Bulletin of the UNIVERSITY OF VERMONT AND STATE AGRICULTURAL COLLEGE

APRIL 1955.





THE COLLEGE OF ARTS AND SCIENCES THE COLLEGE OF MEDICINE THE COLLEGE OF AGRICULTURE THE COLLEGE OF TECHNOLOGY THE COLLEGE OF EDUCATION AND NURSING THE GRADUATE COLLEGE THE SCHOOL OF DENT'AL HYGIENE THE SUMMER SESSION

THE DIVISION OF ADULT EDUCATION

Bulletin of the

UNIVERSITY OF VERMONT AND STATE AGRICULTURAL COLLEGE

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CORRESPONDENCE

Admissions

For all matters pertaining to the admission of undergraduate students, including requisitions for the catalogue, and information concerning rooms, tuition and scholarships . Director of Admissions Director of Adult Education Adult Education . College of Medicine . Dean of the College of Medicine . . . Graduate College . Dean of the Graduate College • • Director of the Summer Session Summer Session TRANSCRIPTS OF RECORDS Office of Admissions and Records . . EMPLOYMENT OF SENIORS AND ALUMNI . Director of Placement MATTERS OF ALUMNI INTEREST Alumni Secretary MATTERS OF GENERAL UNIVERSITY INTEREST The President

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U V M *

¶ The University is located at Burlington, Vermont, overlooking an attractive tree-shaded city situated on the shores of Lake Champlain.

¶ Burlington, the largest city in the state, with a population of 35,000, is 100 miles from Montreal, 240 miles from Boston, and 300 miles from New York City. The city enjoys daily plane service to these urban points in addition to regular railroad and bus service.

9 Chartered in 1791, the University is the twentieth oldest institution of higher learning in the United States authorized to grant degrees and the second institution founded by state legislative action to offer instruction at the university level.

¶ Within the nine divisions of the University, instruction is offered in more than fifty programs leading to twenty-four different degrees.

9 The University is accredited by or holds membership in the following accrediting associations and learned societies:

The New England Association of Colleges and Secondary Schools

The Association of American Colleges

The American Association of Colleges for Teacher Education

The American Medical Association

The American Dental Association

The Engineers Council for Professional Development

The American Chemical Society

¶ Currently enrolled are 2,861 students, of whom 1,290 are residents of Vermont; the remainder represent 27 states and 16 foreign countries.

> ★ UVM, the popular method of referring to the University, is derived from the Latin — Universitas Viridis Montis.



THE IRA ALLEN CHAPEL AND BILLINGS LIBRARY



THE WATERMAN MEMORIAL

COLLEGE ROW



Education at Vermont

The University of Vermont was conceived by Ira Allen, its founder, "to establish a most extensive plan of education" For over one hundred and fifty years it has provided for qualified students the opportunity to acquire an understanding and appreciation of the main fields of human knowledge, to develop those qualities of mind and character which will enable them to assume responsible leadership among their fellow men, and to lay the foundations for successful careers.

From its earliest days the University has taught "such studies as might be most useful and applicable to the genius and views of the students." The emphasis on education at Vermont has not been the mastery of an inflexible program of studies, but rather the development of sound academic interests and of an individual dynamism which equip a student to think for himself and to be an active contributing member of his community. The present University, founded by a pioneer spirit and nurtured in a state which has long been identified with the most stalwart human qualities, is singularly fitted to carry out such a philosophy of education. Here the student is given a large measure of responsibility and an opportunity to develop his own personal thoughts, individuality, and integrity.

Functioning as a public university in a relatively small state, it has kept contact with the people and has retained a perspective of human values. In all things the University attempts to maintain a balance between the ideals of academic discipline and the demands of practical training. Furthermore, it is of a size which provides a diversity of background and a cosmopolitan outlook without the danger of fostering an impersonal atmosphere. The faculty, composed of men and women dedicated to teaching as a profession, see the student as a partner and active participant in the process of education. Because of the close contacts among the students and faculty members there is unusual opportunity for developing open-mindedness and tolerance for the opinion of others.

EARLY BACKGROUND

The one hundred and fiftieth anniversary of the first commencement was celebrated in 1954. Founded in 1791, the same year that Vermont became a state, the University has grown from humble beginnings until at the present time it enrolls nearly three thousand students and by one service or another touches directly nearly every citizen of Vermont. Instruction at the University was begun in 1800 when a group of young men met in the home of the first president, the Reverend Mr. Sanders. Although it was the intention of the founder to establish a separate academy for women, the idea was never carried out. However, in 1872, the University became the first college in Vermont to admit women as regular students.

The Hon. Justin S. Morrill, member of Congress from Vermont, sponsored the Morrill Land-Grant Act of 1862, which provided for the establishment of colleges to teach liberal and scientific courses, including agriculture and the mechanic arts. Under this act the legislature chartered the Vermont Agricultural College in 1864. A year later the corporations of the University of Vermont and the new agricultural college were merged by legislative act to form the present corporation, the University of Vermont and State Agricultural College. Under later Federal laws the services of the University were expanded by the addition of the Agricultural Experiment Station and the Agricultural Extension Service.

Many adjustments in internal organization have taken place over the years. The University now consists of six colleges, a school of dental hygiene, a summer session, and a division of adult education.

COLLEGES AND CURRICULA

In common with the practice at most of the early universities, the original curriculum was based on languages, rhetoric, mathematics, theology, and moral philosophy. Today, the **College of Arts and Sciences**, often considered the direct descendant of the original University, provides a general four-year curriculum leading to the degree of Bachelor of Arts, with opportunity for concentration in one or more of the following studies: botany, chemistry, economics, English, geology, German, Greek, history, Latin, mathematics, music, philosophy, physics, political science, psychology, French, Spanish, speech, and zoology.

Students interested in continuing their studies beyond the Bachelor's degree may, by making a proper selection of courses, meet all requirements for admission to graduate schools, and to such professional schools and colleges as those of medicine, dentistry, law, theology, and social work. Those who have completed three years of pre-medical study at the University may qualify for the degree of Bachelor of Science after successfully completing one year of study in an approved college of medicine.

With the passage of the Morrill Act of 1862, the way was prepared for the establishment of studies in agriculture. Today the **College** of Agriculture offers four-year curricula in agriculture, agricultural engineering, and home economics. It also offers two-year programs in pre-forestry and pre-veterinary sciences which prepare students for admission to other institutions for professional training in these fields.

The curriculum in agriculture leading to the degree of Bachelor of Science in Agriculture provides options in general agriculture, agricultural economics, agricultural education, agronomy, animal and dairy production, botany, dairy manufacturing, horticulture, and poultry husbandry. The curriculum in agricultural engineering leads to the degree of Bachelor of Science in Agricultural Engineering.

The curriculum in home economics, leading to the degree of Bachelor of Science in Home Economics, provides options in the fields of food and nutrition, related arts, clothing and textiles, and home economics education. The department also offers an option in general home economics for students who wish a liberal education in addition to instruction in those areas related to the home and family.

The University of Vermont was probably the first non-military institution in America to offer instruction in engineering, and was certainly the first of the present land-grant colleges to give any instruction in this area, which was later incorporated into the Morrill Act. Engineering was taught in a separate department until 1911, when a College of Engineering was established. In 1946, the **College of Technology** was formed to include the curricula in civil, electrical, mechanical, and management engineering; professional chemistry; commerce and economics; and, later, medical technology.

Majors in the Department of Commerce and Economics may select from many options in which to specialize, including accounting, banking, finance and insurance, business administration, hotel and resort management, industrial management, marketing and merchandising, personnel management, and secretarial studies.

The education and preparation of teachers has always been a major objective of the University; and although the techniques have varied over the years, the primary concern has been to graduate qualified teachers who have a broad background in academic subject matter and a modern professional training in the methods of teaching. The **College of Education and Nursing** offers four-year curricula leading to the Bachelor of Science degree in the fields of elementary, junior high, secondary, business and music education.

This college also offers a four calendar year curriculum leading to the degree of Bachelor of Science in Nursing.

Under a program established by the State, the University has recently added a two-year curriculum in the School of Dental Hygiene leading to a Certificate in Dental Hygiene. Recipients of this certifi-

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cate are eligible to take all state board examinations for licensing as dental hygienists. Enrollment in this school is limited to women.

