of Modern Physics Laboratory, 365 or 379, 395 and 396 or an interim course in research, and Mathematics 313.

The major program of concentration in physics for secondary education students requires a minimum of nine college courses, including Philosophy 203, Physics 123, 124, 181, 182, 225, 226, 380 or 381, a minimum of a half course credit of Modern Physics Laboratory, plus approved electives from the Advanced Courses. The minor program for secondary education students requires 123, 124, 181, 182, 225, 226, 380 or 381, plus approved electives from Advanced Courses.

The teaching group major in physics and mathematics consists of Mathematics 111, 112, 211, 212, 321, and 351; Physics 123, 124, 181, 182, 225, 226, 381, and a minimum of a half course credit of Modern Physics Laboratory. A group minor in the same fields consists of Mathematics 111, 112, and 211; Physics 123, 124, 181, 182, 225, and 226. The elementary teacher education adviser is Mr. Clarence Menninga.

The teaching group major in physics and chemistry consists of Physics 123, 124, 181, 182, 225, 226; Chemistry 103, 104, and either 253-254 or 301-302; and two and a half courses approved by the Science Division Education Coordinator, Mr. Clarence Menninga. Courses recommended for such electives include Physics 380, 381, 382, Chemistry 201, 277, and 278.

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, Geology 252, 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

tific investigations in the fields of physics and chemistry. It also acquaints students with the fundamental laws of physics and chemistry and explains certain important physical phenomena. This course is designed primarily for non-science majors and is not open to those who have taken (or plan to take) Physics 112, 123, 126, or 221. Prerequisites: high school algebra and Mathematics 109 or its equivalent. *Staff.*

112 **PHYSICAL SCIENCE.** F and S, one and a half courses, core. The major objectives of this course are the same as those of 110 except that a laboratory-oriented approach is used to achieve the objectives. Emphasis is placed on the processes and structure of science. The course is open only to future elementary school teachers and makes use of elementary school science programs and materials. Not open to those who have taken or plan to take 110, 123, 126, or 221. Prerequisites: high school algebra and Mathematics 109 or their equivalent. *Mr. V. Ehlers.*

113 **SCIENTIFIC PROCESSES AND SCIENCE TEACHING.** S, half course. A study of the processes and structure of science, designed to acquaint future elementary school teachers with the fundamentals of science and their use in elementary school science programs. Extensive use is made of programmed modules and elementary school science materials. For students entering elementary education programs who have taken 110 or Astronomy 110 previously rather than 112, the preferred course. Not open to students who have taken 112. Prerequisite: 110 or Astronomy 110. *Staff.*

123 **INTRODUCTION TO MODERN AND CLASSICAL PHYSICS.** F, half course. This course, along with 124, which is its continuation, serves as an introduction to both classical and modern physics for students planning to major in science or mathematics. Mathematically qualified students are encouraged to satisfy the core requirement with 123 rather than with 110. Topics in classical physics include mechanics and thermodynamics. The nature of scientific study in general and its place in one's world and life view will be discussed. Prerequisites: concurrent registration in or completion of 181, Mathematics 111, and, if possible, Computer Science 108. *Mr. J. Van Zytveld.*

124 **INTRODUCTION TO MODERN AND CLASSICAL PHYSICS.** S, core. A continuation of

123, which is a prerequisite. Prerequisite: Mathematics 111 and concurrent registration in Mathematics 112 and Physics 182. *Mr. J. Van Zytveld.*

126 **INTRODUCTORY PHYSICS: MECHANICS AND HEAT.** S. An introduction to classical Newtonian mechanics applied to linear and rotational motion; a study of energy and momentum and their associated conservation laws; an introduction to the concept of heat and a study of the first and second laws of thermodynamics. This course serves as a preparation for 225 and is intended primarily for engineering students and others who cannot fit 123-124 into their programs. Laboratory. Prerequisite: Mathematics 111 and concurrent registration in Mathematics 112. *Staff.*

221 **GENERAL PHYSICS.** F. One and one-quarter course. This course is designed for those who do not intend to do further work in physics. The major areas of physics are discussed: mechanics, heat, electricity and magnetism, light, waves, relativity, and quantum theory. Laboratory. Prerequisite: plane trigonometry and high school algebra. *Staff.*

222 **GENERAL PHYSICS.** S, core. One and one-quarter course. A continuation of 221, which is a prerequisite. Laboratory. *Staff.*

223 **PHYSICS FOR THE HEALTH SCIENCES.** F. An introduction to those topics in physics which are basic to work in a variety of health science fields. The course is oriented toward understanding some of the basic laboratory techniques and instruments which are fundamental to medical and para-medical instrumentation. Topics include physical measurements and data analysis, basic mechanics, heat, electric and magnetic fields, electric circuits, basic electronics and instrumentation, optics, radioactivity, and X-rays. Prerequisites: High school geometry and algebra. *Mr. J. Van Zytveld.*

225 **INTRODUCTORY PHYSICS: ELECTRICITY, MAGNETISM, AND WAVES.** F, core. A study of the properties of electric and magnetic fields and of the integral forms of Maxwell's equations which describe these fields; a mathematically unified treatment of alternating current circuits, general wave phenomena, and geometrical and physical optics. Laboratory. Prerequisites: 124 or 126, Mathematics 112, and concurrent registration in Mathematics 211. *Mr. R. Griffoen.*

226 **INTRODUCTORY MODERN PHYSICS.** S. An introduction to quantum effects and the wave-particle duality of matter and radiation: a study of the structure of atoms, molecules, solids, nuclei, and fundamental particles as described by Schroedinger theory. Einsteinian relativity is also considered. Prerequisites: 225 and Mathematics 211. Mr. R. Griffioen.

ADVANCED COURSES

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

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

345 **ELECTROMAGNETISM.*** S. The basic equations of the classical electromagnetic interaction theory are developed. Applications are made to electromagnetic fields in material media, boundary-value problems, electromagnetic energy, radiation, and physical optics. Relativity with its connection to this theory is studied. The basic theory and some applications are considered in 345, while the remaining applications and relativity are reserved for 346. Prerequisite: 225. Mr. A. Kromminga.

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

365 **THERMODYNAMICS AND STATISTICAL MECHANICS.*** F. Discussion of the equation of state and the laws of thermodynamics with application to some simple systems; the thermodynamic potentials: kinetic theory. Treatment of statistical mechanics dealing mainly with ensembles and distribution functions, calculation of entropy and the thermodynamic potentials with application to crystals and gases. Quantum statistical mechanics is considered. Prerequisite: 335. Staff.

375 **QUANTUM MECHANICS.*** F. The main emphasis is on wave mechanics and its application to atoms and molecules. One-electron atoms are discussed in detail.

Additional topics discussed are electronic spin and atomic spectra and structure. Nuclei, the solid state, and fundamental particles are also considered. Prerequisite: 226. Mr. A. Kromminga.

376 **QUANTUM MECHANICS.*** S. A continuation of 375, which is a prerequisite. Mr. A. Kromminga.

379 **CONTEMPORARY PHYSICS.*** S. An introduction to the major areas of current research in physics. Primary emphasis is placed upon solid-state, atomic, nuclear, and elementary-particle physics. Prerequisite: Physics 375. Staff.

380 **ANALOG AND DIGITAL ELECTRONICS.*** S. An introduction to electronic circuits and devices and their applications. The following topics are included: A.C. circuit analysis; diode and transistor characteristics; amplifiers; oscillators; operational amplifiers; digital logic gates; flip-flops; counters; and integrated circuits. Laboratory exercises in all of the above topics are performed. Prerequisite: Physics 225. Staff.

390 **INDEPENDENT STUDY IN PHYSICS.*** F, I, S, half or full course. Independent readings and research in physics, under the supervision of a member of the departmental staff. Prerequisite: permission of the chairman. Mr. J. Van Zytveld.

LABORATORY COURSES

181 **BASIC ELECTRICAL MEASUREMENTS.** F, quarter course. An introduction to basic D.C. electrical measurements including Kirchhoff's Laws, potentiometer circuits, and bridge circuits. Techniques of data handling and analysis and a brief introduction to A.C. circuits are included. Mr. J. Van Zytveld.

182 **ELECTRICAL MEASUREMENTS.** S, quarter course. Applications of D.C. electrical measurements; A.C. circuits, including experiments on frequency response and resonance; and an introduction to digital circuitry. Prerequisites: 181 and Mathematics 111. Mr. J. Van Zytveld.

381 **ELECTRONICS.*** S, half course. An introduction to, and an analysis of, some of the basic digital and analog electronic circuits commonly used in science and engineering research. Prerequisites: 225 or a year of college physics and permission of instructor. Staff.

382 MODERN PHYSICS LABORATORY.* F. Quarter course. An introduction to the basic laboratory techniques in atomic, nuclear, and solid-state physics and a study of some of the more important experiments on which modern physical theory is based. This course may be repeated with the permission of the instructor. Prerequisite: 380, 381, Engineering 308, or a year of college physics and permission of the instructor. *Staff.*

395-396 PHYSICS SEMINAR AND RESEARCH.* F, S, half course; I, full course. Library and laboratory research on an approved topic and presentation of the result of the research in a departmental seminar. Prerequisite: 382 and the approval of the department. *Mr. V. Ehlers.*

GRADUATE COURSES

510 PHYSICAL SCIENCE AND CONTEMPORARY SOCIETY. This course is designed to show the elementary or middle school teachers how physical science and its resulting technology interact. It does not deal primarily with the concepts and theories of physical science, but will focus on the societal impact of physical science. Topics of major interest include energy sources and energy use, supply and use of other material resources, and the limitations of physical science in solving societal prob-

lems. Prerequisite: Physics 112 or its equivalent. *Staff.*

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I50 ENVIRONMENTAL APPLICATIONS OF PHYSICS. In this course a quantitative approach to a wide variety of environmental problems is considered. Primary emphasis will be placed on transportation and air pollution. However, many other areas will be touched on briefly, e.g., noise pollution and energy from nuclear fusion. This course has two purposes. The first purpose is to show that physics is very relevant to contemporary environmental problems. The second is to acquaint students with the details of some of these problems. Prerequisites: a year of college physics and of calculus. *Mr. A. Kromminga.*

I51 MODERN PHYSICS LABORATORY. An introduction to the basic laboratory techniques in atomic, nuclear, and solid-state physics and a study of some of the more important experiments on which modern physical theory is based. Prerequisite: 380, or a year of college physics and permission of the instructor. *Mr. J. Van Zytveld.*

390 INDEPENDENT STUDY IN PHYSICS. F, I, S. Independent readings and research in physics, under the supervision of a member of the departmental staff. *Mr. J. Van Zytveld.*

Political science

*Professors J. De Borst (acting chairman, fall sem.), *J. Westra (chairman)
Associate Professor P. Henry
Assistant Professors R. De Vries, J. Penning, C. Strikwerda*

TO BE ADMITTED to a major program in political science a student must have completed 151 with a minimum grade of C (2.0). In addition to 151 the program requires 201, 203 or 303, 207, 305 or 306, and four additional courses in the department. Required cognates include Economics 151 and an approved three-course sequence in one of the following departments: economics, history, psychology, or sociology. Students planning to pursue graduate study in political science should take 302 and both 305 and 306.

