



*My heart I offer to you, Lord,  
eagerly and earnestly*



# Calvin College

*The College of the Christian Reformed Church  
Grand Rapids, Michigan 49506*

*Catalog for 1973-74*

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# 1973

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# CALENDAR

## The Fall Semester 1973

SEPTEMBER	4	<i>Tuesday</i>
	5	<i>Wednesday</i>
	6-8	<i>Thursday-Saturday</i>
	6	<i>Thursday</i>
	10	<i>Monday</i>
OCTOBER	22-23	<i>Monday</i>
		<i>Tuesday</i>
NOVEMBER	13-21	<i>Tuesday</i>
		<i>Wednesday</i>
	21	<i>Wednesday</i>
	26	<i>Monday</i>
DECEMBER	13	<i>Thursday</i>
	14	<i>Friday</i>
	19	<i>Wednesday</i>

Faculty-Board conference  
Residence halls open  
Orientation and registration

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

Registration for Interim term  
and spring semester  
Thanksgiving recess 5 p.m.  
Classes resume 8 a.m.  
Classes end 10 p.m.  
Examinations begin 10:30 a.m.  
Fall semester ends 5 p.m.  
Christmas vacation begins

## The Interim 1974

JANUARY	8	<i>Tuesday</i>
	30	<i>Wednesday</i>

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

## The Spring Semester 1974

FEBRUARY	4	<i>Monday</i>
MARCH	22	<i>Friday</i>
APRIL	2	<i>Tuesday</i>
	12	<i>Friday</i>
MAY	16	<i>Thursday</i>
	17	<i>Friday</i>
	25	<i>Saturday</i>

Second semester classes begin 8 a.m.  
Spring vacation begins 5 p.m.  
Spring vacation ends 8 a.m.  
Good Friday, no classes  
Classes end 5 p.m.  
Final examinations begin 2 p.m.  
Commencement 3 p.m.

## The Summer Semester 1974

JUNE	28	<i>Tuesday</i>
	19	<i>Wednesday</i>
	20	<i>Thursday</i>
JULY	16	<i>Tuesday</i>
	17	<i>Wednesday</i>
AUGUST	7	<i>Wednesday</i>
	8	<i>Thursday</i>
	30	<i>Friday</i>

First session begins  
First session ends  
Second session begins  
Second session ends  
Third session begins  
Third session ends  
Fourth session begins  
Fourth session ends

## The Fall Semester 1974

SEPTEMBER	3	<i>Tuesday</i>
	4	<i>Wednesday</i>
	5	<i>Thursday</i>
	9	<i>Monday</i>

Faculty-Board conference  
Residence halls open  
Orientation and registration begin  
First semester classes begin 8 a.m.



# The HISTORY of the college and its objectives

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

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

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

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

The founding date of Calvin College and Seminary is 1876. In that year the Christian Reformed Church adopted a six-year curriculum for ministerial training. The first four of these years were spent in the Literary Department and the last two in the Theological Department. In 1894 students who were not pre-theological students were admitted to an expanded curriculum, and thus the school became a type of preparatory school or academy. In 1900 the curriculum was further broadened and made more attractive to students interested in teaching or in preparing for preprofessional courses in the universities. By 1906 the Literary Department, which provided the four years of preparatory and two years of college work, be-

came known officially as the John Calvin Junior College. The two-year college in time became a four-year college, and the preparatory department was discontinued. In 1921 Calvin College awarded its first Bachelor of Arts degree.

The school which had started with seven students grew slowly during the early years, but by 1930 it had reached its pre-World War II size of 350-450 students. By 1950 the enrollment had climbed to 1,270 and last year was 3,185.

In 1965 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, beginning what was to be the decade of the divided campus. In the same year the first section of the library combined with Heritage Hall and a classroom wing, Hiemenga Hall, were opened. Other buildings followed: the Physical Education Building in 1965, the Fine Arts Center and four more residence halls in 1966, a new student Commons in 1967, and a Science Building and two more residence halls in 1968. In 1970 the Library was expanded and two additional residence halls were opened to bring the total to twelve with a capacity of 1,500 students. The College Center has just been constructed which along with the Natatorium completes the campus development, providing for the potential of 4,000 students and a reunited campus.

## *LIBRARY*

The Calvin Library is at the center of the campus, serving students of both the college and the seminary. Its 230,000 volume collection of books and bound periodicals is distributed over three floors of open stacks, which are arranged according to the Library of Congress classification. More than 1,700 current periodicals are available for use in the library. Two major microfiche collections, The Library of American Civilization and The Library of English Literature, are part of the 17,000 item collection of microfilm, microfiche, and microcards. The library, which is air conditioned, can seat 1,100 persons, mainly in individual study carrels but with 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 25,000 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 Christian faith is the dynamic motivating an investigation of all fields of human knowledge revealed by God in His Word and in His world. The student is led to offer his whole creative, imaginative, intellectual, and social enterprise eagerly and earnestly in the service of God and of his fellowman, thereby acknowledging the lordship of Christ over all things. Thus, the college seeks to promote in the student sound scholarship, earnest effort, and a sense of obligation to use his talents fully, in response to a calling.

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

The college admits not only students from the Christian Reformed Church and other evangelical Protestants, but also others who, interested in the benefit of the Christian atmosphere and Reformed character of the academic programs of the college, show an interest in the aims of the college.

The end of Christian faith is Christian life. Informed and mature faith calls for a life of action and involvement. It seeks personal piety, personal integrity, and social responsibility. It recognizes that service to God and to 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 ecclesiasti-

cal 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 traditional 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. 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 with a student 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 20,000 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 upperclassman scholarships and freshmen grants are of special interest to students. Information concerning these may be obtained from the Alumni Office.

### *BROENE STUDENT COUNSELING CENTER*

The Broene Student 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 for students on academic probation, training for the residence hall staff, as well as individual and group counseling.

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

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, which serves the instructional program of the entire college. It includes the audio-visual services, the audio-visual laboratory, the curriculum center, a graphics production center, and television demonstration classrooms.



# The STUDENT life and regulations

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

## *WORSHIP AND CHRISTIAN SERVICE*

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

Chapel services are held at 10 o'clock Tuesday through Friday morning. The main chapel is held in the Fine Arts Auditorium but a variety of other services such as morning prayers, foreign language chapels, and group devotions are held at other places at this time. Students are 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 Religious Coordinating Council and the college chaplain. The latter is available for counsel at any time.

## MAINTENANCE OF COLLEGE STANDARDS

Admission to Calvin College is a privilege that may be withdrawn from any student who does not meet the academic standards of the college. In addition, the college not only expects a student to conduct himself both on and off campus in accord with his statement of religious commitment as he has indicated it in the application forms, but the college may refuse admission to, may discipline, or may expel any student who in its judgment displays conduct or attitudes unworthy of the standards of the college. The *Student Handbook* and *Residence Hall Living* describe the regulations and their implementation.

## HOUSING

Freshmen 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 women students may also arrange to work for their room and board. Information on available housing, costs, and further interpretation of these rules is available from the college Housing Office.

## THE FINE ARTS

Many sorts of fine arts activities thrive at Calvin both as part of the academic life and as the result of spontaneous student interest. Bands, orchestras, choral groups, and chamber ensembles are part of the program of the Department of Music for the participation of all qualified students. The dramatic productions of the Thespians as well as intercollegiate debating and other forensic activities are sponsored by the Department of Speech. Students from all departments participate. The long Calvin tradition of creative writing for publication and for private reading is encouraged by the members of the Department of English. *Dialogue* and *Chimes* provide opportunities for student publication. The Department of Art creates excitement in the various graphic and plastic arts. Student creative work in all fields is 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 council provides a program of speakers, of fine films, and of other entertainment. Other public performances sponsored by various academi

departments, by the alumni association, and by community groups are presented on campus.

## *ATHLETICS*

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

## *STUDENT SENATE AND OTHER ORGANIZATIONS*

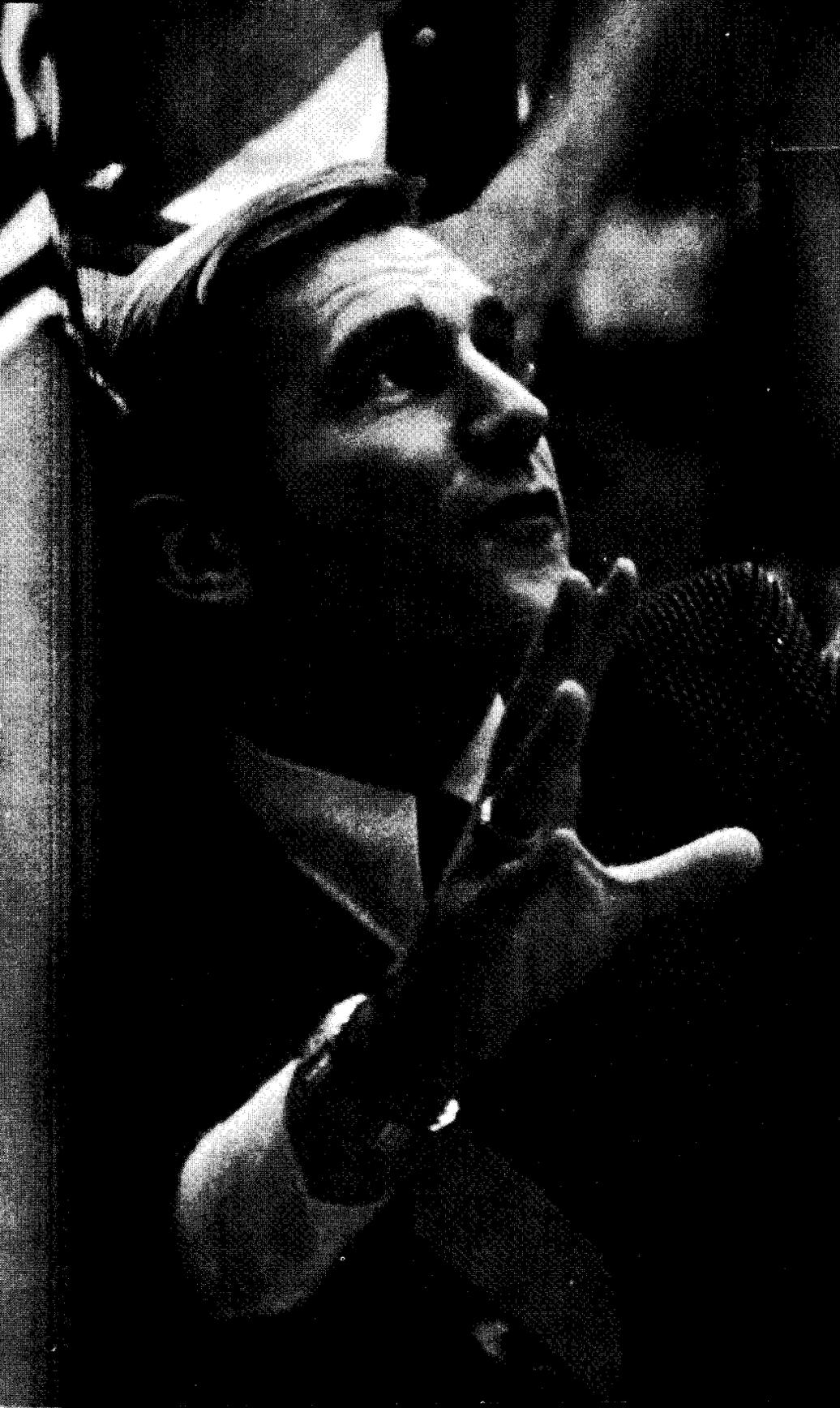
Elected from the four classes, the thirty-three member student senate has an important role in the life of the college. Not only does it serve as the official voice of the student body, but it supervises most student activities. It oversees the budgets of student organizations and concerns itself with student publications, homecoming, the film arts, the Fine Arts Guilds, and similar groups. Some of its members also serve on joint faculty-student committees, particularly the Student Social Activities Committee, the Student Religious Activities Committee, the Communications Board, and the All-campus Discipline Committee.

All residence halls have their own governing councils and judiciary committees. These units work in cooperation with the staff members to enhance community life in the halls.

Numerous clubs and societies exist on campus, many of which are related to particular academic departments, such as education, psychology, and sociology. There are also many volunteer service groups which attract student participation, such as KIDS (Kindling Intellectual Desire in Students), an organization of Calvin students that supplies teachers' assistants, "big brothers" and "big sisters" for the local courts, and tutors for high school students with disadvantaged backgrounds. All organized clubs or similar groups must have formal approval and sponsorship.

## *HEALTH SERVICES*

The college provides limited medical services for all students. This is maintained by a fee incorporated in the tuition charge. The health center,



located in the basement of Heyns Hall, is maintained by a full-time nurse and a college physician who holds office hours each morning. 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 law must be based on fault. It is necessary, in order to establish the liability of the college for such injuries, not only to prove negligence or carelessness on the part of the college, but also to show that the student was free from any negligence or carelessness which might have contributed to the injuries. Accordingly, students are advised to be certain that they are covered by personal health and accident insurance.

### *FACULTY COUNSELING*

During the summer preceding the arrival of the new student on campus, each freshman is assigned a faculty counselor, typically in his field of interest. This faculty counselor will keep in regular contact with him during his freshman year, reviewing 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.

In addition to faculty counseling, general and specialized services are

available to all students. The college chaplain, the deans of men and women, and the dean of student activities welcome conversations with students. The Broene Counseling Center is available for specialized 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 each registration. At that time they will meet a number of faculty members as well as administrators, including the college president, the vice-presidents, and deans. Information about college activities and facilities, and the distribution of registration materials are a part of the orientation program. Upperclassmen serve as orientation leaders for small groups of new students. The schedule and information are mailed to new students during the month before registration.

### *USE OF AUTOMOBILES*

Automobiles owned or operated by Calvin students must be properly registered in the Security Office and must carry an official college automobile permit. Automobiles may be parked only in approved student parking areas and the drivers will be fined if they are parked elsewhere. Because parking areas are limited, parking regulations are enforced stringently.

### *GRADUATE PLACEMENT AND FELLOWSHIPS*

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

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

The Student 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 in College Teaching program which attempts to identify early and encourage students of promise who are interested in

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



# ADMISSION

## and other academic regulations

### ADMISSION

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

Any prospective student requesting application material will be sent forms necessary to apply for admission and for financial aid. He will be notified concerning his admission as soon as the office of admissions has received his application form, his high school or college transcript, and his pastor's recommendation. All application forms received later than May 1 must be accompanied by a \$10 late registration fee. In addition to these three 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). Application for these tests must be made approximately a month prior to the testing date and candidates should sit for such examinations at the earliest convenient date.

The American College Test is given, normally, five times a year throughout the world. Application forms are generally available from high school principals and counselors but may be requested from the American College Testing Program, Box 168, Iowa City, Iowa 52240. This test is required by the State of Michigan for its competitive scholarship program. Testing dates for the next academic year are October 20, December 8, February 23, April 27, and June 15.

The Scholastic Aptitude Test will be given this academic year on November 3, December 1, February 2, April 6, and June 22. 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 make formal application for readmission.

### *TRANSFER STUDENTS, ADVANCED STANDING*

Students transferring from other colleges or universities must follow the same procedures of applying for admission as freshmen, but they are not required to sit for entrance examinations and should have a cumulative grade point average of C (2.0) or higher. They will receive credit for work done in accredited institutions provided the courses were of an academic nature and they received an honorable dismissal. However, not more than sixteen credit hours for each semester in attendance will be accepted. No more than seventy semester hours of advanced credit will be allowed for

work at an accredited junior college. Furthermore, no matter how much work at other institutions may be accepted, in order to graduate from Calvin a student must complete his last full academic year in residence.

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

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

Entering freshman students may reduce time required for a degree by giving evidence of knowledge in any basic field. 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 one 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.

In some cases students may be given advanced standing in some particular field of study, with perhaps an excuse from a given course, without being given college credit for work previously done. Such advanced standing does not excuse a student from any of the general graduation requirements of the college.

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#### MODEL HIGH SCHOOL PROGRAM

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

## *ADMISSION UNDER SPECIAL CONDITIONS*

The college is eager to serve any prospective student, including those with irregular academic histories, who show promise of benefiting from a college education. Applicants who are at least twenty-one years of age but have not completed high school or its equivalent may be admitted on probation provided they have successfully completed the General Educational Development Test and submit satisfactory scores on 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 provisionally. The deficiency, however, must be removed before the end of the first year of residence. Applicants are strongly urged to make up any deficiency during the summer preceding their enrollment as freshmen. In many cases these deficiencies may be removed by attending the summer session at Calvin College.

Some applicants with weak high school records may be admitted on academic probation because of other evidence of academic promise. Such students will receive special counsel, may enroll for no more than 3.5 courses, and are advised to restrict sharply their involvement in employment, in social life, and in campus activities. Applicants who meet all of the requirements for admission but who do not desire to become candidates for an academic degree may be enrolled as special students for such studies as their preparation qualifies them.

The Calvin 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 1973 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 will be recommended for admission 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 having

earned at least one semester of credit. Such students should be certain that Calvin College offers the program the student needs. 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 American Consul in his area for a student visa.

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

### *ADMISSION TO THE NURSING PROGRAM*

Candidates for the joint nursing program of Calvin College and the School of Nursing at the Blodgett Memorial Hospital must apply for admission to the college as outlined above and must also apply to the Director of the School of Nursing, Blodgett Memorial Hospital, Grand Rapids, Michigan 49506. Those students who are interested should apply during their junior year in high school or not later than the beginning of their senior year. The candidate must be accepted by both the college and by the admissions committee of the School of Nursing. Students interested in nursing should also consider the various bachelor of science in nursing programs listed on page 57.

### *ENROLLMENT IN SEMINARY CLASSES*

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

### *STUDENT LOAD AND CLASSIFICATION*

The typical student load is four courses a semester. The normal load, however, may range from three to four and a half courses with courses in applied music, drama, and speech and in required physical education not included in the maximum. A semester's participation in applied arts courses carries one-quarter course credit, but not more than two course credits thus

acquired may be applied toward graduation, except for music majors in certain applied music concentrations.

In exceptional cases a student may apply to carry more than four and a half courses; such an application requires the recommendation of his academic adviser or department chairman and the approval of the dean of the college.

Students with a minimum of seven courses completed will be classified as sophomores; those with sixteen, as juniors; and those with twenty-five, as seniors.

For the purposes of conversion, a course is considered to be equivalent to 3.5 credit hours.

### *GRADING SYSTEMS*

Grades 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; and D, one. A plus grade is computed at three-tenths of a point above these figures and a minus grade at three-tenths below. Grades for courses completed at other colleges and universities are recorded on the student's record but are not 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. If courses normally offered during either semester are taught during the interim, they will be 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 faculty adviser, 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 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 45 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 37, every student must satisfy certain technical requirements. He must have completed a year's residence at Calvin during the year preceding his graduation. He must have completed with his departmental adviser a Major Concentration Counseling Sheet and have met all the conditions specified in it (these sheets are normally completed during the sophomore or junior years), and must have filed 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 47-51, 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 and financial aid

## TUITION AND RELATED FEES

TUITION AND related fees are \$1,690 for the year and \$845 for a semester. This includes \$15 a semester in fees for student organizations including *Prism* and *Chimes* and \$10 for the student center, the health service, and laboratory fees. The interim is considered an extra course which a student may take without an additional charge if he pays full tuition for either semester; if he does not, he will be charged at the one-course rate.

Calvin College is vitally interested in providing financial assistance for outstanding young men and women whose personal and financial resources are inadequate to meet the basic cost of education. The most significant financial support has come from the Christian Reformed Church 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 \$100. 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	160	320

The institutional grant-in-aid for out-of-state students is:

From 0 to 300 miles	160	320
From 300 to 1,000 miles	200	400
More than 1,000 miles	240	480
Manitoba, Ontario, Quebec provinces of Canada	200	400
Alberta, British Columbia, and Saskatchewan provinces	240	480

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

The tuition rate for part-time students is \$215 for each course, with a \$25 institutional grant-in-aid for those who are members of the Christian Reformed Church. The tuition for students carrying fewer than three courses does not cover any of the related fees for student organizations, the student center, the health service, or laboratory fees. 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.*	\$845.00	Residence hall social fee	\$16.00
Tuition, part-time, per course*	215.00	Late application fee	10.00
Auditing, per course	107.50	Late registration fee	10.00
Room and board, per year	900.00	Late payment fee	3.00
Teaching internship fee, per sem.	10.00	Physical education deposit	5.00
Individual music instruction, per sem.	45.00	Vehicle registration fee	10.00
Organ rental, per sem.	15.00	Transcripts, after first copy	1.00
		Copies with one paid	.25
		Exemption examination fee	5.00
		Course credit by examination fee	20.00

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

In addition to these direct charges, the student should allow about \$100 per year for the purchase of textbooks and classroom supplies. An annual budget for personal items such as clothing, transportation, entertainment, toilet articles, and miscellaneous supplies varies widely among students.

### *PAYMENT OF FINANCIAL OBLIGATIONS*

Tuition and fees should be paid in full at the time of registration each semester; however, in no case should the initial payment be less than \$200. The balance must be paid by November 9 of the first semester and by April 5 of the second. Accounts not paid by these dates are subject to a \$3 late payment fee.

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

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

### *STUDENT FINANCIAL AIDS*

In addition to scholarships, which are granted on the basis of outstanding records and promise, Calvin College has a broad program of financial assistance for its students. This includes, in addition to the institutional grant-in-aid program described on page 27, a variety of other grant-in-aid

and loan programs, several of which are supported or underwritten by the state and federal governments or by private organizations, and a placement service for part-time employment. The office also serves as a clearing house for non-college programs. The college urges each applicant to explore local or state sources of financial assistance as well. Generally, a student's financial needs can be met by a combination of the various programs. Students who may be eligible for scholarships should consult the section on page 28.

A prospective student should not deny himself a Calvin College education because of cost. However, arrangements should be made prior to registration. At that time he should have in hand a substantial portion of his semester's expenses from savings, scholarships, loans, or grants-in-aid, and, if intending to carry a full academic load, should not plan to carry more than twelve to fifteen hours of employment.

Any student with financial need who feels he is eligible for any student aid program may request additional information from the Office of 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.

*Federal Grants.* The Educational Opportunity Program, which has been in existence for a number of years for students with exceptional financial need, is being replaced by the Basic Educational Opportunity Grant and Supplemental Educational Opportunity Grant Programs. For the 1973-74 academic year the Basic Educational Opportunity Grant Program will be open to full-time first-time students only and the Supplemental Educational Opportunity Grant Program will be open to students at all under-graduate class levels.

The Basic Opportunity Grant Program is designed to provide grant assistance to United States citizens in an amount equal to \$1,400 minus the expected parents' contribution. This maximum amount will be reduced proportionately if there are not sufficient funds to aid all eligible students. The Supplemental Educational Opportunity Grant Program will provide

grant assistance of up to \$1,500 per year to students with exceptional financial need.

*Calvin College Grants.* A student with a good scholastic record who applies for a Freshman Scholarship or Upperclassman Scholarship may be chosen by the Scholarship Committee to receive a Calvin College Grant if he is not selected as a recipient of a scholarship. The amount of this grant can be up to 40 per cent of the student's financial need, with the remaining need being met by other grants, loans, and employment.

*Calvin College Grants-In-Aid.* A student with a good scholastic record who has not been selected by the Scholarship Committee as a recipient of a scholarship or grant can be considered by the financial aid office for a grant-in-aid. The amount of this grant depends upon

the student's financial need with \$600 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 \$1,000 per year to students of minority races who are within the fellowship of the Christian Reformed Church. The student may receive this award for four years if he continues to demonstrate financial need.

*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 \$400 in this program.

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

mences 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" all or part of the loan may be cancelled. If the borrower serves in the armed forces in an "area of hostilities" up to 50 per cent of the loan may be cancelled.

*Loans for Canadian Students.* The various provincial governments of Canada have generous loan programs which may be used by students from those provinces.

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

*Guaranteed Loan Programs.* Loans from private banks, 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 \$1,000 or \$1500. The loan can be interest-free if recommended by the college on the basis of financial need.

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

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

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

## SCHOLARSHIPS

A number of scholarships are available for undergraduates of all classes and each applicant should determine his own eligibility. Approximately two hundred freshman scholarships are awarded annually.

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 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 arrange for two letters of recommendation to support his application and must have his Scholastic Aptitude Test or American College Testing program scores reported to the college before his application can be considered.

Applications for upperclassman 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 up to twelve Honor Scholarships to students of superior academic achievement. The minimum stipend is \$150; it can be supplemented by an additional stipend up to 80 per cent of the student's need and by work opportunities and loans. A student will automatically be considered for this scholarship if he has applied for the Calvin College Freshman Scholarship.

*Freshman Certificate of Merit Scholarships.* Calvin College offers Freshman Scholarships to each high school graduate who has received a National Merit Scholarship Corporation Certificate of Merit, provided he has not already been granted another freshman scholarship. The winner of such a certificate who seeks to qualify for the scholarship must notify the Office of Scholarships and Financial Aid not later than May 1 and must present a copy of the certificate to this office. Winners of Letters of Commendations are not eligible.

*Freshman Scholarships.* These are awarded to entering freshmen who have done excellent work in high school. The minimum stipend is \$100, but this can be supplemented by an additional stipend

up to 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.

*Freshman Pre-Nursing Scholarships.* Students who plan to enroll in the Calvin College pre-nursing program will be considered in the Freshman Scholarship Program on an equal basis with other applicants.

*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.

*The Alvin M. Bentley Foundation Scholarship.* Calvin College has been allocated one \$750 scholarship, to be awarded each year under the Alvin M. Bentley Foundation Scholarship Plan. The award is intended for an outstanding high school senior who is a resident of the state of Michigan, and who is seeking admission to Calvin College. The same general

dates for other scholarships will be used in the selection of a candidate for the Bentley Scholarship. The student is expected to have outstanding talents. Consideration will be given to scholarship, character, personality, promise of growth, and financial need.

*Steelcase Foundation Scholarship.* The Steelcase Foundation of Grand Rapids, Michigan, offers two scholarships annually of \$250 each to applicants for children of employees of Steelcase, Incorporated. The scholarships are renewable for four years of study. Continuation of the scholarship shall require maintenance of at least a C+ average. The winners are to be selected by the Scholarship Committee of the college, and the applicants are to be judged on the basis of scholastic ability, character, and need. If scholarships are not filled by the children of Steelcase, Incorporated, employees, for whatever reasons, the scholarships shall be open to other Michigan resident.

*Kent Medical Foundation Grants.* Each year the Kent Medical Foundation provides the college with funds to be awarded to qualified students. These grants are designated for students who are residents of Kent County or vicinities bordering thereon and who have not received a professional degree. To qualify for a grant a student must be matriculated in a health career recognized as scientific in nature. Upperclassmen, as well as freshmen, are eligible to apply for this grant.

*Leonard M. Krull Scholarship Aid Fund.* As a result of a bequest to Calvin College by the late Leonard M. Krull of West-

borough, 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.

*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.

*Steven D. Lankester Scholarship Program.* As a result of a bequest by the late Steven D. Lankester to the Grand Rapids Foundation, a number of \$500 scholarships are available each year to students from Kent County. Normally two such scholarships will be awarded each year to prospective freshmen. These scholarships are awarded on the basis of academic achievement, character, promise of growth, and financial need. Recipients of this scholarship who wish to be considered for renewal must reapply each year.

#### FRESHMAN GRANTS NOT ADMINISTERED BY THE COLLEGE

*State of Michigan Competitive Scholarships.* Each year the Michigan Higher Education Assistance Authority awards a number of state scholarships to beginning freshmen. These scholarships are to be used for tuition and fees and are not to exceed \$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 principal's office of any Michigan high school.

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

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

*The Atlantic Monthly Scholarship.* The Atlantic Monthly offers a \$500 scholarship each year to the winner of its Creative Writing Contest for high school students. Calvin College participates in this program by offering a supplementary grant based upon the needs of the winner, if he enrolls at Calvin College. The selection is made by The Atlantic Monthly Company. Complete details concerning this contest can be secured by writing to the Atlantic High School and Private School Contest, 8 Arlington Street, Boston, Massachusetts 02116.