The **College of Medicine** is historically almost as old as the University itself. Medical lectures became part of the offerings in 1804 and degrees were granted in medicine in 1822. There were some interruptions in the operation of the medical courses in 1836, but since 1853 qualified physicians have been graduated annually to serve Vermont and neighboring states. Today, the College of Medicine offers a four-year graduate curriculum leading to the degree Doctor of Medicine and also provides facilities for a limited number of candidates for other graduate degrees in the Graduate College to take courses in its departments.

In 1952, the **Graduate College** was established. Although graduate programs had been offered by different departments of the colleges for a great many years, the present organization is able to direct study more effectively beyond the Bachelor's degree. Practically all fields of professional work now require more than the traditional four-year training. To meet this need the Graduate College offers programs leading to several advanced degrees, and specialized work may be done under the guidance of many different departments of the University.

REGIONAL COOPERATION

The Trustees of the University of Vermont and of the University of New Hampshire took the first step in a program of Regional Educational Cooperation for New England when, in October, 1954, they signed a formal contract which establishes in-state tuition rates for selected New Hampshire students at the Medical College of the University of Vermont. Steps are being taken to extend this beginning in regional cooperation through all the New England land-grant colleges in order that each state may have the advantage of specialized facilities existing at the individual land-grant colleges without having the expense of duplicating and maintaining the physical plant necessary. The University of Connecticut has already put into effect a plan to accept New England residents in specialized curricula such as law, pharmacy, social work, physical therapy and insurance at in-state tuition rates; likewise the University of Maine has made similar arrangements for the program in pulp and paper technology. Other New England land grant colleges have indicated that they will give preferential treatment to New England students as follows: University of New Hampshire, occupational therapy, and hotel management; University of Rhode Island, marine biology and oceanography.

CAMPUS AND BUILDINGS

Students, faculty, and alumni take justifiable pride in the beauty of the campus, which is located on a hill overlooking Lake Champlain and the city of Burlington. This setting, with the Green Mountains and the Adirondacks in view from much of the campus, is not only delightful but is symbolic of the aspirations of the University.

The campus is divided into three general areas; the principal one is the College Green, about which many of the important buildings are grouped. The East Campus is adjacent to the Green and is the site of several of the more recent buildings. A short distance from the Green is the Redstone Campus, an attractive residential area for women students. Dining and dormitory facilities are located here, as is the gymnasium for women's physical education activities.

Because of the foresightedness of the founders, the campus has ample room for expansion and for such facilities as Centennial Field, where intercollegiate athletics are scheduled, and the University Farm, which borders the campus. The University also owns other extensive acreage for teaching and research including the Hoag Farm, which adjoins the University Farm, and the Morgan Horse Farm in Weybridge. In the nearby towns of Jericho, Charlotte, and Shelburne there are large plots for research in forestry and horticulture; the topmost ridge of Mount Mansfield is also University property.

One of the interesting aspects of the campus is the variety of architectural styles represented by the buildings. When each new structure was added, it was built in a design popular but not necessarily contemporary to that day. As a result, the buildings are a history of college architecture covering a period of a century and a half.

The oldest building on the campus, "The Old Mill," erected in 1826, was originally three separate buildings of late colonial style. These buildings served for many years as the center of the University; later, when they were joined together to form the present structure, the "new" building continued its position of importance on the growing campus. When General Lafayette came to Burlington to lay the cornerstone of "The Old Mill," he stayed in a gracious Georgian mansion just off the campus. This house, "Grassmount," was then the home of a governor of Vermont, but now is used as a residence for women students.

In 1829, a building was erected for the medical department. Now known as Pomeroy Hall, it was used by the College of Medicine for many years, later by other departments, and has recently become the headquarters of the Department of Speech. Lecture rooms and laboratories have been converted to classrooms and a modern radio studio. The present Medical Building, erected in 1905 on the site of an earlier structure which was destroyed by fire, contains the classrooms, laboratories, research facilities, and offices of the College of Medicine.

In the late 1800's several new structures were added to the campus. The Billings Library, a fine example of the work of Richardson, the well-known American architect, was built in 1885. Williams Science Hall, the first completely fireproofed college building in America, was added in 1896 to house the expanding departments of the several sciences. Converse Hall, an unusual design of collegiate Gothic architecture, was built as a dormitory and now also serves as a faculty residence. The Engineering Building and the Gymnasium were functional buildings which met the needs of the growing University. Morrill Hall, named for Justin Morrill, the Vermonter who sponsored the Morrill Act establishing the land-grant colleges of the nation, was erected in 1906 to furnish offices, classrooms, and laboratories for the College of Agriculture.

The twentieth century brought a flowering of Georgian architecture to the Campus. The Ira Allen Chapel, with an imposing bell tower which has become a symbol of the University, was completed in 1927. Also in the Georgian style, the Fleming Museum was built to house the art collections, the Wilbur Library of Vermontiana, the seismograph station, and various permanent exhibits of the University. Continuing the Georgian theme, the Waterman Building was built in 1941 as the new center of the campus. This large building contains administrative offices, many classrooms, laboratories, recreation rooms, and such general facilities as the cafeteria and the bookstore.

The campus for women at Redstone was originally a large estate; the mansion and the carriage house now serve as women's dormitories known as Redstone and Robinson Halls. The Mabel L. Southwick Memorial Building, another imposing Georgian structure, was completed in 1936 as a center for women's activities. In 1947, Grace Goodhue Coolidge Hall, a residence for women, was built adjacent to the Southwick Building.

During the expansion of the University after 1946, several new buildings of modern functional design were erected. Three men's dormitories—Chittenden, Buckham, and Wills Halls—housed the greatly increased number of men students. East Hall, a large wooden structure obtained from the Navy, provided additional classrooms.

In 1949, a group of modern buildings was completed for the College of Agriculture. Hills Agricultural Science Building, the Bertha M. Terrill Home Economics Building, and the Dairy Science Building have provided excellent facilities for teaching and research and for the activities of the Experiment Station and the Extension Service.

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THE UNIVERSITY LIBRARIES

The University libraries, the largest collection in Vermont, contain more than two hundred thousand books and periodicals, and a large number of manuscripts. Organized to serve faculty, student, and extension needs, the libraries are increased by several thousand volumes a year. The U. S. Government sends many of its publications, books, pamphlets, and maps to the library for deposit. Exhibits and lectures to classes on library use extend information of library facilities to the campus and community. Daily library service is maintained by a staff of eighteen experienced reference and technical personnel.

The Billings Library contains the working collection of recent or up-to-date volumes, newspapers, magazines, scholarly journals, and foreign publications. The James B. Wilbur Library, which contains the largest collection of Vermont material in existence, is housed in the Fleming Museum and is supported from an endowment fund. There is an extensive medical library in the College of Medicine and a specialized scientific library in Williams Science Hall. A supplementary storage library in the Waterman Building provides shelves for many government documents and little-used books.

Student Life

THE WOMEN'S RESIDENCES

All undergraduate women students are required to live on campus or in rooms approved by the University. Transfer students and freshmen are assigned to the several housing units according to quotas for each class. Freshmen may be assigned to any of the dormitories. The college-owned dormitories are Coolidge, Converse, East Hall, Grassmount, Lyman, Old Mill, Redstone, Roberts, Robinson and Slade. These halls accommodate from twenty-two to one hundred Students provide their own blankets, window drapforty women. eries, desk lamps, dresser scarfs, easy chairs, and rugs if desired. They must also furnish their own bed linen and towels unless they prefer to arrange for a weekly service on a yearly contract with a commercial linen supply company. Students living in these halls obtain their meals at the Waterman Cafeteria or at Robinson Dining Hall. Meal contracts for the entire year at Robinson Hall are required for all freshmen and most sophomores who live on the Redstone Campus.

Four cooperative houses are owned by the University (Allen and Claggett Houses, and Elmwood and Sanders Halls) where, for a selected group of ninety-four girls, expenses for board can be reduced by carefully planned, low-cost meals, prepared and served by the girls themselves under the supervision of the Head Resident. Participants in this plan are selected on the basis of character, scholarship, and relative need; applications should be made on special forms which may be obtained from the Dean of Women. The privilege is usually limited to residence for two years. Collins House, Phelps House, and Warner House are privately owned dormitories supervised by the University. Excellent meals are served in all these units except Phelps House, on a two-meal or three-meal yearly contract.