Students preparing for a secondary teaching certificate should meet the general major requirements in political science and, as far as possible, in the cognate fields; 202 is recommended but not required. A departmental minor requires 151, 201, 202, and any other three courses. Mr. R. De Vries is the adviser for teacher education.

The core requirements in political science normally are met by 151. Elementary education students may satisfy the core requirement with 201 and Canadian students with 210.

151 **INTRODUCTION TO POLITICS.** F and S, core. An introduction to political science. Analyzes the nature of the political process, the methods political scientists use in studying it, and some of the key concepts and terminology they have developed to explain it. *Staff.*

201 **AMERICAN POLITICS.** F and S. A study of American national politics. Emphasis is on the social context, constitutional foundations, and the major institutions, processes, and functions of American politics. *Mr. J. De Borst.*

202 **AMERICAN STATE AND LOCAL POLITICS.** S. A study of American politics on the state and local levels. A comparative approach is used to analyze existing problems and the differences and similarities in political patterns. *Mr. J. Penning.*

203 **COMPARATIVE GOVERNMENT—EUROPE.** S. A study of the government and politics of four major European states: Great Britain, France, Germany, and the Soviet Union. Prerequisite: 151. *Mr. J. Westra.*

207 **INTRODUCTION TO INTERNATIONAL POLITICS.** F. Analysis and critique of various theoretical approaches to the study of international politics; concepts of power; the nation-state and the doctrine of sovereignty; diplomacy; nationalism; imperialism; war; balance of power; collective security; and world government. *Mr. J. De Borst.*

209 **PUBLIC ADMINISTRATION.** F. An introduction to the political process. Principles of administrative organization, methods of administrative control, and budget management. The organizational and administrative problems encountered by government agencies charged with carrying out public policies. *Mr. J. Penning.*

210 **CANADIAN GOVERNMENT AND POLITICS.** 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; so-

cial forces and trends in Canadian politics. This course carries core credit for Canadian students only. *Mr. J. Westra.*

302 **POLITICAL BEHAVIOR.*** F. Analysis of the political behavior and opinions of the non-office holding citizen. A study of the theory and methods of the behavioral orientation in political science is included. Emphasis is on the the United States. *Mr. J. Penning.*

303 **COMPARATIVE GOVERNMENT—THE NON-WESTERN WORLD.*** F. A study of the politics of Asian and African states. Emphasis is on the issues and problems posed by the modernization process. *Mr. R. De Vries.*

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

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

308 **PRINCIPLES OF AMERICAN FOREIGN POLICY.*** S. An analytical view of American foreign policy; its domestic sources; process of formulating policy instruments of American diplomacy; the nature of U.S. relations with hostile powers, allies, the emerging nations, and the United Nations; the limitations and potentials of American foreign policy. *Mr. R. De Vries.*

309 **INTERNATIONAL ORGANIZATIONS.*** S. An examination of regional and universal international organizations; their processes, functions, and impact on the international system. The United Nations system as well as economic and political integration within the North Atlantic area, among Communist states, and in the Third World. *Staff.*

310 **THE JUDICIAL PROCESS AND CIVIL LIBERTIES.*** S. The judicial process in American politics. Special consideration of the Supreme Court's interpretations of the Constitution, with emphasis on civil liberties. *Mr. J. De Borst.*

312 **LEGISLATIVE BEHAVIOR.*** F. A study of legislators, legislatures, and the legislative process. The impact of institutional struc-

tures, political parties, outside forces, and personal norms on the legislative process. The role of legislatures in the democratic process. State and non-American legislatures are considered but the emphasis is on the federal Congress. Not offered 1976-77.

313 **POLITICAL PARTIES.** F. A study of political parties and their role in the political process. The approach will be comparative: different types of party systems; typologies and classifications of parties; different patterns of leadership, membership, organization. Emphasis will be on parties in Western democratic systems with special attention given to American political parties. *Mr. C. Strikwerda.*

390 **INDEPENDENT STUDY.** * F, I, S. Reading or directed projects for majors. Open with the permission of the chairman and the instructor under whom the work will be done. *Staff.*

395 **SEMINAR.** *

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110 **CONGRESS, THE PRESIDENT, AND FOREIGN POLICY.** An examination of recent institutional conflict concerning the goals and implementation of American foreign policy. The course offers an historical perspective on congressional involvement in foreign policy and illustrates the constitutional, partisan, and institutional dimension of past and present controversies. A study of events surrounding congressional passage of the War Powers Act of 1973 concludes the study. A course paper is required. *Mr. C. Strikwerda.*

150 **THE WATERGATE ERA.** A study based primarily on the reading of a number of the books, diaries, and articles written by the participants, observers, investigators, and critics of the events, personalities, and accidents that make up the Watergate caper. An attempt will be made to achieve a bal-

anced evaluation of this era by an in-depth discussion of source materials written from various perspectives. Prerequisite: at least one course from Political Science 151, 201, History 211, or 312. *Mr. J. De Borst.*

151 **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. A fee of \$45 plus the cost of room, board, and transportation. The total estimated cost is \$365. May be applied to departmental concentrations and to teaching minors in political science and social studies. *Mr. R. De Vries.*

153 **WORK-STUDY IN STATE/LOCAL GOVERNMENT.** This course is designed to provide a work/study opportunity in state or local government for a select group of students. Each student will be assigned to work with a field instructor in a state or local government agency or the office of an elected state or local official. The college instructor, the student, and the field instructor will together plan a program designed to build on the program of instruction at the college and the student's career goals. Normally, forty hours of work per week on a regular schedule are required. Weekly seminars. May be applied to departmental concentrations and to teacher education minors in political science and social studies. Prerequisite: permission of instructor and at least two courses in political science. A nominal fee. *Mr. J. Penning.*

Psychology

Professors W. Joose, A. Reynolds, R. Terborg

*Associate Professors **M. Bolt, W. Sanderson (chairman), R. Stouwie*

Assistant Professors J. Benthem, J. Brink, D. Snuttjer, M. Vander Goot, G. Weaver

INTRODUCTORY PSYCHOLOGY (151) must be completed with a minimum grade of C (2.0) by students intending to major in the department. The nine course major consists of 151, 250, 306, three 300-level electives, one of which must

include a laboratory experience, and three electives from the offerings of the Psychology Department. Not more than one interim and no independent studies (390) may be included in this major.

Students intending to pursue graduate education in psychology or related fields should consult a department member for advice. There are a number of options open which require different types of preparation.

A teaching minor consists of six courses: 151, 212, 306, 311, one from 330, 331, 332, and one elective.

The core requirement in psychology is best met by 151. For students in teacher education programs, Education 301 satisfies graduation requirements but does not serve as a prerequisite for advanced psychology courses. Interim courses on the psychology of religion and 322 may be a part of the teaching minor in the academic study of religions.

151 INTRODUCTORY PSYCHOLOGY. F and S, core. An introductory course intended to give the beginner some orientation to the field of psychology in general. The psychology core requirements for students in teacher education programs should be met by Education 301 rather than by this course. *Staff.*

201 DEVELOPMENTAL PSYCHOLOGY: LIFE-SPAN. 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. *Staff.*

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. R. Stowwie, Mrs. M. Vander Goot.*

207 DEVELOPMENTAL PSYCHOLOGY: ADOLESCENT. F. A specialized course in developmental psychology directed specifically to the period from puberty to adulthood. Prerequisites: 151 and 204. *Staff.*

211 PERSONALITY AND ADJUSTMENT. F. A study of psychological theory and research pertinent to personality dynamics and adjustment. Coverage includes concepts of mental health, need fulfillment, sources of conflict and stress, the nature and effects of anxiety, the self concept, and principles of emotional and interpersonal competence.