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

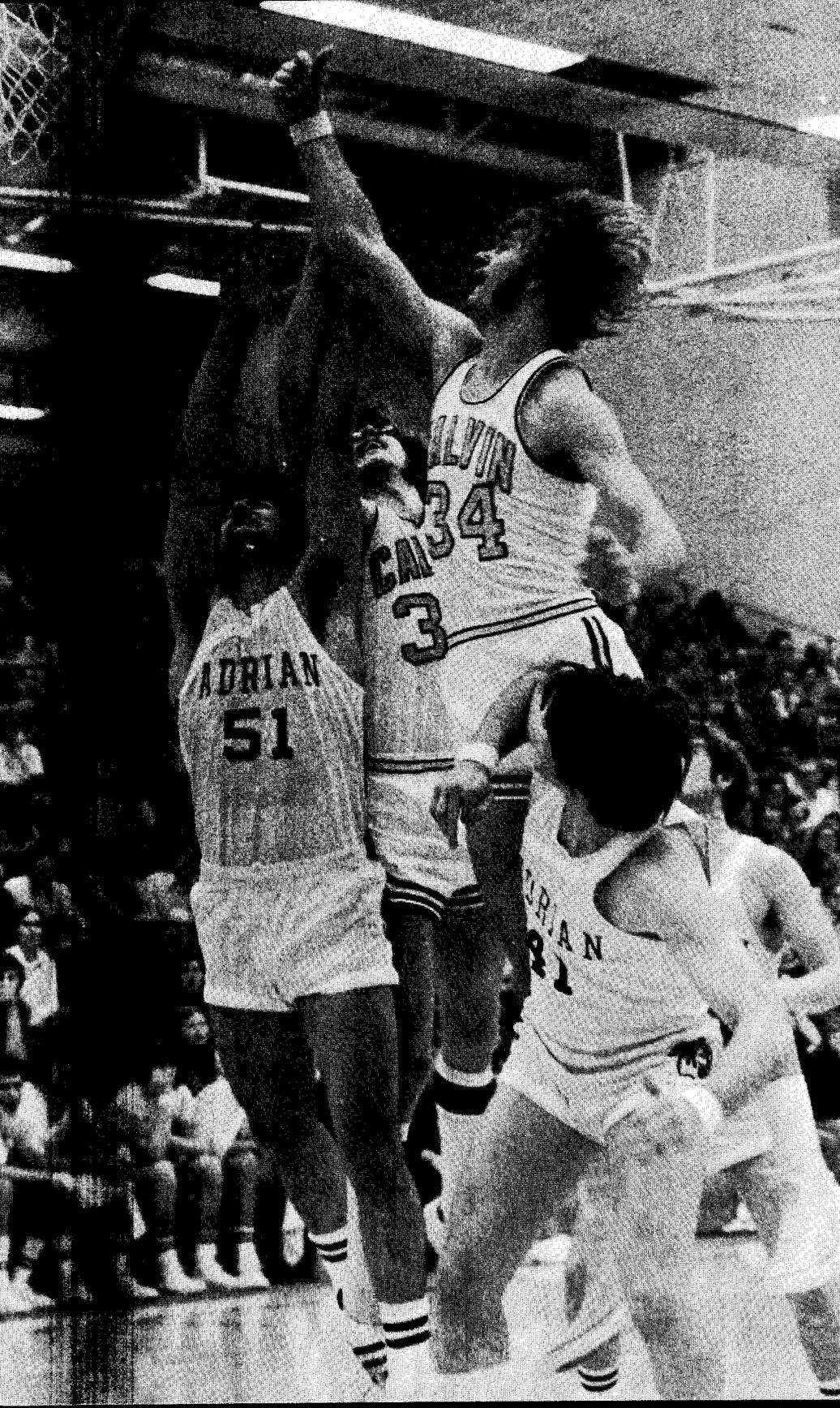
**Regulations:** (1) The recipient must be a member of the Christian Reformed Church and a member or former member of the Muskegon Young Calvinist Alliance. (2) If in the opinion of the

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

*Henry Beets Mission Society Scholarship.* The Henry Beets Mission Society of the La Grave Avenue Christian Reformed Church provides an annual grant to promote the ministry of the Church to the American Indian. Initial funds for this grant were given by the Herrick Foundation of Detroit, Michigan. Those eligible are American Indians who intend, preferably, to minister as pastors or teachers to members of their own race. The amount of the grant is determined by the needs of the student. The student shall consult with the registrar when planning his program. Candidates should apply in writing to the Henry Beets Mission Society, La Grave Avenue Christian Reformed Church, 107 La Grave Avenue, Grand Rapids, Michigan 49503.

*Peter M. Hekman Memorial Scholarship.* The Hekman family, in memory of Mr. Peter M. Hekman, provides one \$200 tuition scholarship for the freshman year to a senior graduating from the Ripon Christian High School. The scholarship is awarded on the basis of the applicant's scholastic achievement and financial need. Application forms are available at the office of the Ripon Christian High School.

*George M. Pullman Educational Foundation Scholarships.* The George M. Pullman Educational Foundation awards each year a number of scholarships to college students with financial need. Applicants should be residents of Cook



County, Illinois. Non-residents of Cook County, Illinois, are eligible for consideration only if they are sons or daughters of employees of the Pullman-Standard Car Manufacturing Company or of the Pullman Company.

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. The number of scholarships given each year is dependent upon the funds available and the number of qualified students making application.

*Associated Women Students Scholarship.* Each year the Associated Women Students of Calvin College, of which every woman student is a member, offers a scholarship of \$200. To be eligible a woman student must be maintaining a cumulative average of at least a B (3.0) and attend Calvin the following year. The selection of a candidate for the scholarship is made by the Executive Board of the Associated Women Students, subject to the approval of the faculty scholarship committee. Recommendations will be on the basis of scholarship, Christian character, personality, promise of growth, and need.

*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 academic achievement, character, promise of growth, and financial need.

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

*Dr. John De Vries Memorial Award.* An annual award of \$200 in memory of Dr. John De Vries is presented each year

to a student majoring in science for use in his junior or senior year. In making the award, the scholarship committee will give consideration to the applicant's scholarship, Christian character, financial need, personality, and promise of growth.

*Edward D. Vander Brug Memorial Scholarship.* Calvin College has received gifts from the Vander Brug family of Detroit, Michigan, the income of which is to be 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 grant to cover an amount approximately equal to the institution's cost of educating a student during the year immediately preceding the year in which the grant is given. The grant will cover the student's tuition as well as the additional cost to the school.

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

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

selection of candidates is made by the scholarship committee.

*Spalink Memorial Missions Scholarship.* An annual senior scholarship award of \$500 is presented by Mr. and Mrs. John Spalink, in memory of their son, John Spalink, Jr. Its purpose is to encourage superior students to enter missions. The scholarship is awarded to a junior student of either sex who shows a definite interest in a missionary vocation. The award is given primarily for academic achievement, although other factors such as financial need, will be taken into account. Generally, members of the Christian Reformed Church who aspire to a career with that church's mission 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 qualified students. These grants are designated for students who are residents of Kent County or vicinities bordering thereon and who have not received a professional degree. To qualify for a grant a student must be matriculated in a health career recognized as scientific in nature.

*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 can 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 re-

recipient will be judged by the following criteria in this order: academic achievement; evidence of sound musical understanding through writing, 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. Application blanks should be obtained from the Department of Music office.

*Summer School Scholarship.* Twelve scholarships in the amount of \$200 each, one for each National Union of Christian Schools district, will be available to Christian school teachers for undergraduate study at Calvin College during the summer of 1974. The National Union and Calvin College each contributes \$1,200 for this undergraduate program. The cash awards must be used for payment of tuition and other expenses involved in work for personal and professional enrichment, work toward the validation of a teaching certificate, or toward a degree at Calvin College.

#### 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, or-

To be eligible for a scholarship the teacher:

1. Must have completed three years of successful teaching in the Christian schools.
2. Must be able to produce satisfactory evidence of possessing:
  - a. Ability to pursue academic work successfully.
  - b. Qualities of personality, character, and conviction that are assets to a Christian teacher.
  - c. Loyalty to the Reformed faith.
  - d. Superior teaching ability.
3. Must agree to serve a National Union member school at least one year after receiving a scholarship.
4. Must submit a statement of 250 words or less on the reason(s) for applying for a scholarship.

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

Application must be made by February 1.

chestra, 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 Calvin College at the League Division of the Annual Interpretative Reading Festival of the Michigan Intercollegiate Speech League.
4. \$10 awards to each of the two students selected to represent our college at the Junior Division of the Annual Interpretative Reading Festival.

*Monsma Speech Award.* Each year Dr. and Mrs. John W. Monsma, Jr., offer an

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

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

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

*The Beets Calvinism Award.* The late Dr. and Mrs. Henry Beets established a fund which now amounts to \$1,500, the income of which is to constitute a prize for the best essay or term paper on Calvinism, in any of its expressions, written each year by a Calvin College student. The prize will be awarded at the discretion of the Department of Religion and Theology, in consultation with the president of Calvin College. If, during any given year, the Department of Religion and Theology considers the essays or papers submitted of insufficient merit to deserve the prize, the interest of such a year, or years, will be added to the principal.

*The William B. Eerdmans Literary Awards.* The late Mr. William B. Eerdmans, Sr., established the William B. Eerdmans Literary Awards in the interest of encouraging original, creative writing among Calvin College students.

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

*The Rinck Memorial Award.* A fund of \$2,500 has been subscribed by former students and friends as a memorial to William Rinck, Professor of Mathematics at Calvin College (1905 to 1920). The income of this fund is devoted to an award for outstanding work in mathe-

atics. 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 \$2,400 plus tuition for an academic year's work, are open to students nomi-

nated 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. The amount of these scholarships is \$500. Interested students should before March 1 consult with the chairman of the Engineering Department, which makes its recommendation on the following criteria: a minimum grade point average of 3.0, completion of a minimum of twenty-eight 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.



# The ACADEMIC programs

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

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

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

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

## *GENERAL GRADUATION REQUIREMENTS*

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

A typical student carrying a normal load will complete thirty-seven and a half courses including four interims. However, to provide flexibility, the formal graduation requirements are the successful completion of thirty-

six courses including three interims and the designated liberal arts core with a minimum average grade of C (2.0) both 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 these requirements, the 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.

Calvin offers special degree programs in engineering, forestry, medical technology, natural resources, nursing, and special education, which are described on pages 47-59 and differ from the program described below, as well as a Bachelor of Science in Education degree in a combined curriculum plan with the Grand Rapids Baptist College.

### 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 designated until the end of the sophomore year, certain programs do specify some of the freshman and sophomore courses including certain core courses. Admission to major status is not automatic but requires the formal approval of the department or program chairman and the completion of a counseling form which details the student's remaining academic program. Such majors may be changed at any time.

To be eligible for acceptance in a given program, a student must have secured a minimum grade of C (2.0) in the course or courses designated by the department offering the program, he must maintain this average in the courses in his program, and he must present at least this minimum average in his program of concentration at the time of his graduation. A student not maintaining a minimum grade of C (2.0) in his program of concentration may be permitted to remain in a program for a single semester on probation. The programs of concentration are described in the section of the catalog presenting departmental programs and course offerings beginning on page 61.

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

### II. INTERIM COURSES

A student must complete a minimum of three interim courses for graduation. (Transfer students must complete one interim course for each year

in residence to fulfil this requirement.) The grade for an interim course, except when decided otherwise by the faculty, shall be honors, satisfactory, or unsatisfactory. Interim courses are taught at three levels. Level I, open to any student; Level II, open to sophomores and juniors; Level III, open to junior and seniors. A student is not permitted to take more than two interim courses in any single department, nor is he permitted to take more than two interim courses at any single level. Certain designated interim courses may meet core requirements and others may be included in a program of concentration.

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

### III. THE LIBERAL ARTS CORE

The size of the required core is determined in part by the courses the student has taken during his last two years in high school. Although Calvin's liberal arts core apparently requires eighteen and a half courses, typically two or three are satisfied by high school performance and others may be satisfied by examination.

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

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

#### REQUIRED COURSES

##### *History, philosophy, religion and theology*

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Typically these requirements are met by History 101 or 102; Philosophy 151-152 or 153, which is recommended in teacher education programs; one course in Religion and Theology from 103, 107, 108, 207, and 208 and one from 206, 301, 303, 304, 308, 311, and 312; with the remaining course or courses chosen from these departments and from Christian Perspectives on Learning. Not more than one additional course may be selected from any one department; Education 304 when taken in addition to Philosophy 153 satisfies a second philosophy requirement and should be taken by teacher education students.

##### *Mathematics, physics, biology, chemistry, earth science*

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A student must show a certain level of accomplishment in mathematics and in the natural sciences which may be demonstrated by either high school courses completed with a minimum grade of C or by college courses.

The requirement in mathematics may be met by Senior Mathematics in high school or by Mathematics 109, 111, or 206. Students should consult the recommendations of the department in which they hope to concentrate before selecting a college course in mathematics.

The requirement in physical science may be met by a year of high school physics or by Physics 110, 112 (which is required for elementary students), 123, or by Astronomy 110. The requirement in biological science may be met by a second year of high school biology (Advanced Biology) or by Biology 111 or 151. These requirements in the sciences may also be met by completing a two-course sequence in Biology 151-152, Chemistry 103-104, Geology 251-252, Physics 123-124, Physics 126 and 225, or Physics 221-222.

*Economics or political science and psychology or sociology*

Typically these requirements are met by one course chosen from Economics 151, Political Science 151, or 300 and one course chosen from Education 301 (which is required in teacher education programs), Psychology 151, 212, Sociology 203, or 317.

A student who during his last two years of high school has completed with a minimum average grade of C (2.0) either a full year's course in any one of these subjects or an integrated year-long course combining two or more of them, is required to take one rather than two courses in this group.

*Art, literature in any language, music, speech*

Every student is required to take college-level work in English or American literature. The first course is typically selected from English 200, 202, 203, 212, or 303. Any literature course except for English 225 will satisfy additional core requirements. At least one course must be taken in another department. Students in elementary education should take Art 206.

A student who during his last two years in high school has completed a year's course with a minimum average grade of C (2.0) in any one of these subjects or an integrated year-long course combining two or more of them, is required to take two rather than three courses in this group.

*Written rhetoric, spoken rhetoric, physical education*

Every student must demonstrate his competence in written rhetoric either by examination or by passing English 100.

Every student must demonstrate his competence in spoken rhetoric by examination or by passing Speech 100, 200, 214 (if in elementary education), or 240.

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

*Dutch, French, German, Greek, Latin, Spanish*

A student must study one foreign language through the second-year college level. Typically all foreign language literature courses satisfy the "literature in any language" requirement above as well.

Languages other than those taught at Calvin are acceptable. Students for whom English is a second language may be exempt from this requirement. Three-course sequences beginning with a full review (205, 206, 207) are available for any student whose high school record in the language is below C (2.0).

Students preparing for teacher education programs who do not have high school foreign language preparation may meet this requirement with a special three-course sequence.

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

### *EXEMPTION AND COURSE CREDIT BY EXAMINATION*

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

Students should apply to the registrar by October 1 for the first semester or February 15 for the second if they wish to sit for either exemption or course credit examinations. The program is administered by the Faculty Examinations Committee.

Entering freshmen are permitted to sit for a variety of examinations which either excuse them from taking a given course or which give them college credit for the course. These regulations are specified in the section on Advanced Standing on page 20.

### *THE HONORS PROGRAMS*

The General Honors Program provides greater 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. Exceptions may be made by the Honors Program Committee upon the recommendation of the student's academic adviser or his departmental chairman.

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



A student in the General Honors Program may apply for admission to the Departmental Honors Program through the chairman of the department. To graduate with this designation he must complete, with a minimum average grade of B (3.0), at least six honors courses, two of which must be part of a structured departmental honors program. Juniors and seniors in the Departmental Honors Program may, subject to the approval of the chairman, register for a fifth course which will be graded on the basis of satisfactory or unsatisfactory.

The honors programs are under the supervision of Mr. 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 at a cost comparable to a year in residence on campus. 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.

### *TEACHER EDUCATION PROGRAMS*

Formal application for admission to the teacher education programs should be made at the Department of Education as soon as a student has been admitted to sophomore standing. At the time of admission and when applying for an assignment to a teaching internship (Education 345 or 346) a student must be maintaining a minimum cumulative average of C (2.0). Students entering the program after the sophomore year may require more than four years to complete their programs.

The requirements given below satisfy both the college requirements for a bachelor's degree and the State of Michigan requirements for a provisional teacher's certificate.<sup>1</sup> Students interested in teaching in Canada can meet all or most of the teacher licensing requirements for any partic-

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

ular province by attending Calvin College. The most demanding program is that of the Province of Ontario which, beginning in January, 1974, requires a four-year degree program in the arts and sciences plus a fifth professional year. This program requires the equivalent of nine course units in professional education, which must include practice teaching, and must meet the teacher certification requirements of area, which for students attending Calvin would be the requirements of Michigan. Students interested in the licensing requirements of any Canadian province should consult Miss Madge Strikwerda, director of teacher certification.

Graduates who have earned a Michigan Provisional Certificate since July, 1970, must complete an eighteen-hour planned program to qualify for a Continuing Certificate. Candidates should consult the director of teacher certification, Miss Madge Strikwerda.

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

*Elementary education.* The minimum elementary education program requires the completion of the general education requirements (See pages 41-45 for the courses recommended for students in teacher education), either an approved group concentration of ten and a half courses or a departmental concentration of eight and a half courses; a planned program of six courses in other subjects which are related to elementary education or a six-course departmental minor; and six professional education courses. Although recommended programs may exceed these minimums, including the minimum of twelve courses in general education, no program may require more than thirty-seven and a half courses. Programs should be worked out with Miss Gertrude Vander Ark, coordinator of elementary education and have the written approval of an adviser in the 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 listed above, a minimum of three in another subject, and the remaining courses in the same or related subjects. Model programs are listed below but students may consult the appropriate department for further advice.

**LANGUAGE ARTS STUDIES.** Required are English 100 and Speech 214. Recommended five-course sequences are: in English, 100, 200, 225, and two electives in Speech, 203, 214, 215, 250 and one elective; in foreign language, five courses

approved by the chairman of the department. The recommended three-course sequences are the designated courses above. At least ten and a half courses must be selected from this group.

**SOCIAL STUDIES.** Required are Earth Science 101 or 113, History 101 or 102, Sociology 151 or 203, and one course from Economics 151, Political Science 151 or 300. The recommended five-course sequences are: in Economics, 151, 321 or 322, plus three electives; in History, 101 or 102 and four electives; in Political Science, 151, 201, plus three electives; in Psychology, 204, 310, plus three electives; in Sociology, 151 or 203, plus four electives. The three-course sequences should include the designated courses above. Such a sequence is also possible in Earth Science and Geography. At least ten and a half courses must be selected from this group.

**GENERAL SCIENCE STUDIES.** Required are Biology 111 or 151; Earth Science 113; Mathematics 109 or 111; and Physics 112, 222, or 225. The electives indicated below may be chosen from departmentally approved interims. The recommended five-course sequences are: Biology 151, 152, 251, 252, plus one elective; Chemistry 103, 104, plus three electives; Mathematics 111, 112, plus three electives; Physics 126, 225, 226, plus two electives; biological science, Biology 111, 205, 206, plus two electives; physical science: Physics 112, Earth Science 113, Chemistry 113, Astronomy 110, plus one elective. The recommended three-course sequences are: Chemistry 103-104 or 113-114, plus one elective; Earth Science 113; Geology 201, 210; Mathematics 109 and two electives or 111-112 and one elective; Physics 221-222 or 126 and 225, plus one elective; Psychology 204, 216, plus one elective from 250, 310, 311, or 312; biological science: Biology 111 or 151, 205, 206; physical science: Physics 112, Chemistry 113, plus one approved elective. The adviser for these programs is Mr. Clarence Menninga.

**FINE ARTS STUDIES.** Required are Art 207 (or 206, if only one art course is taken), Music 103-104 (or 222, if only one music course is taken), Music 222 or 331, and Speech 214. The recommended five-course sequences are: in Art, 151, 206, 207, 208, and one elective; in Drama, Speech 203, 214, 219, 317, and one elective from 304, 318, or an approved interim; in Music, 103, 104, 203, 302, and 331. The recommended three-course sequences are: Art, 151, 206, and 207; in Drama 203, 214, and 219; in Music 211, 212, and 222 or 333. At least ten and one-half courses must be taken from the fine arts.

The appropriate education courses for students in elementary education are 301, 303, 304, 305, 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 206, Biology 111, English 100 and any literature course in English or in a foreign language, Earth Science 101 or 113, History 101 or 102 and any other history course, Mathematics 109 or 111, Music 222 or 331, Physics 112, Psychology 204, Political Science 151 or 300, and Speech 214. Courses in excess of the minimum required for a major concentration may also be applied to this program. 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. For information consult either Miss Gertrude Vander Ark, coordinator of elementary education, or Mr. Philip Lucasse, coordinator of secondary education.

*Secondary education.* The minimum secondary program requires the completion of the general graduation requirements (See pages 41-45 for the courses recommended for students in teacher education); a departmental concentration of eight and a half courses or a group concentration of ten and a half courses; a minor of six courses in another department or a group minor of seven; and six professional education courses. Although recommended programs may exceed these minimums, including the minimum of twelve courses in general education, no program may require more than thirty-seven and a half courses. Programs should be worked out with the appropriate departmental adviser. For specific problems a student should consult Mr. Philip Lucasse, coordinator of secondary education.

The programs of concentration shall be selected from the following subject areas: art, biology, chemistry, Dutch, economics, English, French, German, history, Latin, mathematics, music, physics, physical education, political science, Spanish, and speech. The minor shall be selected from these subject areas or from library science, psychology, religion and theology (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. A major group concentration consists of at least ten and a half courses, five of which must be in one department, three in another, and the remaining in either the same or related subjects. Such concentrations may be in the language arts (English, foreign language, speech) the sciences (earth science, biology, chemistry, mathematics, and physics) and the social sciences (economics, history, political science, psychology and sociology). Group minors of seven courses with the minimum of three in one subject may be chosen from these same areas and from the humanities (art, literature in any language, music, philosophy, religion and theology, the social studies, and speech).

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

*The Bachelor of Science in Special Education degree program.* Calvin College in cooperation with Grand Valley State College offers a Bachelor

of Science in Special Education degree training students to work with mentally handicapped and emotionally disturbed students. Students in the program must complete a designated core of thirteen liberal arts courses, must meet the professional education requirements for either elementary or secondary education, must meet an appropriate departmental or inter-departmental program of concentration, and must meet the additional requirements for certification in special education. The individual programs, which are planned to meet the particular interests and abilities of each student, typically require four academic years and one summer. Students interested in special education should work out their programs with Mr. Jack Wiersma of the Education Department.

### 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. Edger Boevé of the Art Department or Mr. James Bosscher of the Engineering Department. The program incorporates a significant portion of the basic core curriculum as well as of the preprofessional requirements of the profession. A typical program would be:

<i>First year</i>	COURSES
Art 231	1
English 100	1
Engineering 101	1
Mathematics 107	1/2
Mathematics 111, 112	2
Christian Perspectives 100 (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 41) and the Business Economics concentration in the Department of Economics and Business (page 74). This program provides a minimum of twelve courses—the equivalent of forty-two semester hours—in business economics and related mathematics courses. This concentration along with the general graduation requirements 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, which may be required for specialization in certain areas.

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

<i>First year</i>	<b>COURSES</b>
Christian Perspectives 100	1
Economics 151	1
English 100	1
History 101 or 102	1
Foreign Language	2
Mathematics 205-206 or 111-112	2
Physical education	1/2
Religion and Theology	1
Speech 100	1/2
<i>Second year</i>	<b>COURSES</b>
Art, music, speech	1
Biology 111	1
Economics 207, 212	2
Mathematics 107	1/2
Philosophy 151-152 or 153 and 205 or 207	2
Physical education	1/2
Physical Science 110	1
Psychology or sociology	1
Elective	1
<i>Third year</i>	<b>COURSES</b>
Economics 309	1
Economics 313	1
Economics 316	1
Economics 322	1
Literature	1
Religion and Theology	1
Electives	3
<i>Fourth year</i>	<b>COURSES</b>
Economics 318	1
Economics 321	1
Economics 331-339 or 400	1
Electives	5-6

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

## ENGINEERING

Students planning to enter the engineering program should consult with Mr. James Bosscher, chairman of the Department of Engineering, when arranging their programs. Students wishing to graduate from Calvin College on the combined curriculum plan are advised to complete the twenty-eight course program below. (A minimum of twenty-seven courses and a minimum cumulative grade point average of C is required.) If a student completes this program and subsequently completes a degree program at a recognized school of engineering, which typically requires an additional three semesters, he will also receive a degree from Calvin College—a Bachelor of Science 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. The half course, Engineering 312, is also recommended.

<i>First year</i>	COURSES
Chemistry 103	1
Engineering 101	1
Engineering 102	1/2
Mathematics 111, 112	2
Physics 126	1
CPOL 100, religion and theology, or history	1
Economics 151	1
English 100	1
Mathematics 108	1/2
Physical education	1/2
 <i>Second year</i>	
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	1/2
 <i>Third year</i>	
Engineering elective	1
Technical elective, from 200 or 300 level courses in biology, chemistry, engineering, mathematics, or physics	2
Interim, engineering	1
Philosophy, 200 series course	1

Religion and Theology	1
Literature, if none in high school, or a non-technical elective	1
Fine arts elective	1
Elective	1

## FORESTRY

Students wishing to prepare themselves to become certified foresters can do so by enrolling in the combined-curriculum program in forestry. This program requires a student to take his first three years at Calvin College, completing a minimum of twenty-seven 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 five-year professional degree, Bachelor of Science in Forestry, from the University of Michigan if he has met the requirements for the degree.

The science requirements for the program are: Biology 151, 152, 252, 313, 341, and 346; Mathematics 111 and 112; Earth Science 251 (geology); 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 CPOL 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.

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

## LAW

Students who plan to enter a law school upon graduation from Calvin College should complete the requirements for a Bachelor of Arts degree as these are listed on pages 41-45. The selection of the program of concentration should be made in consultation with Mr. Johan Westra, the prelaw adviser.

## MEDICINE AND DENTISTRY

All students planning to enter 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 21.

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

Most medical and dental schools strongly advise students to take a four-year college course. Those students, however, who wish to secure a baccalaureate degree from Calvin College on the combined curriculum plan should complete twenty-seven courses with a minimum grade point average of C (2.0), including the programs prescribed above, and as much of the required core curriculum as possible. For their electives, students should choose such subjects as are required for admission to the particular medical or dental school which they expect to attend. Upon satisfactory completion of this course and one year of successful work in a recognized medical or dental school, the student will be eligible on the combined curriculum plan for the degree of Bachelor of Science in Letters and Medicine, or Bachelor of Science in Letters and Dentistry.

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

## MEDICAL TECHNOLOGY

To qualify for the Bachelor of Science in 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 151, 152, 251, 252, and 336; Chemistry 103, 104, 253, 254; 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 Christian Perspectives on Learning; 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 second-year college level.

A typical student program is as follows:

	COURSES
<i>First year</i>	
Biology 151, 152	2
Chemistry 103, 104	2
English 100	2
Foreign language (See paragraph above)	1
History 101 or 102	1
Interim	1
Physical education	1/2
<i>Second year</i>	
Biology 251, 252	2
Chemistry 201, 204, 253, 254, 301, or 302	2
Other required courses	4
Interim	1
Physical education	1/2
<i>Third year</i>	
Biology 336	1
Chemistry	1
Other required courses	4
Free elective	1
Interim, biology	1
<i>Fourth year</i>	
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, 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 recommends that Calvin College students planning to enter the seminary should satisfy the above requirements in part by including the following courses in their programs: Education 301-303, Greek 205-206, History 301, at least two philosophy courses chosen from the Intermediate or Advanced Historical Courses, and Speech 200 followed by either 203 or 240.

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.

Students desiring counsel should consult their departmental adviser; Mr. Jack Reifer, the seminary registrar; or a member of the Preseminary Advisory Committee.

## 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. (Calvin and Blodgett Hospital provide this option.) They may also follow a four-year program leading to a Bachelor of Science in Nursing degree. One or two years of such programs typically may be completed at Calvin. Students interested in any of these programs should work out their programs with the nursing adviser, Miss Beverly Klooster.

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

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

Persons wishing to take this diploma nursing program must make application with both the director of the Blodgett Memorial Hospital School of Nursing and with the admissions officer of Calvin College. Application should be made during the last part of the junior year of high school or early in the senior year. No application will be processed until *all* required forms and test scores are available to the director of the school of nursing (See page 23). Admission to this nursing program is determined by the admissions committee of the school of nursing.

The Bachelor of Science in Nursing programs involve completion of the degree requirements at another institution. Increasingly, such programs are divided into two parts, a basic, two-year prenursing curriculum which may be completed at any qualified college and a two-year professional nursing part. Normally students apply for admission to such nursing schools during their sophomore year. Such programs are offered by the schools of nursing at Cornell and Columbia universities in New York, at Case Western Reserve in Ohio, and at Grand Valley State College in suburban Grand Rapids, with which Calvin has a close working relationship.

The core of the prenursing program for students preparing to transfer to Grand Valley is: Biology 151-152, 107-205 or 251-336, Chemistry 103-104, 253-254, Physics 221, Psychology 151, English 100 plus a literature course, Sociology 151, a course in developmental psychology, and three semesters of basic physical education. Students who have not completed four years of high school mathematics should complete Mathematics 101-102, 109, or another appropriate course.

Student may also complete the requirements for a Bachelor of Science in Nursing degree by transferring into four-year programs at such schools of nursing as University of Michigan, Michigan State University, or Wayne State University. Other schools in Michigan offering the degree are: Andrews University, Madonna College, Nazareth College, Mercy College, and Northern Michigan University.