Eight sorority houses provide for one hundred and seventy-five upperclass women. One private home, approved by the University, provides kitchenette facilities for nine girls who wish to economize by preparing their own meals. In this unit the householder serves as Head Resident and college dormitory regulations are observed.

In charge of each living unit is a qualified Head Resident who works closely with the Dean of Women and her staff to assure that the best living conditions are maintained. In the cooperative houses the Head Resident is assisted by an upperclass girl called the House Fellow and in all houses by the House President appointed by the Women's Student Government Association. Those who cannot be accommodated in the dormitories are assigned to rooms in private homes which are approved by the University. Room rents, payable a semester in advance, are uniform in all housing units for women.

No final choice of rooms may be made without the approval of the Dean of Women. Enrollment is not permitted without such approval. Contracts for rooms, whether in dormitories or private homes, are binding for the college year unless cancelled for cause with the approval of the Dean of Women.

LIVING ACCOMMODATIONS FOR MEN

Chittenden, Buckham, and Wills Halls are three modern residence halls for men which were constructed on the East Campus in 1947. Each houses 143 students, and all incoming freshman men who do not live locally with their families are assigned to them. A bed, mattress, chest of drawers, wardrobe, desk, and chair are provided for each occupant. Students must supply their own bed linen, blankets, coverlet, towels, desk lamp, rugs, and garment bags.

Thirteen fraternity houses representing eleven national fraternities and two local fraternities provide housing and in some cases dining facilities for approximately 300 upperclass men. Freshmen are not permitted to live in fraternity houses. Most men students not boarding at fraternity houses or private homes obtain their meals in the Waterman Cafeteria at reasonable prices.

A limited number of furnished and unfurnished apartments are usually available for rent in and around Burlington. Few are available for less than fifty dollars per month. The Housing Service assists students in locating apartments by making available information about accommodations registered with this service.

STUDENT PERSONNEL SERVICES

COUNSELING Confidential and objective help is available to students in the solution of personal, social, academic, and vocational problems which, if neglected, might hinder scholastic or professional success. Psychiatric counseling is available through the University Health Service. Aptitude, interest, and achievement tests are used in the counseling program. A faculty freshman advisory program and a men's residence hall counseling system are maintained. A list of qualified tutors is kept in the Student Personnel Office.

HOUSING SERVICE The University assists students in locating desirable accommodations within the city, but it does not guarantee

PERSONNEL SERVICES

to meet the specific needs of all. Questions concerning accommodations for single men and married students should be directed to the Office of Student Personnel. Questions concerning living accommodations for women students should be directed to the Dean of Women.

PART-TIME EMPLOYMENT An employment service is maintained to assist students in securing part-time work. The University employs students in the college buildings, the dormitories, the cafeteria, and the academic departments. Opportunities are available in homes, industries, and business establishments in Burlington. Students are advised to seek employment only in instances of definite financial need and provided they have reason to believe they can carry successfully a normal college program at the same time. Wives of students are also assisted with their employment problems.

PLACEMENT Seniors and alumni may file confidential credentials with the Office of Student Personnel, which brings available positions to the attention of qualified candidates and also arranges for campus interviews with visiting representatives from industry, business, and education. Booklets and pamphlets containing vocational information about the business and professional world and State and Federal civil service are available.

READING CLINIC A reading clinic provides help for students who have reading and study problems. A thorough diagnosis of the problem is made through standardized and informal tests. If the diagnosis reveals a specific need, the student is given individual help. For those students who need only to speed up their reading, reading rate controllers are available.

SPEECH CLINIC The speech clinic, located in Pomeroy Hall, provides consultation and remedial work free to students having problems such as stuttering, poor articulation, inadequate vocal control, cerebral palsy, or hearing loss.

VETERANS EDUCATION Requests for information concerning enrollment as a veteran at the University should be addressed to the Office of Student Personnel, which assists veterans with their educational problems. Requests for information concerning educational benefits should be addressed to the applicant's local or regional Veterans Administration Office.

HEALTH SERVICES

The University has complete facilities for maintaining the physical well-being of members of the student body. The health service, with its headquarters at the Wasson Memorial Infirmary, includes complete physical examinations on all incoming students, the examination of members of athletic squads, care of injuries, and advice on all health and medical problems. It is staffed by an administrative director, a medical director, a resident psychiatrist, and associate physicians who hold regular office hours in the infirmary and are on call for emergencies. An orthopedic surgeon holds a regular clinic for consultation at the infirmary. Registered nurses are on duty at all hours. A student may employ a private physician using the facilities of the infirmary if desired. Cases of serious illness are sent to one of the two modern, well-equipped hospitals which are adjacent to the campus. Parents are notified of the student's illness by letter or telephone, depending on the nature of the illness.

Every student who pays full tuition for the normal college year of nine months is entitled to a maximum of five days of free infirmary care and such routine medical care as is needed and as the infirmary and health service can render during the nine months' period. Students who require infirmary care for more than five days in the college year are charged at the rate of \$5.00 per day.

Every student at the University is required to participate in the physical education program for two years. Normally this work is taken in the freshman and sophomore years, but may be postponed on the advice and authorization of the medical director, or the student's own physician, who must forward statements to the medical director concerning disability.

STUDENT ACTIVITIES

The University officially recognizes the activities of a large number of organizations in caring for the social and recreational needs of students, developing their cultural and religious interests, providing them with valuable business and executive experience, and broadening their contact with the public, with their fellow students, and with the educational world. Because it is within this area that qualities of leadership are developed, the University encourages the widest possible participation consistent with its scholastic requirements. The Student Advisory Committee, composed of officers of instruction and administration, is concerned with the system of student organizations and activities, with University policy relative to student organizations, and, in general, with the relationships between the University and these organizations. Although the University issues regulations to govern student activities, the student organizations have the authority to control their own affairs and to handle their own finances.

RELIGIOUS LIFE The University, although not affiliated with any denominational body, provides a rich program of religious activities which are coordinated by a faculty Committee on Religious Life and a student Religious Activities Committee. These committees sponsor the University's religious services, including a weekly chapel service and occasional services on Sundays; they also serve to coordinate the activities of the student organizations devoted to religious and social service programs, such as the Student Christian Association, the Newman Club for Catholic students, the Hillel Foundation for Jewish students, and the several Protestant denominational groups. Interdenominational and interfaith meetings are held, with speakers of national reputation as guests. The usual interfaith events include the Campus Chest Drive, Brotherhood Week, and Religious Emphasis Week. The several churches in Burlington are delighted to welcome University students and they cooperate with the Committee on Religious Life in sponsoring many student activities. Formal courses in religion are offered in the College of Arts and Sciences.

UVM STUDENT ASSOCIATION All students enrolled in the undergraduate colleges and schools are charged a student activity fee and thus become members of the UVM Student Association, which aims to work for a maximum of cooperation among students, faculty members and administrative personnel in the conduct of all campus activities. A council, consisting of elected officers and class representatives, holds weekly meetings during the year and conducts the regular business of the association. However, the student body may be convoked by the council or by any group of students to hold a referendum or to conduct extraordinary business. There are many opportunities for large numbers of students to participate in the work of the standing committees, such as the Cultural, Election, Financial, Orientation, Pep, Religious Activities, National Student Association, and Social Committees.

The Student Court is the judicial agency of the UVM Student Association and consists of representatives of each of the undergraduate colleges and schools. It has exclusive jurisdiction in all cases concerning the interpretation of the constitution and bylaws of the association; it has original jurisdiction in certain cases involving violations of University regulations and violations of Student Association rules; and it has some appellate jurisdiction. WOMEN'S STUDENT GOVERNMENT ASSOCIATION Every woman who enrolls as a student at the University, unless she is a resident of Burlington and living with her parents or guardian, automatically becomes a member of the Women's Student Government Association and is thereafter subject to its authority. This organization regulates for women students those matters of conduct which are not academic. By distributing responsibility and encouraging participation in its activities, W.S.G.A. aims to develop individual leadership and to encourage self-direction. A social conscience and high ideals of personal integrity are promoted through the Honor Code. Cooperation based upon a thorough understanding of its rules and regulations is expected of each woman. W.S.G.A. mass meetings are held at stated intervals, and all women undergraduate students are required to attend.