Attention will be given to the personal application of these topics. Prerequisite: Psychology 151. *Mr. W. Joosse.*

212 PSYCHOPATHOLOGY. F and S. A study of the wide range of abnormal behaviors. Emphasis is on causes, dynamics, and classification, with some attention to treatment approaches. Prerequisite: Psychology 151. *Mr. J. Benthem, Mr. G. Weaver.*

216 PSYCHOLOGY OF THE EXCEPTIONAL CHILD. S. A basic overview of the "other" children, those who differ physically, mentally, or behaviorally from "normal" children. Emphasis on casual factors, characteristics, and diagnosis. Prerequisite: 151. *Mr. R. Stowwie.*

250 DESCRIPTIVE STATISTICS FOR SOCIAL SCIENCES.* F and S. An introduction to the major forms of descriptive statistics (measures of central tendency, variability, linear transformation, area transformation, correlation). Both an understanding of and proficiency in the application of these concepts and techniques in the areas of education, psychology, sociology, etc., will be sought. *Mr. A. Reynolds.*

306 HISTORY OF PSYCHOLOGY.* F and S. A study of the origins of contemporary psychology within science and within philosophy, and of the development of various systematic approaches to psychology as a separate academic discipline in Europe and the United States. Prerequisites: two courses in psychology. *Mr. W. Sanderson.*

308 INTRODUCTION TO EXPERIMENTAL PSYCHOLOGY. S. A critical study of experimental methods, problems, materials, results, and conclusions, with major emphasis on perception and learning. Laboratory work will be required. Open only to juniors and

seniors intending to major in psychology who have either 250 or Mathematics 206. *Mr. R. Terborg.*

310 **SOCIAL PSYCHOLOGY.*** F and S. A critical study of the individual's relationship to other individuals, groups, and cultures. Attention is given to such topics as beliefs, attitudes, and values; social influence and conformity; interpersonal perception and attraction; aggression and social conflict; altruism; and collective behavior. Students may not receive credit for this course and Sociology 310. Prerequisite: Psychology 151. *Mr. M. Bolt, Mr. J. Brink.*

311 **THEORIES OF PERSONALITY.*** F and S. An introduction to modern American and European theories concerning the psychological structure and dynamics of the human person. Prerequisites: 151, 212. *Mr. W. Sanderson.*

312 **PRINCIPLES OF PSYCHOLOGICAL MEASUREMENT.*** F and S. An introduction to the theoretical and practical issues, viewpoints, and techniques of psychological testing in the areas of intelligence and personality. Test construction, including those that measure academic achievement, is emphasized. Prerequisite: 250, Mathematics 205, or Mathematics 343. *Mr. A. Reynolds.*

314 **CLINICAL PSYCHOLOGY.** S. An introduction to the science, techniques, and art of employing psychological means to promote the welfare or mental health of a person. Prerequisites: 212, 311, and 312. *Mr. J. Benthem.*

315 **PRACTICUM IN A CLINICAL SETTING.** An introductory course in theoretical and applied psychotherapy, taught in a hospital setting, and appropriate for students interested in clinical and general psychology. This course deals cognitively and critically with various modes of psychotherapy from a Christian perspective, gives the student an acquaintance with a variety of mental hospital procedures, and offers the opportunity to begin in a minimal way and under supervision some direct experience with the disturbed. Prerequisites: junior-senior standing; departmental approval; 151, 212, and 311. *Mr. J. Benthem.*

322 **PERSPECTIVES OF PSYCHOLOGY.** S. In this course the purpose is to explore relationships of psychology to (or its involvement in) various issues in our culture, in such areas as literature, religion, art, or morality. Normally, in any given semester,

major emphasis will be focused on only one of these areas. Permission of the instructor is necessary to enroll in this course. Not offered 1976-77.

330 **PSYCHOLOGY OF EMOTION AND MOTIVATION.*** S. A thorough discussion of the psychological study of emotion and motivation. Recent research findings as well as theory formation in the areas of emotion and motivation are included. Prerequisite: Psychology 151. Two-hour laboratory each week. *Mr. G. Weaver.*

331 **PSYCHOLOGY OF SENSATION, PERCEPTION, AND COGNITION.*** F. A detailed examination of the functions of perception and thought in man. Various theories as well as current research trends will be discussed. Prerequisite: Psychology 151. *Mr. D. Snuttjer.*

332 **PSYCHOLOGY OF LEARNING PROCESSES.*** F. A presentation of empirical strategies and theory formation in the area of the psychology of learning. The importance of learning theory for psychology in general is stressed. Two-hour laboratory each week. Prerequisite: Psychology 151. *Mr. R. Terborg.*

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

395 **SENIOR SEMINAR ON ISSUES IN CONTEMPORARY PSYCHOLOGY.*** F. The preparation, presentation, and discussion of papers based on current psychological literature and empirical research. Open to seniors majoring in psychology. Prerequisite: 308. *Mr. M. Bolt.*

GRADUATE COURSES

510 **EDUCATIONAL MEASUREMENT.** This course provides a theoretical and practical background which will enable classroom teachers to construct or select tests for specific purposes. It is designed to enable teachers to use test scores wisely and effectively in the learning process. A major paper will require 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. *Staff.*

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. *Staff.*

512 **MENTAL HEALTH AND THE CLASSROOM.** An analysis of the mental health dimensions of education, emphasizing the developmental needs and adjustment challenges of students. Includes the influence of teacher behavior and school programs. *Staff.*

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110 **AGGRESSION AND SOCIAL CONFLICT.** This course will examine various theoretical approaches to the study of interpersonal aggression. Special consideration will be given to recent psychological research on the causes and consequences of human aggression. Attention will also be directed to the application of theory and research to contemporary social problems. The course will include readings, reports, discussions, films, lectures, and simulation games. Not recommended for psychology majors. *Mr. J. Brink and Mr. M. Bolt.*

150 **BRAIN AND BEHAVIOR.** Following a brief review of elementary principles in brain physiology, this course will examine relationships between some specific aspects of brain function and patterns of behavior (aggression, depression, love). Attention will be focused on examining several frontiers of research in physiological psychology through reading and evaluating journal articles. Each area of research will be applied to a discussion of ethical problems surrounding techniques and circumstances which alter brain functions (psychosurgery, drug usage, prolonged hunger). The course will progress to a consideration of several approaches to integrating an understanding of neural events with our experience of conscious voluntarily-directed behavior. Discussion of readings, papers, laboratory demonstration. Open to juniors and seniors. *Mr. G. Weaver.*

151 **COMPARATIVE PSYCHOLOGY: AN INTRODUCTION TO PSYCHOLOGICAL RESEARCH AND INSTRUMENTATION IN ANIMAL BEHAVIOR.** An introduction to research in the field of comparative psychology. In addition to becoming acquainted with various pieces of apparatus (mazes, Lashley jumping stands, shuttle boxes, automated Skinner boxes, etc.), students will carry out research in some of the following areas: punishment, reinforcement, discrimination

learning, avoidance learning, schedules of reinforcement, extinction, etc. Generally, most of the experimentation will be conducted with albino rats. This course will also reflect on 1. the extent to which it is appropriate for a Christian psychologist to experiment with animals (and possibly harm them or subject them to aversive stimulation), 2. the advantages of studying animal behavior, and 3. the limitations and pitfalls a psychologist should be aware of in generalizing from animal behavior to human behavior. Interested students who do not have afternoons free may be able to enroll if they talk to the instructor prior to registering for the course. Satisfies departmental concentrations. Prerequisite: one course from Psychology 250, 330, 332, or permission of instructor. *Mr. R. Terborg.*

152 **CHILDREN'S LANGUAGE DEVELOPMENT.** Although often taken for granted, the development of language in children is indeed a remarkable achievement. This course will consider: 1. the phonological, syntactic, and semantic aspects of normal language acquisition and development in the young child, and the various theories which seek to explain these developments; and, 2. deviations from normal development, as manifested in certain language and speech disabilities such as autism, aphasia, deafness, and mental retardation. Readings, lectures, films, and field trips will be utilized. Prerequisite: Psychology 204 or Speech 215. *Mr. R. Stouwie and Mr. M. Vande Guchte.*

153 **BIOFEEDBACK AND SELF CONTROL.** A study of recent advances in the theory and technology of biofeedback in the modification of biological and psychobiological functions. Topics to be covered will include such areas as treatment applications in psychophysiological disorders, control of brain wave activity, and autonomic nervous system control. Due to the embryonic development of this field most readings will be from professional journals. Each student will be required to do research and present a paper on a particular application of biofeedback technology. There will be limited exposure to and training in the use of biofeedback equipment dependent on its availability. Satisfies departmental concentrations. Prerequisite: Psychology 212 or permission of instructor. *Mr. J. Benthem.*

155 **THE PHYSIOLOGICAL BASIS OF BEHAVIOR.** This course provides students who

have a minimal background in psychology or biology with an understanding of how several aspects of human and animal behavior are partially controlled and coordinated by the nervous system. After an introduction to the basic structure and function of the nervous system is provided, the physiological basis of behavior in the following areas is investigated—sensory

functions, motor functions, sleep, motivation, learning, memory, organic behavior disorders, and drug effects. A demonstration laboratory experience is provided to introduce the techniques of conducting physiological research. Lectures, discussions, and examinations. Prerequisites: two courses in psychology including 151. Mr. D. Snuttjer.

Religion and theology

Professors **W. De Boer, D. Holwerda, J. Primus, G. Spykman (chairman), C. Vos, L. Vos

Associate Professors H. Hoeks, L. Sweetman

Assistant Professors D. Cooper, H. Vander Goot

THE DEPARTMENT offers a major in Religion and Theology, a major in Religion and Education, and a teaching minor in the Academic Study of Religions. To be eligible for the major programs a student must have completed either 103 or 108 with a minimum grade of C (2.0).

The program for the Religion and Theology concentration requires nine courses including 206, 207, 208, 301, 303, 308, and 395. An approved four-course sequence in another department is also required. The adviser for this program is the chairman.

The 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, 346, and 356. Two of these electives may be satisfied by Greek 205–206 (New Testament Greek) and one by an approved interim course. Students who plan to serve as directors of education in churches should plan to do graduate work in the field of Religion and Education. The adviser for this program is Mr. Louis Vos.

The teaching minor leading to certification in the Academic Study of Religions has been approved by the State of Michigan for a five-year provisional period beginning with the graduates of 1973. The nine-course group minor requires Religion and Theology 151, 305, 319, 390, and 395; Interdisciplinary 234; two courses from Art 231, 232, English 320, 321, History 201, 202, 203, 204, Sociology 210, 217, 311, Psychology 322; and two courses from Philosophy 204, 205, 207, 209 (or Education 304), Religion and Theology 206, 207, 208, 301, 308, 311, and 313 or other appropriate courses selected with the approval of the adviser for this program, Mr. Henry Hoeks.

The core requirements in religion and theology may be met by selecting one from the following courses in Biblical studies: 103, 108, 207, 208 327, and 328, and one from the following courses in Theological, Historical and Religious-cultural studies; 206, 301, 303, 304, 308, 311, and 312. Any departmental course except interims may be chosen by students electing a third core course in religion and theology.