## 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, requiring three years at Calvin and two at the university. Students with superior academic records may complete some of their work toward a master's degree during the fifth year. At present there is no

commonly accepted professional degree in this field but this is the usual preparation. The adviser for these programs is Mr. A. Bratt.

The basic courses required are: Biology 151, 152, 251, 252, 313, 341, 346, and Earth Science 251. Because there are different concentrations possible within the field of natural resources, individual student programs must be worked out with the adviser. Cognate courses typically include Chemistry 103-104; Physics 221-222 or Physics 112 and Chemistry 113; and Mathematics 111-112. The liberal arts core requirements are the same as those specified for forestry.

A two-year curriculum preparing for transfer to the wildlife management program at the university is also possible. Such students should complete: Biology 151, 152, 206, 251, 252, and 321; Mathematics 111-112; and as many of the core requirements as possible. The university requires twelve semester hours in the humanities and twelve in the social sciences.

#### OTHER PROFESSIONAL PROGRAMS

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



# Description of COURSES

The symbols F (Fall), I (Interim), and S (Spring) indicate when each course is offered. The term *core* designates those courses in each department which meet the general graduation or core requirements of the discipline. The few courses which carry more or less than a single course credit are indicated; all others carry a single course credit. Courses regularly offering honor sections are indicated; honor registration in any course is possible subject to the approval of the instructor and the chairman of the department. Interim courses numbered 1-19 and 101- are open to any student; those numbered 20-29 are open to sophomores and juniors; and those numbered 30 or higher are open to juniors and seniors.

Faculty members on leave of absence for the 1973-74 academic year are indicated by an asterisk (\*), those on leave for the first semester by a dagger (†), and those on leave the second semester by double asterisks (\*\*).

## 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. Albers, Mr. C. Boersma, Mr. P. De Boer, Mr. P. De Jong, Miss Huisman, Mr. Konyndyk, Mr. Lagerwey, Mrs. Noteboom, Mr. Spykman, Mr. Van Zyt-

veld, Mr. Wells, Miss Westra, Mr. M. Zuidema.

### 1973-74 INTERIM

*The full description of interim courses is given on pages 121-136.*

- 101 THE ART OF PHOTOGRAPHY, Mr. Ehlers, Mr. Overvoorde.
- 102 LEADING THE SMALL GROUP: THEORY AND PRACTICUM, Mr. Tietsma, Mr. Zuiderveen.
- 103 INTRODUCTION TO AUTOMOTIVE MECHANICS FOR WOMEN, Miss Klooster, Mr. De Beer.
- 104 INTRODUCTORY RADIOCHEMISTRY, Mr. Broene, Mr. Griffioen.
- 105 ART AND WORSHIP IN THE EARLY CHRISTIAN AND BYZANTINE WORLD, Mr. R. Otten.
- 106 VICTORIAN PROSE CLASSICS, Mr. Tiemersma.

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| <p>107 CLASSICAL MYTHOLOGY, <i>Mr. Van Vugt.</i></p> <p>108 GREEK CIVILIZATION, <i>Mr. Harris.</i></p> <p>109 DANTE: A STUDY OF THE DIVINE COMEDY, <i>Mr. Rienstra.</i></p> <p>110 WORDS AND HOW THEY BEHAVE, <i>Mr. Wevers.</i></p> <p>111 THE NOVEL AS HISTORY: BALZAC, WITNESS AND INTERPRETER OF HIS TIMES, <i>Miss Borger, Mr. D. Van Kley.</i></p> <p>112 WORKSHOP IN OPEN EDUCATION, <i>Mr. Holquist.</i></p> <p>113 MEDIA, METHODS, AND THE RELIGIOUS MESSAGE, <i>Mr. Hoeks.</i></p> <p>114 CHOOSING A CAREER: A DECISION-MAKING PROCESS, <i>Mr. Tietsma, Mr. Zuiderveen.</i></p> <p>115 LEADING THE SMALL GROUP: THEORY AND PRACTICUM, <i>Mr. Tietsma, Mr. Zuiderveen.</i></p> <p>116 MOTION OF HEAVENLY BODIES, <i>Mr. J. Kuipers</i></p> | <p>117 RAILROADS IN AMERICAN HISTORY, <i>Mr. Sinke, Mr. Strikwerda.</i></p> <p>119 ENVIRONMENTAL STUDIES WORKSHOP, <i>Mr. A. Bratt, Mr. R. De Vries, Mr. Gebben, Mr. Menninga (chairman), Mr. Rice, Mr. Van Poolen.</i></p> <p>123 NOISE AND MAN, <i>Mr. Geerdes, Mr. Vande Gutche.</i></p> <p>125 PLANTS AND CIVILIZATION, <i>Mr. Karsten.</i></p> <p>127 PRACTICUM IN TEACHING ADOLESCENT LITERATURE, <i>Mr. Baron.</i></p> <p>131 THE WHAT AND HOW OF GRADE SCHOOL GEOMETRY, <i>Mr. Boonstra.</i></p> <p>134 THE CONTEMPORARY AMERICAN RELIGIOUS SITUATION, <i>Mr. Primus, Mr. Smit.</i></p> <p>135 FOLKLORE OF FOREIGN LANDS, <i>Mr. Hegewald.</i></p> <p>136 PEELING THE ONION WHICH IS YOU, <i>Mr. D. Oppewal.</i></p> <p>137 THE ART OF ILLUSION, <i>Mr. Bessel-sen.</i></p> |
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## Art

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

*Assistant Professors H. Bonzelaar, C. Huisman, N. Matheis, C. Overvoorde*

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, 325, 231, 232, 320, 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: 206, 207, 208, 209, 210, 325, 231, 232, and 320; the minor concentration is: 206, 207, 208, 209, 231, and 232. Advisers for these programs are Mr. Boevé, Mrs. Bonzelaar, and Mr. Jensen.

The core requirements in the fine arts may be met by 151, 206 (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.*

206 PRINCIPLES OF ART EDUCATION. F and S, core. A course emphasizing

methods and techniques of organizing and motivating art instruction. It includes lectures, demonstrations, and art teaching experiences in the school situation. **Research** paper required. *Mr. Boevé, Mrs. Bonzelaar, Mr. Jensen.*

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

208 **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. *Mr. Huisman, Mr. Jensen, Mr. Matheis.*

209 **DRAWING I.** F. 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. Huisman, Mr. Matheis.*

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

231 **AN INTRODUCTION TO THE HISTORY OF THE FINE ARTS.** F, core. A survey of the history of architecture, painting, and sculpture in Ancient, Medieval, and Renaissance times. A study of the character of ancient art from Egypt through Rome is followed by a study of medieval art from its beginning in the early days of the Christian era to its climax in the Gothic period of the thirteenth century. This course will be concluded with an introduction to the art of the Renaissance in Italy to 1500. *Mr. Boevé.*

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

310 **SCULPTURE.** S. Exploration of traditional and contemporary sculpture ma-

terial. Application of their use and control for personal expression. Prerequisites: 207, 208, 209, 210. Not offered 1973-74. *Mr. Huisman.*

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

320 **PRINTMAKING.** 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. 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. Matheis, Mr. Overvoorde.*

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

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

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

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

#### 1973-74 INTERIM

*The full description of interim courses is given on pages 121-136.*

- 10 CONTEMPORARY CHURCH ARCHITECTURE, *Mr. Boevé.*

- 11 ENAMELING, *Mrs. Bonzelaar.*
- 12 ANIMATION IN FILMMAKING, *Mr. Jensen.*
- 13 SUMI PAINTING, *Mr. Matheis.*
- 390 INDEPENDENT STUDY

*The following interdisciplinary interim course is also offered by a member of this department.*

- 101 THE ART OF PHOTOGRAPHY, *Mr. Overvoorde and staff.*

## Astronomy

STUDENTS INTERESTED in graduate work in astronomy should plan to 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, physical science core. A survey of the major astronomical objects found in the universe, 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 observe and study them. The course includes a pre-

sentation of the evidence of the history and development of the universe, a description of past and present cosmological models, and a discussion of possible Christian responses to them. *Mr. Van Till.*

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

## Biology

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

VARIOUS PROGRAMS of concentration in biology prepare a student for graduate study, for high school teaching, and for professional training in medicine and related fields. To be admitted to a concentration a student must have a minimum average of C (2.0) in 151 and 152 or in an equivalent program approved by the department.

The major program requires 151, 152, 251, 252, 261, 262; three additional courses selected from any three of the following biological sub-disciplines: developmental biology (303), ecology (313), morphology (321).

326), physiology (331, 336), and systematics (341, 346); and the senior seminar. Required cognates include mathematics through the level of calculus and analytical geometry (Math. 111-112) or a year of college physics, and the completion of a second year of college chemistry.

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

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

#### NURSING PROGRAM COURSES

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

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

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

#### GENERAL COLLEGE COURSES

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

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

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

animals. Prerequisite: Biology 111. *Mr. Bengelink.*

#### PROGRAM OF CONCENTRATION COURSES

*Any of the following courses may be used to fulfill the general college core requirement in biology. Biology 151, 152, 251, and 252, or their equivalents are prerequisite to all other courses.*

151 **CELL BIOLOGY.** F. A study of cellular, subcellular, and molecular structure and function. Cell theory is developed as a basis for study in other areas of biology. *Staff.*

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

251 **ORGANISM BIOLOGY I — ANIMAL STRUCTURE AND FUNCTION.** F. A study of animal morphology and physiology with emphasis on the vertebrate organism. Principles of homeostasis and complementarity of structure and function are emphasized. Prerequisites: Biology 151-152. *Staff.*

252 **ORGANISM BIOLOGY II — PLANT STRUCTURE AND FUNCTION.** S. An introduction to the anatomy and physiology of plants with emphasis on the seed plants. Prerequisites: Biology 151, 152. *Staff.*

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

262 PLANT DIVERSITY. S, quarter course. A systematic study of the classification, morphological patterns, and adaptations of vascular and non-vascular plants. Prerequisites: 152 or its equivalent; concurrent enrollment in 252 is recommended. *Mr. Gebben.*

303 DEVELOPMENTAL BIOLOGY. F. An introduction to the study of biological development, including both embryonic and post-embryonic systems. Additional prerequisite: Chemistry 254 or its equivalent. *Mr. Beebe, Mr. Ten Broek.*

313 GENERAL ECOLOGY. F. An introduction to the study of biological populations and communities, including discussions of biogeographic regions, the ecosystem concept, and interactions of organisms with the biotic and abiotic environment. *Mr. Gebben.*

321 DEVELOPMENTAL AND COMPARATIVE ANATOMY. S, one and a half courses. A study of the development and comparative anatomy of vertebrates. Four hours of lecture and two laboratory sessions per week. *Mr. Bengelink.*

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

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

336 GENERAL MICROBIOLOGY. S. A

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

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

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

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

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

#### 1973-74 INTERIM

*The full description of interim courses is given on pages 121-136.*

- 10 GETTING TO KNOW THE BIRDS, *Mr. Bengelink.*
- 22 ABOUT TREES, *Mr. Gebben.*
- 30 SUPERVISION OF LABORATORY WORK IN BIOLOGY, *Mr. Beebe, Mr. Ten Broek.*
- 390 INDEPENDENT STUDY

*The following interdisciplinary interim courses are also offered by members of this department.*

- 103 INTRODUCTION TO AUTOMOTIVE MECHANICS FOR WOMEN, *Miss Klooster and staff.*
- 119 ENVIRONMENTAL STUDIES WORKSHOP, *Mr. A. Bratt, Mr. A. Gebben, and staff.*
- 125 PLANTS AND CIVILIZATION, *Mr. Karsten.*

# Chemistry

*Professors H. Broene, T. Dirkse, E. Wolthuis (chairman)*

*Associate Professors K. Piers, W. Van Doorne*

*Assistant Professor R. Albers*

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

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

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

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

The teaching group major in chemistry and physics consists of Chemistry 103-104 and 253-254 or 301-302; Physics 123, 124, 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 Hospital nursing program. *Mr. Dirkse.*

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

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

anions. Laboratory. Prerequisite: 103. *Staff.*

**113 FUNDAMENTALS OF CHEMISTRY.** F. 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. Dirkse.*

**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. Albers.*

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

204 INTRODUCTORY THEORETICAL CHEMISTRY. S. A study of the states of matter, properties of solutions, thermodynamics, chemical kinetics, and the colloidal state. This course treats some of the topics also covered in Chemistry 277-278, but is designed for students who have not had Mathematics 111-112. Prerequisite: 201. *Mr. Broene.*

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

254 ORGANO-BIOCHEMISTRY. S. A continuation of 253, concluding with a study of the chemistry of metabolism and the application of quantitative methods to biochemical analyses. Laboratory. Prerequisite: 253. *Mr. Wolthuis.*

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

278 PHYSICAL CHEMISTRY. S. A continuation of 277, with a study of electrochemistry, chemical thermodynamics, and kinetics. Laboratory. Prerequisite: 277. *Mr. Dirkse.*

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

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

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

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

309 ADVANCED QUANTITATIVE ANALYSIS. S. A study of optical, electrometric, chromatographic, and radiochemical methods of analysis, with emphasis on their theoretical bases. Laboratory. Prerequisites: 201, 277. *Mr. Dirkse.*

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

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

400 SEMINAR.

#### 1973-74 INTERIM

*The full description of interim courses is given on pages 121-136.*

- 10 SCIENCE, TECHNOLOGY AND CULTURE, *Mr. Piers.*
- 20 POLYMER CHEMISTRY, *Mr. Van Doorne.*
- 31 WHAT'S IN THE STUFF WE BUY? *Mr. Dirkse, Mr. Wolthuis.*
- 390 INDEPENDENT STUDY

*The following interdisciplinary courses are also offered by members of this department.*

- 100 CHRISTIAN PERSPECTIVES ON LEARNING, *Mr. Albers and staff.*
- 104 INTRODUCTORY RADIOCHEMISTRY, *Mr. Broene and staff.*

# Classical languages

Professors G. Harris, R. Otten (chairman), R. Wevers  
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, 311 and Latin 312 or History 301 and a 300-level Greek course.

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

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

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

The core requirements in the fine arts may be met by Greek 301-302, any Latin course numbered 202 through 304, and designated interims. Interdisciplinary 10 may be part of the teaching minor in the academic study of religions.

## GREEK

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

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

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

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

203 INTERMEDIATE GREEK B. F. Readings of selections from Herodotus. Special emphasis is put on gaining reading proficiency in Greek prose, with some attention to the characteristics of Herodotus as historian. Further readings from the Attic orators. Prerequisite: 102. Not offered 1973-74.

204 INTERMEDIATE GREEK B. S, core. Continued readings in the Attic orators. Attention is given to certain matters of style. The orators are viewed in relation to, and as documentation for, the history of fourth-century Athens. The course concludes with selected readings from Thucydides. Here, too, special attention is given to his style as well as to his characteristics as historian. Prerequisite: 203 or 201. Not offered 1973-74.

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. Wevers.*

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

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

302 GREEK DRAMA. S, core. A reading of selected Greek tragedies with attention given to their poetic and drama-

tic qualities. Those matters of Greek culture, literary tradition, and history which help to understand the plays are noted. Assigned outside reading in other Greek plays. Prerequisite: 301. *Mr. Harris.*

311 GREEK HISTORY. F. The political, social, and cultural history of the Greek city-states up to the time of the Roman conquest. Some attention is also given to the history of the Near and Middle East. Not offered 1973-74.

#### 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. *Mr. Otten.*

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. *Mr. Otten.*

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

202 INTERMEDIATE LATIN: VERGIL AND THE ANCIENT EPIC. S, core, honor sections. A study of the *Aeneid* and the ancient epic in translation. Selected books in the *Aeneid* will be read in Latin with a study of the prosody of Vergil. Prerequisite: three units of high school Latin or three courses of college Latin. *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. 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. 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. *Mr. Otten.*

302 **LATIN PHILOSOPHICAL LITERATURE: CICERO AND AUGUSTINE.** S, core. Readings in Cicero and Augustine, selected to complete the survey begun in 301 and to present the first major Christian critique of classical thought. Collateral readings and reports. Prerequisite: 205 or 206. Alternates with 304. *Mr. Otten.*

303 **LATIN LYRIC POETRY.** F, core. A study of Latin lyric poetry from Catullus through the elegiac poets, with some attention to early Christian and medieval poetry. Collateral reading and reports. Prerequisite: Latin 205 or 206. Alternates with Latin 301. Not offered 1973-74.

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

sources and commentary on the political issues and movements of the Early Empire. Collateral reading and reports. Prerequisite: Latin 205 or 206. Alternates with Latin 302. Not offered 1973-74.

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 1973-74.

#### 1973-74 INTERIM

*The following interdisciplinary interim courses are offered by members of this department.*

105 **ART AND WORSHIP IN THE EARLY CHRISTIAN AND BYZANTINE WORLD,** *Mr. Otten.*

107 **CLASSICAL MYTHOLOGY,** *Mr. Van Vugt.*

108 **GREEK CIVILIZATION,** *Mr. Harris.*

110 **WORDS AND HOW THEY BEHAVE,** *Mr. Wevers.*

## Dutch

*Professors W. Bratt (chairman, Department of Germanic Languages), W. Lagerwey (program adviser), Queen Juliana Professor of Language and Culture of the Netherlands.*

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

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

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

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

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

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

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

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

306 DUTCH CLASSICS. Core. A continuation of 305.

307 READINGS IN DUTCH CHURCH HISTORY. F. A study in the Dutch language of source documents pertaining to the history of the Reformed churches in the Netherlands during the period 1450-1700.

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

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

# Earth science, geography, geology

*Professor V. Ehlers (chairman, Department of Physics)*

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

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

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

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

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

252 **HISTORICAL GEOLOGY.** S. A study

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

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

# Economics and business

*Professor D. Pruis (acting chairman)*

*Associate Professor G. Monsma*

*Assistant Professors \*R. Bosscher, E. Dykema, K. Kuipers*

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 economy theory and analysis, the business economics concentration is the usual business administration program, and a group concentration may be arranged to accommodate particular interests. For teacher education, requirements are given below with each concentration.

Economics concentration requirements are 151, 207, 321, 322, six other courses (five for teacher education) including at least four (three for teacher education) from 331-342 and 400, and the mathematic cognate.

Business Economics concentration requirements are 151, 207, 212, 313, 316, 318, 321, 322, two other courses including at least one from 331-339 and 400 (one other course from 331-339 and 400 for teacher education), and the mathematics cognate.

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

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

Group majors involving six courses in economics and business and six courses in mathematics are 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 levels, and economic growth. The course is designed to prepare the student for further work in economics, history, government, and sociology, and to help him to an understanding of basic domestic and international problems. *Staff.*

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

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

307 INTERMEDIATE ACCOUNTING. F. A study of financial accounting theory and generally accepted accounting principles applied to asset valuation, accounting for liabilities and stockholders' equity, related income determination problems, and preparation of corporate financial statements. Prerequisite: 212. *Mr. Kuipers.*

308 ADVANCED ACCOUNTING. S. Continuation of 307 with applications to accounting for partnerships, preparation of consolidated financial statements, and accounting for installment and consignment sales. Introduction to governmental or fund accounting. Prerequisite: 307. *Mr. Kuipers.*

309 LAW IN BUSINESS. An introduction to American business law: origins,

development, legal institutions, and processes. The legal environment of business: Uniform Commercial Code and case law of business transactions; other topics selected from agency, property, partnership, corporation, regulatory, and administrative law. *Mr. Pruis.*

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

313 BUSINESS ORGANIZATION AND MANAGEMENT. F. A study of the principles and problems of organization and management for optimal administration of the general management function in the firm, with emphasis on effective utilization of the human resources of the firm. Prerequisites: 151 and 207. *Mr. 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. 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. *Staff.*

321 THE NATIONAL INCOME. F. An intermediate course in macro-economic

theory which studies the theory of aggregate demand, the degree of utilization of productive capacity, economic growth, and the general levels of prices. Prerequisite: 151. *Mr. Dykema.*

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

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

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

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

338 **INTERNATIONAL ECONOMICS.** S. A study of international economic relations, stressing the fundamentals of trade theory, the balance of payments, problems of international disequilibrium, trade barriers, and efforts to promote in-

ternational economic stability and growth. Prerequisite: 151.

339 **THEORY OF PUBLIC FINANCE.** S. A study of the economics of government expenditures, taxation, and debt, with emphasis on allocation of resources, income distribution, and level of employment and production in the economy. Prerequisite: 151. *Mr. Monsma.*

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

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

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

#### 1973-74 INTERIM

*The full description of interim courses is given on pages 121-136.*

10 **FEDERAL INCOME TAXES,** *Mr. Kuipers.*

30 **ECONOMIC STATISTICS AND RESEARCH,** *Mr. Pruis.*

31 **INTERNSHIP IN BUSINESS,** *Mr. Pruis.*

390 **INDEPENDENT STUDY**

# Education

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

*Associate Professors P. Lucasse, J. Wiersma*

*Assistant Professors K. Blok, W. Hendricks, G. Vander Ark, D. Westra*

*Director of Teacher Certification and Field Services M. Strikwerda*

**THE VARIOUS TEACHER TRAINING PROGRAMS** are described in detail on pages 47-51. 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 Miss Gertrude Vander Ark, coordinator of elementary education.

The elementary teacher education program requires eight courses: 301, 303, 304, 305, and, during the internship semester, 345 and 355. The secondary teacher education program requires seven courses: 301, 303, 304, and, during the internship semester, 307, 346, and 356.

204 HISTORY OF AMERICAN EDUCATION. F and S. A study of the American school systems in their historical setting from colonial times to the present. Special attention is given to the ways in which social and intellectual movements affect educational theory and practice. Not required for the certification programs. Not offered 1973-74.

220 TEACHING ARITHMETIC IN ELEMENTARY SCHOOLS. Both content and methods in arithmetic as it is taught in the grades will be considered. Prerequisite: 301 or the equivalent. Not required for certification programs. Not offered 1973-74.

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

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

304 PHILOSOPHY OF EDUCATION. F, S. An analysis of the assumptions, aims, and practices of two major educational philosophies—experimentalism and essentialism—followed by an analysis of the theory and practice of Christian education. Readings in typical writers from all three perspectives. Study of how educational changes tend to reflect changed social and philosophical climates and of how to evaluate these changes in the light of a biblical perspective of man, society, and human calling in the world. Students will work out a biblical approach to the theory and practice of Christian edu-

cation. Prerequisite: 301, 303, and Philosophy 153. *Mr. Beversluis, Mr. De Boer, Mr. 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 READING SKILLS IN THE CONTENT AREAS. F and S. A study of the nature of the reading process; techniques for incorporating reading instruction within the teaching of the various content fields; planning lessons appropriate to the students' capacity to read. This course is planned for secondary teacher education students as part of the internship semester. *Mrs. Blok*.

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

345 TEACHING INTERNSHIP FOR ELEMENTARY TEACHERS. F and S, three courses. Includes classes and seminars in teaching the various subjects offered in the elementary school. Prerequisites: approval of the department and a cumulative grade point average of C (2.0). *Staff*.

346 TEACHING INTERNSHIP FOR SECONDARY TEACHERS. F and S, two courses. Includes classes and seminars in teaching the various disciplines. Prerequisites: approval of the department, approval of the major department, cumulative grade point average of C. (2.0). *Staff*.

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

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

#### 1973-74 INTERIM

*The full description of interim courses is given on pages 121-136.*

10 **COLLEGE LEVEL READING SKILL—WORKSHOP AND SEMINAR,** Mrs. Blok.

11 **WHAT'S CHRISTIAN ABOUT CHRISTIAN SCHOOLS?** Mr. Beversluis.

30 **CURRENT ISSUES IN HEALTH EDUCATION,** Mr. Hendricks.

390 **INDEPENDENT STUDY**

*The following interdisciplinary interim courses are also offered by members of this department.*

100 **CHRISTIAN PERSPECTIVES ON LEARNING,** Mr. De Boer, Miss Vander Ark and staff.

103 **INTRODUCTION TO AUTOMOTIVE MECHANICS FOR WOMEN,** Mr. De Beer and staff.

136 **PEELING THE ONION WHICH IS YOU,** Mr. Oppewal.

137 **THE ART OF ILLUSION,** Mr. Bes-selsen.

# Engineering

*Professor J. Bosscher (chairman)*

*Assistant Professor L. Van Poolen*

*Assistant Professors \*R. Bosscher, E. Dykema, K. Kuipers*

CALVIN COLLEGE offers a basic engineering program which, after subsequent study of approximately three semesters in an accredited school of engineering, can result in a bachelor's degree from each school attended. For details see pages 47 and 48.

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

102 **ENGINEERING COMMUNICATION, ANALYSIS AND DESIGN.** S. one-half

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

202 **STATICS AND DYNAMICS.** S. Study of fundamental principles of mechanics and their application to the problems of

engineering. Vector algebra, forces, moments, couples, friction, virtual work, kinematics of a particle, kinematics of a rigid body, dynamics of particles and rigid bodies, impulse, momentum, work, and energy are presented in two and three dimensions. Must be preceded or accompanied by Mathematics 211 and Physics 225 or, possibly, 211. *Mr. Van Poolen.*

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

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

**308 INTRODUCTION TO CIRCUIT ANALYSIS AND ELECTRONICS.** S. An introduction to the theory of electronic circuits and devices and their applications. The following are included: basic A.C. circuit concepts; diode and transistor characteristics and applications; amplifiers; feedback circuits; oscillators; operational amplifiers and their applications; logic elements and digital circuits. This course assume 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 or, possibly, 222. *Mr. Van Poolen.*

**310 THERMODYNAMICS.** S. An introduction to concepts of work and heat, properties of a pure substance, first law, second law, entropy, thermodynamic relations, mixtures, and an introduction to statistical thermodynamics. Prerequisites: Mathematics 212 and Physics 225 or, possibly, 222. *Mr. Van Poolen.*

**312 PRINCIPLES OF ANALOG COMPUTATION.** S, half course. An introduction to the theory and techniques of analog computation, including computer solutions for representative 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. *Mr. Bosscher.*

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

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

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

## 1973-74 INTERIM

The full description of interim courses is given on pages 121-136.

30 **CONTROL SYSTEMS ANALYSIS, Mr. Bosscher.**

390 **INDEPENDENT STUDY**

The following interdisciplinary interim course is also offered by a member of this department.

119 **ENVIRONMENTAL STUDIES WORKSHOP, Mr. Van Poolen and staff.**

# English

Professors G. Harper (chairman), K. Kuiper, P. Oppewall, H. Ten Harmsel, R. Tiemersma, J. Timmerman, S. Van Der Weele, C. Walkout, S. Wiersma

Associate Professors W. Holkeboer, H. Hook, I. Kroese

Assistant Professors H. Baron, M. Walters, M. Zylstra

Students may declare a major in English only after completing 100 and 200 with a minimum average of C (2.0). The recommended program is 303, 310, 311, 329 or 330, four other literature courses, and one interim.

Students who wish to be admitted to the teacher education program not only must meet the grade requirement in 100 and 200 but must also pass a screening test, which is given in November, April, and July. The recommended program for secondary education is: 100, 200, 202, 203, 310, 311, 313 or 315,, 329, and 336. Students who have begun their concentrations in English are advised to follow this program when possible. The adviser with particular concern for these programs is Mr. Kuiper.

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

English 320 and 321 may be part of the teaching minor in the academic study of religions.

The core requirements in written rhetoric may be met by 100 or by examination. The first core requirement in the fine arts is typically selected from 200, 202, 203, 212, and 303. Any literature course except 225 will satisfy the additional core requirements in the fine arts.

100 **WRITTEN RHETORIC. F and S. A study of written English rhetoric, with extensive practice in writing. Certain designated sections emphasize tutorial teaching. Staff.**

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

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

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

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

214 **BLACK AMERICAN WRITERS. F. The major works of Richard Wright, Langston Hughes, James Baldwin, Ralph El-**

lison, Claude McKay, Countee Cullen, Leroi Jones, and others in the background of the development of literature by Black American writers. Not offered 1973-74. *Mr. 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. *Mrs. Zylstra.*

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. 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. 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. Wiersma.*

306 MILTON. S. An intensive study of the poetry and prose of John Milton. Not offered 1973-74.

307 ENGLISH LITERATURE OF THE EIGHTEENTH CENTURY. S. A study of English poetry and prose in the eighteenth century, with emphasis on the neo-classicists, Pope, Addison, Swift, and Johnson, and a study of the beginnings of the romantic outlook in Gray, Thomson, and Cowper. *Mr. 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. Not offered 1973-74.