HONORARY SOCIETIES The Boulder Society, a local senior honorary society for men, is recognized as an organization responsible for student leadership. Election to this society is counted one of the highest honors that a Vermont man may win. Other honorary class societies for men are Key and Serpent, a junior society, and Gold Key, a sophomore society.

Through Mortar Board, a national senior honorary society, women at Vermont are brought in closer contact with outstanding college women throughout the country. Though membership in Mortar Board comes as the greatest honor for a Vermont woman in recognition of outstanding service, scholarship, and leadership, it is also a challenge for continued sound and honest scholarship, for unselfish service in the best interests of the college campus, and for the finest type of womanhood. Other honorary class societies for women are Staff and Sandal and Sophomore Aides.

The Phi Beta Kappa Society established the Vermont Alpha Chapter at the University in 1848, and initiates are chosen primarily on the basis of high scholastic standing. The local chapter was the first in Phi Beta Kappa to initiate women into membership.

The Society of the Sigma Xi, established at the University in 1945, initiates those who have proved their ability to do research in one of the various sciences and, in the case of students, high scholastic standing.

Other national honorary societies include Alpha Omega Alpha, medicine; Alpha Zeta, agriculture; Kappa Delta Pi, education; Nu Beta Pi, engineering; Omicron Nu, home economics; Tau Kappa Alpha, debating; Sigma Delta Psi, men's physical education; National Collegiate Players, dramatics; and Alpha Lambda Delta, freshman

STUDENT ACTIVITIES

women's scholastic. Ethan Allen Rifles and the Arnold Air Society are honorary societies for outstanding students in the Reserve Officers Training Corps.

ATHLETICS A well-rounded program of intramural sports enjoys a heavy voluntary participation by men in all classes. Competitions are arranged among fraternities, dormitories, independent groups and individuals. A program of intercollegiate competition for men is maintained in football, skiing, baseball, basketball, track, cross-country, tennis, golf and rifle marksmanship. The athletic policies of the University are under the direction of the Athletic Council, composed of members of the faculty, the student body, and alumni. Athletic relations are maintained with colleges and universities in New England and the eastern seaboard. The University is a member of the "Yankee Conference," which is composed of the land-grant colleges and universities in New England, of the National Collegiate Athletic Association, the New England Intercollegiate Athletic Association, and the Eastern College Athletic Conference.

The Women's Athletic Association sponsors a large number of activities for women students including archery, badminton, basketball, field hockey, folk dancing, modern dancing, ping-pong, skiing, skating, swimming, tennis, and volley ball. Intercollegiate competition of women students is limited to skiing.

In addition, the Outing Club sponsors for both men and women students mountain climbing expeditions, ski trips, and other outdoor activities.

FRATERNITIES AND SORORITIES Chapters of Greek letter fraternities and sororities have long been recognized as part of the social and extracurricular life on the UVM campus. These groups provide valuable experience for their members in the form of interfraternity athletic competition, interfraternity sings, dances, social work projects, house operation and meal service. Fraternities and sororities are under the jurisdiction of the University Council and policies regarding the establishment of new chapters and the operation of present groups on the campus are subject to its control. Fraternity activities are coordinated by the Interfraternity Council and sorority activities are coordinated by a Panhellenic Council. The following are active chapters of national and local fraternities: Acacia, Alpha Epsilon Pi, Alpha Tau Omega, Delta Psi, Kappa Sigma, Lambda Iota, Phi Delta Theta, Phi Sigma Delta, Sigma Alpha Epsilon, Sigma Nu, Sigma Phi, Sigma Phi Epsilon, Tau Epsilon Phi and Theta Chi. Chapters of the following national and local sororities are recognized at UVM: Alpha Epsilon Phi, Alpha Chi Omega, Alpha Delta Pi, Delta Delta, Gamma Phi Beta, Kappa Alpha Theta, Pi Beta Phi and Sigma Gamma.

KAKE WALK The outstanding social event of the year is the Kake Walk week end in February. This unique celebration is UVM's gala occasion and many returning alumni attend annually. Festivities include a formal ball at which a king and queen are crowned, snow sculpture, and athletic events. For two nights, the fraternities and other student groups compete with one another in original skits and in the art of Walkin' fo' de Kake.

ARTISTS SERIES The George Bishop Lane Artists Series, established by the gift of Mrs. Nellie S. Lane, makes it possible for the University to sponsor a continuing program of outstanding musical, theatrical, and artistic productions for the benefit of the campus and community. Faculty, students, and community leaders plan and produce this series which makes a vital contribution to the cultural life of the campus and the Burlington area.

MUSICAL ACTIVITIES Opportunities for participation and appreciation are provided for those students with strong musical interests. The University Choir, the University Orchestra, and the University Band appear in public presentations many times during the year. Vesper services, Christmas and Easter concerts, and a spring operetta are regular events. The UVM Music Club and the Men's Chorus provide students with other opportunities for participation in musical activities. A series of concerts and other musical events are sponsored annually by community groups which bring outstanding artists to the city.

DRAMATICS, DEBATING AND RADIO The University Players, an organization of students interested in theatre arts, offers a great many opportunities which include the Vermont Varieties, an annual show including members of the faculty, staff and student body; proscenium and arena productions of full length plays; a series of fine old and foreign films; an annual theatre trip to New York; two evenings of poetry reading; assistance to the Music Department in producing an opera; and laboratory productions of one-act plays. Outstanding juniors and seniors are eligible for membership in National Collegiate Players, a national honorary fraternity.

The teams of the Lawrence Debate Club have made an enviable national record, and a rich program of intercollegiate debates is maintained during both the fall and the spring semesters. For those interested in discussion, there are numerous opportunities to appear before service clubs, farm organizations, high schools, alumni and other groups throughout the State.

STUDENT ACTIVITIES

The Radio Workshop, a student organization which produces or assists in the production of many radio programs emanating from the University, provides numerous opportunities for participation. These programs are often broadcast over local stations and others throughout the State.

WRUV, a student owned and operated wired-wireless station, broadcasts daily to the campus. It has its own teletype wire service and is financed through the sale of advertising.

STUDENT PUBLICATIONS Those interested in journalism and editorial work find opportunity for expression in a number of student publications. The Vermont Cynic is the student newspaper which is published weekly. The Ariel is the annual yearbook which is published by the members of the junior class. A student group publishes Centaur, a literary magazine, and a committee from Student Council prepares the annual Freshman Handbook for incoming students.

CLASS ORGANIZATIONS The members of each freshman class form a class organization which retains its identity throughout the undergraduate years of its members and extends through subsequent years as long as there are living alumni of the class. Members of each undergraduate class elect officers each spring, except that officers elected at the end of the junior year serve through the senior year and also to the end of the first reunion. During the junior year, each class sponsors the annual Junior Week, which includes the traditional *Peerade* of floats. Each senior class conducts the events in the traditional Senior Week.

LIBRARY FELLOWS This society of students, faculty members, alumni, and members of the public at large aids the libraries in carrying on various phases of their work by special contributions. Membership is open to all who are interested in books, knowledge, and the advancement of learning.

OTHER STUDENT ORGANIZATIONS The University recognizes the need for clubs and other extracurricular organizations to serve those students with special interests and talents. A variety of organized clubs and societies furnish opportunities for social contact, for broadening professional outlook, and for developing special interests and hobbies. Many of these clubs are sponsored by some academic department, and they serve to supplement the academic program. There are chapters of the several professional engineering societies, language clubs, clubs which promote interest in different phases of agriculture, and clubs which specialize in the study of contemporary affairs.

The Admission of Students

Admission to the freshman class is determined after careful consideration of the applicant's record of high school courses completed; his rank in his graduating class; the recommendation of the high school principal; a personal interview, if requested by the Director of Admissions and Records; and such tests as may be required.

The University recommends that applicants take the Scholastic Aptitude Test of the College Examination Board to support their applications for admission. All out-of-state applicants are required to take this test. The December or January series taken in the senior year is preferred. Residents of Vermont whose records do not meet the college certifying requirements of their high schools will take such tests as may be required by the Director of Admissions and Records.

The information collected in connection with a student's application is also used by the student's advisor in guiding his educational program. Since education is a continuous process, the University hopes to receive all possible information from the high school for use in planning the college course best adapted to the individual.