151 **INTRODUCTION TO RELIGION STUDIES.** F. An introductory course appropriate to prospective teachers, and required of those students who wish to minor in the Academic Study of Religions. This course deals critically with views of the origin, nature, and function of religions as they are found in the disciplines of cultural anthropology, the history and literature of religion, the phenomenology of religion, the psychology of religion, and the sociology of religion. This course also includes a study of the relevant Supreme Court decisions, a consideration of the problem of objectivity, an introduction to alternative pedagogical approaches to the study of religions, and an exposure to materials and media appropriate to teaching religion studies. *Mr. H. Hoeks.*

BIBLICAL STUDIES

103 **BIBLICAL THEOLOGY.** F and S, core. A study of the unfolding of the history of redemption as set forth within the historical framework of the Old Testament, intertestamentary, and New Testament eras. Biblical books and Apocryphal literature are analyzed and the major themes of Scripture are explicated. Students may not take this course and either 107 or 108. Open only to freshmen and sophomores. *Staff.*

108 **NEW TESTAMENT BIBLICAL THEOLOGY.** F, core. A more complete coverage of the biblical theology of the New Testament than can be offered in 103. *Mr. D. Holwerda.*

207 **OLD TESTAMENT PROPHETICAL LITERATURE.** S, core. An intensive study of the place and role of the major and minor prophets in the Old Testament, the commentary they offer upon the history of redemption in Old Testament times, together with an exploration of their basic themes and their continuing relevance. Not open to freshmen. *Mr. C. Vos.*

208 **NEW TESTAMENT EPISTOLARY LITERATURE.** F, core. An intensive study of the place and role of the epistles in the canon of the New Testament, the doctrinal and ethical interpretations which these epistles give of the redemption portrayed in the Gospels, the light they shed on the early Christian Church, and their abiding relevance and significance. Not open to freshmen. *Mr. W. De Boer.*

302 **BIBLICAL ARCHAEOLOGY.*** S. A study of the pertinent archaeological data which

provide a background for or throw light upon the biblical narrative. Prerequisite: one course in Biblical Studies and junior or senior standing. *Mr. B. Van Elderen.*

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 who do not take 107. *Mr. C. Vos.*

328 **NEW TESTAMENT INTERPRETATION.*** S, core. An intensive study of the basic principles and methods of biblical interpretation developed in the context of the biblical-theological themes of the New Testament. Designed especially for departmental majors. Also open for core credit to juniors and seniors. *Mr. D. Holwerda.*

THEOLOGICAL STUDIES

206 **REFORMATION THEOLOGY.** F and S, core. A study of Christian doctrine as formulated in the Protestant Reformation and refined and elaborated by later Reformed theologians. Comparisons are drawn between the Reformed system and those of other branches of Christendom. Calvin's *Institutes of the Christian Religion* serve as a basic text. Not open to freshmen. *Staff.*

308 **CONTEMPORARY THEOLOGY.*** F, core. Selected writings of significant contemporary theologians are read and evaluated. Prerequisite: junior or senior standing. *Mr. D. Holwerda.*

312 **EARLY CHRISTIAN THEOLOGY.*** S, core. A study of the growth of the church towards self-conscious commitment to an articulation of its faith from the sub-apostolic age through St. Augustine. Development and growth of thought will be emphasized and selected writings of major theologians will be studied. Not offered 1976-77.

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

HISTORICAL STUDIES

303 **GENERAL CHURCH HISTORY.*** 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. *Mr. J. Primus.*

RELIGIO-CULTURAL STUDIES

Interdisciplinary 234 **THE CONTEMPORARY AMERICAN RELIGIOUS SITUATION** may be applied to certain concentrations in this department.

301 **CHRISTIANITY AND CULTURE** (Studies in Calvinism).* F and S, core. An historically-oriented study of the Reformed Christian tradition in the Western world—its origin and development, its basic concepts and life-perspectives, its cultural impact and contemporary relevance. Not open to freshmen. *Staff.*

311 **HISTORY OF CHRISTIAN SOCIAL THOUGHT.*** F, core. A study of the interrelation of Christian teaching and society. From the history of the Christian Church certain periods and movements are selected to demonstrate the interaction of Christian faith and social forces. Not offered 1976-77.

MISSIONS AND WORLD RELIGIONS

203 **THEOLOGY OF MISSION.** S. A survey of biblical material pertaining to mission. These materials are used in evaluating the contemporary problems of mission: i.e., *renascent non-Christian religions, ecumenism, mission in the ferment of social revolution.* *Staff.*

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

305 **WORLD RELIGIONS.*** F. An analytical and critical study of the 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. *Mr. L. Sweetman.*

RELIGION AND EDUCATION

319 **FOUNDATIONS OF RELIGIOUS EDUCATION.*** S. This course begins with an historical survey of informal and formal religious educational practices from early Hebrew times to those of contemporary North American homes, churches, and schools. The course proceeds to a consideration of some salient socio-cultural, theological, and developmental considerations involved in religious education. Satisfies the Calvin Seminary requirement in education. *Mr. H. Hoeks.*

390 **READING AND RESEARCH.*** F, I, S, full course or half course. (Minors in the Academic Study of Religion take the half course concurrently with 395). Prerequisite: permission of the chairman. *Staff.*

395 **SENIOR SEMINAR.*** F, full course for majors in Religion and Theology and for majors in Religion and Education; half course when taken concurrently with 390 as a half course for minors in the Academic Study of Religions. *Staff.*

JANUARY 1977 INTERIM

I10 **PLUGGING IN PEW POWER: THE MINISTRY OF THE PROFESSIONAL CHURCH EDUCATOR.** How does the professional church educator function in "equipping the saints for the work of the ministry, for building up the body of Christ" (Ephesians

4:12), and in motivating and sustaining the laity in their ministries where they sleep, work, study, or worship. What is the essential task of the local church, what are the essential elements of a church education program, and how does a church achieve a growth perspective? Includes a discussion of the vocational opportunities for a professional church educator and the necessary academic preparation. *Mr. Robert S. Hough.*

I11 THE STORY OF THE BIBLE. A study of how we got our Bible, concentrating on the areas of manuscripts, transmission of the text, canon, and translations. The course will focus on the Bible as a book, on its history, rather than on the understanding of the contents of the Bible. Readings, papers, and class presentations will be required. *Mr. L. Vos.*

I12 FIDDLERS ON OUR ROOF: JEWS IN AMERICA. A survey and analysis of the American Jewish community. Attention will be given to the origin and development of the three main religious divisions of American Judaism: Orthodox, Conservative, and Reform, as well as to Reconstructionism and Zionism. An attempt will be made to assess the reciprocal influences between Judaism and American culture. Spe-

cial attention will be given to contemporary problems and trends. Lectures, discussions, books, articles, films, student papers, and guest speakers will be utilized. *Mr. J. Primus.*

I50 THE BIBLE AND ETHICS IN CONTEMPORARY THEOLOGY. A study of how the Bible speaks to ethical issues in the context of twentieth century theological developments. The course will explore, first, the nature and focus of the Scriptures as Word of God. Secondly, it will evaluate various current methods of interpreting the Bible. Thirdly, it will critically analyze different schools of theological thought in terms of how they relate Scripture to ethical problems. Finally, it will seek to develop a Biblically-Reformed approach to personal and social ethics. The course will be conducted at the Institute for Christian Studies in Toronto, taught jointly with James Olthuis. Format: expanded seminar style, with individual and group projects. Methods: selected readings from contemporary theologians and ethicists, lectures, student reports and class discussions, issuing in a culminating course paper. Fee of approximately \$150. Prerequisite: permission of instructor. *Mr. G. Spykman.*

Sociology

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

STUDENTS MUST COMPLETE 151 with a minimum grade of C (2.0) to be eligible for admission to the major program. A concentration in sociology requires 151, 318, 320, and six additional courses, excluding 210, 300, and 301. One interim course in sociology may be included among the additional courses. If possible, 318 and 320 should be taken during the junior year. 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 core requirement in sociology may be met by 151 or 217. Sociology 210, 311, and 217 may be a part of the teaching minor in the academic study of religions.

151 SOCIOLOGICAL PRINCIPLES AND PERSPECTIVE. F and S, core. A general introduction to the discipline. Provides a brief theoretical and conceptual grasp of sociology as a body of knowledge dealing with group relationships as these affect both the individual and society. An attempt is made

to articulate this knowledge and to demonstrate its use by showing how a sociological perspective offers a rational interpretation of issues current in our society. *Staff.*

210 PHYSICAL ANTHROPOLOGY. F and S. A critical analysis and evaluation of the areas

of primate paleontology, human variation, and prehistoric archaeology. *Mr. D. Wilson.*

217 SOCIAL ANTHROPOLOGY. F and S, core. A study of the historical trends in anthropology that have led to its present day perspective. The concepts of functionalism and cultural relativism are examined and evaluated. The course surveys various cultural patterns around the world. *Mr. D. Wilson, Mr. P. De Jong.*

300 HISTORY AND THEORY OF SOCIAL WELFARE AND SOCIAL WORK. F. A study of the social, cultural, political, and economic factors in social welfare. The ways social welfare approaches social problems and social change are discussed. An analysis of the trends in social work and the issues involved in its various fields. *Mr. D. Smalligan.*

301 SOCIAL WORK PRACTICE. S. Introduction to social work techniques and the strategies of intervention in problem solving. Basic social work concepts and their application in practice are stressed. Prerequisite: 300 and, if possible, Speech 240 and Psychology 311. *Mr. D. Smalligan.*

302 URBAN SOCIOLOGY AND COMMUNITY ORGANIZATION.* F and S. A descriptive and theoretical analysis of urban society and urban sub-communities. The emphasis is on urban processes and problems and sub-cultures within the city as well as on such contemporary issues as urban renewal and planning. *Mr. H. Holstege, Mr. R. VanderKooi.*

303 CHILD WELFARE AND FAMILY SERVICES.* F and S. A study of social policy and service delivery in child welfare and family service agencies. Major topics include: a history of child welfare and family service policy in Europe and North America and the factors causing changes in these policies; a description and evaluation of the contemporary service delivery system and treatment methods; a study of unmet needs and present trends; and a sociological analysis of the relationship between the family, courts, politics, and contemporary American society. Prerequisites: 300 and 301 or the permission of the instructor. *Mr. D. Smalligan.*

304 THE FAMILY.* F and S. An intensive culturally comparative and historical analysis of the family as an institution. The contemporary courtship, marriage, and di-

voice patterns of the American family are also discussed. *Mr. H. Holstege.*

306 SOCIOLOGY OF DEVIANCE.* F and S. An analysis of deviant behavior: its causes, manifestations, prevention, and programs of control. Special attention is given to the role of social norms in generating as well as controlling deviance. Emphasis is put on ways in which social structures generate and label deviance. Implications are drawn for various institutions, particularly the school and the church. *Mr. T. Rottman, Mr. R. VanderKooi.*

308 POPULATION AND SOCIETY.* F. Introduction to demographic analysis of society. Includes a consideration of the major demographic theories of population growth and how these contribute to an understanding of population explosion; review of how the socio-cultural dimension of human society affects major sources of population growth: fertility, mortality, migration, and how variations in these reciprocally affect society; and analysis of causes and consequences of population size, distribution, and composition for human society. *Mr. R. Rice.* Not offered 1976-77.