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

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

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

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

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. *Miss Ten Harmsel.*

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

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 Thomas Mann, and with particular attention to significant forms and themes. *Mr. 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, Shaw, Giraudoux, Pirandello, Brecht, Ionesco, Beckett, Behan, Delaney, Gelber, Genêt, Pinter. *Miss Walters.*

329 **LINGUISTICS.** F and S. A course that requires previous mastery of a traditional grammar as background to assigned readings in scholarly non-structural, structural, and transformational grammars. The course gives attention to assumptions informing the nomenclature, methodology, and scope of the assigned grammars. The course incidentally considers the relationship of these grammars to the study of composition and literature. *Mr. Hook.*

330 **HISTORY OF THE ENGLISH LANGUAGE.** F. 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. 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. *Mr. Harper.*

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. Not offered 1973-74.

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. Not offered 1973-74.

336 **TEACHING OF WRITING.** F and S. An introduction to the variety of secondary school curricula in English with pedagogical assistance in the teaching of writing. Frequent exercises in composition and revision. *Mr. Tiemersma.*

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

400 **SEMINAR IN ROMANTIC LITERATURE.** F. Prerequisite: permission of the instructor. *Mr. Kroese.*

#### 1973-74 INTERIM

*The full description of interim courses is given on pages 121-136.*

- 10 ENGLISH CITIES, *Mr. Harper.*
- 11 STUDIES IN SHAKESPEARE, *Miss Ten Harmsel.*
- 12 EPISODES IN FIVE POETIC TRADITIONS: THE SONNET, THE PASTORAL ELEGY, THE BALLAD, THE ODE, AND MASKS AND VOICES, *Mr. Kroese.*
- 13 THE FICTION OF PETER DE VRIES AND FREDERICK MANFRED, *Mr. Hook.*
- 14 A SEMINAR IN GEORGE BERNARD SHAW, *Mrs. Holkeboer.*
- 15 THE ARTS IN AMERICA 1910-1930, *Mr. Walhout.*
- 16 MODERN AMERICAN DRAMA: ARTHUR MILLER AND TENNESSEE WILLIAMS, *Miss Walters.*
- 17 SCIENCE FICTION, *Mrs. Zylstra.*
- 30 LITERARY REPUTATIONS, *Mr. Oppewall.*
- 31 AMERICAN LITERARY HUMOR, *Mr. Timmerman.*

- 32 ANATOMY OF DESPAIR, *Mr. S. Wiersma.*
- 390 INDEPENDENT STUDY
- The following interdisciplinary interim courses are also offered by members of this department.*
- 100 CHRISTIAN PERSPECTIVES ON LEARNING, *Mr. Van Der Weele and staff.*
- 106 VICTORIAN PROSE CLASSICS, *Mr. Tiemersma.*
- 127 PRACTICUM IN TEACHING ADOLESCENT LITERATURE, *Mr. Baron.*

# French

*Professor A. Otten (chairman, Department of Romance Languages)*  
*Instructor E. Borger*  
*Assistant G.-M. Baldwin*

STUDENTS may declare for a program of concentration in French after having completed two units of college French with a minimum average grade of C (2.0). The program of concentration includes 201, 202, 217, 218, 311, 312, 313, 314, 321, and 322. The major program for prospective secondary teachers requires 201, 202, 217, 218, 321, 322, and three from the following: 311, 312, 313, 314, 372. The minor program for prospective secondary teachers requires 201, 202, 217, 218, 321, 322. Programs for students beginning French in college, including prospective secondary teachers, should be worked out with the chairman. Cognates in a second foreign language, art (231, 232), and English or American literature (212, 300, 301, 303) are recommended. All courses above 102 meet core requirements: 217, 218, 311, 312, 313, 371, and 372 meet core requirements in the fine arts.

## LANGUAGE

- 101 ELEMENTARY FRENCH. F. An introductory course in the comprehension and use of spoken and written French. *Mrs. Baldwin.*
- 102 ELEMENTARY FRENCH. S. Continuation of 101. Prerequisite to a program of concentration are 101 and 102. *Mrs. Baldwin.*
- 201 INTERMEDIATE FRENCH. F, honor sections. Further training in spoken and written French, study of the structure of the language, and reading of important literary texts. Conducted almost exclusively in French. *Mrs. Borger.*
- 202 INTERMEDIATE FRENCH. S. Continuation of French 201. *Staff.*
- 205-206(Interim)-207 INTERMEDIATE FRENCH. F, I, S. A three-semester course intended for students who have completed two years of high school French with less than a C average or who have studied French in the tenth and eleventh grades. Admission to this course is by placement test administered at the time of fall registration. *Staff.*
- 321 ADVANCED FRENCH. F. A course for the advanced student who wishes to improve his facility in the language to an exceptional degree or who is preparing for graduate study or for the teaching of French. A wide variety of exercises, compositions, and drills is designed to develop in the student a high degree of competence in speaking, reading, and writing idiomatic French. Conducted in French. *Mrs. Baldwin.*
- 322 ADVANCED FRENCH. S. Continuation of 321, with training in the writing of the *dissertation* and other forms. *Mrs. Baldwin.*

## LITERATURE

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

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

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

**311 FRENCH DRAMA. F** odd years. A study of dramatic literature from the Middle Ages to the present day, with emphasis on classical and contemporary drama. Conducted in French. *Miss Borger.*

**312 THE FRENCH NOVEL. S** odd years. A study of fiction from the Middle Ages to the present day with special emphasis on the nineteenth and twentieth centuries. Conducted in French.

**313 FRENCH POETRY. F** even years. A study of the history and nature of French poetry by means of extensive reading and intensive examination of major poets, with special attention to the themes, forms, and techniques of poets of the modern period, beginning with Baudelaire. Conducted in French. Not offered 1973-74. *Mr. Otten.*

**314 FRENCH PROSE. S** even years. A study of major writers expressing French thought, spirit, and sensibility in non-fiction from Montaigne to Sartre. Special attention is paid to Calvin, Pascal, *les philosophes*, and the existentialists. Conducted in French. Not offered 1973-74. *Mr. Otten.*

**371 LITERARY DOCTRINES AND PROBLEMS. F** odd years. An advanced course devoted largely to literary theory, using as its point of departure a selec-

tion 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. Not offered 1973-74. *Mr. Otten.*

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

**400 SEMINAR.**

## CIVILIZATION

**372 FRENCH CIVILIZATION. F** odd years. A study of examples of non-literary, artistic expressions of the French mind in painting, architecture, and music, and of French religious, political, and social institutions. Designed to enhance the student's knowledge of French culture and to enrich his literary studies, this course is a complement to, rather than a substitute for, literary studies. Conducted in French. *Mr. Otten.*

## 1973-74 INTERIM

*The full description of interim courses is given on pages 121-136.*

**10 FRENCH INTERIM ABROAD, Mr. Otten.**

**20 NEW VOICES FROM FRENCH AFRICA AND FRENCH CANADA, Mrs. Baldwin.**

**206 INTERMEDIATE FRENCH, Staff.**

**390 INDEPENDENT STUDY**

*The following interdisciplinary interim course is also offered by a member of this department.*

**111 THE NOVEL AS HISTORY: BALZAC, WITNESS AND INTERPRETER OF HIS TIMES, Miss Borger and staff.**

# Geography and geology

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

## German

*Professors C. Boersma, W. Bratt (chairman, Department of Germanic Languages)  
Associate Professors C. Hegewold, B. Kreuzer, J. Lamse*

STUDENTS should complete their first college year of German with a minimum average of C (2.0) before applying for admission to the major program. This concentration normally includes 201, 202, 215, 217, 218, 301, and three additional courses, one of which in the case of students enrolled in the teacher education program must be 216. A teaching minor consists of a sequence of six courses including 201, 202, 215, 216, and two additional courses. The teacher education adviser is Mr. Kreuzer. Students contemplating either a German major or minor are encouraged to consult with a departmental adviser early in their programs.

All literature 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. I and S. Continuation of 101. *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. *Staff.*

205-206 (Interim)-207 INTERMEDIATE GERMAN. F, I, S. A three-semester

course intended for students who have completed two years of high school German with less than a C average. Intensive language review, composition, and selected readings. Upon successful completion of this course the student will have met his college foreign language requirement. Prerequisite: two years of high school German. *Staff.*

215 ADVANCED ORAL AND WRITTEN COMPOSITION. F. Exercises, compositions, and drills designed to develop in the student advanced competence in speaking and writing idiomatic German. Prerequisite: 202. *Mr. Lamse.*

216 ADVANCED ORAL AND WRITTEN COMPOSITION. S. Continuation of 215. *Mr. Kreuzer.*

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

250 GERMAN CIVILIZATION. F, odd years. 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. Hegewald.*

301 CLASSICISM. F even years, core. The origins of the classical ideal during the seventeenth and early eighteenth centuries. Readings from Klopstock, Lessing, Goethe, and Schiller. Prerequisite: 202. *Mr. 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. Lamse.*

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

305 NINETEENTH CENTURY DRAMA. F 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. 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. Lamse.*

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

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

#### COURSES IN ENGLISH

361 AN INTRODUCTION TO GERMAN CULTURE. S, fine arts core. A chronological survey of the German cultural tradition as it finds expression in the arts, especially in representative works of literature in translation. Open to all students, but designed particularly for students in designated preprofessional courses whose programs include the "foreign culture" option. No knowledge of German is required. *Mr. Bratt.*

400 SEMINAR.

#### 1973-74 INTERIM

*The full description of interim courses is given on pages 121-136.*

- 11 OF KNIGHTS, LADIES, AND UNUSUAL COMPLICATIONS: MEDIEVAL GERMAN LITERATURE IN ENGLISH TRANSLATION, *Mr. Lamse.*
- 206 INTERMEDIATE GERMAN, *Staff.*
- 390 INDEPENDENT STUDY

*The following interdisciplinary interim course is also offered by members of this department.*

- 100 CHRISTIAN PERSPECTIVES ON LEARNING, *Mr. Boersma, Mr. Lagerwey, and staff.*
- 135 FOLKLORE OF FOREIGN LANDS, *Mr. Hegewald.*

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

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

The minimum requirements for a major concentration are nine courses in history including either 101 or 102, one third level interim course in history or a departmentally-approved substitute, the departmental seminar (400), and a program emphasizing either American or European interests. The same programs satisfy teacher education majors. The European concentration requires at least three courses from 301-305, at least one course from 310-312, and at least one additional course from 310-312 or from 355 and 356. The American concentration requires at least three courses from 310, 311, 312, 355, and 356 and at least two courses from 301-305. The ideal teaching minor should include the designated courses in either program. Students seeking special advice on teacher education programs, including group majors for middle school teaching, should consult Mr. Greydanus.

The core requirement in history must be met by either 101 or 102; any other regular course in the department will satisfy the additional requirements in the contextual disciplines. 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, honor sections. A study of the main cultural currents of Western Civilization

with primary emphasis on the period since the Reformation. The honors section, which involves readings, small discussion groups, and papers, explores the nature of historical inquiry through the critical evaluation of one outstanding historian. *Staff*

201 ANCIENT NEAR EAST. A cultural history of the ancient Near East from prehistory to the rise of Islam. Based

on evidences from archaeology and cultural anthropology as well as on ancient texts in translation, Biblical accounts, and contemporary historical records. Special consideration is given to geographical setting, artistic and linguistic traditions, and cultural contacts with European civilizations. Not offered 1973-74.

202 MODERN NEAR EAST. S. A study of the transformation of the Near East from the rise of Islam through the establishment of independent national states following World War II. Particular attention is given to the institutionalization of Islam, the classical Arab Caliphates, the Crusades, the Ottoman Turkish and Safavid Persian states, the Near East Question, the modernist movements in Islam, and the problems of the contemporary states. Not offered 1973-74.

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

204 MODERN EAST ASIA. S. A study of the transformation of East Asian society resulting from the intrusion of the West, from the sixteenth century to the present. Primary emphasis is placed on the civilizations of China and Japan and on the contacts between East Asia and the West. Topics on East Asian religion, philosophy, art, literature, and music are included. *Mr. E. Van Kley.*

#### 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. Bolt, Mr. Strikwerda.*

212. ENGLAND. F. A survey of English history including: the Anglo-Saxon background; the medieval intellectual, religious, and constitutional developments; the Tudor and Stuart religious

and political revolutions; the emergence of Great Britain as a world power; the growth of social, economic, and political institutions in the modern period. *Mr. Ippel.*

215 CANADA. S. A tracing of the founding and character of New France and a more careful examination of nineteenth and twentieth century Canada. *Mr. Strikwerda.*

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

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

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

223 THE HISTORY OF GERMANY. 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. Not offered 1973-74.

#### STUDIES OF HISTORICAL PERIODS

301 CLASSICAL HISTORY. S. A study of the history of Greece and Rome from

the Minoan Age through the reign of the Emperor Theodosius. The emphasis is on the political and economic changes which were the background for the shifts in intellectual styles. Particular problems are studied in depth: the emergence of the city-state; the Periclean age of Athens; the age of Alexander; the crisis of the Roman Republic; and the Decline. The two units of Greek 311 and Latin 312 may be substituted in history concentrations for this one-unit course. *Mr. 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. Roberts.*

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. Rienstra.*

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

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

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

the American sequence and as an introduction to History 355, *Intellectual History of the United States.* *Mr. Brinks.*

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

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

320 **CONTEMPORARY WORLD.** F. 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. Greydanus.*

#### TOPICAL STUDIES

334 **UNITED STATES CONSTITUTIONAL HISTORY.** A study of the development of American legal and political traditions using the constitution as the focal point. Emphasis is on such themes as the inter-relationship among the three branches of government and the relationship between legal education and the decisions of the courts. Particular attention is given to the Supreme Court decisions as they have reflected or molded social, intellectual, economic, and political change. Not offered 1973-74.

351 **ENGLISH CONSTITUTIONAL HISTORY.** S. A study of the origins and subsequent developments of English law,

legal institutions and constitutional usages from 1066 to the present. Major topics considered are: the nature of English constitutional monarchy, the growth of Parliament, the development of English Common Law, the Tudor and Stuart revolutions, the Whig oligarchy, and the significant reforms of modern Britain. *Mr. Ippel.*

355 INTELLECTUAL HISTORY OF THE UNITED STATES. F. An analysis of the changing intellectual patterns in American society from about 1790 to the present as exemplified in religious, philosophical, political, social, and scientific thought. Emphasis is placed on the interaction of thought and society and some attention is given to European influence on American thought. A general knowledge of American history is assumed. *Mr. Marsden.*

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

360 AFRO-AMERICAN HISTORY. S. An intensive inquiry into the role of the Afro-American in the history of the United States, including an evaluation of past and present assumptions of the place of the Afro-American in American life, and an acquaintance with the his-

toriography on this subject. *Mr. Greydanus.*

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

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

#### 1973-74 INTERIM

*The full description of interim courses is given on pages 121-136.*

10 THE SECOND WORLD WAR, *Mr. Bolt.*

12 DUTCH-AMERICAN FOLKLORE: AN ORAL HISTORY PROJECT, *Mr. Brinks.*

13 COMPARATIVE WEST AFRICAN SOCIETIES, *Mr. Greydanus.*

30 BRITISH VIEW OF AMERICAN REVOLUTION, *Mr. Ippel.*

31 GIANT'S CHILDHOOD: THE EARLY DAYS OF MODERN SCIENCE AND TECHNOLOGY 1300-1600, *Mr. Jeltema.*

32 THE MONASTARY IN HISTORY, *Mr. Roberts.*

390 INDEPENDENT STUDY

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

30 DANTE: A STUDY OF *The Divine Comedy*, *Mr. Rienstra.*

100 CHRISTIAN PERSPECTIVES ON LEARNING, *Mr. Wells and staff.*

111 THE NOVEL AS HISTORY: BALZAC, WITNESS AND INTERPRETER OF HIS TIMES, *Mr. D. Van Kley, and staff.*

## 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, G. Van Zwalenberg (chairman), P. Zwier*

*Associate Professors J. Kuipers, S. Leestma*

**FRESHMEN DESIRING TO MAJOR** in the department should have completed four years of high school mathematics; those with deficiencies in algebra or trigonometry should complete 101 or 102. A minimum grade of C (2.0) in 211 is required of all students applying for a program of concentration in the department. The program includes 111, 112, 211, 212, 351, three additional courses numbered 300 or above, and one junior-senior level interim course. Students preparing to teach mathematics in secondary schools should complete a nine-course program including the five courses designated above in the general program plus 321, 331, 343 and one junior- or senior-level interim course. Cognate courses in physics and/or philosophy are strongly recommended as is a reading knowledge of German and French.

A teaching group major in physics and mathematics consists of Mathematics 111, 112, 211, 212, 321, and 351; Physics 123, 124, 225, 226, 381, and 382. A group minor in the same fields consists of Mathematics 111, 112, and 211; Physics 123, 124, 225, and 226. The elementary teacher education adviser is Mr. Clarence Menninga.

Group concentrations combining mathematics with biology, economics, philosophy, or physics are available. Interested students should consult the department chairman.

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

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

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

**107 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-oriented solutions of problems in elementary numerical methods, computational algorithms, systems simulation, statistical calculations, and string variable manipulation. *Mr. 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. Leestma, Mr. Nyhoff.*

**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 sections, core.

Rates of change, limits, derivatives of algebraic functions, applications of the derivative, integration, applications of the integral. *Staff*.

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

205 **MATHEMATICS FOR SOCIAL SCIENCE. F**. Real number system, field properties, functions and graphs, elementary linear programming, minimum and maximum problems, matrix algebra, systems of equations, sequences, applications to business mathematics, elementary probability theory. Prerequisite: Two years of high school mathematics. *Mr. Leestma, Mr. Sinke*.

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

211 **CALCULUS AND ANALYTIC GEOMETRY. F**, honors sections. 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. Should not be taken by students who have completed former 312. Prerequisite: 211. *Mr. Van Zwalenberg*.

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

series, residues and poles, conformal mapping. Should not be taken by students who have completed former 311. Prerequisite: 211. *Mr. Van Zwalenberg*.

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

323 **LINEAR AND PROJECTIVE GEOMETRY. S**. Transformations in the Euclidean plane, review of algebra of vector spaces, affine spaces, projective space, projectivities and their groups, cross ratio, theorems of Desargues and Pappus. Prerequisite: 352. Not offered 1973-74.

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

341 **NUMERICAL ANALYSIS. S**. Analysis of errors in numerical methods, real roots of equations, approximations using polynomials, calculus of finite differences, numerical methods for differentiation and integration, applications to differential equations, applications to matrix algebra, inversion of matrices, characteristic values. Prerequisites: 107 or 108 and 212. *Mr. Nyhoff*.

343 **PROBABILITY AND STATISTICS. F**. Probability, probability density functions; binomial, Poisson, and normal distributions; central limit theorem, limiting distributions, sample statistics, hypothesis tests, estimators. Prerequisite: 212. *Mr. Nyhoff*.

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. Zwier*.

352 **ADVANCED LINEAR ALGEBRA. S**. Vector spaces, matrices, linear equations, linear transformations, determinants, polynomial algebras, eigenvalues and eigenvectors, inner-product spaces, spec-

tral decompositions, canonical forms for matrices. Prerequisites: 211. *Staff.*

361 GENERAL TOPOLOGY. S. Elementary set theory, topological spaces, separation properties and connectivity, continuous mappings, homeomorphisms, product and quotient spaces, invariants under continuous mappings, compactness, metric spaces and completeness. Prerequisite: 211. *Staff.*

362 REAL ANALYSIS. F. The real number system, Lebesgue measure and integration, differentiation and integration of real functions, classical Banach spaces, abstract measure theory. Prerequisite: 212. *Mr. Sinke.*

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

400 SEMINAR. S. Selected topics in mathematics. Open to qualified juniors

and seniors with the permission of the chairman. *Staff.*

#### 1973-74 INTERIM

*The full description of interim courses is given on pages 121-136.*

30 MATHEMATICAL MODELING, *Mr. Nyhoff.*

31 INFINITE SERIES AND ASYMPTOTIC EXPANSIONS, *Mr. Van Zwalenberg.*

32 COMBINATORIAL MATHEMATICS, *Mr. Zwier.*

390 INDEPENDENT STUDY

*The following interdisciplinary courses are offered by members of this department:*

116 MOTION OF HEAVENLY BODIES, *Mr. J. Kuipers.*

117 RAILROADS IN AMERICAN HISTORY, *Mr. Sinke and staff.*

131 THE WHAT AND HOW OF GRADE SCHOOL GEOMETRY, *Mr. Boonstra.*

## Music

*Professors \*J. Hamersma (chairman), H. Slenk*

*Associate Professors J. De Jonge, H. Geerdes, D. Topp (chairman, pro tem)*

*Assistant Professors G. Huisman, C. Stapert, J. Worst*

*Professional staff T. Knol, R. Rus*

STUDENTS must complete 103, 104, 121, 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, 121, 122, 123, 124, 131, 132, 203, 204, 223, 224, 303, 304, 199-200 each semester, participation each semester in some faculty-directed ensemble, and four courses from one of the following areas: *music history*—205, 206, 305, 306, or approved interim courses; *theory and composition*—205, 206, and any two from 315, 316, 407, 408, or approved interim courses; *applied music*—four courses of individual instruction in a single instrument or voice culminating in a solo recital.

Students desiring a certificate to teach music from the kindergarten through the secondary level should complete the following fifteen-course

**concentration:** 103, 104, 121, 122, 123, 124, 203, 204, 223, 224, 303, 304, 313, 199-200 each semester, participation each semester in some faculty-directed ensemble, and the completion of one of the following programs in either instrumental or vocal music. *Instrumental music* requires 315, 329, 330; one elective from 205, 206, 220, 305, 306, 316, 329, 330, or 407; four semesters of instruction in a single string or wind instrument; and the completion of the ensemble requirement by 213-214 or 215-216. *Vocal music* requires 117, 118, 131, 132, 217; 109-110 or 141-142; 218, or 209, or 241; 205 or 206; 305 or 306; and one additional course from advanced courses (205, 206, 220, 305, 306, 315, 407) or from advanced interim courses; and the completion of the ensemble requirement by 207-208 (101-102 with one semester of audit of 207-208 for every two semesters of 101-102, with special permission). The liberal arts core automatically provides a humanities minor for students in these programs. The professional education requirements are met by Psychology 204 and Music 331 instead of Education 301 and 303.

A nine-course major for students in the elementary education program consists of 103, 104, 121, 122, 123, 124, 203, 331, 302, 313, 199-200 each semester and completion of one of the following programs in either vocal or instrumental music. *Vocal music* requires two semesters of participation in 207-208 (if 101-102 is taken, then one semester of audit of 207-208 for each two semesters of 101-102 is required), 117, 118, 141, 142, and one elective from 205, 206, 220, 305, 306, 315, 407, or an advanced interim. *Instrumental music* requires 329, 330, and two semesters study on a single wind or string instrument. In addition, 213, 214, 215, and 216 are highly recommended. For group majors involving music, see page 48. If a student does at least part of his teaching internship at the junior high school level, his teaching certificate will indicate that he is certified to teach music at both the elementary and secondary levels.

A minor in music education requires 103, 104, 203, 302, 313, 331, and two semesters of individual lessons in piano, organ, or voice, or two semesters of participation in some faculty-directed ensemble.

A nine-course major concentration is possible for students not expecting to teach or to enter graduate school. The recommended program is 103, 104, 121, 122, 123, 124, 203, 302 (or 204, 303, and 304 in lieu of 302), the total of one course credit in applied music (excluding 329 and 330), 199-200 each semester, with electives chosen from 131, 132, 205, 206, 219 or 220, 223, 224, 305, 306, 313, 315, 316, 407, 408, an approved interim, or additional work in individual lessons not to exceed one course.

The fine arts core requirement is normally met by 211 or 212 but may be met by any of the following courses: 103, 211, 212, 219, 301, 302, and 326.

### BASIC COURSES

103 THE VOCABULARY, LITERATURE, AND MATERIALS OF MUSIC. F, core, An introduction to the art of music by means of a consideration of the elements of music as observed in a select repertory of works from the Middle Ages to the present. The fine arts core requirement is usually met by 211 or 212. Students intending to major in music must take 121 and 123 concurrently. *Miss Huisman, Mr. Slenk, Mr. Stapert.*

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 122 and 124 concurrently. Prerequisite: 103. *Miss Huisman, Mr. Stapert.*

121-122 KEYBOARD HARMONY, ELEMENTARY. F and S, quarter course. Class instruction in keyboard harmony. Private instruction in piano will be required concurrently for students failing to meet departmental piano requirements. To be taken simultaneously with Music 103-104. *Mrs. Knol.*

123-124 AURAL PERCEPTION, ELEMENTARY. F and S. Quarter course. A course in the development of the ability to hear and grasp the rhythmic, melodic, and harmonic elements of music. To be taken simultaneously with Music 103-104. *Mr. Stapert, Mr. Slenk*

131-132 KEYBOARD HARMONY, ADVANCED. F and S, quarter course. Continuation of 121-122. To be taken simultaneously with Music 203-204. Prerequisite: 121-122. *Mrs. Knol.*

203 THE LITERATURE AND MATERIALS OF MUSIC. F. A continuation of 104. An introduction to tonal counterpoint. A study of the music of the Baroque era. Students intending to major in music, excepting concentrators in instrumental music education, must take 131 and 223 concurrently. Prerequisite: 104. *Mr. Stapert.*

204 THE LITERATURE AND MATERIALS OF MUSIC. S. A continuation of 203. A study of the materials of traditional harmony. The study of the music of the Classic period. Students intending to major in music, excepting concentrators in instrumental music education, must take 132 and 224 concurrently. Prerequisite: 203. *Mr. Stapert.*

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. Slenk, Mr. Stapert.*

303 THE LITERATURE AND MATERIALS OF MUSIC. F. A continuation of 204. Completion of the study of the materials of traditional harmony. A study of the music of the Romantic period. Prerequisite: 204. *Mr. Worst.*

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

### ADVANCED COURSES

205 VOCAL POLYPHONY OF THE RENAISSANCE. 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. Not offered 1973-74.

206 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. Singing and drill in aural perception. Listening repertory of compositions. Prerequisite: 203. *Mr. Slenk.*

220 CHURCH MUSIC. I, S odd years. A study of the worship music of the major Christian traditions in relation to their liturgies. Principles of appropriate worship music are discussed in the light of the history of church music. Prerequisite: 204. Not offered 1973-74.

305 **MUSIC OF THE CLASSICAL PERIOD.** F odd years. A study of the principal forms of the Classic period from the keyboard music of Couperin, K.P.E. Bach, and Scarlatti through the major works of Haydn and Mozart to the late works of Beethoven. Analytic score studies of representative works. Listening repertory of compositions from the period. Several short papers. Prerequisite: 204 or 203 and 302 or permission of instructor. *Mr. Stapert.*

306 **MUSIC OF THE ROMANTIC PERIOD.** F odd years. A study of the principal forms of the Romantic period from Schubert and Schumann through Wagner. Analytic score studies of representative works. Listening repertory of compositions. Several short papers. Prerequisite: 303 or 203 and 302 or permission of instructor. Not offered 1973-74.

315 **ARRANGING, ORCHESTRATION, AND SCORING.** F. Survey of the history of the orchestra and orchestration, and problems involved in writing for orchestra, band, and chorus. A survey of the technical limitations of each instrument and the human voice. Projects written by class members will be performed by department organizations whenever practicable. Prerequisite: 104. *Mr. Worst.*

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

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

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

#### GENERAL COURSES

211 **AN INTRODUCTION TO MUSIC LITERATURE.** F, core. 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 Classical and Romantic periods. Listening, term paper, concert

attendance. No prerequisite. *Mr. De Jonge.*

212 **AN INTRODUCTION TO MUSIC LITERATURE.** S, core. A course similar to 211 but with different content. Includes the music of representative composers of the Baroque and Modern-Contemporary Periods. Listening, term paper, concert attendance. No prerequisite. *Mr. De Jonge.*

219 **CHURCH MUSIC.** I, F odd years, core. A historical survey of the worship music of the Hebrews, early Christian church, the Roman church, and the churches of the Reformation. Principles of appropriate worship music are discussed in the light of the history of church music. No prerequisite. Recommended for pre-seminary students. Not offered 1973-74.

301 **HISTORY OF MUSIC.** F, core. A study of the art of music from its origins through the Baroque. Score studies, listening repertory, and reading. Not offered 1973-74.

302 **HISTORY OF MUSIC.** S, core. A study of the art of music from Bach to the present. Score studies, listening repertory, and reading. *Mr. Slenk.*

313 **CONDUCTING.** S, half course. A course in basic, general conducting leading to the conducting of either instrumental or choral literature. Two hours of class and two hours of conducting laboratory per week. 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. Geerdes, Mr. Slenk.*

326 **CHAMBER MUSIC.** F odd years, core. A general course designed to provide the historical and musical background necessary for perceptive listening to music for small ensembles. The Cayvan Collection of recordings and scores will be used to give the student an insight into music written for trios, quartets, and quintets of string or wind instruments. Not offered 1973-74.