Each college of the University desires that its students present a well integrated course of preparation, including certain subjects which it regards as especially desirable. These subjects are not absolutely required, but rather suggested to the high school student and advisor as suitable preparation for college work. Other qualifications being equal, preference is given to those who present the subjects which are deemed especially desirable.

Application forms for admission will be sent upon request. Since the number of rooming accommodations available is limited, it is wise for a candidate to submit his application and credentials as early as possible after the first of February in the year in which admission is sought. Action on applications will be taken in March. Inquiries should be addressed to the Director of Admissions and Records, Room 104, Waterman Building, University of Vermont and State Agricultural College, Burlington, Vermont.

COLLEGE OF ARTS AND SCIENCES Graduation from secondary school normally implies the completion of at least sixteen credits, and this is regarded as the usual requirement for admission. The College of Arts and Sciences recommends that candidates complete the following courses: English (4 years), ancient or modern foreign language (2 years), elementary algebra, plane geometry, history, and science. Additional subjects should be chosen so far as possible in

ADMISSION

the fields of language, mathematics, and history. For those who intend to take pre-medical or pre-dental work or to concentrate in the sciences, a second year of algebra is highly desirable.

COLLEGE OF TECHNOLOGY The College of Technology recommends that candidates for admission to the curricula in engineering complete the following secondary school courses: English (4 years), algebra (elementary and intermediate), plane geometry, solid geometry, history, and science. In addition to the eight or eight and a half units listed above the candidate is advised to choose the remaining units as far as possible in the fields of language, mathematics, history, and science.

Candidates for admission to the curricula in commerce and economics, in medical technology, and in chemistry should follow the recommendations for the College of Arts and Sciences. For the chemistry curriculum, solid geometry is desirable.

COLLEGE OF AGRICULTURE Courses considered especially desirable for prospective students in the College of Agriculture are English (4 years), elementary algebra, plane geometry, and science (2 years). History and a third year of mathematics are also recommended.

Courses considered especially desirable for prospective students in Home Economics are English (4 years), foreign language (2 years of one language), elementary algebra, plane geometry, history, and science (2 years). A third year of mathematics is also recommended. COLLEGE OF EDUCATION AND NURSING The College of Education and Nursing recommends that candidates for admission complete the following courses in secondary school: English (4 years), foreign language (2 years), algebra (elementary), plane geometry, history, and science. Candidates should present additional subjects in the fields of language, mathematics, and social studies. Credit may be given for commercial subjects, home economics, shop courses, agriculture, music, and art, if the candidate has maintained a sufficiently high scholastic record.

Candidates will be admitted on the basis of promise for becoming efficient teachers or nurses. In addition to probability for scholastic success, such factors as health, character, and personality will be taken into account in determining aptitude for teaching and nursing. SCHOOL OF DENTAL HYGIENE Enrollment in this School is limited to women who are high school graduates and are otherwise eligible to enter the freshman class of the University. Qualified residents of Vermont are given preference over applicants from other states. SPECIAL STUDENTS Special students are those who are not candidates for a degree in one of the regular curricula, or who are carrying less than a normal academic load. Subject to the usual entrance requirements of the University, persons who are qualified for regular admission may, on payment of specified fees, pursue certain studies in regular college classes as special students. This arrangement is intended to accommodate those whose previous study and attainments enable them to pursue with profit special courses of study in particular departments. Students who have been dismissed for low scholarship may not re-enter as special students.

Special students are registered and enrolled in the same manner as regular students, and are subject to all regulations of the University. Credit for courses completed may be subsequently counted toward a degree. Special students are not eligible to hold University scholarships.

COLLEGE ENTRANCE EXAMINATIONS

The College Entrance Examination Board will administer a series of tests during 1955 on the following dates: May 21, August 10, December 3, and also in 1956 on January 14, March 17, May 19 and August 8. Complete information may be obtained from the College Entrance Examination Board, P. O. Box 592, Princeton, New Jersey.

ADMISSION TO ADVANCED STANDING

All applicants for admission who have attended another collegiate institution are required to file with the Director of Admissions and Records an official transcript of high school and college records together with a statement of honorable dismissal. It is also recommended that the College Transfer Test of the College Entrance Examination Board be taken.

A student who transfers to the University from another accredited college or university may be given provisional credit for all courses satisfactorily completed, provided that similar courses are counted toward graduation at the University of Vermont. Transfer credit is not allowed for work completed with grade "D" or its equivalent, unless a more advanced course in the same subject has been passed with a higher grade in the institution from which the student transfers.

The credit is provisional, pending satisfactory completion of a semester's work at the University. If the student is in good standing at the end of his first semester, the transfer credits are fully granted. If, however, he is under warning, the departments concerned review the credits and recommend what credits will be allowed. Re-evaluation is rarely permitted once the credits have been finally determined.

PRELIMINARY REGISTRATION PROGRAM

The days immediately preceding the opening of class work are devoted to certain preliminary events designed to facilitate the adjustment of freshmen to conditions of life and study at college. The full schedule of events is given in a special circular, *Program of Preliminary Days at U. V. M.*, which is sent to all prospective freshmen by the Office of Admissions and Records one month before the opening of college.

All new students are given scholastic aptitude tests at the opening of the college year. Freshmen also take several placement tests on the basis of which some students are placed in more advanced courses. The scores on all tests are used in advising students regarding the course of study to pursue, and vocational plans. A personal data report, physical examination, and registration photograph are also included in the program.

Student Expenses

The student expenses outlined in the following paragraphs are the anticipated charges for the academic year 1955-56. Changing costs, however, may require an adjustment of these charges.

The tuition charges are in accordance with the following schedule. TUITION However, refundable deposits are required to cover loss or breakage in certain departments. Additional charges are made for individual lessons in music and for some expenses in the dental hygiene program.

1. Residents of Vermont

For definition of a "resident student", see General Information. The Board of Trustees has approved the following schedule of charges effective in the fall of 1955; however, as stated below, these charges may be modified by action of the State Legislature. The tuition for in-state students will be as follows:

1	Per Semester	Per Annum	
College of Agriculture	\$ 112.50	\$ 225	
Curriculum)			
School of Dental Hygiene	*175.00	*350	
College of Medicine	. 275.00	550	
All other colleges and divisions	*352.50	*705	
Graduate and special students		27 per h	ou

* Important Note: The Board of Trustees will offer an appropriation bill to the 1955 Session of the Vermont legislature requesting public support for these divisions at the University in order to reduce the tuition for Vermont residents to \$225 in all divisions except the College of Medicine. Action on this bill will probably not be taken until late spring.

* Elementary and Junior High School Curricula: At present the State Board of Education provides full tuition scholarships for a specific number of qualified Vermont students who enroll in these curricula and who declare their intention to teach in Vermont for a period equal to that for which tuition is paid.

2. Non-Residents of Vermont

The tuition for out-of-state students will be \$705 per annum in all divisions, except in the College of Medicine in which the tuition will be \$1,000.

COLLEGE OF AGRICULTURE In the College of Agriculture the tuition charge for regular undergraduate students who are residents of Vermont is reduced to \$225 per annum through appropriations granted by the State. The State enactment also provides that "any student transferring from courses in agriculture and home economics to other courses within the University, or to another educational institution, shall refund to the treasurer of the University any sums which have been received as scholarships under this section, unless excused therefrom by the President."

EXPENSES

COLLEGE OF EDUCATION AND NURSING Most resident students in the elementary education and junior high school education curricula pay no tuition. For details see section devoted to College of Education and Nursing.

For summer term tuition charges for the nursing curriculum, see also this same section.

SCHOOL OF DENTAL HYGIENE Under the provisions of State law and by arrangement with State officials, a special tuition fee of \$350 per annum has been established for students in this school who are residents of the State of Vermont.

COLLEGE OF MEDICINE There are a limited number of State Scholarships of \$200.00 a year each available to Vermont residents. Students allowed to repeat a year are charged full tuition for that year.

An application fee of \$10.00 is charged each applicant for admission.

GRADUATE COLLEGE A tuition fee of \$25.00 per semester is charged each graduate student who has completed all course requirements but who is in residence for the purpose of completing his thesis.