309 SOCIOLOGY OF EDUCATION.* S. A study of education as a social institution and the school as an organization. Emphasis is on discussing the functions of education for society and the effects of society on education and schools. The school class as a special system is also analyzed with special consideration given to the role of the teacher. Prerequisite: 151 or permission of the chairman. *Mr. G. De Blaeij.*

310 SOCIAL PSYCHOLOGY.* F and S. Human behavior as a consequence of man's psychological make-up and his socio-cultural environment. Attention is given to social interaction as it occurs in small group settings. Attention is also given to theoretical frameworks emphasizing self-concept and role playing. Students may not receive credit for this course and Psychology 310. Prerequisite: 151, Psychology 151, or permission of the chairman. *Mr. G. De Blaeij.*

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 na-

GRADUATE COURSES

501 SCHOOL IN COMMUNITY. A study of the reciprocal relationship between the school and the community. Particular attention is paid to the interrelationship between the school and religious, familial, political, and economic institutions. Satisfies context of education requirement in education and psychology. *Staff.*

JANUARY 1977 INTERIM

I10 CITY LIFE. An examination of the city and its human uses, good and bad. There is an overall negative attitude on the part of America's people, including its intellectuals, toward the city. Sociologists describe the city as a "heterogeneous and concentrated population," its social characteristics are said to include "anonymity, superficiality, interaction based on monetary motives" and other similarly negative characteristics. The negative expectations that exist often lead to negative results. Middle class people desert the city and life there becomes economically poorer and even more dangerous. On the other hand there is much ethnically, religiously, educationally, and occupationally, that makes the city valuable. There is much positive human interaction which can be experienced in the neighborhood and downtown. The very density and heterogeneity of the city provide its assets and positive insights into mankind. This course will include a required, three-day bus tour of Chicago and a Grand Rapids experiment as well as a short paper. Readings and class presentations. Satisfies departmental concentrations. *Mr. R. Vander Kooi.*

I11 ORGANIZED CRIME. This course is about organized crime in the United States. The history of organized crime will be discussed along with an emphasis on the relationship of organized crime to contemporary American institutions. The service that organized crime provides in the areas of gambling, illegal drugs, and illicit sex will be discussed. There will also be an examination of the corrupting influence of organized crime on police departments, judges, and politicians. There will, in addition, be an emphasis on the functional and dysfunctional aspects of this type of organizational behavior on American society and an examination of the response that the Christian community should present.

ture of the community as a human ecological organization and as a structured system of status and power. Man's utopian dreams of ideal communities are contrasted with the types of communities actually found in primitive, agrarian, and industrial societies. *Mr. W. Smit.*

314 CONTEMPORARY SOCIAL PROBLEMS: CULTURAL AND SOCIAL RESPONSES TO DEATH AND DYING.* F. This course begins with a discussion of various theoretical orientations to the study of social problems generally. It then relates these theories to the particular problems associated with death and dying from the perspectives of contemporary culture and society, of those close to the dying person, and of the dying person himself. Special attention will be given to the extent to which the conceptions and customs surrounding death and dying are functional in their own terms and compatible with biblical norms. *Mr. T. Rottman.*

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

320 SOCIOLOGICAL RESEARCH.* S. An assessment of the nature of the research process as applied to the study of theoretical problems in social science. Guides the student in designing and conducting a research project, involving definition of the problem, consideration of appropriate methods, and the collection and analysis of data. Prerequisite: 151 and 318. *Mr. P. De Jong.*

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.*

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

There will be a heavy emphasis on reading many of the excellent books recently published about organized crime. Satisfies departmental concentrations. *Mr. H. Holstege.*

I12 COURTS AND CORRECTIONS. This course is an introduction to the juvenile and adult criminal justice system. The steps in the process will be studied, i.e., arrest, pretrial, trial, probation, prison, and parole. Attention is given to the roles of the persons working in the criminal justice system. Current programs of diversion, rehabilitation, and alternatives to incarceration will be studied. Satisfies departmental concentrations. *Mr. D. Smalligan.*

I13 POLICE ROLES: A STUDY OF DIVERSE EXPECTATIONS. An analysis of police roles, especially strains, conflicts, and diversities as brought about by historically changing and contemporarily diverse social expectations. An attempt will be made to clarify the legitimate roles of the policeman by considering such basic questions as the nature of law and the role of enforcement in promoting social justice. Major attention will be given to the hazards of grounding police work on ideological positions, be they political, economic, racial, or whatever. Consideration will be given to a number of specific roles already identified in the literature, such as Dirty Worker, Citizen's Friend, Garrison State Enforcer, Promotor of Anarchy by Default, Guardian and Model of Morality, Community Servant, Referee, Judge, Delegated Authority to Control Bad Behavior, Establishment Lackey, Hypocritical Ally of Criminal Underworld, or Occupational Criminal. Attention must be paid not only to the varying perceptions of what police do and don't do but of what they should do and shouldn't do. Thus, ethical and moral considerations necessarily apply. Practically, this will entail a discussion of police selection procedures and police careers. Lectures and assigned readings will be supplemented by classroom presentations by law enforcement personnel. Field observations will also be required. Satisfies departmental concentrations. *Mr. T. Rottman.*

I14 THE BICYCLE AS A MEANS OF TRANSPORTATION. On a world-wide basis the bicycle remains the number one means of

urban transportation. This course will examine the feasibility of making bicycle transportation a major component of the transportation system of the United States today both with respect to commuting and distance traveling. The problem of safety, bicycle security, bikeways, and legislation are examined. Other topics will include the social history of the bicycle and bicycle economics. *Mr. D. Wilson.*

I15 THE PLANNED FAMILY. The course begins with an introduction to the notion of the planned family. This involves a look at its historical development, the current family planning movement, survey findings on attitudes toward family planning, and various ethical and religious views. The major part of the course is structured around selected contemporary issues related to family planning, such as contraception, abortion, sterilization, artificial insemination, genetic consequences, voluntary childlessness, adoption, and foster homes. Ethical, religious, legal, social, and psychological considerations are explored for each selected issue. Considerable reading is required and small-group discussions are held regularly. Films and other media are used and a number of guest speakers from the community are asked to present various sides of the issues. *Mr. W. Smit.*

I50 SEMINAR ON CHANGING SEX ROLES IN MODERN SOCIETY. The course aims for a serious understanding of contemporary female and male roles. Biological bases for sex roles, the origin of sex roles, and the changing character of sex roles in contemporary America are examined. The primary focus of the course is on explaining why sex roles are changing today and where this change is likely to lead. Throughout, particular attention is paid to evaluating these changes from a biblical perspective as well as attempting to develop an ideal, biblically based model of male and female roles. The course will be taught as a seminar with presentations by the instructor, students in the class, and guest lecturers. Films will be shown. Students will be responsible for one main project, the chief aspects of which they will present to other members of the seminar. Prerequisite: Sociology 151. Satisfies departmental concentrations. *Mr. P. Defjong.*

Spanish

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

Associate Professor D. Dunbar

*Assistant Professors **E. Cortina, B. Siebring*

Instructor E. Greenway

Assistant Instructor S. Ariza

STUDENTS may declare for a program of concentration in Spanish after having completed two units of college Spanish with a minimum grade of C (2.0). The program of concentration includes eight regular courses and an interim. The regular courses are 201-202, 217-218, 303-304 or 307-308, and two courses chosen from 305, 306, 321, 322. The teacher education major consists of 201, 202, 217, 218, 321, 322, and three from 303, 304, 305, 306, 307, 308, 309, 310. The minor program for prospective secondary teachers requires 201, 202, 217, 218, 321, and 322. Programs for students beginning Spanish in college, including prospective secondary teachers, should be worked out with the chairman or the program adviser. Cognates in another foreign language through the 200-level, European history, English literature, philosophy, history of music, or history of art are recommended. A year-abroad program is available in Spain. All courses above 102 meet core requirements in foreign language; all courses above 217, except for 321 and 322, meet core requirements in the fine arts.

101 **ELEMENTARY SPANISH. F.** An introductory course in the use and comprehension of oral and written Spanish. *Staff.*

102 **ELEMENTARY SPANISH. S.** Continuation of Spanish 101. *Staff.*

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

201 **INTERMEDIATE SPANISH. F.** Review of essential grammatical structures and further training in spoken and written Spanish. Readings from significant Spanish authors. Prerequisites: 101 and 102 or their equivalent. *Staff.*

202 **INTERMEDIATE SPANISH. S.** Continuation of 201. *Staff.*

321 **ADVANCED SPANISH I.* F.** A course for the advanced student who wishes to improve his facility in the language to an exceptional degree, or who is preparing for graduate study or for the teaching of Spanish. A variety of exercises and compositions of progressive difficulty are designed to enable the student to increase his understanding and skill in reading, writing, understanding, and speaking idiomatic Spanish. Thorough study of advanced grammar, idiomatic expressions, and vocabulary. Conducted in Spanish. Prerequisite: 202 or equivalent. *Mrs. E. Cortina.*

322 **ADVANCED SPANISH II.* S.** A continuation of 321, with additional extensive work on independent oral expression and written composition. A major paper in Spanish is required. Conducted in Spanish. Prerequisite: 321 or equivalent. *Staff.*

LITERATURE

217 **READINGS IN SPANISH AND LATIN AMERICAN LITERATURE. F.** An introduction to the major writers and movements in the history of the Spanish literature from the Middle Ages to the present day. The first semester deals with the literature of Spain, while the second semester deals with the literature of Latin America. Lectures,

readings, and reports. Conducted in Spanish. Prerequisite: 202. *Mrs. S. Ariza.*

218 READINGS IN SPANISH AND LATIN AMERICAN LITERATURE. S. Continuation of 217. *Mrs. S. Ariza.*

303 THE SPANISH NOVEL.* F. A study of the Spanish novel from *La Celestina* to the present. Reading and interpretation of key chapters in Spain's outstanding novels as well as complete works. A study is made of the chief characteristics of the various types of novels. Prerequisite: 202 or equivalent. Conducted in Spanish. Not offered 1976-77.