## MUSIC EDUCATION

222 **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 or 333 is required of elementary education students. (Music 333 is required of elementary music education majors. *Miss Huisman, Mr. Topp.*)

331 **SCHOOL MUSIC.** F. A study of the philosophy, methods, and materials for teaching elementary and secondary school music with emphasis upon research, planning, and simulated teaching. This course is required of secondary music education majors (who substitute this course and Psychology 204 for Education 301 and 303), music minors, and elementary music education majors, but is also open to any elementary education major. *Mr. Topp.*

## APPLIED MUSIC

### INDIVIDUAL LESSONS

*Students enrolling in any course in this section must also register for 199-200.*

109-110, 209-210, 309-310, 409-410 **ORGAN.** Quarter course. Individual lessons in organ. *Staff.*

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

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

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

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

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

161-162, 261-262, 361-362, 461-462 **STRINGS.** Quarter course. Individual

lessons in violin, viola, violoncello, or bass viol.

161c-162c, 261c-262c, 361c-362c, 461c-462c **STRINGS.** Half course. Individual lessons for the music major concentrating in violin, viola, violoncello, or bass viol.

171-172, 271-272, 371-372, 471-472 **WOODWINDS,** Quarter course. Individual lessons in flute, oboe, clarinet, bassoon, or saxophone.

171c-172c, 271c-272c, 371c-372c, 471c-472c **WOODWINDS.** Half course. Individual lessons for the music major concentrating in flute, oboe, clarinet, bassoon, or saxophone.

181-182, 281-282, 381-382, 481-482 **BRASSES.** Quarter course. Individual lessons in cornet, horn, baritone, trombone, or bass horn.

181c-182c, 281c-282c, 381c-382c, 481c-482c **BRASSES.** Half course. Individual lessons for the music major concentrating in cornet, horn, baritone, trombone, or bass horn.

191-192, 291-292 **PERCUSSION.** Quarter course. Individual lessons in snare drum, tympani, and other percussion instruments.

### CLASS LESSONS

199-200 **REPERTORY CLASS AND STUDIO CLASSES.** F and S, no credit. Performance classes for students of applied music for the purpose of gaining experience in public performance and increasing knowledge of music literature. Attendance is required of all music majors and students registered for individual lessons in applied music. *Staff.*

329 **STRINGS AND BRASSES.** F odd years. Class lessons in string and brass instruments for the music major concentrating in instrumental music education and others wishing to learn a secondary instrument. May be repeated. *Mr. Geerdes.*

330 **WOODWINDS AND PERCUSSION.** F even years. Class lessons in woodwind and percussion instruments for the music major concentrating in instrumental

music education and others wishing to learn a secondary instrument. May be repeated. *Mr. Geerdes*. Not offered 1973-74.

#### ENSEMBLES

101-102 **ORATORIO CHORUS**. No credit. The study of representative works of the great masters of choral writing with a view to public performance. Handel's *Messiah* is 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. Geerdes*.

207-208 **THE CAPELLA**. Quarter course. Representative works in the field of choral literature are studied and a limited number of selections are prepared for concert performance. Open only to those who meet the demands of voice and musicianship. *Mr. Slenk*.

213-214 **CONCERT BAND**. Quarter course. Representative works in the field of band literature are studied and prepared for concert performance. Open to all students who meet the demands of musicianship. Three rehearsals a week. *Mr. Worst*.

215-216 **ORCHESTRA**. Quarter course. Representative works in the field of chamber and symphony orchestra literature are studied and prepared for concert performance. Open to all students who meet the demands of musicianship. One

full orchestra rehearsal per week, plus one string orchestra rehearsal. *Mr. Geerdes*.

307-308 **COLLEGIUM MUSICUM**. Quarter course. Music for small instrumental and/or vocal ensembles from all periods is studied and performed. This is an honors ensemble open to singers and instrumentalists who also participate in the 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*.

#### 1973-74 INTERIM

*The full description of interim courses is given on pages 121-136.*

- 10 PIANO PEDAGOGY, *Mrs. Knoll*.
- 11 LEARNING TO LISTEN: THE MUSIC OF FRANZ JOSEPH HAYDN, *Mr. Stapert*.
- 12 A SINGING SCHOOL, *Mr. De Jonge*.
- 13 MUSIC THEORY SIMPLIFIED, *Mr. Worst*.
- 30 SURVEY OF CHORAL REPERTOIRE, *Mr. Slenk*.
- 390 INDEPENDENT STUDY

*The following interdisciplinary courses are also offered by members of this department.*

- 100 CHRISTIAN PERSPECTIVES ON LEARNING, *Miss Huisman, and staff*.
- 123 NOISE AND MAN, *Mr. Geerdes and Staff*.

# Philosophy

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

**BEFORE APPLYING** for admission to a major program a student must have completed either 151 or 153 with a minimum grade of C (2.0). The program of concentration requires eight courses including one course in logic, two courses in Perspective in Philosophy (151-152), two historical period courses (210, 220, 230, 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 205, 207, and 385 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 PERSPECTIVE 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, honor sections. A one-semester introduction to philosophy, with fundamentally the same aims as the Perspective in Philosophy course, except that it will not aim to acquaint the student with the history of philosophy. *Staff.*

171 INTRODUCTION TO LOGIC. S. A course in elementary deductive and inductive logic with emphasis upon the use of logic in evaluating arguments. Suitable for freshmen; not recommended for students majoring in philosophy. *Staff.*

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. 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. Orlebeke.*

205 ETHICS. F and S. A course designed to deal both historically and situationally with the persistent problems of the moral life. This course is also listed as Religion and Theology 205. *Mr. De Vos, Mr. Prins.*

207 POLITICAL AND SOCIAL PHILOSOPHY. S. A systematic study of the problems of social and political thought, historically oriented, with emphasis on political and social ideals, such as political and social justice; equality and the law; the basis of social and political authority; rights and obligations. *Mr. Mouw.*

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

209 PHILOSOPHY OF EDUCATION. A study of the nature, aims, and principles of education.

#### INTERMEDIATE HISTORICAL COURSES

*All intermediate courses presuppose one course in philosophy.*

210 HISTORY OF ANCIENT PHILOSOPHY. F. A history of philosophy in the Greek and Hellenistic periods. *Mr. Runner.*

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

230 HISTORY OF MODERN PHILOSOPHY. S. A study of selected philosophies of

the seventeenth and eighteenth centuries. *Mr. Konyndyk.*

240 HISTORY OF CONTEMPORARY PHILOSOPHY. S. A study of major movements in recent and contemporary philosophy. *Mr. Mouw.*

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

331 KANT. S. A study of the *Critique of Pure Reason*. *Mr. Wolterstorff.*

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

335 NINETEENTH CENTURY PHILOSOPHY. S. A study of the major figures in nineteenth century continental European philosophy. This year the course will concentrate on Schelling and Schleiermacher, along with their philosophical and cultural background. *Mr. Runner.*

336 STUDIES IN MODERN PHILOSOPHY: DESCARTES. S. A study in the philosophy of Rene Descartes. *Mr. De Vos.*

#### 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. 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. Mouw.*

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

385 PHILOSOPHY OF RELIGION. F. A study of the rational justifiability of certain beliefs central to Christianity. *Mr. Plantinga.*

395 ONTOLOGY. S. A study of selected topics of ontology. *Mr. Plantinga.*

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

400 SEMINAR

#### 1973-74 INTERIM

*The full description of interim courses is given on pages 121-136.*

10 ASIAN PHILOSOPHY, *Mr. Orlebeke.*

20 PHILOSOPHY OF LAW (LEGAL PHILOSOPHY), *Mr. De Vos.*

21 TOWARD A CHRISTIAN ONTOLOGY: THEORY OF UNIVERSAL, *Mr. Wolterstorff.*

31 THE CAMBRIDGE PLATONISTS, *Mr. Runner.*

390 INDEPENDENT STUDY

*The following interdisciplinary course is also offered by a member of this department.*

100 CHRISTIAN PERSPECTIVES ON LEARNING, *Mr. K. Konyndyk and staff.*

*The following physical education course is also offered by a member of this department.*

10 MOUNTAINEERING, *Mr. A. Plantinga.*

# Physical education

*Professor B. Steen (chairman), M. Zuidema*

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

*Instructor A. Knoppers*

*Assistant Instructors T. De Jong, L. Hageman*

The department serves dual functions—it provides a required but flexible two-year sequence of physical education for all students; it also offers professional training for physical education teachers and coaches.

Admission to the professional concentration, which also satisfies the certification requirements for teaching at both the elementary and secondary level, requires the approval of the department. The nine-course program includes 201, 212, four courses from the 230 series, 301, 302, 312, 380, and Biology 205. Physical Education 221 is also required and may be substituted for one quarter-course in basic physical education or for one of the 230 courses. The six-course teaching minor includes three quarter-courses from 100-199, 201, 221, and Biology 205.

## BASIC PHYSICAL EDUCATION COURSES

The Basic Physical Education program is part of the liberal arts core and consists of an initial personal inventory (101) followed by four quarter courses (normally three from 120-198 plus 199). Veterans with two or more years of military experience will be exempted from the core requirements in physical education if they present discharge papers at the Registrar's Office.

All students must register for PE 101 (Diagnosis-Classification) as their first physical education course. The first 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 three weeks of the student's first basic physical education course. Each student undergoes a thorough diagnostic inventory to assist him and his instructor in planning an appropriate program of college physical education for the student. *Staff.*

**110 ADAPTIVE PROGRAM.** F, I, and S, quarter course. This is a specialized program for older students and those with

physical handicaps whose needs cannot be met in the regular programs (120-198). Adaptive and corrective activities are developed for each student. Students are assigned to regular activities or special programs. The college physician is consulted in the cases of physically handicapped students. Students who are eligible for this course should consult the departmental representative at registration. The course may be repeated. *Miss Knoppers, Mr. Zuidema.*

120-159 **GUIDED INSTRUCTIONAL PROGRAM.** F, I, and S, quarter courses. Various developmental and recreational courses planned to develop one or more aspect 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, I, 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. *Mr. Steen.*

212 **KINESIOLOGY.** F. A study of human motion from the scientific standpoint.

Particular attention is given to a mechanical analysis of musculoskeletal movements as applied to games, sports, and daily living. Prerequisite: Biology 205. *Mr. Hondred.*

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. *Staff.*

230-239 **THE TEACHING AND COACHING OF ACTIVITIES.** Half course. Students with a major concentration in physical education must combine various courses to total the required two-course credit. Prerequisite: a record of participation in skill performance or completion of the same activity in 380.

230 Field Hockey/Soccer (for women). F. Miss Knoppers.

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

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

233 Track and Field. S. Mr. Tuuk.

234 Basketball (for men). F. Mr. Hondred.

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

236 Football (for men). F. Staff.

237 Baseball (for men). S. Mr. Zuidema.

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

302 **ORGANIZATION OF THE CURRICULUM AND PROGRAM OF PHYSICAL EDUCATION.** S. A study of the structure and curricula of modern physical education programs of elementary and secondary schools and the closely-related areas of administration of athletics, intramurals, recreation, and health programs. Oppor-

tunity is given to construct total programs of physical education for selected schools. *Mr. Steen.*

**303 LEADERSHIP IN RECREATION PROGRAMS.** S, half course. This course studies the organization of recreation programs and gives opportunity for observing programs in action, for structuring new programs, and for developing leadership skills. *Mr. Tuuk.*

**312 PHYSIOLOGY OF CONDITIONING AND INJURIES.** F, one course. The study of physiological principles as they apply to physical training and rehabilitation from injury. Specific types of training programs are studied. Laboratory topics will include athletic injury treatment, taping techniques, and first aide procedures. *Mr. Greene.*

**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 com-

petence 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 Knoppers, Mr. Vroon.*

#### 1973-74 INTERIM

*The full description of interim courses is given on pages 121-136.*

- 11 PHYSICAL EDUCATION FOR 'SPECIAL' CHILDREN, *Miss Knoppers.*
- 12 THE DYNAMICS OF MOTOR-SKILL ACQUISITION, *Mr. Zuidema.*
- 390 INDEPENDENT STUDY

*The following interdisciplinary interim course is also offered by a member of this department.*

- 100 CHRISTIAN PERSPECTIVES ON LEARNING, *Mr. Zuidema and staff.*

# Physics

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

STUDENTS intending to major in physics are advised to enter college with four years of mathematics and to take their basic courses in mathematics (Mathematics 111, 112, 211, 212) and physics (Physics 123, 124, 225, 226) during their freshman and sophomore years. Mathematics 108 is also recommended for 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 program of concentration in physics includes, in addition to the four introductory courses, 335, 345, 346, 375, 376, 381 or an interim course in Electronics, and 382 or an interim course in Modern Physics Laboratory. Students planning to do graduate work in physics should also take 365, 400 and 401 or an interim course in research, and Mathematics 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, 225, 226, 381 or an interim course in Electronics, 382 or an interim course in Modern Physics Laboratory, plus two to three electives from the Advanced Courses. The minor program in physics for secondary education students requires 123, 124, 225, 226, 381 or an interim course in Electronics, 382 or an interim course in Modern Physics Laboratory, plus electives from Advanced Courses.

The teaching group major in physics and mathematics consists of Mathematics 111, 112, 211, 212, 321, and 351; Physics 123, 124, 225, 226, 381, and 382. A group minor in the same fields consists of Mathematics 111, 112, and 211; Physics 123, 124, 225, and 226. The elementary teacher education adviser is Mr. Clarence Menninga.

The teaching group major in physics and chemistry consists of Physics 123, 124, 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 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, 123, 222, 225, Chemistry 104, Astronomy 110, and interim courses in physics and chemistry which are designated as satisfying the core.

#### INTRODUCTORY COURSES

110 **PHYSICAL SCIENCE.** F and S, core. This course evaluates the basic assumptions used in the scientific study of nature, discusses the methods of scientific investigation and the development of scientific theories, and presents the results of scientific investigations in the fields of physics and chemistry. 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 designed for 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. Ehlers.*

123 **INTRODUCTION TO MODERN AND CLASSICAL PHYSICS.** F, core. This course, along with 124, which is its continuation, serves as an introduction to both classical and modern physics for students planning to major in science or mathematics. Mathematically qualified students are encouraged to satisfy the core requirement with 123 rather than with 110. Topics in classical physics include mechanics, thermodynamics, and geometrical optics. In the area of modern physics, topics such as special relativity and nuclear properties will be discussed. Related laboratory work will be performed and the nature of scientific study in general and its place in one's world and life view will be discussed. Concurrent registration in (or completion

of) Mathematics 111 is required. *Mr. Griffioen.*

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

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 a first semester physics course into their programs. Prerequisite: Mathematics 111 and concurrent registration in Mathematics 112. *Staff.*

221 GENERAL PHYSICS. F. This course is designed for those who do not intend to do further work in physics. The major areas of physics are discussed: mechanics, heat, electricity and magnetism, waves, relativity, quantum theory, and particle physics. Laboratory. Prerequisites: plane trigonometry and high school algebra. *Mr. Van Zytveld.*

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

225 INTRODUCTORY PHYSICS: ELECTRICITY, MAGNETISM, AND WAVES. F, core. A study of the properties of electric and magnetic fields; a mathematically unified treatment of alternating current circuits, general wave phenomena, and physical optics. Laboratory. Prerequisites: 124 or 126, Mathematics 112, and concurrent registration in Mathematics 211. *Mr. Kromminga.*

226 INTRODUCTORY ATOMIC PHYSICS. S. A study of phenomena resulting from the atomicity of matter; an introduction to quantum effects and the wave-particle duality of matter and radiation; a study of the structure of atoms as described by Schroedinger theory. Prerequisites: 225, Mathematics 211. *Mr. Kromminga.*

## ADVANCED COURSES

*Prerequisites for all of the 300-level physics courses are 226 and Mathematics 212.*

335 CLASSICAL MECHANICS. F. The motion of particles, of systems of particles, and of rigid bodies is studied by Newtonian and Lagrangian techniques. Topics included are: oscillatory motion, motion in a central force field, motion in non-inertial reference frames, motion of charged particles, and the inertia tensor of rigid bodies. Hamilton's canonical equations are developed and applied to simple systems *Mr. Van Till.*

345 ELECTROMAGNETISM AND GRAVITATION. S. The basic equations of the two classical interaction theories are developed. Applications are made to electromagnetic fields in material media, boundary-value problems, electromagnetic energy, radiation, and physical optics. Relativity with its connection to these theories is studied. The basic theory and some applications are considered in 345, while the remaining applications and relativity are reserved for 346. *Staff.*

346 ELECTROMAGNETISM AND GRAVITATION. F. A continuation of 345, which is a prerequisite. *Mr. Griffioen.*

365 THERMODYNAMICS AND STATISTICAL MECHANICS. F. Discussion of the equation of state and the laws of thermodynamics with application to some simple systems; the thermodynamic potentials; kinetic theory. Treatment of statistical mechanics dealing mainly with ensembles and distribution functions, calculation of entropy and the thermodynamic potentials with application to crystals and gases. Quantum statistical mechanics is considered. Prerequisites: 335 and 346. Not offered 1973-74.

375 QUANTUM MECHANICS. F. This course begins with a brief discussion of statistical mechanics and the fundamental experiments leading up to the quantum theory. The main emphasis is on wave mechanics and its application to atoms and molecules. One-electron atoms are discussed in detail. Additional topics discussed are electronic spin, atomic spectra and structure, and X-rays. Nuclei and

the solid state are also considered. *Mr. Kromminga.*

376 QUANTUM MECHANICS. S. A continuation of 375, which is a prerequisite. *Mr. Kromminga.*

379 CONTEMPORARY PHYSICS. S. An introduction to the major areas of current research in physics. Primary emphasis is placed upon solid-state, atomic, nuclear, and elementary-particle physics. Prerequisite: Physics 375. *Staff.*

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

#### LABORATORY COURSES

381 ELECTRONICS. F, half course. An introduction to, and an analysis of, some of the basic electronic circuits commonly used in science and engineering research. Prerequisites: 225 or a year of college physics and permission of instructor. *Staff.*

382 MODERN PHYSICS LABORATORY. S, half course. An introduction to the basic laboratory techniques in atomic and nuclear physics and a study of some of the

more important experiments on which modern physical theory is based. Prerequisite: 381 or a year of college physics and permission of the instructor. *Staff.*

400-401 PHYSICS SEMINAR AND RESEARCH. F, S, half course; I, full course. Library and laboratory research on an approved topic and presentation of the result of the research in a departmental seminar. Prerequisite: 382 and the approval of the department. *Mr. Van Zytveld.*

#### 1973-74 INTERIM

*The full description of interim courses is given on pages 121-136.*

10 SEMINAR IN DISCOVERING PHYSICS: ENERGY SOURCES, *Mr. Kromminga.*  
390 INDEPENDENT STUDY.

*The following interdisciplinary courses are also offered by members of this department.*

100 CHRISTIAN PERSPECTIVES ON LEARNING, *Mr. Van Zytveld and staff.*

101 THE ART OF PHOTOGRAPHY, *Mr. Ehlers and staff.*

104 INTRODUCTORY RADIOCHEMISTRY, *Mr. Griffioen and staff.*

119 ENVIRONMENTAL STUDIES WORKSHOP, *Mr. Menninga and staff.*

## Political science

*Professors J. De Borst, S. Monsma (chairman), J. Westra*

*Assistant Professor P. Henry*

*Instructor R. De Vries*

TO BE ADMITTED to a major program in political science a student must have completed 151 with a minimum grade of C (2.0). The program requires, in addition to 151, 201, 203 or 303, 207, 305 or 306, and four additional courses in the department. Required cognates include Economics 151 and an approved three-course sequence in one of the following departments: economics, history, psychology, or sociology. Students planning to pursue graduate study in political science should take 302 and both 305 and 306.

Students preparing for a secondary teaching certificate should meet the general major requirements in political science and, as far as possible, in the cognate fields. 202 is recommended but not required. A departmental

minor requires 151, 201, 202, and any other three courses. Mr. De Vries is the adviser for teacher education.

The core requirements in political science may be met by 151 or 300.

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, process and functions of American politics. *Mr. Monsma*.

202 AMERICAN STATE AND LOCAL POLITICS. S. A study of American politics on the state and local levels. A comparative approach is used to analyze existing problems and the differences and similarities in political patterns. *Mr. Monsma*.

203 COMPARATIVE GOVERNMENT—EUROPE. F. A study of the government and politics of four major European states: Great Britain, France, Germany, and the Soviet Union. Prerequisite: 151. *Mr. Westra*.

207 INTRODUCTION TO INTERNATIONAL POLITICS. F. Analysis and critique of various theoretical approaches to the study of international politics; concepts of power; the nation-state and the doctrine of sovereignty; diplomacy; nationalism; imperialism; war; balance of power; collective security; and world government. Formerly 307. *Mr. De Vries*.

209 PUBLIC ADMINISTRATION. S. An introduction to the political process. 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. Henry*.

300 MODERN POLITICAL IDEOLOGIES. F and S, core. Study of the major ideologies of the twentieth century: communism, fascism, democracy. Does not

apply to major. Intended for juniors and seniors who wish to fulfill the political science core. *Mr. Henry*.

302 POLITICAL BEHAVIOR. F. Analysis of the political behavior and opinions of the non-office holding citizen. A study of the theory and methods of the behavioral orientation in political science is included. Emphasis is on the United States. *Mr. Monsma*.

303 COMPARATIVE GOVERNMENT—THE NON-WESTERN WORLD. S. A study of the politics of Asian and African states. Emphasis is on the issues and problems posed by the modernization process. Not offered 1973-74.

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

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

308 PRINCIPLES OF AMERICAN FOREIGN POLICY. F. 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. De Borst*.

309 INTERNATIONAL ORGANIZATIONS. S. An examination of regional and universal international organizations; their processes, functions, and impact on the international system. The United Nations system as well as economic and political integration within the North Atlantic area, among Communist states, and in the Third World. *Mr. De Vries*.

310 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. De Borst.*

312 **LEGISLATIVE BEHAVIOR.** F. A study of legislators, legislatures, and the legislative process. The impact of institutional structures, political parties, outside forces, and personal norms on the legislative process. The role of legislatures in the democratic process. State and non-American legislature are considered but the emphasis is on the federal Congress. Not offered 1973-74.

313 **POLITICAL PARTIES.** F. The nature of political parties and their role in the political process. The organization of parties, their internal processes, nominations, and election campaigns. An emphasis on the American party system but others are considered. *Mr. Monsma.*

390 **INDEPENDENT STUDY.** F, I, S. Reading or directed projects for majors. Open with the permission of the chairman and the instructor under whom the work will be done. *Staff.*

400 **SEMINAR.**

#### 1973-74 INTERIM

*The full description of interim courses is given on pages 121-136.*

10 **POLITICAL CAMPAIGNS.** *Mr. Monsma.*

20 **WORK-STUDY INTERIM IN WASHINGTON, D.C.,** *Mr. De Borst, Mr. Henry.*

390 **INDEPENDENT STUDY**

*The following interdisciplinary course is also offered by a member of this department.*

119 **ENVIRONMENTAL STUDIES WORKSHOP,** *Mr. De Vries and staff.*

# Psychology

*Professors J. Daling, A. Reynolds (chairman), R. Youngs  
Associate Professors W. Sanderson, R. Stouwie, R. Terborg  
Assistant Professors M. Bolt, W. Joosse, D. Smalligan*

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

An eight-course terminal major requires the designated courses plus two electives, one of which must be from the 300 level. Students intending to do graduate work in psychology should complete the designated courses plus 308, 312, and 400. Students normally take 312 during the junior year and 308 in the fall semester of the senior year. Cognates in anatomy (Biology 205), philosophy of science, and sociology are recommended. A teaching minor includes the basic courses, except for 250, plus one elective in the department. Mr. Reynolds is the teacher education adviser.

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

The core requirement in psychology may be met by 151 or, for students in teacher education programs, by Education 301. Psychology 12 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.*

**204 DEVELOPMENTAL PSYCHOLOGY.** F and S, core. A study of the physical, motor, social, emotional, linguistic, intellectual, and valuational development of the child. An attempt is made to trace these aspects of the human being's development from babyhood through adolescence. Prerequisite: 151 or 301. *Mr. Daling, Mr. Stouwie.*

**207 ADOLESCENT PSYCHOLOGY.** F and S. A specialized course in developmental psychology directed specifically to the period from puberty to adulthood. Prerequisites: 151 and 204. *Mr. Stouwie.*

**212 PSYCHOPATHOLOGY.** F and S, core. The wide range of ways in which personality may become disordered. The importance of psychopathology for the understanding of normal development (mental hygiene) is discussed. Problems concerning origin and treatment are also considered. Prerequisite 151. *Mr. Joosse, Mr. Plantinga, Mr. Youngs.*

**216 PSYCHOLOGY OF THE EXCEPTIONAL CHILD.** F and S. A study of mental retardation, emotional disturbance, learning problems, speech correction; the physically handicapped and the gifted. Emphasis on adjustmental difficulties and appropriate educational programs. Prerequisite: 151. *Mr. Stouwie.*

**250 DESCRIPTIVE STATISTICS FOR SOCIAL SCIENCES.** F and S. An introduction to the major forms of descriptive statistics (measures of central tendency, variability, linear transformation, area transformation, correlation). Both an understanding of and proficiency in the application of these concepts and techniques in the areas of education, psychology,

sociology, etc., will be sought. *Mr. Reynolds.*

**305 HISTORY OF IDEAS IN PSYCHOLOGY.** S. The rise of ideas useful in or strongly influencing modern psychology. The emergence of these ideas in primitive cultures, but more importantly among the Greek and medieval philosophers. The more specific contributions of Renaissance and early modern investigators are considered mainly from the point of view of their place in modern psychology. This course concludes with the beginnings of experimental work in the area of psychology. Prerequisite: two courses in psychology. *Mr. Plantinga.*

**306 THE GROWTH OF PSYCHOLOGY.** F and S. This course begins with the nineteenth century background of modern psychology, continues with twentieth century systems of psychology, and proceeds to some of the issues in present-day psychology. Prerequisite: two courses in psychology. *Mr. Plantinga.*

**308 INTRODUCTION TO EXPERIMENTAL PSYCHOLOGY.** F. 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. 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. Prerequisite: Psychology 151. *Mr. Bolt.*

**311 THEORIES OF PERSONALITY.** F and S. An introduction to modern American and European theories concerning the psychological structure and dynamics of the human person. Prerequisite: 212. *Mr. Sanderson.*

312 **PRINCIPLES OF PSYCHOLOGICAL MEASUREMENT.** F and S. This course aims to give the student an introduction to the theoretical and practical issues, viewpoints, and techniques of psychological testing in the areas of both intelligence testing and personality measures. Open only to those who have had 250 of Mathematics 206. *Mr. Reynolds.*

314 **CLINICAL PSYCHOLOGY.** S. An introduction to the science, techniques, and art of employing psychological means to promote the welfare or mental health of a person. Prerequisites: 212, 311, and 312.

322 **PERSPECTIVES OF PSYCHOLOGY.** S. In this course the purpose is to explore relationships of psychology to (or its involvement in) various issues in our culture, in such areas as literature, religion, art, or morality. Normally, in any given semester, major emphasis will be focused on only one of these areas. Permission of the instructor is necessary to enroll in this course. Not offered 1973-74.

330 **PSYCHOLOGY OF EMOTION AND MOTIVATION.** S. A thorough discussion of the psychological study of emotion and motivation. Recent research findings as well as theory formation in the areas of emotion and motivation is included. Prerequisite: Psychology 151. *Mr. Plantinga.*

331 **PSYCHOLOGY OF SENSATION, PERCEPTION, AND COGNITION.** F. A detailed examination of the functions of perception and thought in man. Various theories as well as current research trends will be discussed. Prerequisite: Psychology 151. *Mr. Sanderson.*

332 **PSYCHOLOGY OF LEARNING PROCESSES.** S. A presentation of empirical strategies and theory formation in the area of the psychology of learning. The importance of learning theory for psychology in general is stressed. Prerequisite: Psychology 151. *Mr. Terborg.*

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

400 **SENIOR SEMINAR ON ISSUES IN CONTEMPORARY PSYCHOLOGY.** S. The preparation, presentation, and discussion of papers based on current psychological literature and empirical research. Open to seniors majoring in psychology. Prerequisite: statistical competence. *Mr. Reynolds.*

#### 1973-74 INTERIM

*The full description of interim courses is given on pages 121-136.*

10 **MOBS, MANIAS, AND MASS MOVEMENTS,** *Mr. Bolt.*

12 **SEMINAR IN THE PSYCHOLOGY OF RELIGION,** *Mr. Sanderson.*

13 **MEASUREMENT - EVALUATION - REPORTING PUPIL PROGRESS,** *Mr. Reynolds.*

20 **PROBLEMS IN PSYCHOPATHOLOGY,** *Mr. Youngs.*

30 **THE YOUNG CHILD: A LINGUISTIC GENIUS,** *Mr. Stouwie.*

31 **THE PSYCHOLOGY OF CREATIVE PROBLEM-SOLVING AND THINKING,** *Mr. Terborg.*

390 **INDEPENDENT STUDY**  
*The following interdisciplinary course is also offered by a member of this department.*

100 **CHRISTIAN PERSPECTIVES ON LEARNING,** *Mr. Jooisse and staff.*

## Religion and theology

*Professors J. Bratt (chairman), W. De Boer, †D. Holwerda, \*\*T. Minnema, J. Primus, G. Spykman, C. Vos, L. Vos*  
*Associate Professor L. Sweetman*  
*Assistant Professor H. Hoeks*

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 107 with a minimum grade of C (2.0).