EXCEPTIONAL ENROLLMENTS For an enrollment of fewer than twelve hours the charge is \$27.00 per semester hour.

Students who by reason of conditions over which they have no control require more than four years to complete the requirements for a degree shall be charged no more than the full tuition for four years.

TUTTION FOR COURSES IN APPLIED MUSIC Private lessons are approximately one-half hour in length, fifteen being given in each semester. Students who enroll as regular full-time students in the music education curriculum, paying full tuition, are charged one-half the regular rates for applied music for such courses as are required in the curriculum. All others pay the scheduled charges.

PIANO, ORGAN, VIOLIN AND SINGING

One lesson a week	\$35.00	per	semester
Two lessons a week	60.00	per	semester
Use of organ one hour a day	25.00	per	semester

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STUDENT ACTIVITY FEE All students who are enrolled in twelve semester hours or more in the Colleges of Arts and Sciences, of Technology, of Agriculture, of Education and Nursing, and the School of Dental Hygiene are charged a fee of \$7.50 per semester. This fee is assessed, allocated, and controlled by Student Association and covers the support of recognized student organizations and activities, including subscriptions to the Vermont Cynic and the Ariel. First-year medical students who enter the College of Medicine after three years in the College of Arts and Sciences are charged this same fee, which includes membership in the Osler Society.

Graduate students, special students, unclassified students, and students in the College of Medicine may, by paying this fee, become entitled to the benefits listed above.

OSLER SOCIETY FEE All students in the College of Medicine are charged an Osler Club fee of \$3.50 per year.

LATE REGISTRATION FEE A late registration fee of six dollars is charged students who fail to complete enrollment at the appointed times. In unusual cases, exemption from this charge may be made by the deans.

CHANGE OF ENROLLMENT FEE A fee of one dollar is charged, except in the College of Medicine, for any change of enrollment requested by the student concerned. Deans may waive this fee in exceptional cases.

DEGREE FEE The fee for the Master's degree and the technical degrees of C.E., E.E., or M.E. is twenty-five dollars, payable during the semester prior to graduation.

DEPOSIT A deposit of thirty-five dollars is required of every applicant after he has received notification of his acceptance as a student at the University. This deposit is held until he graduates or discontinues his course of study, at which time the deposit minus any indebtedness to the University will be returned to him. In the event that his application is cancelled prior to August 15, fifteen dollars of this amount is refunded.

BREAKAGE CHARGE A charge will be made, as recommended by the department or office involved, for excessive or unusual breakage or damage and for breakage or damage of expensive equipment.

ROOM CHARGES Rooms in college dormitories are rented for the entire year and the prices are uniform in all dormitories. Double rooms are one hundred dollars per occupant per semester; single rooms rent for one hundred and twenty-two dollars and fifty cents. Nominal charges for the use of certain electrical appliances may be levied upon occupants of the dormitories. The University reserves the right to use dormitory rooms during the vacation periods.

BOARD All freshman and sophomore women who live on Redstone Campus are required to board at Robinson Hall. The current charge is \$175.00 per semester. Most other students, except those living in cooperative houses or fraternity houses, eat at the Waterman Dining Hall where meals are served cafeteria style. Three well-balanced meals per day may be purchased individually at an approximate cost of \$15.00 to \$17.00 per week.

ESTIMATED EXPENSES PER SEMESTER FOR UNDERGRADUATES

The following estimates are based on regular tuition for resident undergraduate students. Those receiving scholarships or aid from the State should make appropriate deductions.

*Tuition	\$352.50
Student Activity Fee	
†Textbooks and Supplies	\$30.00-\$40.00
Room	\$100.00-\$122.50
Board	\$175.00-\$275.00
Average Total	\$700.00
Not applicable to students in the School of Denta	Hygiene, the College of Agriculture

or the College of Medicine.

† Students in the School of Dental Hygiene should expect to stand an expense up to \$150.00 for the two years to cover textbooks, laboratory fees, instruments, and uniforms.

EXPENSES

PAYMENT OF BILLS

The University does not send bills to students or parents prior to registration. All fees for the semester are assigned at the time of registration and students are expected to present personal checks, travelers checks, or cash at that time. Checks should be made payable to the University of Vermont and State Agricultural College. Enrollment is not complete until all charges have been paid or otherwise provided for by arrangements satisfactory to the Treasurer The University reserves the right to withhold all information regarding the record of any student who is in arrears in the payment of fees or other charges, including student loans.

REFUNDS

In the event of withdrawal from college, refunds are made as follows:

1. During the first week of any semester the full tuition is refunded. Thereafter 20% of the tuition is deducted for each week that has elapsed.

- 2. No refund is made of the student activity fee.
- 3. No refund of room rent is made unless a replacement can be found.
- 4. Refund of board is made on a pro rata basis.

BANKING FACILITIES

An arrangement with the Howard National Bank and Trust Company of Burlington enables students to open and maintain regular checking accounts through the University Cashier's Office. Applications for new accounts, deposits to individual accounts, and orders for checkbooks are accepted during office hours in the Cashier's Office. The bank's normal charge of 10c per check is made for this service. The Cashier's Office cashes personal checks for students in good standing who furnish satisfactory identification.

STUDENT AID

Student fees do not meet the full cost of an education at the University. The income from endowment, State and Federal appropriations, and current gifts furnish the balance, amounting in some courses to a contribution of more than \$2,000 a year toward the education of the student. Many worthy and deserving students, however, are still unable to meet the existing financial charges and for them the University provides, so far as its resources permit, considerable aid in the form of scholarships, loans, prizes, and employment. Application for student aid should be made to the Student Aid Committee on forms which are available in the offices of the deans. New students should request forms from the Director of Admissions or from their principal if they are attending a high school in Vermont.

scholarships During the past year, a total of \$292,300.00 was awarded to students, including the agricultural, teacher-training, medical, and senatorial scholarships. Of this amount, \$75,500.00 was provided by the University from scholarship endowments and in the form of prizes. Ninety-five per cent of the scholarships were awarded to residents of Vermont. There are, however, a number of scholarships available to non-residents, including the Alumni Memorial Scholarships for men. Any student who has received an endowed or current scholarship in consideration of financial need is expected to repay that scholarship should he, at any time prior to graduation, transfer to another institution.

Following is a list of some of the scholarships and prizes available. A complete list of endowed scholarships and loan funds will be found on the last few pages of this catalogue.

Alumni Memorial Scholarship Fund. An annual gift from the Alumni Council provides certain scholarships for men only. Worthy students who are in need of funds and who meet the qualifications of scholarship, character, leadership, and indicated athletic promise are recommended to the Student Aid Committee by a special committee of the Alumni Council.

Honor. A scholarship of two hundred dollars, for the freshman year only, is awarded in each accredited Vermont high school to the highest standing boy and girl eligible for admission to the University.

Prize Contests. In order to encourage student activities in the high schools and preparatory schools of Vermont, the University conducts annual contests in writing and debating. Announcements of these contests are sent to all secondary schools in the State.

Senatorial. Each State senator is entitled to award sixteen \$200.00 scholarships per year to qualified, worthy and needy applicants who are residents of Vermont. Such scholarship awards may be presented to Middlebury College, St. Michael's College, and the University of Vermont and State Agricultural College (in the College of Arts and Sciences and Engineering only) in part payment of tuition. However, each institution is entitled to at least three scholarships from each senator, if application is made prior to August 1 in each year. Appointment of senatorial scholarships is to be made from the county represented by the senator provided suitable candidates apply for them, otherwise from any part of the State. During the 1955 session the State Legislature may modify the conditions under which Senatorial Scholarships are awarded.

Elementary and Junior High School Education. A limited number of scholarships, varying in amount according to qualifications and need, are awarded annually by the State Board of Education to students in these two curricula, in addition to the tuition exemption.

Endowed Scholarships. Some are restricted for use of students from certain towns or counties, or from certain schools, or in certain courses, and some are unrestricted as to use.

Wilbur Fund. The income from the fund is available to needy students who are residents of Vermont and who have earned entrance or college records that indicate extraordinary scholastic ability. The amounts awarded vary with individual needs.

LOAN FUNDS Loan funds are apportioned annually to needy and deserving students, permitting them to pay a part of the cost of college attendance at some future time. The notes are usually repaid during the productive years immediately following graduation.