304 THE SPANISH NOVEL.* F odd years, core. A continuation of 303. Not offered 1976-77.

305 SPANISH AND LATIN AMERICAN POETRY.* F. A study of the history and characteristics of Spanish poetry by means of extensive readings and detailed examination of major poets. Special emphasis will be placed on the themes, forms, and techniques of poets of the last two centuries. Conducted in Spanish. Not offered 1976-77.

306 SPANISH AND LATIN AMERICAN POETRY.* S. A study of the history and characteristics of Latin American poetry, by means of extensive readings and detailed examination of major poets. Special emphasis will be placed on the themes, forms, and techniques of poets from the Modernist generation to the present day. Conducted in Spanish. Not offered 1976-77.

307 THE LATIN-AMERICAN NOVEL.* F even years. A study of the novels of Latin America with particular emphasis on the last two centuries. Attention will be paid to the conditions that gave rise to the different types of novels, as well as to the intrinsic literary value of the novels themselves. Conducted in Spanish. *Mr. D. Dunbar.*

308 THE LATIN-AMERICAN NOVEL.* S even years. A continuation of 307. *Mr. D. Dunbar.*

309 THE SPANISH DRAMA.* F even years. A study of the dramatic expression of Spain's Golden Age of literature. Particular emphasis will be placed on the drama of Lope de Vega, Tirso de Molina, Calderón, and Alarcón. Conducted in Spanish. Prerequisite: 202 or equivalent. Not offered 1976-77.

310 THE SPANISH DRAMA.* S even years. A study of the dramatic expression of Echegaray, Benavente, Lorca, Casona, and Buere Vallejo. Conducted in Spanish. Prerequisite: Spanish 309. Not offered 1976-77.

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

395 SEMINAR.*

JANUARY 1977 INTERIM

150 SPANISH INTERIM ABROAD. Five weeks in Spain, with a study program of Spanish language and culture at the University of Granada. Lectures by Spanish professors on selected topics in Spanish culture, three to four hours daily of formal class work, excursions to monuments and museums, as well as to neighboring cities. Five days of independent study and travel at the end of the course. A special fee of approximately \$750 will be charged. Prerequisites: Spanish 201 or the equivalent, and approval of instructor. Satisfies departmental concentrations. *Mrs. S. Ariza.*

151 ENSAYOS DE LA ACTUALIDAD. A critical study of current essays written in Spanish, particularly as they deal with contemporary social issues. The dozen essays to be studied range from those which bear the restrained tone of the philosopher to those which present the openly provocative challenge of the editorial page. Discussions and conversation as prompted by the readings. Prerequisite: ability to read and converse in Spanish. *Mrs. E. Cortina.*

Speech

Professors M. Berghuis, A. Noteboom, T. Ozinga, M. Vande Guchte (chairman)

Associate Professor D. Nykamp.

Assistant Professors E. Boevé, D. Holquist, J. Korf.

PREREQUISITE TO A MAJOR is a minimum average of C (2.0) in one and one-half speech courses, one of which must be from the courses offered in Public Address. The major requires 200, 203, an interim, and five and one-half additional courses selected in consultation with a departmental adviser. Recommended cognates for students interested in oral interpretation and drama include aesthetics, history of art, introduction to musical literature, Shakespeare, and non-Shakespearean drama of the Renaissance; for those interested in speech education or speech correction, child psychology, psychology of exceptional children, descriptive statistics for the social sciences, and anatomy and physiology; for those interested in public address, political behavior, psychology of emotion and motivation, social psychology, and logic.

The departmental honors program requires honors registration in three speech courses other than 100 and 200 and the completion of 390 and 395 beyond the minimum eight and a half course major.

A secondary school teaching major consists of 200, 203, 211, 215, 219, 230, 240 plus two and one-half other courses. The elementary school teaching major includes 203, 214, 215, 219, plus five other courses. A six-course secondary school teaching minor should include 200, 203, 211, 215, 219, 230, or 240, plus a half-course elective. The elementary school minor is 203, 214, 215, 219, and two electives.

The core requirements in spoken rhetoric may be met by 100; 214, if the student is in an elementary education program; 240; 200; or by an examination, which presupposes formal and practical speech training in high school. The fine arts core requirement may be met by 203, 219, 304, 317, 318, 325, and 326.

COMMUNICATION AND PUBLIC ADDRESS

100 FUNDAMENTALS OF ORAL RHETORIC. F and S, half course. The primary aim of this course is to increase competence in oral communication, which includes a number of ways through which persons send and receive messages. Designated sections emphasize public speaking while others use a variety of approaches. Students in elementary teacher education programs should take 214 instead of this course. *Staff.*

200 ADVANCED ORAL RHETORIC. F and S. Composition and presentation of types of speeches, readings in rhetorical theory and criticism of selected contemporary speeches, types of discussion, and parliamentary law. Prerequisite: 100 or equivalent. *Mr. M. Berghuis.*

211 DEBATE. F, half course. The forms and procedures of academic debate. Knowledge and competence in debating, judging, and coaching are course goals. Designed for debaters and prospective coaches. *Mr. J. Korf.*

230 MASS COMMUNICATION. F. Examination of television, radio, film, newspapers, magazines, and books. Emphasis on why and how mass media report events and the resultant effects on public attitude formation and change. Major topics include history of mass media; control and method of control of media; competition for the mass market; extent and quality of news coverage; and effects of mass media on society. *Mr. T. Ozinga.*

240 GROUP COMMUNICATION. F and S. Communication in the small group. Major topics include role development, cohesive-

ness, and group norms. Emphasis is on the task oriented small group. Participation in experimental group situations, reading in group communication theory, and analysis of group communication are required. *Mr. D. Nykamp.*

250 SEMANTICS. S. Study of verbal and nonverbal symbols used in communication. Primary emphasis is on the effect of symbols. Major topics include relationships between symbols and referents, and problems in human communication. *Mr. D. Nykamp.*

305 PERSUASION.* S. Communication as influence at intrapersonal, interpersonal, group, mass, and cultural communication levels. Emphasis on increased understanding and competence. Prerequisite: 100 or equivalent. *Mr. T. Ozinga.*

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

325 HISTORY OF RHETORICAL THEORY.* S, core. Major issues in the history of oral rhetoric and communication. Classical, medieval, and early modern theories will be compared to twentieth century approaches. Theorists studied include Plato, Aristotle, Bacon, McLuhan, Burke, Goffman, and representatives of various contemporary schools. Seminar papers and discussions. Not offered 1976-77.

326 HISTORY OF PUBLIC ADDRESS.* S, core. Significant speeches are analyzed as communication arising out of a dynamic historical context. The role of speakers in the movements and controversies of their day. Included are orators of the Bible such as Moses and Paul; speakers of Greece and Rome, such as Demosthenes and Cicero; preachers such as Chrysostom, Luther, Calvin, Beecher, Fosdick, Marshall, and Graham; political spokesmen such as Webster, Lincoln, Roosevelt, Hitler, and Churchill; and speakers for social reform such as Susan B. Anthony and Martin Luther King, Jr. Not offered 1976-77.

SPEECH EDUCATION AND SPEECH CORRECTION

214 SPEECH FOR THE ELEMENTARY TEACHER. F and S. Designed to familiarize the prospective teacher with the speech arts

used in the elementary classroom and to improve the prospective teacher's use of voice and articulation. *Staff.*

215 PRINCIPLES OF SPEECH CORRECTION. F and S. A study of the child's speech development and the types of speech defects that may occur. The course is designed to help the classroom teacher understand and correct minor defects and to handle speech improvement in the classroom. The course will also serve to introduce the student to the profession of speech pathology and audiology. *Mr. M. Vande Guchte.*

307 FUNDAMENTALS OF SPEECH PATHOLOGY. S. 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. F. 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.*

ORAL INTERPRETATION AND DRAMA

203 INTERPRETATIVE READING. F and S, core. A study of the history, principles, and techniques of interpretation. Analysis and oral interpretation of prose, poetry, and drama. *Mr. D. Holquist, Mrs. A. Noteboom.*

219 PRINCIPLES OF DRAMATIC PRODUCTIONS. 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 coach, attention will be given to the technical aspects of production. Students will be trained in acting and in directing by means of classroom presentations of dramatic scenes. *Mr. J. Korf.*

220 THESPIAN PRODUCTIONS. Half course for the year. Membership in the Thespian group is limited and is determined annually by tryout. The members will be given training in the various practical aspects of the production of drama. Students may participate more than one year. *Mrs. E. Boevé.*

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

317 **HISTORY OF THEATER AND DRAMA.*** S, core. A historical and analytical study of theater and drama from its origins to 1800. *Mrs. E. Boevé.*

318 **HISTORY OF THEATER AND DRAMA.*** S, core. A continuation of 317. An historical and analytical study of theater and drama from 1800 to the present. *Mrs. E. Boevé.* Not offered 1976-77.