The program for the Religion and Theology concentration requires nine courses including 206, 207, 208, 301, 303, 308, and 400. An approved four-course sequence in another department is also required. The adviser for this program is the chairman.

The training in Religion and Education is for students who expect to serve as director of education in churches, or, in some cases, to serve as Bible teachers in the Christian day school system. The major concentration includes 107, 108, 206, 303, 308, 319, 400, plus three electives in the department and the completion of the course requirements for teacher education. Two of these electives may be satisfied by Greek 205-206 (New Testament Greek) and one by an approved interim course. 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 205, 305, 319, 390, 400, and Interdisciplinary 134; two courses from Art 231, 232, English 320, 321, History 201, 202, 203, 204, Interdisciplinary 107, Sociology 210, 311, 317, Psychology 31, and 322; and two courses from Philosophy 207, 385, Religion and Theology 206, 207, 208, 301, 308, 311, and 313. The adviser for this program is Mr. Henry Hoeks.

The core requirements in religion and theology may be met by selecting one from the following courses in Biblical studies: 103, 107, 108, 207, and 208; and one from the following courses in Theological, Historical, and Religio-cultural studies: 206, 301, 303, 304, 308, 311, and 312. Any departmental course except interims may be chosen by students electing a third core course in religion and theology.

#### BIBLICAL STUDIES

103 **BIBLICAL THEOLOGY.** F and S, core. A study of the unfolding of the history of redemption as set forth within the historical framework of the Old Testament, inter-testamentary, and New Testament eras. Biblical books and Apocryphal literature are analyzed and the major themes of Scripture are explicated. Students may not take this course and either 107 or 108. *Staff.*

107 **OLD TESTAMENT BIBLICAL THEOLOGY.** F, core. Biblical theology for

Religion and Education majors and for those desiring a more complete coverage of the biblical theology of the Old Testament than can be offered in 103. *Mr. C. Vos.*

108 **NEW TESTAMENT BIBLICAL THEOLOGY.** S, core. A more complete coverage of the biblical theology of the New Testament than can be offered in 103. A continuation of 107 which is not a prerequisite. *Mr. Holwerda.*

207 **THE OLD TESTAMENT PROPHETICAL LITERATURE.** S, core. An intensive

study of the place and role of the major and minor prophets in the Old Testament, the commentary they offer upon the history of redemption in Old Testament times, together with an exploration of their basic themes and their continuing relevance. *Mr. C. Vos.*

208 **THE NEW TESTAMENT EPISTOLARY LITERATURE.** F, core. An intensive study of the place and role of the epistles in the canon of the New Testament, the doctrinal and ethical interpretations which these epistles give of the redemption portrayed in the Gospels, the light they shed on the early Christian Church, and their abiding relevance and significance. *Mr. De Boer.*

302 **BIBLICAL ARCHAEOLOGY. I.** 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. (See interim offerings.)

#### THEOLOGICAL STUDIES

206 **REFORMATION THEOLOGY.** F and S, core. A study of Christian doctrine as formulated in the Protestant Reformation and refined and elaborated by later Reformed theologians. Comparisons are drawn between the Reformed system and those of other branches of Christendom. *Calvin's Institutes of the Christian Religion* serves as a basic text. Not open to freshmen. *Staff.*

308 **CONTEMPORARY THEOLOGY.** F, core. Selected writings of significant contemporary theologians are read and evaluated. Prerequisite: junior or senior standing. *Mr. Spykman.*

312 **EARLY CHRISTIAN THEOLOGY.** S, core. A study of the growth of the church towards self-conscious commitment to an articulation of its faith from the sub-apostolic age through St. Augustine. Development and growth of thought will be emphasized and selected writings of major theologians will be studied. *Mr. Spykman.* Not offered 1973-74.

313 **ROMAN CATHOLIC THEOLOGY.** S. The development of Roman Catholic theology from the medieval era to present times, finding its climax in Vatican II.

The Council of Trent, the Counter-Reformation theology, papal encyclicals, and major schools of thought will be examined. *My Spykman.*

#### HISTORICAL STUDIES

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

304 **AMERICAN RELIGIOUS HISTORY.** S, core. A consideration of the religious history of our country from the immigration period to the present. Attention is paid to the European background, the early church beginnings in their diversity, the colonial era, the westward movement, current ecumenism, and the major social and political developments in their influence upon the American religious scene. Consideration will also be given to the historical antecedents and the development of the Christian Reformed Church in America. *Mr. Primus.*

#### RELIGIO-CULTURAL STUDIES

205 **ETHICS.** F and S. See description under the Department of Philosophy.

301 **CHRISTIANITY AND CULTURE** (Studies in Calvinism). F and S, core. An historically-oriented study of the Reformed Christian tradition in the Western world—its origin and development, its basic concepts and life-perspectives, its cultural impact and contemporary relevance. Not open to freshmen. *Staff.*

311 **HISTORY OF CHRISTIAN SOCIAL THOUGHT.** F, core. A study of the interrelation of Christian teaching and society. From the history of the Christian Church certain periods and movements are selected to demonstrate the interaction of Christian faith and social forces. *Mr. Minnema.*

#### MISSIONS AND WORLD RELIGIONS

203 **THEOLOGY OF MISSION.** A survey of biblical material pertaining to mis-

sion. These materials are used in evaluating the contemporary problems of mission: i.e., renescent non-Christian religions, ecumenism, mission in the ferment of social revolution. Not offered 1973-74.

204 HISTORY OF MISSIONS. The record of missionary history through the ancient, medieval, and modern periods is examined with a view to ascertaining the principles that come to expression, the methods employed, the areas covered, the chief figures, and the measure of success or failure. In the modern period the great missionary conferences of the twentieth century are analyzed and evaluated. Not open to freshmen. Not offered 1973-74.

305 WORLD RELIGIONS. F. An analytical and critical study of the phenomenology and conceptual pattern historically operative in the major non-Christian religions: "Primitivism," Hinduism, Shinto, and Islam. The study approaches each religion as it provides a total perspective of life and is embodied in cult, in ideology, and inter-personal and communal life. The study, consequently, includes popular expressions of the religions as well as the "official" religion of the sacred texts. *Mr. Sweetman.*

#### RELIGION AND EDUCATION

319 THEOLOGICAL AND HISTORICAL FOUNDATIONS OF RELIGION AND EDUCATION. F. A survey of the educational programs of major Western religions from Old Testament times to the present. By integrating theoretical study with the examination of existing programs in churches and schools, the students are guided in developing a relevant biblical perspective on the relation-

ship of religion to education. Satisfies the Calvin Seminary requirement in psychology and education. *Mr. 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 400.) Prerequisite: permission of the chairman. *Staff.*

400 SENIOR SEMINAR. S, 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.*

#### 1973-74 INTERIM

*The full description of interim courses is given on pages 121-136.*

- 10 BONES AND STONES OF THE MIDDLE EAST, *Mr. C. Vos.*
- 12 CHRISTIANITY IN THE CONTEMPORARY WORLD SCENE, *Mr. L. Vos.*
- 14 THE MISSIONS MOTIF OF THE BIBLE, *J. Bratt.*
- 20 THE BIBLE'S STRANGE IMAGERY: INTERPRETING APOCALYPTIC WRITINGS, *Mr. W. De Boer.*
- 390 INDEPENDENT STUDY

*The following interdisciplinary courses are also offered by members of this department.*

- 100 CHRISTIAN PERSPECTIVES ON LEARNING, *Mr. Spykman and staff.*
- 113 MEDIA, METHODS, AND THE RELIGIOUS MESSAGE, *Mr. Hoeks.*
- 134 THE CONTEMPORARY AMERICAN RELIGIOUS SITUATION, *Mr. Primus and staff.*

# Sociology

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

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. The teacher education adviser is Mr. 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. 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. Wilson, Mr. De Jong.*

300 **HISTORY AND THEORY OF SOCIAL WORK.** F. An analysis of the trends and issues in major fields of social work. A historical perspective is given of public assistance, family and child welfare, mental health, courts and corrections, and anti-poverty programs and their relationship to social work. *Mr. Smalligan.*

301 **SOCIAL CASE WORK AND SOCIAL GROUP WORK.** S. An analysis of social case work and group work principles, problems, and methods based upon theoretical and case material. Prerequisite: 300. *Mr. Smalligan.*

302 **URBAN SOCIOLOGY AND COMMUNITY ORGANIZATION.** F and S. A descriptive and theoretical analysis of the urban community and urban sub-cultures.

The emphasis is on community structure, function, value systems, style of life, urban renewal, and planning. *Mr. Holstege, Mr. Vander Kooi.*

304 **THE FAMILY.** S. An intensive culturally comparative and historical analysis of the family as an institution. The contemporary courtship, marriage, and divorce patterns of the American family are also discussed. *Mr. Holstege.*

306 **SOCIOLOGY OF DEVIANCE.** F and S. An analysis of deviant behavior: its causes, manifestations, prevention, and programs of control. Special attention is given to the role of social norms in generating as well as controlling deviance. Implications are drawn for various institutions, particularly the school and the church. *Mr. Rottman, Mr. Vander Kooi.*

308 **POPULATION AND SOCIETY.** F and S. 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. Rice.*

309 **SOCIOLOGY OF EDUCATION.** F. A study of education as a social institution and the school as an organization. Emphasis is on discussing the functions of education for society and the effects of society on education and schools. The school class as a social system is also analyzed with special consideration given to the role of teacher. Prerequisite: 151, or permission of the department. *Mr. De Blaeys.*

310 SOCIAL PSYCHOLOGY. S. Human behavior as a consequence of man's psychological make-up and his socio-cultural environment. Attention is given to social interaction as it occurs in small group settings. Attention is also given to theoretical frameworks emphasizing self-concept and role playing. Prerequisite: 151, Psychology 151, or permission of the department. *Mr. De Blaey.*

311 SOCIOLOGY OF RELIGION. F. A study of the organizational forms of religion, with special attention being given to the influence and effectiveness of the church in its function as a social institution and to the social influences which have, in turn, affected the church. *Mr. Smit.*

312 THE SOCIOLOGY OF COMMUNITY. S. A cross-cultural analysis of the changing nature of the community as a human ecological organization and as a structured system of status and power. Man's utopian dreams of ideal communities are contrasted with the types of communities actually found in primitive, agrarian, and industrial societies. *Mr. Smit.*

314 CONTEMPORARY SOCIAL PROBLEMS: THE ALIENATION OF YOUTH. F. This course begins with a discussion of various theoretical orientations to the study of social problems generally and then relates these theories to particular problems, which are changed from year to year. The causes, consequences, and various proposed solutions to these problems are considered. *Mr. De Blaey.*

318 SOCIOLOGICAL THEORY. F. An assessment of sociological theory in terms of its historical development and current role in understanding human behavior. Particular attention is given to the function of theory in the research process. Direction is given to the student in the

formulation of sociological hypotheses to of data. Prerequisite: 151. *Mr. Holstege, Mr. Rottman.*

320 SOCIOLOGICAL RESEARCH. S. An assessment of the nature of the research process as applied to the study of theoretical problems in social science. Guides the student in designing and conducting a research project, involving definition of the problem, consideration of appropriate methods, and the collection and analysis of data. Prerequisite: 151 and 318. *Mr. Rice, Mr. De Jong.*

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

400 SEMINAR.

#### 1973-74 INTERIM

*The full description of interim courses is given on pages 121-136.*

10 ENGLISH CITIES: A FIELD COURSE, *Mr. Vander Kooi.*

11 MONKEYS, APES, AND MAN, *Mr. Wilson.*

20 FIELD WORK IN SOCIAL AND REHABILITATION AGENCIES, *Mr. Smalligan.*

21 SOCIOLOGY OF SPORT, *Mr. De Blaey.*

22 DEATH AND AMERICAN CULTURE, *Mr. Rottman.*

30 SOCIOLOGY OF HOUSING, *Mr. Holstege.*

390 INDEPENDENT STUDY

*The following interdisciplinary courses are also offered by members of this department.*

100 CHRISTIAN PERSPECTIVES ON LEARNING, *Mr. De Jong and staff.*

119 ENVIRONMENTAL STUDIES WORKSHOP. *Mr. Rice and staff.*

134 THE CONTEMPORARY AMERICAN RELIGIOUS SITUATION, *Mr. Smit and staff.*

## Spanish

*Professor A. Otten (chairman, Department of Romance languages)*

*Associate Professor D. Vila (program adviser)*

*Assistant Professors E. Cortina, B. Siebring*

STUDENTS may declare for a program of concentration in Spanish after having completed two units of college Spanish with a minimum grade of

**C (2.0).** The program of concentration includes eight regular courses and an interim. The regular courses are 201-202, 217-218, 303-304 or 307-308, and two courses chosen from 215, 305, or 306. The minor program for prospective secondary teachers requires 201, 202, 215, 217, 218, and one additional advanced course. Programs for students beginning Spanish in college, including prospective secondary teachers, should be worked out with the chairman or the program adviser. Cognates in another foreign language through the 200-level, European or Latin American history, English literature, philosophy, history of music, or history of art are recommended. All courses above 102 meet core requirements in foreign language; all courses above 217 meet core requirements in the fine arts.

**101 ELEMENTARY SPANISH. F.** An introductory course in the use and comprehension of oral and written Spanish. *Mr. Siebring.*

**102 ELEMENTARY SPANISH. S.** Continuation of Spanish 101. *Mr. Siebring.*

**201 INTERMEDIATE SPANISH. F, core.** 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. *Mrs. Cortina, Mr. Vila.*

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

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

**215 ADVANCED SPANISH. S.** A course designed for the student desiring to pursue graduate studies in Spanish, to engage in the teaching of Spanish, or to achieve a high degree of competence in the language. Conducted in Spanish. Prerequisite: 202 or equivalent. *Mr. Vila.*

#### LITERATURE

**217 READINGS IN SPANISH AND LATIN AMERICAN LITERATURE. F, core.** An introduction to the major writers and movements in the history of the Spanish literature from the Middle Ages to the present day. The first semester deals

with the literature of Spain, while the second semester deals with the literature of Latin America. Lectures, readings, and reports. Conducted in Spanish. Prerequisite: 202. *Mrs. Cortina.*

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

**303 THE SPANISH NOVEL. F** odd years, core. A study of the Spanish novel from *La Celestina* to the present. Reading and interpretation of key chapters in Spain's outstanding novels as well as complete works. A study is made of the chief characteristics of the various types of novels. Prerequisite: 202 or equivalent. Concluded in Spanish. *Mr. Vila.*

**304 THE SPANISH NOVEL. F** odd years, core. A continuation of 303. *Mr. Vila.*

**305 SPANISH AND LATIN AMERICAN POETRY. F** odd years, core. A study of the history and characteristics of Spanish poetry by means of extensive readings and detailed examination of major poets. Special emphasis will be placed on the themes, forms, and techniques of poets of the last two centuries. Conducted in Spanish. Not offered 1973-74.

**306 SPANISH AND LATIN AMERICAN POETRY. S** odd years, core. A study of the history and characteristics of Latin American poetry, by means of extensive readings and detailed examination of major poets. Special emphasis will be placed on the themes, forms, and tech-

niques of poets from the Modernist generation to the present day. Conducted in Spanish. Not offered 1973-74.

307 THE LATIN-AMERICAN NOVEL. F odd years, core. A study of the novels of Latin America with particular emphasis on the last two centuries. Attention will be paid to the conditions that gave rise to the different types of novels, as well as to the intrinsic literary value of the novels themselves. Conducted in Spanish. Not offered 1973-74.

308 THE LATIN-AMERICAN NOVEL. S odd years, core. A continuation of 307. Not offered 1973-74. *Mrs. Cortina.*

309 THE SPANISH DRAMA. A even years, core. A study of the dramatic expression of Spain's Golden Age of literature. Particular emphasis will be placed on the drama of Lope de Vega, Tirso de Molina Calderón, and Alarcón. Con-

ducted in Spanish. Prerequisite: 202 or equivalent. Not offered 1973-74.

310 THE SPANISH DRAMA. S even years, core. A study of the dramatic expression of Echegaray, Benavente, Lorca, Casona, and Buere Vallejo. Conducted in Spanish. Prerequisite: Spanish 309. *Mr. Vila.*

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

400 SEMINAR.

#### 1973-74 INTERIM

*The full description of interim courses is given on pages 121-136.*

110 THE WORLD OF CERVANTES AND DON QUIXOTE, *Mr. Vila.*

206 INTERMEDIATE SPANISH, *Staff.*

390 INDEPENDENT STUDY

## Speech

*Professors M. Berghuis, A. Noteboom, T. Ozinga, M. Vande Guchte (chairman)*  
*Assistant Professors E. Boevé, D. Holquist, D. Nykamp*  
*Instructor J. Korf*

PREREQUISITE TO A MAJOR is a minimum average of C (2.0) is 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 400 beyond the minimum eight and a half course major.

A secondary school teaching major consists of 100, 200, 203, 211, 215, 219,, plus three and one-half other courses. The elementary school teach-

ing major includes 203, 214, 215, 219, 240 or 250, plus four other courses. A secondary school teaching minor should include 100, 200, 203, 211, 215, 219, plus one other course.

The core requirements in spoken rhetoric may be met by 100; 214, if the student is in an elementary education program; 240; 200; or by an examination, which presupposes formal and practical speech training in high school. The fine arts core requirement may be met by 203, 219, 304, 317, 318, 325, and 326.

#### PUBLIC ADDRESS

100 **FUNDAMENTALS OF ORAL RHETORIC.** F and S, half course. The aim of the course is to train students to give effective oral expression to materials that are logically and psychologically sound and to give reasoned evaluation of speeches given by others. *Staff.*

200 **ADVANCED ORAL RHETORIC.** F and S. **Composition and presentation of types of speeches, readings in rhetorical theory and criticism of selected contemporary speeches, types of discussion, and parliamentary law.** Prerequisite: 100 or equivalent. *Mr. Berghuis.*

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. Nykamp.*

230 **MASS COMMUNICATION.** F. An examination of television, radio, film, newspapers, magazines, and books. Major topics include how mass communication compares with other communication forms; how the mass media affect attitude formation and change; and how the mass media are used in social, political, and religious persuasion. *Mr. Ozinga.*

240 **GROUP COMMUNICATION.** F and S. Communication in the small group. Major topics include rôle development, cohesiveness, 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. Nykamp, Mr. Ozinga.*

250 **SEMANTICS.** S. Study of verbal and nonverbal symbols used in communica-

tion. Primary emphasis is on the effect of symbols. Major topics include relationships between symbols and referents, and problems in human communication. *Mrs. Noteboom, Mr. Nykamp.*

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

311 **ARGUMENTATION.** F. Study of 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. 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 1973-74.

326 **HISTORY OF PUBLIC ADDRESS.** Core. Significant speeches are analyzed as communication arising out of a dynamic historical context. The role of speakers in the movements and controversies of their day. Included are orators of the Bible such as Moses and Paul; speakers of Greece and Rome, such as Demosthenes and Cicero; preachers such as Chrysostom, Luther, Calvin, Beecher,

Fosdick, Marshall, and Graham; political spokesmen such as Webster, Lincoln, Roosevelt, Hitler, and Churchill; and speakers for social reform such as Susan B. Anthony and Martin Luther King, Jr. *Mr. Berghuis.*

#### SPEECH EDUCATION AND SPEECH CORRECTION

214 **SPEECH FOR THE ELEMENTARY TEACHER.** F and S. Designed to familiarize the prospective teacher with the speech arts used in the elementary classroom and to improve the prospective teacher's use of voice and articulation. *Staff*

215 **PRINCIPLES OF SPEECH CORRECTION.** F and S. A study of the child's speech development and the types of speech defects that may occur. The course is designed to help the classroom teacher understand and correct minor defects and to handle speech improvement in the classroom. The course will also serve to introduce the student to the profession of speech pathology and audiology. *Mr. Vande Guchte.*

307 **FUNDAMENTALS OF SPEECH SCIENCE.** F. A study of the anatomy and physiology of the speech organs, the acoustic characteristics of speech production, speech sound formation, and phonetic transcription utilizing the International Phonetic Alphabet. Prerequisite: 215. Not offered 1973-74.

308 **BASIC AUDIOLOGY AND AUDIOMETRY.** S. A study of the fundamental aspects of hearing: the physics of sound, the anatomy of the ear, the nature of hearing and hearing impairment, and the testing of hearing. Prerequisite: 307 or permission of instructor. Not offered 1973-74.

#### 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. Holquist, Mrs. Noteboom.*

219 **PRINCIPLES OF DRAMATIC PRODUCTIONS.** F, core. A study of the theory and principles of drama as re-

vealed in representative plays from the Greek through the modern period. With a view to training the prospective coach, attention will be given to the technical aspects of production. Students will be trained in acting and in directing by means of classroom presentations of dramatic scenes. *Mr. Korf.*

220 **THESPIAN PRODUCTIONS.** Half course for the year. Membership in the Thespian group is limited and is determined annually by tryout. The members will be given training in the various practical aspects of the production of drama. Students may participate more than one year. *Mrs. Boevé.*

304 **ADVANCED INTERPRETATION.** S, core. Continuation of 203. Application of its principles to the novel and drama. Intensive study in preparation for a reading program. Prerequisite: 203. Not offered 1973-74.

317 **HISTORY OF THEATER AND DRAMA.** S, core. A historical and analytical study of theater and drama from its origins to 1800. Not offered 1973-74.

318 **HISTORY OF THEATER AND DRAMA.** S, core. A continuation of 317. An historical and analytical study of theater and drama from 1800 to the present. *Mrs. Boevé.*

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

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

#### 1973-74 INTERIM

*The full description of interim courses is given on pages 121-136.*

- 10 **SPEECH COMMUNICATIONS LABORATORY,** *Mr. Nykamp.*
- 11 **COSTUME DESIGN FOR THE STAGE,** *Mrs. Boevé.*
- 12 **LONDON THEATRE INTERIM 1974,** *Mr. Korf.*

- 30 **TEACHING THE SPEECH COMMUNICATIONS LABORATORY**, *Mr. Nykamp.*
- 390 **INDEPENDENT STUDY**  
*The following interdisciplinary courses are offered by members of this department.*
- 100 **CHRISTIAN PERSPECTIVES ON LEARNING**, *Mrs. Noteboom and staff.*
- 112 **WORKSHOP IN OPEN EDUCATION**, *Mr. Holquist.*
- 123 **NOISE AND MAN**, *Mr. Vandeguchte and staff.*



# The INTERIM courses

The interim courses in this section are listed alphabetically; they are listed by title alone with the departmental offerings. Courses number 1-19 and 110- are open to any student; 20-29, to sophomores and juniors; and 30-39, to juniors and seniors.

**AMERICAN LITERARY HUMOR.** An exploration of the nature and range of American literary humor from farce to the Freudian fumble. A serious study of funny books, concerned with the function of humor as a criticism of life and the use and abuse of satire. Emphasis upon some little known Twain and the twentieth century, particularly Faulkner, Thurber, Powers, Parkers, De Vries, and O'Connor. Some attention will be paid to the unconscious humor of plump and purple prose, sentimental fiction, and the overblown poem. Student participation in readings, original parodies, and mimicry will be encouraged. Prerequisite: a sense of humor. *English 31, Mr. Timmerman.*

**ANATOMY OF DESPAIR.** Studies in the writing of Hart Crane, Ernest Hemingway, Sylvia Plath, and John Barrymore, each of whom took his own life. Robert Burton's *The Anatomy of Melancholy* will serve as collateral reading. Prerequisites: none. *English 32, Stanley Wiersma.*

**ANIMATION IN FILMMAKING.** An introduction to the use of cartooning and other methods of animation in filmmaking. The objectives of the course will be the discovery of filmmaking/animation as a personal artistic expression and developing a criterion for the evaluation of films/animation. The various techniques of animation, cartooning and filmmaking will be explored as members of the class produce experimental animation films. Projects will include the writing of shooting scripts, a portfolio of research

materials on filmmaking, critique papers on films, and the production of at least two animation films. *Art 12, Mr. Jensen.*

**ART AND WORSHIP IN THE EARLY CHRISTIAN AND BYZANTINE WORLD.** A study of how early and Eastern Christianity developed its artistic expression of the major events in Christ's life and related this expression to its worship-forms. Readings, discussions, and slide lectures. Student lectures will be encouraged but not required. *Interdisciplinary, 105, Mr. R. Otten.*

**THE ART OF ILLUSION.** A study of perception, especially as it relates to the work of the magician and ventriloquist. Readings, observation, and performance are required. The library of the International Brotherhood of Magicians of Grand Rapids will be available. No prerequisites. *Interdisciplinary 137, Mr. Besselsen.*

**THE ART OF 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 enlarg-

ing 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; a serious interest in photography as an art form. *Interdisciplinary 101, Mr. Ehlers, Mr. Overvoorde.*

**THE ARTS IN AMERICA 1910-1930.** A survey of the changing patterns of artistic expression in America during the period which saw the rise of "modernism" in the arts. The course will examine changes in style as well as in philosophical perspectives in literature and the other arts. It will also examine public attitudes toward the arts and the artists' responses to their society. *English 15, Mr. Walhout.*

**ASIAN PHILOSOPHY.** A study of key ideas and documents in the classical philosophies of India, China, and Japan. An attempt will be made to relate these philosophies to issues in Western philosophy. Lectures by instructor, class reports by students, class discussion, possibly some films, reading from primary and secondary sources. Prerequisite: one course in philosophy. *Philosophy 10, Mr. Orlebeke.*

**THE BIBLE'S STRANGE IMAGERY: INTERPRETING APOCALYPTIC WRITINGS.** A study of the apocalyptic method of communication which is found in the later Old Testament, Intertestament, and New Testament times both in the biblical writings (e.g. Daniel, Matthew 24, Revelation) and in other Jewish writings (e.g. II Esdras, Enoch). Prerequisites: Religion and Theology 103, 107, 108, or a similar course in biblical studies. *Religion 20, Mr. W. De Boer.*

**BONES AND STONES OF THE MIDDLE EAST.** Students will engage in archaeological digging in Amman, Jordan, and participate in seminars on archaeology under the direction of Bastian Van Elderen of Calvin Seminary and Bert De Vries of the History Department, both now doing research there. Visits will also be made to Beirut, Baalbek, Damascus, Aijlun, Petra, Jerusalem, Tel Aviv, and Athens. Three pre-travel sessions will be held during the month of December at which time books on archaeology will

be assigned and discussed; a film on the Middle East will be shown; other practical travel preparations will be given attention. A final written report will complete the requirements. Total cost is estimated to be approximately \$850. *Religion and Theology 10, Mr. C. Vos.*

**BRITISH VIEW OF THE AMERICAN REVOLUTION:** A prolegomena to the bicentennial of the American Revolution. Comparison of American and British views of the Revolution. Study of the context of the Imperial controversy. Introduced through Kenneth Roberts: *Oliver Wiswell*, the American Revolution will be analyzed by means of character studies of principal participants, memoirs and documents of the eighteenth century, and studies of selected military campaigns. Audio-visual materials used; field trip to Clements Library in Ann Arbor; student reports. May be applied to group majors in the social studies. *History 30, Mr. Ippel.*

**THE CAMBRIDGE PLATONISTS.** A study particularly of Benjamin Whichcote, Henry More, and Ralph Cudworth, of their relations to the Humanism of the Italian Renaissance, to the emerging Dutch Arminians, to the Cartesian movement, and to modern science. Their relation to John Locke and their influence on the German idealists. Prerequisite: two courses in philosophy. *Philosophy 31, Mr. Runner.*

**CHOOSING A CAREER: A DECISION-MAKING PROCESS.** This course is for the student who is unsure of his/her occupational future and wants to spend three and a half weeks in intensive exploration. The student will learn decision-making models and use them in the career-choice process. The student will have the opportunity to become more career conscious by using career information, self-directed information gathering, testing, field trips to specific vocations, and by hearing guest lecturers from various career fields. Small groups will be the setting in which students will be able to implement the models and tools of decision-making and receive individual guidance. *Interdisciplinary 114, Mr. Tietsma and Mr. Zuiderveen.*

**CHRISTIANITY IN THE CONTEMPORARY WORLD SCENE.** A study of the works of Frances A. Schaeffer. This course will concentrate on the writings of F. A. Schaeffer, his analysis of the trends in contemporary society, and his response as a Christian intellectual to these trends. The books of Schaeffer will be read and discussed. Each student will be responsible for analyzing, criticizing, and further developing some area of Schaeffer's concern. Prerequisite: one course in religion and theology and one in philosophy. *Religion and Theology 12, Mr. L. Vos.*

**CLASSICAL MYTHOLOGY.** A study of the major myths of the Greeks and Romans as these appear in classical literature and art and of the influence these myths have had on Western culture. Attention is given to various interpretations of myths, Slides, lectures, films, and discussions. A course paper or project is required. Satisfies classics concentration and fine arts core in literature other than English or American. *Interdisciplinary 107, Mr. Van Vugt.*