STUDENT EMPLOYMENT For details concerning Student Employment, see Student Personnel Services.

General Information

DEFINITION OF "RESIDENT STUDENT"

For the purpose of determining the tuition to be paid the Board of Trustees on October 18, 1952, adopted the following regulations governing the classification of students.*

1. A student who is of age when he first enrolls in the University shall be deemed to be a Vermont resident if, and only if, he had his domicile in Vermont for a period of one year next preceding his first enrollment in the University, except as otherwise provided by these rules.

2. A student who is a minor when he first enrolls in the University shall be deemed to be a resident of Vermont, if, and only if, his parents had their domicile in Vermont for one year preceding his first enrollment at the University, except as otherwise provided in these rules.

3. A student who, at the time of his first enrollment at the University, has his domicile fixed by a special rule of law (as a student under guardianship, a married woman, etc.) shall be deemed to be a resident of the State of Vermont if, and only if, the governing rule of law made Vermont his residence for a period of at least one year preceding his first enrollment.

4. In all cases in which a non-resident student claims that he has become a resident of the State of Vermont by reason of the application of a special rule of law (resulting from the appointment of a guardian, marriage of a woman student, etc.), the circumstances claimed to have made the student a resident must have taken place at least one year prior to the next regular student enrollment. In all such cases, the new resident status of the student shall take effect at the time of the next regular enrollment.

5. Whenever a resident student shall lose his Vermont domicile (as in the case of a minor whose parents move from the State or women who marry non-residents), such students shall immediately be reclassified as a non-resident.

6. It shall be incumbent upon any student whose status changes from resident to nonresident, to inform the Dean of his College, or the Registrar, promptly, of the facts relating to his residence.

7. The burden of proof shall, in all cases, rest upon the student claiming a residence of the State of Vermont.

8. The Board of Trustees may, whenever justice requires, make exceptions to these rules.

RESERVE OFFICER TRAINING CORPS

As a land-grant institution, the University provides military training in its curriculum as its contribution toward national defense. Senior division units of the Army ROTC and of the Air Force ROTC are maintained. Their mission is to produce junior officers with qualities and attributes essential to their progressive and continued development as officers in the Army or Air Force.

Each student is provided the opportunity to indicate the unit he desires. Within quota limitations, every effort is made to assign each individual to the unit of his choice. Those who do not make a choice of a unit are arbitrarily assigned.

The Air Force is primarily interested in potential pilots and air crew members. Preferential selection for admission to the advanced course AFROTC is given to such students, who are otherwise qualified. Although some stu-

* Some modification of this definition may be adopted by the State Legislature during the 1955 session.

dents who are pursuing courses leading to degrees in some technical fields, and others not physically qualified for air crew training are admitted to the advanced course AFROTC, the quota for such students is limited. Students should govern their selection for ROTC training accordingly.

The Army is primarily interested in potential leaders, and its ROTC curriculum is designed to develop this potential. Instruction is given in subjects common to all branches of the Army, and qualified graduates of the four-year Army ROTC course may be commissioned as lieutenants of the artillery, armor, engineers, infantry, ordnance, quartermaster, chemical corps or other branches, depending upon vacancies, aptitudes, selection procedure, and individual choice.

THE BASIC COURSE A two-year course is required of all physically qualified male students except the following:

- 1. Veterans. Those who have served on active duty in the Armed Forces for six months will be excused from the freshman basic course; those with one year of active duty will be excused from the entire basic course.
- 2. Former ROTC students. Those who have successfully completed three or more years of an accredited Junior ROTC program will be excused from the freshman basic course upon presentation of a military training certificate.
- 3. Transfer students. A student who transfers to this institution and who would be an accredited junior or senior at his former college will be excused from the entire basic course provided no ROTC training was offered at the former institution; or provided he has successfully completed it if it was offered.
- 4. Non-citizens.

Uniforms, arms, and equipment are furnished the student by the military departments. The class meets at least three periods a week and carries two hours credit per semester. These eight hours for the two years are in addition to the total number required for a degree in a specific curriculum.

THE ADVANCED COURSE This is a two-year elective course open to juniors, and carries three hours credit per semester or twelve hours for the full four semesters. Students are selected by the department chairmen and the President. Ex-service personnel may apply in the spring of their sophomore year, with the approval of the dean of the college. Each student receives a uniform allowance of \$100.00 and a daily subsistence allowance which during recent years has averaged \$27.00 per month. The class meets at least five periods per week.

Attendance at a summer camp is mandatory. Duration of the Army ROTC summer camp is six weeks; that of the Air Force, which is announced annually, is usually four weeks. During such attendance the student is paid at the pay scale of an enlisted man in the seventh grade. Mileage at five cents per mile is paid to and from camp. Students attend camp between the junior and senior academic years, but deferment may be made, for cogent reason, when approved by the department and the Commanding General.

On successful completion of the advanced course, Army ROTC students are normally commissioned as Second Lieutenants, USA Reserve, though Distinguished Military Students may receive Regular Army Commissions at graduation. Advanced Air Force ROTC students are commissioned as Second Lieutenants, USAF Reserve. Air Force Distinguished Military Students may receive Regular Air Force commissions following successful completion of an active duty probationary period of eighteen months.

UNIVERSITY RESPONSIBILITY

Many courses involve instruction in and the use of various types of power equipment, laboratory apparatus, and specialized facilities. The University takes every precaution to provide competent instruction and supervision of such courses. It is expected that students will cooperate by following instructions and exercising precaution. In case an accident does occur, resulting in personal injury, the University can assume no responsibility except for medical care that is provided by the Student Health Service.

STUDENT HEALTH INSURANCE

Through an arrangement with the Vermont Accident Insurance Company students are able to procure a policy providing for payment up to \$500 for each accident and each illness. The cost for one year's coverage is \$23.00 for men and \$21.00 for women. Further details may be obtained from the Treasurer's Office.

ENROLLMENT

Every student is required to register and enroll on the designated days. All charges for the ensuing semester must be paid, or otherwise provided for, before enrollment is completed. After enrollment, no changes of studies will be allowed except such as are authorized by the dean of the college in which the student is registered. After Saturday of the first full week of the semester no enrollment or changes of studies will be permitted, except that a student may drop a course with his dean's permission during the first three weeks of a semester without incurring any academic penalty.

AUDITING COURSES

With the approval of his dean and the instructor concerned, a student who is regularly enrolled and carrying a normal program may "audit" a course. In such cases no entry is made on the student's permanent record, no credit is given for the work, and no charge is made.

DEGREE REQUIREMENTS

Degrees are conferred on the recommendation of the several colleges, and specific requirements will be found in the sections devoted to the respective colleges.

In addition to the course requirements of the several curricula, students must also fulfill the general requirements in physical education, air or military science, and hygiene.

To be eligible for graduation, a student must have attained a grade average of 72 or above in the work required for graduation in his curriculum. Grades in courses accepted for transfer credit are excluded in computing this average.

To be eligible for a degree, a student must have completed eight semesters or the equivalent in semesters and quarters. Exceptions to this rule may be made in special cases by the University Council.


THE SOUTHWICK MEMORIAL

THE REDSTONE CAMPUS FOR WOMEN





ACROSS THE CAMPUS FROM WATERMAN

With the exception noted in the next sentence, every candidate for a degree is required to spend his final year in residence. Those who have completed three years of pre-medical study in the University are awarded their degrees after one year of study in any approved college of medicine.

HONORS

The Bachelor's degree may be conferred with honors, by vote of the Senate, in recognition of general high standing in scholarship. Three grades are distinguished and indicated by inscribing on the diploma the words *cum laude, magna cum laude*, or *summa cum laude*. In the College of Medicine, the five students who have attained the highest average of marks during the entire four years' course are graduated *cum laude*. The names of those who receive these honors and of those who win prizes are printed in the commencement program.

DEAN'S LIST The deans of the undergraduate colleges publish at the beginning of each semester the names of those students who have attained an average of at least 85 in their college credit courses during the preceding semester.

SPECIAL HONORS IN THE COLLEGE OF ARTS AND SCIENCES A student in the College of Arts and Sciences who at the end of his junior year has an average of 85 or above for the work of the sophomore and junior years may become an applicant for special honors in a particular subject. His program for the senior year must be approved not later than the end of the junior year by the department in which honors are sought and by the Committee on Honors, and he must present a satisfactory thesis and pass an oral examination on the field of special study.