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

395 **SEMINAR.*** Research of an approved topic or topics under the supervision of a

member of the department, and presentation of the results in a departmental seminar. Prerequisite: permission of the department. *Staff.*

JANUARY 1977 INTERIM

I10 **COMMUNICATION IN THE ORGANIZATION.** Communication dynamics and patterns in major types of organizations will be explored. Types include business, political, educational, religious, and community organizations. Representative contemporary organizations will be studied as a supplement to the more general theory. The course itself will be run largely with the class functioning as a simulated organization. *Mr. D. Nykamp.*



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Administration

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John H. Hiemenga, M.A., B.D., 1919–25
 Johannes Broene, M.A., 1925–30
 Rienk B. Kuiper, M.A., B.D., 1930–33
 Ralph Stob, Ph.D., 1933–39
 Johannes Broene, M.A., 1939–40
 Henry Schultze, B.D., 1940–51
 William Spoelhof, Ph.D., L.L.D., Litt. D., L.H.D., 1951–1976
 Anthony J. Diekema, M.A., Ph.D., 1976–

ACADEMIC

John Vanden Berg, Ph.D., *Vice President for Academic Affairs, Dean of the College*
 Charles J. Miller, Ph.D., *Assistant Dean for Academic Affairs, Director of Graduate Studies*
 Marvin Monsma, M.A.L.S., *Director of the Library*
 *Herbert J. Brinks, Ph.D., *Curator of the Colonial Origins Collection*
 Madge Strikwerda, M.A., *Director of Teacher Certification and Placement*

BUSINESS AND COLLEGE RELATIONS

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James P. Hoekenga, M.A., *Executive Director of College and Alumni Relations*
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A. Dean Van Bruggen, M.B.A., *Manager of the College and Seminary Stores*
Gordon Lewis, Operations Manager and Director of Administrative Computer Services
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STUDENT PERSONNEL SERVICES

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Ernest Van Vugt, M.A., *Registrar*
Donald Lautenbach, M.A., *Director of Admissions*
Wayne Kenneth Hubers, M.A., *Director of Scholarships and Financial Aid*
Robert Van Stright, B.A., *Financial Aid Assistant*
Michael Lee De Young, B.A., *Admissions Counselor*
Peter M. Harkema, B.A., *Admissions Counselor*
Rosemary Van Noord, B.A., *Admissions Counselor*

STUDENT AFFAIRS

Bernard E. Pekelder, B.D., M.A., *Vice President for Student Affairs, College Chaplain*
Donald L. Boender, M.A., *Dean of Men*
Jeanette Bult De Jong, M.Ed., *Dean of Women*
William K. Stob, B.D., Th.M., Ed.D., *Dean of Student Life*
Larry Teitsma, M.Div., M.A., Ph.D., *Director and Counselor in the Broene Center*
George W. Zuiderveen, M.A., *Counselor in the Broene Center*
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Reuben R. Smartt, M.A., *Assistant Director of Upward Board*
William B. Monsma, Ph.D., *Chaplain's Assistant*
Harry Faber, *Safety and Security Officer*
John Rupke, M.D., *College Physician*
Clarence Beets, M.D., *College Physician*
Annette Steenwyk, R.N., *College Nurse*
Robert Dale and Linda Sue Bosch, *Resident Directors, Rooks-Van Dellen Halls*
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Timothy Sybrant and Krista Sue Schaafsma, *Resident Directors, Knollcrest East Halls*

Committees

ACADEMIC AFFAIRS COMMITTEES

Academic Standards Committee, T. Dirkse (1978), J. Hamersma (1978, chairman), G. Harper (1979), D. Lautenbach, G. Van Zwalenberg (1977), E. Van Vugt (secretary), and one student.

College-Seminary Library Committee, C. Bult, J. Beebe (1977), B. De Vries (1978, chairman), A. Diekema, M. Monsma (secretary), G. Spykman (1979), one college student, and five representatives from the seminary.

Computer Services Committee, R. Griffioen (1977), L. Ippel, L. Nyhoff (1978), J. Penning (1979), J. Vanden Berg, R. Wevers (1978, chairman).

Educational Policy Committee, W. Bratt (1977), P. De Vos (1978), A. Diekema, T. Rottman (1978), E. Runner (1979), J. Vanden Berg (chairman), J. Van Zytveld (1977), and one student.

Interim Term Committee, D. Jellema (1977), C. Miller (secretary), A. Otten (1978), G. Van Harn (1979, chairman), M. Walters (1979), P. Zwier (1978), and one student.

Professional Programs Committee, M. Berghuis (1977, chairman), A. Gebben (1978), K. Kuipers (1979), P. Oppewall (1978), D. Smalligan (1977), J. Vanden Berg, E. Van Vugt (secretary), and one student.

Teacher Education Committee, P. Boonstra (1978, chairman), S. Greydanus (1977), W. Hendricks (1978), H. Hoeks (1979), C. Miller (secretary), D. Oppewal (1977), P. Tigchelaar (1979), and a student enrolled in a teacher education program.

BUSINESS AFFAIRS COMMITTEES

College Store Committee, H. Holstege (1978, chairman), S. Lambers (1977), D. Van Bruggen (secretary), and two students.

Special Projects Committee, E. Dykema (1979), H. Faber, C. Menninga (1977), C. Miller (secretary), M. Zuidema (1978, chairman), and one student.

COLLEGE AFFAIRS COMMITTEES

College Relations Committee, E. Boevé (1977), K. Bootsma, A. Diekema, H. Geerdes (1978), J. Hoekenga (secretary), J. Primus (1979, chairman), P. Vande Guchte, one student, and one member of the Board of Trustees.

Priorities Committee, K. Bootsma, J. De Borst (1977), H. De Wit, A. Diekema, D. Holwerda (1978), H. Ippel (1978, chairman), B. Pekelder, C. Sinke (1979), J. Vanden Berg, P. Vande Guchte, two members of the Board of Trustees, and the Student Body President.

Special Events Committee, R. Bolt (1977), H. Bonzelaar (1978, co-chairman), G. Huisman (1979), J. Korf (1979), A. Kromminga (1978), C. Stapert (1978), R. Stouwie (1977), J. Tiemstra (1977), D. Tuuk (1978), M. Vande Guchte (co-chairman), W. Van Doorne (1977), G. Weaver (1979), and one student.

CULTURAL AFFAIRS COORDINATING COUNCIL AND COMMITTEES

Cultural Affairs Coordinating Council, Ervina Boevé (1979), F. Roberts (1977), H. Slenk (1978, chairman), W. Stob (secretary), two students, non-voting representatives from Communications Board, Film Arts Committee, Fine Arts Guild, Homecoming Committee, Lectures Committee.

Communications Board, K. Kuiper (1977, *Dialogue*), A. Noteboom (1978, secretary), T. Ozinga (1977, *Chimes*), L. Van Poolen (1977, *WCAL*), H. Van Till (1977, *Prism*), five students (one as chairman).

Film Arts Committee, H. Baron (1977, mentor), I. Kroese (1977), L. Sweetman (1978), four students (one as chairman).

Fine Arts Guild, S. Wiersma (1977, mentor), the chairman and the business manager of the Fine Arts Guild, a representative from each of the guilds.

Homecoming Committee, W. De Boer (1978), J. Hoekenga (secretary), W. Stob, three students (one as chairman), one representative from the Alumni Board.

Lectures Committee, R. Mouw (1977, mentor), K. Piers (1979), three students (one as chairman).

FACULTY AFFAIRS COMMITTEES

Committee on Committees, W. De Boer (1977), J. De Borst (1977), A. Diekema (chairman), R. Griffioen (1977), H. Ten Harmsel (1977), E. Van Kley (1977), one student.

Professional Status Committee, N. Beversluis (1977), A. Diekema (chairman), V. Ehlers (1978), B. Klooster (1979), J. Lamse (1977), A. Plantinga (1979), J. Vanden Berg, C. Walhout (1978).

STUDENT AFFAIRS COMMITTEES

Athletics Committee, G. Harris (1978), R. Honderd (1979), S. Leestma (1978, chairman), D. Wilson (1977), two students.

Chapel Committee, W. Lagerwey (1979), L. Vos (1978, chairman), B. Pekelder (secretary), six students.

Resident Services Committee, D. Boender, J. De Jong, H. De Wit, D. Hageman (1978, secretary), four students (one as chairman).

Scholarships and Aids Committee, H. Broene (1977), W. Hubers (secretary), T. Jager (1979), D. Lautenbach, C. Miller, R. Otten (1978), R. Tiemersma (1978, chairman), two students.

Student Conduct Committee, P. De Jong (1979), E. Greenway (1979), D. Nykamp (1977), B. Pekelder (secretary), B. Ten Broek (1978, chairman), four students.

Student Development Committee, K. Blok (1977), D. Boender, J. De Beer (1978, chairman) J. De Jong, T. Hoeksema (1979), B. Pekelder (secretary), W. Sanderson (1978), W. Stob, L. Teitsma, two students.

Student Life Committee, W. Joosse (1977), W. Stob (secretary), J. Timmer (1978, chairman), C. Vos (1979), three students.

All-Campus Discipline Committee, R. Albers (1979), H. Bengelink (1977, chairman), G. De Blaey (1978), J. Kuipers (1978), R. Terborg (1979), D. Zuidema (1977).

CONTINUING AD HOC COMMITTEES

Faculty Organization Study Committee, A. Diekema, V. Ehlers (chairman), C. Miller (secretary), C. Orlebeke, C. Sinke, J. Vanden Berg, J. Westra.

Governing Board, Calvin Center for Christian Scholarship, P. De Jong (1978), A. Diekema, R. Griffioen (1977), C. Plantinga, H. Rienstra (1979, chairman), J. Vanden Berg, N. Wolterstorff (1979), a representative of the Board of Trustees, and a representative of the Alumni Board.