**COLLEGE-LEVEL READING SKILLS—WORKSHOP AND SEMINAR.** An in-depth study of college-level reading skills designed for two groups: 1. those wishing to improve their own reading skills and 2. those wishing to acquire knowledge of reading skills and how to teach them. Those enrolled in the workshop will receive group instruction from the course instructor, will spend one hour per day in tutoring sessions, and will practice independently. Those upperclassmen enrolled in the second group will do research, participate in seminar session with the instructor, and will tutor those in workshop group. They will also attend some full group orientation sessions. Substitutes for Education 307 for secondary education students. *Education 10, Mrs. Blok.*

**COMBINATORIAL MATHEMATICS.** Combinatorial theory is a rapidly growing, fascinating branch of mathematics which has applications in engineering, the physical sciences, the social sciences, economics, and operations research. It deals with counting problems which arise in probability, in recurrence theory, in

graph theory, in network theory, in linear programming, and in block design. Students will be taught in the usual mathematical style with emphasis on problem solving. Students will also be expected to do some independent work in a topic of their choosing which applies ideas developed in the course. A course paper will be assigned. Prerequisite: Mathematics 112. May be applied to departmental concentration; open to sophomores as well as juniors and seniors. *Mathematics 32, Mr. Zwier.*

**COMPARATIVE WEST AFRICAN SOCIETIES.** A study of the historical and cultural homeland of Black Americans. An examination of selected nations such as Senegal, Ivory Coast, Ghana, and Nigeria, using their histories since 1880, but concentrating mainly on their contemporary roles as modern nation states. Readings and films will be used. A research paper will be required. May be applied to group concentrations in the social studies. *History 13, Mr. Graydanus.*

**THE CONTEMPORARY AMERICAN RELIGIOUS SITUATION.** A description and analysis of current American religious developments in historical, sociological, and theological perspective. Attention will be given to the current state of institutional religion, Christian as well as non-Christian. Non-institutional movements such as the Jesus Movement and Neo-Pentecostalism will be examined. The current interest in Eastern religions and recent developments in Judaism and Roman Catholicism will also receive attention. The course will be team-taught by a member of the Religion and Theology department and a member of the Sociology Department. Student involvement will be emphasized. Considerable reading will be required and small-group discussions will be held regularly. Films and other media will be used, and a number of guest speakers who are representatives of the movements being considered will participate. *Interdisciplinary 134, Mr. Primus, Mr. Smit.*

**CONTEMPORARY CHURCH ARCHITECTURE.** The relationship between theology, liturgy, and architecture in Eastern Orthodox, Roman Catholic, and Protestant churches. Trips will be taken to

examine this relationship in local churches, in those in western Michigan, and in those in the central states area. Trips will be augmented with slides of contemporary churches in other areas of the United States and in foreign countries. Lectures, discussions, readings, and papers will be required. *Art 10, Mr. Boevé.*

**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. Prerequisites: Mathematics 212, Physics 216. *Engineering 30, Mr. J. Bosscher.*

**COSTUME DESIGN FOR THE STAGE.** This course in costume design for the stage will attempt to provide a greater appreciation for the art of the theater. It will include a presentation of basic principles of design including line, color, texture, proportion, and harmony as they are used to design an appropriate costume for a character in a drama; the historical significance of the changing silhouette; and the appropriateness of an interpretation of a style for a specific production. Slides, films, and field trips will be utilized to help the student develop this awareness. The field trips will be to art galleries and theater productions. The student will be required to produce a portfolio of designs and written reports of the productions seen. May be applied to a departmental concentration. *Speech 11, Mrs. Boevé.*

**CURRENT ISSUES IN HEALTH EDUCATION.** A study of the objectives, methods, and materials for teaching health education. Focus will be on drug abuse, smoking, alcohol, body care (dental, diet, exercise, etc.), sex education, and mental health. Instructional units will be developed for classroom use at various grade levels (K-12), depending on the student's professional interest. The course will utilize visual aides of various types, materials available in the curriculum center, the health department, and various agencies concerned with community health. Resource persons who have spe-

cial competence and interest in the field will participate. Field trips to Planned Parenthood, Project REHAB, and to various schools and agencies concerned with the field of health. *Education 30, Mr. Hendricks.*

**DANTE: A STUDY OF THE DIVINE COMEDY.** After some introductory lectures and readings, the focal point of the course will be the text in English translation of Dante's greatest work, *The Divine Comedy*. The poem will be read in its entirety and specific cantos will be selected for deeper analysis. Each student will be required to write a short paper on a specific canto. *Interdisciplinary 109, Mr. Rienstra.*

**DEATH AND AMERICAN CULTURE.** An inquiry into the social-psychological and socio-cultural aspects of death and dying. The course will attempt to describe and evaluate different conceptions of the process of dying and the state of being dead, as well as the customs which surround them. Special attention will be given to the extent to which these conceptions and customs are functional in their own terms and compatible with biblical norms. The course will entail the keeping of a daily journal and a term paper or project. Resources will include: films ("Though I Walk Through the Valley" and Time Inc. file entitled "Death"), video tape (Kubler-Ross interview with a terminally ill patient), textbooks (Sudnow, *Passing On*; Kooiman, *When Death Takes a Father*, and Kubler-Ross, *Death and Dying*), and local death-related businessmen and professionals (among others a clergyman, a mortician, a lawyer, and an oncologist). May be applied to a departmental major. *Sociology 22, Mr. Rottman.*

**DUTCH-AMERICAN FOLKLORE: AN ORAL HISTORY PROJECT.** A brief analysis of folklore as historical source material, and a vigorous search for folklore in the various segments of the Dutch-American community, viz, Calvin College, the older immigrant towns, the urban enclaves, and in institutions such as the church, school, and other social organizations. Students will be required to search out and record examples of Dutch-American folklore. May be applied to history and

social studies concentrations. *History 12, Mr. Brinks.*

**THE DYNAMICS OF MOTOR-SKILL ACQUISITION.** An investigation of the many factors that make for successful motor performance. The nature and basis of motor learning will be explored and available psychological and educational data as applied to the problem of motor performance will be reviewed. Features include: seminar type discussions, applied research, review of current literature, and a contemplated field trip to a Motor Learning Research Laboratory. For education, psychology, and physical education students, particularly those aspiring to teach at the elementary school level, to coach athletic teams at the secondary school level, and who are interested in psychological theory and practice in motivation and human performance. The course satisfies major concentration in physical education. *Physical Education 12, Mr. Zuidema.*

**ECONOMIC STATISTICS AND RESEARCH.** An investigation of the methodology and reliability of economic statistics and an evaluation of their usefulness for economic analysis and forecasting. Each student will be required to report on selected statistics and either prepare a forecast or test an hypothesis making use of statistical data. Emphasis on independent work and individual consultation with the instructor. An initial class meeting with later meetings for presentation of papers. Students must consult with instructor before Christmas holiday. Prerequisites: Economics 151 or Mathematics 206. May be applied to departmental and social science concentrations. *Economics 30, Mr. Pruis.*

**ENAMELING.** Students will employ enamels to create a decorative surface on two or three dimensional metal objects. Enamels are glass-like substances combined with metallic oxides which when fired on metal achieve a transparent, opaque, or semi-opaque surface. Techniques explored are grisaille, limoges, champlevé, cloisonné, and plique-à-jour. Students should plan to spend at least forty hours a week in studio. Prerequisites: Art 207-208. *Art 11, Mrs. Bonzelaar.*

**ENGLISH CITIES: A FIELD COURSE IN THE DEVELOPMENT, STRUCTURE, AND SOCIAL PROBLEMS OF ENGLISH URBANIZATION.** Students in this course will spend about four weeks in travel to and within England and Scotland, observing the nature of major cities and smaller towns with regard to their general structure and certain social problems. Preparatory reading of at least a few books will be mandatory along with a few orientation sessions. Special attention will be given to comparing these cities with those of the United States, noting their development before and after the Industrial Revolution. From London the class will tour other cities via British rail including Leeds, York, Newcastle, Liverpool, Manchester, Birmingham, Oxford, Glasgow, and Edinburgh. The instructor's interest in homeless men and his previous study in England will give a background for looking at problems of city living, especially for the homeless, but the class will also look at more "normal" parts of urban development including cultural centers, housing, transportation, and industrialization. A special fee will be charged. *Sociology 10, Mr. Vander Kooi.*

**ENGLISH CITIES IN FICTION AND POETRY.** Students in this course will spend three and a half to four weeks in England, reading, hearing lectures on, and viewing the architectural, topographical, and sociological setting of various novels having to do with the English cities and villages in the Victorian period. Certain poems will also be considered. The students will live for a week in Leeds, which is an intact Victorian early post-Industrial Revolution city, which grew very rapidly from a wool-town into an industrial monster; then they will live for two or three days in Leicester, which is smaller than but like Leeds and has at the university a Victorian Research Center with displays, lecturers, and a library. Then three or four days in Cambridge, to view a Victorian university town much used as milieu of novels and poems. Then the group will rejoin Mr. Vander Kooi's group in London for a week of Dickens' country. Leeds, which will serve as a *pied a terre*, offers also the following opportunities: a cathedral town (York); a group of intact medieval villages near-

by; an intact Elizabethan manor; a ruined abbey with an eighteenth century manor attached; canals; and an industrial skyline (no longer smoky) second only to that of Gary. Accommodations may be arranged with university facilities wherever possible. May be applied to major concentration. A special fee will be charged. Prerequisite: English 200. *English 10, Mr. Harper.*

**ENVIRONMENTAL STUDIES WORKSHOP.** A study of man and his environment designed to increase his awareness of the seriousness of the environmental crisis while giving practice in decision-making about it. Case studies of local communities as well as simulation gaming will be used to show the interdisciplinary nature of the problems of ecology and to give practice in solving them. Special attention is given to the ethical and political dimensions of environmental problems as well as to their technological aspects. *Interdisciplinary 119, Mr. A. Bratt, Mr. De Vries, Mr. Gebben, Mr. Menninga (chairman), Mr. D. Oppewal, Mr. Rice, Mr. Van Poolen.*

**EPISODES IN FIVE POETIC TRADITIONS: THE SONNET, THE PASTORAL ELEGY, THE BALLAD, THE ODE, AND MASKS AND VOICES.** A close study of representative poems in five important poetic traditions, from earliest models to contemporary examples including the study of meter and stanza form as intrinsic to most traditional forms; consideration of what it means to write a poem in some certain form (what a poet tacitly asserts about his place relative to a tradition, his act of allegiance or rebellion, awareness or ignorance, and the play of expectation that is part of the transaction); and the writing of poems in these traditions, or (for students otherwise inclined) writing *about* poems in these traditions (written, in some instances, by classmates). The course is aimed at anyone interested in the formal aspects of poetic composition and the continuity of poetic practice—particularly writers and prospective teachers of literature. Original writing will be strongly encouraged but not required of those who prefer critical exercises. Some of the poets represented are Arnold, Auden, Berrigan, Berryman, Bion, Blake, Bly, Browning,

Burns, Coleridge, Cummings, Dante, Donne, Duncan, Hopkins, Keats, Levitt, Marvell, Milton, Petrarch, Pindar, Pope, Pound, Shakespeare, Shelley, Sidney, Snyder, Sophocles, Spenser, Surrey, Theocritus, Thomas, Virgil, Whitman, Williams, Wordsworth, Wyatt, Yeats. Satisfies departmental interim requirement. *English 12, Mr. Kroese.*

**FEDERAL INCOME TAXES.** A study of Federal Income Tax Law to develop competence in the preparation of tax returns and to evaluate the provisions and rate structure of the income tax. Emphasis on taxation of individuals; some coverage of partnership and corporate taxation. Text readings, lectures, problems, and a written examination; honors-grade candidates are required to complete a selection of tax research problems. May be applied to departmental and social science concentrations. Prerequisites: Economics 207. *Economics 10, Mr. K. Kuipers.*

**THE FICTION OF PETER DE VRIES AND FREDERICK MANFRED.** An introduction to the works of De Vries and Manfred (Feike Feikema), both of whom are alumni of Calvin. The introduction will include careful reading of several works of each author, a close analysis of some of them giving special attention to the interweaving of form and content, and a study of the perspective projected thematically and formally by the authors. Emphasis in class will be placed on explanation and discussion. Discussions will include a comparison of the authors and an exploration of the effect of their heritage on their work. Course work will include, in addition to assigned readings, a course project. *English 13, Mr. Hook.*

**FIELD WORK IN SOCIAL AND REHABILITATION AGENCIES.** Field work placement in a social or rehabilitation agency; selected readings and a paper. For students with a professional interest in social work and special education. One such interim course may be applied to sociology concentrations. *Sociology 20, Mr. Smalligan.*

**FRENCH INTERIM ABROAD.** By means of a five-week excursion to France, the student will experience at firsthand both life in Paris and in one provincial city,

Montpellier. Lectures at the University of Montpellier will deal with current aspects of French culture and of French Protestantism. Readings, required use of the French language in oral and written forms, direct experience, lectures, visits to families and to monuments and museums. A special fee will be charged. Prerequisite: French 201. May be applied to French concentrations. *French 10, Mr. A. Otten.*

FOLKLORE OF FOREIGN LANDS. A study of tales, local legends, superstitions, customs, and popular beliefs of Germany, Austria, Switzerland, and of northern Europe (Denmark and Norway), as they can be found in the past and present. The study goes from the mighty Vikings in the North and the dwarfs of the Rhine River to the monks of the monastery in St. Gallen; it will include legends of the brothers Grimm and tales by Hans Christian Andersen; it will contrast Dr. Faust's pact with the devil and the pranks of various people; it will include the mountain spirits of Silesia and witness the spring celebrations in the Black Forest and the Alps. The course will be conducted in English using slides, movies, demonstrations, records, tape recordings, textbooks, quizzes, conversations, lectures, presentations of projects, and eyewitness reports. *Interdisciplinary 135, Mr. Hegewald.*

GETTING TO KNOW THE BIRDS. An introduction to the study of birds—their habits, habitats, behavior, adaptations, migration, identification, etc. Lectures, student reports, laboratory work, museum work. Due to seasonal limitations not much field work will be done. Hopefully students will acquire sufficient background information for more advanced study or for developing "bird watching" as a life-long hobby. Outside speakers, films, slides, specimens, records, and tapes will also be used. Field trips may include: John Ball Park, Kellogg Bird Sanctuary, Kalamazoo Nature Center, Blandford Nature Center, Johnson Park. Prerequisites: Biology 111 or 151. *Biology 10, Mr. Bengelink.*

GIANT'S CHILDHOOD: THE EARLY DAYS OF MODERN SCIENCE AND TECHNOLOGY, 1300-1600. Focus on puzzling questions

of how and when modern science emerged and why in Western society rather than elsewhere. Student reports on writings dealing with the problem, discussion thereof, perhaps producing some tentative conclusions, and surely raising further questions. Interest in history and/or science useful. May be applied to history and social studies concentrations. *History 31, Mr. Jellema.*

GREEK CIVILIZATION. A study of Greek civilization which will place somewhat less stress on the literary and philological than is traditional in courses of this type. It is a non-traditional course planned to give the student a picture of the abiding, permanently relevant ideas, institutions, and cultural forms which Ancient Greece has bequeathed to the modern world. The political, social, religious, and artistic areas will all receive some attention. Minimal emphasis on literature and philology. Audio-visual materials, lectures, and student reports on individual projects. *Interdisciplinary 108, Mr. Harris.*

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

INFINITE SERIES AND ASYMPTOTIC EXPANSIONS. In this course, infinite series will be studied, including general tests for divergence and convergence and uniform convergence. The emphasis will be on topics which are not part of the regular undergraduate program and which are of interest to the engineer, physicist, and applied mathematician of the future. These include: rearrangements, double series, summability, and asymptotic series. The most important special topic to be studied will be "asymptotic series" which includes various definitions of an asymptotic expansion. It will be shown how these arise quite naturally in certain methods of solving certain differential equations. After a certain period of general study, each student will have an opportunity to select a special topic of his choice. Prerequisite: Mathematics

211; open to sophomores as well as juniors and seniors. *Mathematics 31, Mr. Van Zwalenberg.*

**INTERMEDIATE FRENCH.** This course is the required second course of a three-semester sequence, French 205-206-207. Students who were assigned to French 205 for the first semester are required to take this course during the interim. Satisfies core requirement in foreign language and concentrations in French. Prerequisite: French 205 in preceding semester. *French 206, Staff.*

**INTERMEDIATE GERMAN.** The second unit of a three-course sequence intended for students who have completed two years of high school German with less than a C average. Intensive language review, composition, and selected prose readings. Satisfies core requirement. Prerequisite: German 205 taken first semester as a part of this three-course sequence. *German 206, Mr. Kreuzer.*

**INTERMEDIATE SPANISH.** Second course of three-course sequence, Spanish 205-206-207. Prerequisite: Spanish 205. *Spanish 206, Staff.*

**INTERNSHIP IN BUSINESS.** The student will work full-time as a staff member of a cooperating business firm during the Interim Term; possibly part-time during the Spring Term. Participating students will be required to attend several group meetings to discuss and evaluate their experiences. Application for this course should be made by September 30. Prerequisite: business economics major and departmental approval. May be applied to departmental concentrations. *Economics 31, Mr. Pruis.*

**INTRODUCTION TO AUTOMOTIVE MECHANICS FOR WOMEN.** A course designed to acquaint women motorists with difficulties commonly encountered in the operation of motor vehicles. A "hands on" opportunity to learn essential maintenance principles and techniques. Some exploration of principles of mechanics and the internal combustion engine. *Interdisciplinary 103, Mr. De Beer, Miss Klooster.*

**INTRODUCTORY RADIOCHEMISTRY.** A study of natural and induced radioac-

tivity, the interaction of radiation with matter, and the detection and measurement of radiation. Basic theory will be studied, as well as applications of radioisotope technology to chemical and biological systems. Laboratory work is an integral part of the course. Prerequisites: high school chemistry, Chemistry 103 or 113. Satisfies science studies group major and group major for medical technology. *Interdisciplinary 104, Mr. Broene, Mr. Griffioen.*

**LABORATORY EXPERIENCES IN BIOLOGY.** Questions arise from laboratory exercises that can be answered experimentally. If you have had such questions in Biology 111, 151, 152, 251, or 252 this is your chance to kick them around in a laboratory setting. See us and we will talk it over. Prerequisites: Biology 111, 151, 152, 251, or 252. *Biology 21, Mr. Beebe, Mr. Ten Broek.*

**LEADING THE SMALL GROUP: THEORY AND PRACTICUM.** This course is designed for junior or senior psychology or sociology majors interested in the group process and leadership. Five students who have completed at least two courses in psychology and sociology will be selected on the basis of a family recommendation and interviews with the instructors. Students in this class will learn theoretical approaches to group leadership through selected readings and presentations. Group leadership skills will be acquired through presentations and small group practice sessions. Group leadership skills will be used and supervised as each student leads a small problem-solving group for the interim period. (See *Interdisciplinary 114*). Some training will take place during the later half of the fall semester. *Interdisciplinary 115, Mr. Tietsma and Mr. Zuiderveen.*

**LEARNING TO LISTEN: THE MUSIC OF FRANZ JOSEPH HAYDN.** A course designed to increase the non-musician's musical perception and appreciation through a study of the works of Haydn. There will be a brief survey of Haydn's entire creative output and of his development as a composer, but emphasis will be on learning to hear fundamental elements of musical movement and form that are found in the symphonies, so-

natas, and string quartets. The oratorio, *The Creation*, will also be studied and there will be a unit on humor in Haydn's music. *Music 11, Mr. Stapert.*

**LITERARY REPUTATIONS.** An attempt to trace and assess the varying literary reputations of several American writers both at home and abroad such as Poe, Faulkner, and Steinbeck. Basic familiarity with at least one significant American writer required. Each student will survey the reputation of a writer of his choice—at home and abroad. Discussion approach. Oral reports in addition to term paper. Prerequisites: a semester of American literature or contemporary fiction. *English 30, Mr. Oppewall.*

**LONDON THEATER INTERIM 1974.** London is not only one of the most exciting cities in the world for the general tourist, it also offers special appeals to anyone interested in the theater. With about fifty theaters producing plays simultaneously, the city provides an ideal setting for the live study of theater and dramatic literature. This course includes ten performances ranging from classical to modern; discussions of the plays with actors and directors; excursions around London and to Oxford, Coventry, Stratford, and Canterbury; lectures on contemporary London theater, experimental theater, and Shakespeare; participation by noted British theatrical authorities. A special fee will be charged. *Speech 12, Mr. Korf.*

**MATHEMATICAL MODELING.** There is increasing demand and need for courses in applied mathematics which treat some "real-world" situations completely, beginning with a careful analysis of the nonmathematical origin of the problem, construction of a mathematical model, solution of the mathematical problem, and interpretation of the results obtained in the original problem. The objective of this course is to study such mathematical modeling. Typical examples might be drawn from business (models of inventory control, resource allocation); ecology (linear programming models of pollution control); psychology (Markov chain models of pollution control); sociology (game theory models for conflict). Each student will become actively in-

involved in mathematical modeling activity by examining in some depth an application in an area of his own choosing. He will be expected to write up a description of the problem studied, the mathematical model constructed, and results and interpretations obtained. Each student will also be expected to give a brief in-class presentation of his project. May be applied to departmental majors. Prerequisite: Mathematics 212; Mathematics 108 is useful. *Mathematics 30, Mr. Nyhoff.*

**MEASUREMENT - EVALUATION - REPORTING PUPIL PROGRESS.** This course is designed for individuals who plan to enter teaching or counseling. It will treat the construction, administration, scoring, and use of a variety of both teacher-made and standardized tests. Consideration will be given to both criterion and normative referenced measurement. The course will include lectures, demonstrations, discussion, and independent study, and the opportunity to construct a classroom test in the student's field of specialization. May be applied to departmental teaching and group concentrations. *Psychology 13, Mr. Reynolds.*

**MEDIA, METHODS, AND THE RELIGIOUS MESSAGE.** Exploration of and experimentation with a broad range of media (including print, paintings, records, slides, film, and TV) and methods for stimulating teaching and learning of religion in public and private schools, church schools, and the home. Demonstrations, workshops, and field trips to Newman Visual Education Company, Travarca, and to Chicago area producers of avant-garde religious education materials. May be applied to programs in religion and education and in the academic study of religion. *Interdisciplinary 111, Mr. Hoeks.*

**THE MISSIONS MOTIF OF THE BIBLE.** In an effort to get at the biblical implications and principles, a study will be made of the missionary passages, missionary episodes, (e.g. captive Jewish maid in Assyria), record of missionary activities, and the problems faced by the early mission churches. The student will be required to research the biblical materials. Extensive use of commentaries

will be made. A few missionaries will be invited in. *Religion and Theology 14, Mr. J. Bratt.*

**MOBS, MANIAS, AND MASS MOVEMENTS.** A social-psychological analysis of the basic forms of collective behavior. Attention will be given to fads, crazes, panics, riots, lynchings, and social movements. Both historical accounts and fictional portrayals of collective behavior will be used in exploring the psychology of the crowd. Readings, discussions, and lectures. *Psychology 10, Mr. Martin Bolt.*

**MODERN AMERICAN DRAMA: ARTHUR MILLER AND TENNESSEE WILLIAMS.** This course will address itself to the major plays of Arthur Miller and Tennessee Williams. It will include a close reading of the plays, student reports on supplementary readings, films, and student participation in acting groups. *English 16, Miss Walters.*

**THE MONASTERY IN HISTORY.** The development of the monastic ideal from ancient times until the present and the social, intellectual, and political impact of monasticism at different periods in history. Possible three-day retreat at a Trappist monastery and a major research paper. May be applied to history concentrations. *History 32, Mr. Roberts.*

**MONKEYS, APES, AND MAN.** Primates are increasingly being studied in order to aid our understanding of man, both past and present. The validity and reliability of this type of study will be tested by examining the following major topics: the primate order and their natural history, the fossil record of the primates, primate behavior both under naturalistic and laboratory conditions, the use of primates in the reconstruction of human prehistory, the nature and type of primate research, and the history of man's study of the primates. Course includes a two-day field trip to Brookfield Zoo and the Field Museum in Chicago. *Sociology 10, Mr. Wilson.*

**MOTIONS OF HEAVENLY BODIES.** This is a course for students who have seen the motion of heavenly bodies and have never understood how they all work to-

gether. Only high school mathematics is required but each student will be expected to work at his own level of mathematical maturity. Topics will include: universal gravitation, Kepler's laws, coordinate frames, orbits (conics), rotations, orbital periods, near-earth satellite trajectories, synchronous orbits for near-earth artificial satellites, artificial satellite tracking, lunar and solar eclipses and their prediction, comets and general two-body trajectories in space, and discussion of mathematical models related to these. A paper will be required. *Interdisciplinary 116, Mr. J. Kuitpers.*

**MOUNTAINEERING.** This is a course in elementary techniques of mountaineering with special emphasis upon rock climbing. There will be five Saturday afternoon sessions at Grand Ledge during the fall semester, plus a Friday night-Saturday trip to Devil's Lake, Wisconsin, where good rock climbing abounds. During the interim the class (among other things) will read and discuss Harvey Manning's *Freedom of the Hills*. During the spring semester there will be optional trips to Grand Ledge and Devil's Lake in preparation for the *pièce de resistance*, an optional climbing trip (probably to the Grand Tetons) in August, 1974. Students interested in this course should contact Mr. A. Plantinga. *Physical Education 10, Mr. A. Plantinga.*

**MUSIC THEORY SIMPLIFIED.** This course is designed for those who have little or no knowledge about the basic stuff of music and who want to learn. It will get at musical notation and the basic musical materials—scores, intervals, chords, rhythms, time signatures, sharps and flats, and tone color. Considerable classroom demonstration as well as programmed learning. Prerequisite: ignorance. *Music 13, Mr. Worst.*

**NEW VOICES FROM FRENCH AFRICA AND FRENCH CANADA.** A study of recent fiction and poetry from French-Canadian and French-African authors who give expression to a newly-awakened sense of self-identity and to a search for national self-definition. Readings assigned and reports given will take into account the capacity of the student to understand

and to use the French language. Prerequisite: French 201. *French 20, Mrs. Baldwin.*

**NOISE AND MAN.** A study will be made of the physiological and psychological effects of noise on man and his environment. A discussion of the processes of hearing and hearing testing will provide background for a definition of "Noise." The use of the Sound Level Meter and other instrumentation in the making of sound surveys. The effects of noise in the home and office, in industry, at airports, in agricultural and recreational settings, and in urban areas will be explored. Noise control ordinances, such as those in Chicago and Grand Rapids, will be examined and enforcement procedures observed. Federal legislation governing noise in industry, and the subsequent hearing conversation programs being implemented, will be studied. Course requirements will include: a study of reprints of relevant articles about noise; a mid-term test; special lectures by an audiologist, a noise control expert, and a representative of the Grand Rapids Noise Committee; class trips to such locations as the Oldsmobile Plant in Lansing; participation in a research project related to noise measurement and control. *Interdisciplinary 123, Mr. Geerdes, Mr. Vande Gutche.*

**THE NOVEL AS HISTORY: BALZAC, WITNESS AND INTERPRETER OF HIS TIMES.** A study of the nineteenth century French novelist Honoré de Balzac. Balzac wanted to be taken seriously not only as a novelist but also as the "secretary"—as he put it—of French society, and as the historian of "that history forgotten by so many historians, that of manners and ways of life." The course will therefore go beyond the usual literary questions of plot and style and attempt to evaluate Balzac as social historian of Restauration and July Monarchy France. *Interdisciplinary 111, Miss Borger, Mr. D. Van Kley.*

**OF KNIGHTS, LADIES, AND UNUSUAL COMPLICATIONS: MEDIEVAL GERMAN LITERATURE IN ENGLISH TRANSLATION.** An introduction to the German courtly lyric and epic of the period 1180-1250. Representative authors include Hart-

mann von Aue, Wolfram von Eschenbach, Walther von der Volgelweide, Gottfried von Strassburg, and Neidhart von Reuenthal. Works read include *The Nibelungenlied*, *Iwein*, *Parzival*, *Tristan and Isolde*, and several examples of Minnesang. Most of the works read in this course deal with the redefinitions of male-female roles and relationships which the chivalric society — a progressively self-refining elite social group — made necessary. The manner in which the poets dealt with the problem of the erotic — a basically asocial (in the broader sense) biological urge — in a restricted social setting has been particularly productive for the attitudes of modern Western society and constitutes instructive, exciting reading. Lectures, student reports, and discussion. *German 11, Mr. Lamse.*

**PEELING THE ONION WHICH IS YOU.** An analysis of personal choice making and decisions. Includes an examination of Lawrence Kohlberg's work on stages of moral development and Louis Rath's work with the clarification of values. Designed for those who wish to achieve greater moral self-awareness about the sources of their own decision making as well as for those who wish to teach others. Much small group work with simulations of value conflict situations. Distinguished from a course in ethics in that it examines and practices various models for clarifying and transmitting values rather than various theories for validating them. *Interdisciplinary 136, Mr. D. Oppewal.*

**PHILOSOPHY OF LAW (LEGAL PHILOSOPHY).** Topics in the philosophy of law: basis of a legal system, of legal and political authority, of obedience to law, of the nature and foundations of positive laws, and the like. *Philosophy 20, Mr. De Vos.*

**PHYSICAL EDUCATION FOR "SPECIAL" CHILDREN.** This course will study the characteristics of children who have "normal" intelligence but are affected by perceptual, emotional, sensory, and/or neurological disorders. On the basis of these characteristics, programs in physical activity will be discussed and set up for these types of children. The specific

areas to be covered are perceptual motor difficulties, sight problems, hearing problems, cerebral palsy, and emotional disorders. The study of these topics will involve readings, lectures, observations, discussions, and laboratory sessions in the gymnasium. The student will be expected to participate in all of the listed activities and to do a project in any one of these areas. For students interested in physical education and special education. *Physical Education 11, Miss Knoppers.*

**PIANO PEDAGOGY.** A course designed to prepare students to give instruction in piano. Emphasis on goals, methods, and materials, class discussions, outside reading, films. The course will be followed second semester with required teaching experiences involving children, under the guidance of the instructor. Prerequisite: permission of instructor. *Music 10, Mrs. Knol.*

**PLANTS AND CIVILIZATION.** The role of economic plants in the establishment and development of world centers of civilization. Sociological and economic effects of plant products on empire building, patronage of the arts, and international affairs. Archeological findings, plant geography, and genetics of early crop plants. The growing, processing, and uses of critical crop plants, the need for increasing yield by hybridization and for the improved use of arable land because of the population explosion and other ecological problems. Lectures, laboratory work, reading reports, library research, term paper, and a field trip to the University of Michigan Botanical Gardens. *Interdisciplinary 125, Mr. Karsten.*

**POLITICAL CAMPAIGNS.** A study of the strategies and techniques used in American political campaigns and a consideration of the moral issues raised by these strategies and techniques. Political campaigns will be placed in the context of theories of mass communication and persuasion and in the context of theories of the democratic process. Readings, lectures, films, and guest lecturers with personal campaign experience will be used. Campaigns from the presidential level down to the local level will be considered. May be applied to departmental

majors and group concentrations in science studies. *Political Science 10, Mr. Monsma.*

**POLYMER CHEMISTRY.** A study of the synthesis and properties of polymers and other high-molecular weight compounds, including plastics, resins, and synthetic fibers. Lectures, laboratory, and perhaps some field trips. Prerequisite: Chemistry 253 or 301. *Chemistry 20, Mr. Van Doorne.*

**PRACTICUM IN TEACHING ADOLESCENT LITERATURE.** This course is intended for English majors who expect to teach at the middle school or senior high level. Major emphases will be on gaining a familiarity with adolescent literature and on developing and practicing a variety of approaches to teaching literature to adolescents. Each student will observe in a local classroom and teach in a Grand Rapids area school. *Interdisciplinary 127, Mr. Baron.*

**PROBLEMS IN PSYCHOPATHOLOGY.** The course consists of individual studies of such areas as the drug scene, psychopharmacology, organic origins of psychosis, new therapies, the gay scene, and women's liberation movements. Open to sophomores, juniors, and seniors. Prerequisite: Psychology 212 or equivalent. *Psychology 20, Mr. Youngs.*

**THE PSYCHOLOGY OF CREATIVE PROBLEM-SOLVING AND THINKING.** Both a theoretical and an empirical study of the process of thinking as it is related to creative problem solving. The course will examine the extent to which problem-solving skills differ from learning skills. Both individual and group problem-solving processes and strategies will be treated. (This course will not deal with creativity as it is found in the area of fine arts.) Prerequisite: Psychology 151. May be applied to a departmental concentration. *Psychology 31, Mr. Terborg.*

**RAILROADS IN AMERICAN HISTORY.** A panoramic portrayal of the iron horse and the flanged wheel and their significance on the American technological landscape. Selected facets on engineering feats and operating achievements; railroads as a transportation system, ecolog-

ical considerations; the railroad moguls and tycoons; the brotherhoods and their struggle; sagas, lore, music, literature, and "hobbyism"; AMTRAK and the look of the future. Class presentations, selected readings, sound and pictorial features. Satisfies history concentration interim requirement. *Interdisciplinary 117, Mr. Sinke, Mr. Strikwerda.*

SCIENCE FICTION. Twelve stories by some of the best known science fiction writers will be studied to find some criteria for excellence in science fiction writing. Additional science fiction novels will be read and reported on by the students, and films will be shown. Some of the authors that will be read are: H. G. Wells, Isaac Asimov, Arthur C. Clarke, C. S. Lewis, Robert A. Heinlein, J. G. Ballard, and Walter Miller. Prerequisite: English 100. *English 17, Mrs. Zylstra.*

SCIENCE, TECHNOLOGY, AND CULTURE. The technological revolution and how it has influenced the development of Western culture; modern reactions to technocracy (both pro and con); an analysis of positions Christians have taken to technological advance. The course will employ both lecture and seminar-type presentations. Student papers will be required. May be applied to science studies minor. *Chemistry 10, Mr. Piers.*

THE SECOND WORLD WAR. A study of the Second World War, including an examination of the underlying causes, diplomatic maneuverings before and during the war, important campaigns, and the domestic impact of the war. The approach will vary: lectures, class discussions and reports, films, and guest lecturers will all be employed. May be applied to group majors and minors in the social studies. *History 10, Mr. R. Bolt.*

A SEMINAR IN GEORGE BERNARD SHAW. Reading and discussion of selected plays from: *Plays, Pleasant and Unpleasant: Widowers' Houses, Mrs. Warren's Profession, Candida*; from *Three Plays for Puritans: Caesar and Cleopatra, The Doctor's Dilemma*. Also *Man and Superman*, and *Saint Joan*. Individual seminar reports to be given, rising out of Shaw's treatment of social, moral, and intellectual issues of his day. Satisfies fine arts

core and may be applied to minors in English and language arts studies. *English 14, Mrs. Holkeboer.*

SEMINAR IN DISCOVERING PHYSICS: ENERGY SOURCES. This course will provide the student with exposure to the following basic ideas: enough physics to understand qualitatively the first and second laws of thermodynamics; those kinds of energy transformations ("energy consumption") that are most important economically; power consumption today and its growth rate during the past several centuries. Emphasis will be on the situation in America: current energy sources, known reserves, and the rate of depletion of these reserves; ways in which current sources may be conserved by more efficient methods of energy consumption; additional sources of energy that might feasibly be tapped in the future; the effect of energy consumption on the quality of our environment; and the moral implications of the high per capita rate of energy consumption in America as compared with much lower rates in many other parts of the world. Satisfies core requirement in physical science. *Physics 10, Mr. Kromminga.*

SEMINAR IN THE PSYCHOLOGY OF RELIGION. The reading and discussion of *Young Man Luther* by Erik Erikson and *The Idea of the Holy* by Rudolph Otto. Daily papers will be required. Team investigations and reports on *Psychology and Religion* by Carl Jung; and *The Individual and His Religion* by Gordon Allport. May be applied to a departmental concentration. Prerequisite: one course in psychology. *Psychology 12, Mr. Sanderson.*

A SINGING SCHOOL. An opportunity for a student to have his singing voice appraised, and instruction given for its improvement. Intensive work will be done in developing tone and technique in a class situation, although individual help will be offered. Appropriate song material will be used to match the vocal maturity of the student. Performance, either solo or ensemble, will be encouraged wherever talent justifies it. Simple music theory and sight-singing will be included where necessary. Listening to great solo and ensemble singing of art

songs, opera, and oratorio will be assigned, as well as readings of appropriate literature on the history of singing, performance, and technique. Prerequisite: ability to carry a tune. *Music 12, Mr. De Jonge.*

**SOCIOLOGY OF HOUSING.** This course will emphasize the various types of housing; tenement, apartment, public, mobile-homes, cottages, rural, suburban, etc., and their relationship to the social systems associated with them. An emphasis will also be put on the social-psychological aspects of housing such as the impact of the various modes of housing on the psychological state of the dwellers. Hence such factors as juvenile delinquency, adult criminality, social status, patterns of interaction, neighboring, etc., and their relationship to various types of housing will be discussed. There will be guest lecturers, lectures by the instructor, field trips, and individual research projects. May be applied to departmental major. Prerequisite: Sociology 151. *Sociology 30, Mr. Holstege.*

**SOCIOLOGY OF SPORT.** The phenomenon of organized sport is one of the new concentrations for study by sociologists. This course will review what social scientists have said about sport and will attempt to make some contributions of its own toward a sociological analysis of sport. There will be lectures, discussions, student research and presentations, and speakers. All of this will be geared to suggesting answers to such questions as: What are some important functions and dysfunctions of organized sport in our society? in schools? in the world? How are sport and social status related? Is there a Christian athletics? What are the effects of professional sports? etc. May be applied to a departmental major. *Sociology 21, Mr. De Blaey.*

**SPEECH COMMUNICATION LABORATORY.** Communication is a daily part of every life. This course is designed to help the student increase his ability to communicate effectively. In December each student will be tested to determine his communication abilities. During the interim he will attend either a morning or afternoon session and a midday general meeting at which basic communication theory

will be explained. Time spent each day in laboratory sessions may vary from a half hour to three hours. Readings, preparation, and execution of exercises, evaluation of other students' and one's own communication, conferences, and class discussions will be used. Extensive use will be made of audio and video equipment. Meets core requirement in speech. *Speech 10, Mr. Nykamp.*

**STUDIES IN SHAKESPEARE.** An examination of eight of Shakespeare's plays—comedies, and tragedies—through careful reading and interpretation of the texts and a viewing of film versions of plays: possible attendance of live performances and hearing and preparing oral interpretations of various kinds. Not open to English majors except those in teacher education programs. Prerequisite: English 100. *English 11, Miss Ten Harmself.*

**SUMI PAINTING.** The history of this art form goes back to ancient China. Yet it has effects on Western art. A strict disciplinary approach was always a key to the actual doing of Sumi painting. Some of these ideas will be shown. In addition to lectures, slides, and demonstrations students will discover their own facility and creativity through their own practice. Prerequisites: Art 207, 208, 209. *Art 13, Mr. Mathies.*

**SUPERVISION OF LABORATORY WORK IN BIOLOGY.** An opportunity to gain valuable experience preparing materials for biology exercises while assisting a group of less experienced students to do experiments in biology (see Biology 21). Students will work closely with the instructors of the course and will be responsible for one or two teams of students. Can be used to fulfill part of senior seminar requirement, especially for secondary education students. Prerequisite: junior or senior biology major status or equivalent. *Biology 30, Mr. Beebe, Mr. Ten Broek.*

**SURVEY OF CHORAL REPERTOIRE.** An examination of the significant choral literature from the Renaissance to the present day. For the daily research projects, the student will use reference works, scores, and recordings in the Calvin li-

brary. The instructor will call attention to the repertoire suitable for school and church choirs. Daily readings in the text will also be required. The course can serve as an advanced elective for the music major concentrating in vocal music education and for other concentrations with permission of the department. *Music 30, Mr. Slenk.*

**TEACHING THE SPEECH COMMUNICATIONS LABORATORY.** Students in this course will help design, prepare, and teach Speech 10, Speech-Communications Laboratory. Design and preparation of the course will be accomplished in weekly meetings during the fall semester. During the interim itself, each student must be available each day for at least five hours work assisting students enrolled in Speech 10. May be applied to departmental concentrations. Prerequisite: permission of the department. *Speech 30, Mr. Nykamp.*

**TOWARD A CHRISTIAN ONTOLOGY: THEORY OF UNIVERSAL.** This course will be taught jointly by Prof. Wolterstorff and Prof. Hart (Institute of Christian Studies, Toronto) at the Institute of Christian Studies. The course will focus on Wolterstorff's book *On Universal* (University of Chicago Press, 1970). However, a consideration of the book will be set in the broader context of other theories of universal. This in turn will be set in the context of discussions on the nature of a Christian ontology. A special fee will be charged. Prerequisite: three courses in philosophy. May be applied to departmental concentration. *Philosophy 21, Mr. Wolterstorff.*

**VICTORIAN PROSE CLASSICS.** An intensive study of certain nonfiction prose masterpieces for which the current English program does not provide time. Authors will include Carlyle, Newman, Ruskin, Arnold, Huxley, Pater, and Stevenson; and every effort will be made to avoid overlapping with materials currently included in English 203 and 309. The course is designed for serious students of English literature, especially (but not exclusively) those whose schedule will not provide other opportunity for intensive work in the Victorian period. Method of instruction will be pri-

marily explication of the text by means of lectures and as much discussion as the situation would appear to warrant. Students will be required to write a term paper and, in addition to working with the primary sources, to acquire some knowledge, from lectures and secondary sources, of the philosophical, political, social, and economic background of the period. Prerequisites: general literacy and some previous success in upper-level English courses. *Interdisciplinary 106, Mr. Tiemersma.*

**THE WHAT AND HOW OF GRADE SCHOOL GEOMETRY.** A study of the geometric concepts now being taught to elementary school children and of techniques for teaching these concepts to young children. An opportunity will be given to investigate manipulative materials available to teach geometry in the elementary school. May be applied to group concentrations for elementary teacher education. *Interdisciplinary 131, Mr. Boonstra.*

**WHAT'S CHRISTIAN ABOUT CHRISTIAN SCHOOLS?** Open not only to future teachers but to all future fathers and mothers in 'Zion' who are interested in thinking about, interviewing people about, and talking about this question. Some lectures by the instructor, several guest lectures, plus sizable amounts of class reporting by students singly or in groups. Assigned tasks and readings plus student selected projects. No examination: grade based on quality of active participation. *Education 11, Mr. Beverstuis.*

**WHAT'S IN THE STUFF WE BUY?** Analyses of products on the retail market—foods, drugs, anything of interest to the student. Both organic and inorganic analyses will be performed, as the product requires. Each student will select one or more products, search the literature for the analytical information he needs, and perform the analyses in the laboratory. He will then compare his findings with the governmental (FDA) standards for this product. The work on each such product will culminate in a comprehensive report of work done, with all literature references, adhering to the rules applying to manuscript submission for

publication in (e.g.) *Analytical Chemistry*. The class will meet as seems desirable for discussion. May be applied to Chemistry/Biology group majors and science studies majors and minors. Prerequisites: Chemistry 201, 301. *Chemistry 31, Mr. Dirkse, Mr. Wolthuis.*

**WORDS AND HOW THEY BEHAVE.** A study of words, their meaning and usage: a study of style, of figures of speech, of etymology; a study of historical developments in a language, of differences and similarities between languages; an exploration of all things linguistic. Throughout it is the English language and the words that are studied, but comparisons with and illustrations from other languages will not be infrequent. Class discussion and lectures; class and/or individual research projects and reports. *Interdisciplinary 110, Mr. Wevers.*

**WORKSHOP IN OPEN EDUCATION.** This will be an introduction to the practice and theory of the open classroom with an emphasis on the practice. After a brief orientation and introduction to bibliography, students will work as teacher aids in Rosewood School, Jenison, Michigan, working individually with teachers there. Each day after teaching there will be a team meeting at which time each student will evaluate his experience and be evaluated. Consultants will include specialists from Herman Miller, Inc., designers of furniture for open classrooms, and others. The class day will be from 8:20 a.m. to 4:30 p.m. *Interdisciplinary 112, Mr. Holquist.*

**WORK-STUDY INTERIM IN WASHINGTON, D.C.** A work-study program in Washington, D.C., for a select group of students.

Students will be placed in Congressional and Senatorial offices for a forty-hour work week. Evening seminars led by government leaders representing various departments, bureaus, and agencies. Students must be in Washington from January 7 through February 1. May be applied to departmental and social studies concentrations. Prerequisites: sophomore, junior, or senior standing, three courses in political science, a 3.0 cumulative grade point average, and approval of the department. A fee of \$300 is required. *Political Science 20, Mr. De Borst, Mr. Henry.*

**THE WORLD OF CERVANTES AND DON QUIXOTE.** A study of the novel of Miguel de Cervantes together with the literary, political, historical, and biographical factors that contributed to its writing. Modern interpretations are considered with particular emphasis on the message of the novel for today. Not open to Spanish majors. Satisfies fine arts core requirement except for elementary education students. Applies to group major in language arts. *Interdisciplinary 110, Mr. Vila.*

**THE YOUNG CHILD: A LINGUISTIC GENIUS.** From cooing and babbling to mature speech and language—a remarkable achievement over a few short years. This course will consider the phonetic, syntactic, and semantic aspects of language acquisition and development in the young child, and the various theories which seek to explain these developments. Students will participate in simple, empirical investigations, and analyze data which they have collected. *Psychology 30, Mr. Stouwie.*

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 Johannes Broene, M.A., 1925-30  
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John Vanden Berg, Ph.D., *Vice President for Academic Affairs, Dean of the College*  
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 Larry Ray Nyhoff, Ph.D., *Director of the Academic Uses of the Computer Center*

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Kenneth J. Nydam, B.A., *Admissions Counselor*  
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John De Bruyn and Maellen De Bruyn, *Resident Directors, Noordewier-Vanderwerp*  
Agnes Joldersma, *Resident Director, Beets-Veenstra Halls*  
Josephine Ten Elshof, *Resident Director, Rooks-Van Dellen Halls*  
Peter M. Harkema and Jillene Rae Harkema, *Resident Directors, Bennink-Boer Halls*

# Committees

*Athletics Committee*, S. Leestma (chairman and faculty representative on the MIAA Board), J. Bratt, G. Harris, M. Karsten, D. Wilson, and an advisory member designated by the chairman of the Department of Physical Education.

*Communications Board*, H. Rienstra (*Chimes*), R. Jensen (*Prism*), K. Kuiper (*Dialogue*), S. Wiersma, and five students.

*Computer Services Committee*, R. Griffioen (chairman), L. Ippel, M. Monsma, R. Rice, J. Vanden Berg, R. Wevers (S. Leestma and G. Lewis advisers).

*Coordinating Committee on Teacher Education*, C. Miller (chairman), D. Oppewal (ex officio, as chairman of the Department of Education), H. Beversluis, W. De Boer, G. Huisman, D. Smalligan.

*Counseling and Guidance*, C. Menninga (chairman), G. Besselsen, W. Joose, B. Pekelder, W. Sanderson, and two students.

### *Discipline Committees*

*Discipline Appeals Council*, B. Pekelder (chairman), H. Broene, B. Kreuzer, L. Nyhoff, and three students.

*All-Campus Discipline Committee*, W. Stob (secretary), P. Boonstra, P. De Vos, A. Kromminga, A. Noteboom, B. TenBroek, M. Zuidema (W. Van Doorne and D. Westra, alternates), and five students, with two student alternates.

*Residence Halls Appellate Council*, H. Bonzelaar, A. Knoppers, R. Terborg (D. Tuuk, R. Hondred, alternates) three students from residence hall judiciaries and two alternates. Council names its own chairman.

*Residence Hall Judiciaries*, one faculty member and six students from each residence unit. R. Hondred (Heyns and Bolt Halls), A. Knoppers (Beets and Veenstra Halls), R. Terborg (Noordewier and Vander Werp Halls), H. Bonzelaar (Elderveld and Schultze Halls), B. Klooster (Boer and Bennink Halls), D. Tuul (Rooks and Van Dellen Halls).

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*Examinations Committee*, A. Reynolds (chairman), C. Hegewald, J. Vanden Berg, S. Van Der Weele, D. Zuidema.

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*Faculty Social and Special Academic Activities Committee*, M. Vande Guchte and E. Borger (co-chairmen), R. Albers, J. De Jonge, H. Geerdes, J. Korf, K. Kuipers, P. Lucasse, D. Nykamp, C. Stapert, C. Walhout.

*Film Arts Council*, G. Harper, I. Kroese, H. Slenk, plus four students, one of whom is chairman.

*Honors Program Committee*, R. Tiemersma (chairman), H. Holstege, K. Konyndyk, C. Miller, R. T. Otten, T. Rottman, M. Zylstra.

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*Lecture Council*, P. Henry, R. Mouw, and three students.

*Library Committee*, College Representatives: H. Baron, W. Lagerwey, E. Runner, M. Monsma, L. Sweetman.

*Preseminary Advisory Committee*, R. Youngs (chairman), B. Pekelder, D. Vilar, C. Vos.

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

*Scholarship Committee*, A. Bratt (chairman), P. De Jong, W. Hubers (secretary), C. Miller, G. Monsma, P. Oppewall.

*Student Recruitment Committee*, P. Vande Guchte (chairman), S. Greydanus, W. Hendricks, N. Matheis, plus two students.

*Student Religious Activities Committee*, H. Ten Harmsel (chairman), J. Beebe, B. Pekelder, K. Piers, B. Siebring, W. Stob, L. Vos, plus four students.

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

#### CONTINUING AD HOC STUDY COMMITTEES

*Centennial Observance Committee*, M. Vande Guchte (chairman), Edgar Boevé, Ervina Boevé, H. Brinks, C. Bult, J. Hamersma, H. Ten Harmsel, S. Wiersma alumni, J. Hoekenga; Centennial Campaign, S. Youngsma; advisers on emeriti, W. Radius, G. Slingerland; ex officio, W. Spoelhof.

*Discipline Code Study Committee*, H. Rienstra (chairman), G. De Blaey, D. Nykamp, E. Van Vugt; two members of the Board of Trustees, L. J. Hofman and J. Vander Ark; and two students.

*Faculty Organization Study Committee*, V. Ehlers (chairman), C. Miller (secretary), C. Sinke, E. Strikwerda, J. Westra, the Dean of the College, and the President.

#### FACULTY MENTORS OR ASSOCIATES

*Dialogue*, faculty editors and associate editors: H. Brinks (campus affairs), K. Kuipers (academic affairs), M. Walters (fine arts), R. Wells (world affairs).

*Fine Arts Guilds*, M. Walters (mentor), plus student chairman, student business manager, editor of *Dialogue*, and a student representative from each guild.

#### DEPARTMENTAL AND DIVISIONAL ORGANIZATION

The various departments are related as divisions: Division I, education, physical education, philosophy, and religion and theology (J. Bratt, *chairman*); Division II, language, literature, and the arts (W. Bratt, *chairman*); Division III, the natural sciences and mathematics (J. Bosscher, *chairman*) Division IV, the social sciences (H. Ippel, *chairman*).

Art (II), Edgar Boevé, *chairman*

Biology (III), Al Bratt, *chairman*

Chemistry (III), Enno Wolthuis, *chairman*

Classical Languages (II), Robert T. Otten, *chairman*

Economics (IV), Donald Pruis, *acting chairman*

Education (I), Donald Oppewal, *chairman*

Engineering (III), James Bosscher, *chairman*

English (II), George Harper, *chairman*

Romance Languages (II), Arthur Otten, *chairman*

Germanic Languages (II), Wallace Bratt, *chairman*

History (IV), Henry Ippel, *chairman*

Mathematics (III) George Van Zwalenberg, *chairman*

Music (II), John Hamersma, *chairman, on leave*

Dale Topp, *chairman, pro tem*

Philosophy (I), Clifton Orlebeke, *chairman*

Physical Education (I), Barney Steen, *chairman*

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Political Science (IV), Stephen Monsma, *acting chairman*

Psychology (IV), Alfred Reynolds, *chairman*

Religion and Theology (I), John Bratt, *chairman*

Sociology (IV), Henry Holstege, *chairman*

Speech (II), Marten Vande Guchte, *chairman*

# Faculty

Faculty members on leave of absence for the 1973-74 academic year are indicated by an asterisk (\*), those on leave for the first semester are indicated by a dagger (†), and those on leave the second semester are indicated by double asterisks (\*\*).

- Josephine Baker, M.A., M.A.L.S. EMERITUS  
*Librarian, Emerita*
- Bert Peter Bos, M.A., Ed.D.  
*Director of Teacher Certification, Emeritus*
- John De Bie, M.A.  
*Assistant Professor of History, 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*
- William Harry Jellema, M.A., Ph.D.  
*Professor of Philosophy, Emeritus*
- Albert H. Muyskens, M.A.  
*Professor of Mathematics, Emeritus*
- Cornelius A. Plantinga, M.A., Ed.D., 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*
- Seymour Swets, M.A.  
*Professor of Music, Emeritus*
- John Henry Tuls, M.A.  
*Associate Professor of Mathematics, Emeritus*
- John Andrew Van Bruggen, M.A., Ph.D.  
*Professor of Education, Emeritus*
- Helen Van Laar, M.A.  
*Assistant Professor of Education, Emerita*
- Henry Van Zyl, M.A., Ph.D.  
*Professor of Educational Methods, Emeritus*
- Harry J. Wassink, B.S.  
*Professor of Engineering, Emeritus*
- John Weidenaar, Th.M.  
*Associate Professor of Religion and Theology, Emeritus*
- 
- Robert J. Albers, Ph.D. (Connecticut, 1962) ACTIVE  
*Assistant Professor of Chemistry*
- 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)  
*Assistant Professor of English*  
*Coordinator of Freshman English*

- John D. Beebe, M.A. (South Dakota, 1966), Ph.D. (Chicago, 1970)  
*Associate Professor of Biology*
- Henry Bengelink, M.S. (Michigan, 1940)  
*Assistant Professor of Biology*
- Melvin Earl Berghuis, M.A. (Michigan, 1949), Ph.D. (Michigan State, 1964)  
*Professor of Speech*
- Gilbert Besselsen, M.A., Ph.D. (Michigan, 1963, 1969)  
*Professor of Education*
- Nicholas Henry Beversluis, Th.B. (Calvin Theological Seminary, 1943), Th.M. (Westminster Theological Seminary, 1944), M.A. (Columbia, 1950), Ed.D. (Columbia—Teachers College, 1966)  
*Professor of Education*
- Kathryn Blok, M.A. (Michigan State, 1967)  
*Visiting Assistant Professor of Education*
- Donald L. Boender, M.A. (Michigan, 1965)  
*Dean of Men*
- Clarence Boersma, M.A., German, M.A., French, Ph.D. (Michigan, 1940, 1945, 1949)  
*Professor of Germanic Languages*
- Edgar Gene Boevé, J. Franklin School of Professional Arts, M.S.D. (Michigan 1954)  
*Associate Professor of Art*  
*Chairman of the Department of Art*
- Ervina Boevé, M.A. (Michigan, 1954)  
*Assistant Professor of Speech*  
*Director of Drama*
- Martin Bolt, M.A., Ph.D. (Michigan State, 1967, 1969)  
*Assistant Professor of Psychology*
- Robert Bolt, M.A. (Michigan, 1953), Ph.D. (Michigan State, 1963)  
*Professor of History*
- Helen Bonzelaar, M.A. (Western Michigan, 1964)  
*Assistant Professor of Art*
- Paul H. Boonstra, M.A. (Michigan, 1958), M.S. (Purdue, 1963), Ph.D. (Michigan State, 1970)  
*Professor of Mathematics*
- Ellen D. Borger, M.A. (Indiana, 1968)  
*Instructor in Romance Languages*
- James Peter Bosscher, M.S. (Purdue, 1957), Ph.D. (Michigan, 1968)  
*Professor of Engineering*  
*Chairman of the Department of Engineering*
- \*Robert Allen Bosscher, M.A. (Michigan, 1962)  
*Assistant Professor of Economics*
- Al Dirk Bratt, M.S. (Michigan State, 1957), Ph.D. (Cornell, 1964)  
*Professor of Biology*  
*Chairman of the Department of Biology*
- John Harold Bratt, Th.B. (Calvin Theological Seminary, 1937), Th.M. (Columbia Seminary, Ga., 1938), S.T.M. (Harvard Divinity School, 1939), Th.D. (Union Seminary, Va., 1955)  
*Professor of Religion and Theology*  
*Chairman of the Department of Religion and Theology*
- Wallace Henry Bratt, M.A., Ph.D. (Michigan, 1956, 1966)  
*Professor of Germanic Languages*  
*Chairman of the Department of Germanic Languages*
- Herbert John Brinks, M.A., Ph.D. (Michigan, 1961, 1965)  
*Professor of History*  
*Curator, Colonial Origins Collection*

- Herman H. Broene, Ph.D. (Purdue, 1947)  
*Professor of Chemistry*
- Conrad John Bult, M.A., M.A.L.S. (Michigan, 1962, 1965)  
*Librarian*
- Elsa Cortina, Doctora en Pedagogia (Universidad Habana, 1951)  
*Assistant Professor of Romance Languages*
- John Thomas Daling, M.A., Ph.D. (Michigan, 1937, 1943)  
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*Professor of Education*  
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- Willis Peter De Boer, Th.B. (Calvin Theological Seminary, 1951), D.Th. (Vrije Universiteit, Amsterdam, 1962)  
*Professor of Religion and Theology*
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*Hiemenga Hall*

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