DEPARTMENTAL AND DIVISIONAL ORGANIZATION

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

Art (II), Edgar Boevé, *chairman*
Biology (III), Al Bratt, *chairman*
Chemistry (III), 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), Lambert Van Poolen, *acting chairman*
English (II), Henrietta Ten Harmsel, *chairman*
Romance Languages (II), Arthur Otten, *chairman*
Germanic Languages (II), James Lamse, *chairman*
History (IV), Edwin Van Kley, *chairman*
Mathematics (III), Carl Sinke, *chairman*
Music (II), Dale Topp, *chairman*
Philosophy (I), Clifton Orlebeke, *chairman*
Physical Education (I), Marvin Zuidema, *chairman*
Political Science (IV), Johan Westra, *chairman*
Psychology (IV), William Sanderson, *chairman*
Religion and Theology (I), Gordon Spykman, *chairman*
Sociology (IV), Henry Holstege, *chairman*
Speech (II), Marten Vande Guchte, *chairman*

Faculty

Faculty members on leave of absence for the 1975-76 academic year are indicated by a dagger (†), those on leave for the first semester are indicated by an asterisk (*), and those on leave for the second semester are indicated by double asterisks (**).

EMERITI

- Josephine Baker, M.A., M.A.L.S.
Librarian, Emerita
- 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 De Bie, M.A.
Assistant Professor of History, Emeritus
- James John DeJonge, M.S., M.Mus.
Associate Professor of Music, Emeritus
- Harry G. Dekker, M.S.
Registrar, Emeritus
Professor of Chemistry, Emeritus
- Bernard Jay Fridsma, Sr., M.A., Ph.D.
Professor of Germanic Languages, Emeritus
- Winifred H. Holkeboer, M.A.
Associate Professor of English, Emerita
- William Harry Jellema, M.A., Ph.D.
Professor of Philosophy, Emeritus
- Martin Karsten, M.S.
Associate Professor of Biology, Emeritus
- Cornelius A. Plantinga, M.A., M.Ed., Ph.D.
Professor of Psychology, Emeritus
- Tunis Prins, M.A., Ph.D.
Professor of Philosophy, Emeritus
- William Thomas Radius, M.A., Ph.D.
Professor of Classical Languages, Emeritus
- Henry J. Ryskamp, M.A., Ph.D.
Dean of the College, Emeritus
Professor of Economics and Sociology, Emeritus
- Gertrude Slingerland, M.A.
Assistant Professor of English, Emerita
- William Spoelhof, M.A., Ph.D., L.L.D., Litt.D., D.H.L.
President, Emeritus
- Seymour Swets, M.A.
Professor of Music, Emeritus
- John Johnson Timmerman, M.A., Ph.D.
Professor of English, Emeritus
- John Henry Tuls, M.A.
Associate Professor of Mathematics, Emeritus
- John Andrew Van Bruggen, M.A., Ph.D.
Professor of Education, Emeritus
- Gertrude Vander Ark, M.A., Ed.S.
Assistant Professor of Education, Emerita
- Helen Van Laar, M.A.
Assistant Professor of Education, Emerita
- Harry J. Wassink, B.S.
Professor of Engineering, Emeritus

John Weidenaar, Th.M.
Associate Professor of Religion and Theology, Emeritus

G. Roderick Youngs, Th.B., M.A., Ed.D.
Professor of Psychology, Emeritus

Sydney T. Youngsma
Assistant to the President, Emeritus
Consultant, Development Office

Mildred Reitsema Zylstra, M.A.L.S.
Assistant Professor of English, Emerita

ACTIVE

Robert J. Albers, Ph.D. (Connecticut, 1962)
Professor of Chemistry

Sandra Kay Ariza, M.A. (Michigan State, 1974)
Assistant Instructor in Romance Languages

****Claude-Marie Baldwin, B.A. (Calvin, 1971)**
Visiting Assistant in Romance Languages

Henry James Baron, M.A. (Michigan, 1966), Adv. Cer., Ph.D. (Illinois, 1968, 1972)
Associate Professor of English
Coordinator of Freshman Rhetoric

John D. Beebe, M.A. (South Dakota, 1966), Ph.D. (Chicago, 1970)
Associate Professor of Biology

James Alan Benthem, Ph.D. (Wayne State, 1976)
Assistant Professor of Psychology

Henry Bengelink, M.S. (Michigan, 1940)
Assistant Professor of Biology

Melvin Earl Berghuis, M.A. (Michigan, 1949), Ph.D. (Michigan State, 1964)
Professor of Speech

Gilbert Besselsen, M.A., Ph.D. (Michigan, 1963, 1969)
Professor of Education
Coordinator of Elementary Education

Nicholas Henry Beversluis, Th.B. (Calvin Theological Seminary, 1943), Th.M. (Westminster Theological Seminary, 1944), M.A. (Columbia, 1950), Ed.D. (Columbia—Teachers College, 1966)
Professor of Education

Kathryn Blok, M.A., Ed. S. (Michigan State, 1967, 1975)
Visiting Assistant Professor of Education

Donald L. Boender, M.A. (Michigan, 1965)
Dean of Men

Edgar Gene Boevé, J. Franklin School of Professional Arts, M.S.D. (Michigan 1954)
Associate Professor of Art
Chairman of the Department of Art

Ervina Boevé, M.A. (Michigan, 1954)
Assistant Professor of Speech
Director of Drama

****Martin Bolt, M.A., Ph.D. (Michigan State, 1967, 1969)**
Associate Professor of Psychology

Robert Bolt, M.A., (Michigan, 1953), Ph.D. (Michigan State, 1963)
Professor of History

Helen Bonzelaar, M.A. (Western Michigan, 1964)
Assistant Professor of Art

Paul H. Boonstra, M.A. (Michigan, 1958), M.S. (Purdue, 1963), Ph.D. (Michigan State, 1970)
Professor of Mathematics

Bette DeBruyn Bosma, M.A. (Michigan State, 1972)
Instructor in Education

†James Peter Bosscher, M.S. (Purdue, 1957), Ph.D. (Michigan 1968)
Professor of Engineering
Chairman of the Department of Engineering

- Al Dirk Bratt, M.S. (Michigan State, 1957), Ph.D. (Cornell, 1964)
Professor of Biology
Chairman of the Department of Biology
- Wallace Henry Bratt, M.A., Ph.D. (Michigan, 1956, 1966)
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- Daryl Myron Brink, M.A. (Western Michigan, 1968), Ph.D. (Michigan State, 1972)
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Professor History
Curator, Colonial Origins Collection
- Herman H. Broene, Ph.D. (Purdue, 1947)
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Librarian
- Joel Allan Carpenter, M.A. (Johns Hopkins, 1976)
Visiting Instructor in History
- Dale Jay Cooper, B.D. (Calvin Theological Seminary, 1968)
Assistant Professor of Religion and Theology
- **Elsa Cortina, Doctora en Pedagogia (Universidad Habana, 1951)
Assistant Professor of Romance Languages
- John Lester De Beer, M.A., Ed.D. (Columbia—Teachers College, 1936, 1951)
Professor of Education
Director of Audio-Visual Services
- Gordon Lee De Blaeij, M.A., Ph.D. (Western Michigan, 1967, 1970)
Associate Professor of Sociology
- Peter Pousma De Boer, M.A., Social Studies (New Jersey State, 1952), M.A., English-American Civilization (Iowa, 1961), Ph.D. (Chicago, 1968)
Professor of Education
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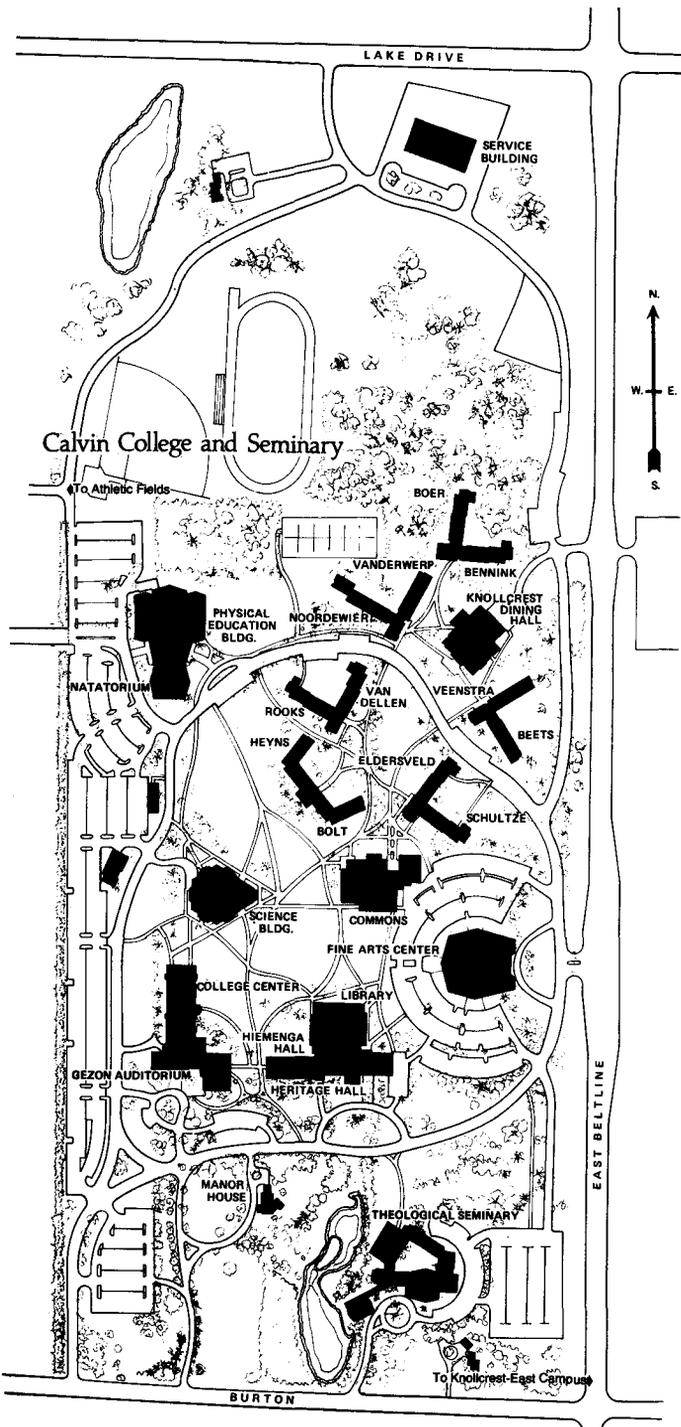
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