GRADES AND REPORTS

Scholarship is graded on a percentage scale. Grades are reported and recorded numerically. The minimum passing grade in the undergraduate colleges is 60; any grade lower than 60 represents a failure and indicates that the course must be repeated if credit is to be obtained.

All students enrolled in the undergraduate colleges receive reports of scholarship from the respective deans' offices after the close of each semester. These reports are also sent by the Recorder to the parent or guardian of each freshman student and to the principal of the secondary school from which he was graduated. Reports of upperclass students are sent to parents only upon request. Special reports of low standing are sent by the deans' offices about the middle of each semester, both to the students concerned and to the parent or guardian.

Each student, former student or graduate student may procure one photostatic transcript of his record without charge. For additional orders the charge is one dollar when one transcript is ordered. When more than one transcript is ordered at a time, the charge is one dollar for the first copy and fifty cents for each additional copy.

USE OF ENGLISH

Correct English usage is demanded by all departments in the University. Written work of any kind which is unsatisfactory in manuscript form, grammar, punctuation, spelling, or effectiveness of expression may be penalized, regardless of contents. Students whose written work falls below the standard of correct usage may be remanded to the English Department for additional instruction, even though the freshman course in English has been passed.

Before they may be admitted to the University, foreign students must offer evidence that they are capable of reading and writing English on the college level.

ACADEMIC DISCIPLINE

The continuance of each student upon the rolls of the University, the receipt by him of academic credits, his graduation, and the conferring of any degree or the granting of any certificate are strictly subject to the disciplinary powers of the University, which is free to cancel his registration at any time on any grounds if it considers such action to be for the welfare of the institution. The disciplinary authority of the University is vested in the President in such cases as he considers proper, and, subject to the reserve powers of the President, in the several deans.

The College of Agriculture

The College of Agriculture performs four public functions: it teaches resident students; it investigates problems; it disseminates information; it renders related services. These four lines of work are carried out respectively by the resident instruction division; the research division, or Vermont Agricultural Experiment Station; the extension division, or Vermont Agricultural Extension Service; and the Related Services Division.

The resident instruction division offers professional curricula in agriculture, agricultural engineering, and home economics and, in addition, twoyear programs in pre-forestry and pre-veterinary science. The curriculum in agriculture leading to the degree of Bachelor of Science in Agriculture provides a variety of options. The curriculum in agricultural engineering offered in cooperation with the College of Technology leads to the degree of Bachelor of Science in Agricultural Engineering. Young women may earn the degree of Bachelor of Science in Home Economics by electing either a general course or by pursuing one of the several professional options. The two-year pre-forestry and pre-veterinary programs prepare students for admission to other institutions for professional training in these fields.

All curricula in the College of Agriculture, leading to the Bachelor of Science degree, require 130 semester hours of prescribed and elective courses, exclusive of those in basic military and air science, physical education, and hygiene. Normally 15 to 18 credit hours of courses exclusive of the aforementioned courses constitute a semester program.

In each field, to provide a well-balanced and integrated educational program and to insure reasonable concentration, a sequence of courses is prescribed with allowance made for the election of additional courses. Faculty advisers counsel students in the selection of elective courses and other educational problems. The courses listed for each of the curricula are those prescribed for the years indicated.

As part of the preliminary registration program, an English placement test is given on the basis of which a few students are excused from the freshman course in English. Such students substitute another course, normally in English.

A student may transfer from one curriculum, option or program in the College to another, provided the course requirements established for the curriculum, option or program are satisfied. Arrangements may be made for transfer within the College through counsel with the student's faculty adviser.

THE CURRICULUM IN AGRICULTURE

The curriculum in agriculture leading to the degree of Bachelor of Science in Agriculture provides the following options: general agriculture, agricultural economics, agricultural education, agronomy, animal and dairy production, botany, dairy manufacturing, horticulture, and poultry husbandry. Past records have shown that farm practice is a valuable asset for graduates in agriculture. It is highly recommended that agricultural farm experience be secured by all students before graduation.

FRESHMAN YEAR - A

1st

2nd

OPTIONS in General Agriculture, Agricultural Economics, Agricultural Education.

SEI	MESTER
English Composition 3	3
Intro. Botany or Intro. Zoology	
Elementary Algebra	3
World Agriculture	3
General Dairying	
General Soils	3
General Poultry	
Public Speaking	3
Elective	0-3

GENERAL AGRICULTURE This option is designed for students wishing to return to farming, to become farm managers, to enter work allied to farming; for those seeking a general rather than a specialized knowledge in the field of agriculture; for those desiring to prepare for county extension work; and for those preparing to work in the general field of agriculture with commercial concerns such as feed, fertilizer or seed companies, meat packers: agricultural implement and equipment concerns, dairy products and supplies companies, and for organizational and publicity work for farm organizations. Through the proper selection of electives, a student may choose a field of concentration in agriculture, and at the same time select courses that contribute to a liberal education.

Students taking a major part of their work in forestry under this option may prepare for entrance to professional forestry schools granting the Master of Forestry degree. Students contemplating preparation for county extension work should, not later than their sophomore year, seek the advice of the state extension leaders.

Each student in the general agriculture option must complete a minimum of 21 credit hours of agricultural courses in addition to the courses listed. At least two advanced courses in one subject and one advanced course in a related subject recommended by the chairman of the department in which the major part of the work is done must be taken in the junior and senior years.

SOPHOMORE YEAR	1st	2nd	JUNIOR YEAR	1st	2nd
	SEM	ESTER		SEME	STER
English		3	English		3
Intro. Chem. or Intro. Physics	4-3	4-3	*Extension Methods	•••	2
Principles of Economics	. 3	3	Rural Sociology	3	
General Horticulture	3	***	Woodland Management	3	3
General Farm Crops	3	•••	Elective	9-12	7-10
Elective	2-6	5-9			

* Either in junior or senior year.

CURRICULUM IN AGRICULTURE

SEMESTER Survey of Amer. History or Amer. Govt	
Survey of Amer. History or Amer. Govt	
or Amer. Govt. 33	
	Ħ
*Extension Methods 2	†
†Farm Power, Mach. and Elec.	ŕ
or Farm Structures and Util.	
& Soil and Water Engr	
Farm Management	
Elective	

* Either in junior or senior year.

+ Either the first or second semester course.

AGRICULTURAL ECONOMICS Training in agricultural economics prepares students wholly or in part for appraising land; marketing activities; supervising agricultural loan departments in private banks; directing farmer cooperatives such as the production and farm loan associations affiliated with the Farm Credit Administration; public relations research and sales work for the manufacturers of agricultural tools or products; organizational and publicity work for farm organizations and cooperative associations; positions in state, county, and local government service; research work in farm management, farm credit, taxation, marketing, farm population and rural life trends; for operating and managing farms; and for operating numerous enterprises where a knowledge of economic principles is an essential supplement to knowledge of the technical requirements of the business. This course of study satisfies the entrance requirements for graduate schools, for applicants for research or teaching fellowships in agricultural economics.

SOPHOMORE YEAR	lst SEMI	2nd Ester	JUNIOR YEAR	1st sem	2nd ester
Agricultural Cooperation Agricultural Business English Intro. Chem. or Intro. Physics Principles of Economics General Farm Crops Elective	2 3 4-3 3 3 0-4	3 3 4-3 3 2-6	Rural Sociology Woodland Management Farm Credit Marketing Farm Products *Extension Methods Elective	3 3 9-1	3 3 3 2 2 4-9
SENIOR YEAR			1st SEME	2nd ster	
Farm Management Public Problems of Agrica *Extension Methods	ulture	•••••••	3	3 3 2 7-12	,

* Either in junior or senior year.

A minimum of 12 credit hours must be selected from the following with the advice of the department chairman: Forage and Pasture Crops, Livestock Other than Dairy, Feeds and Feeding, Milk Production, Principles of Accounting, Statistics, Economic Analysis, Biological Statistics, General Horticulture.

AGRICULTURAL EDUCATION This option prepares students to teach vocational agriculture at the high school level and to teach young farmer classes and adult farmer classes. Preparation for advising local chapters of the Future Farmers of America is also given. The students are prepared for advanced study in the field of agricultural education. Many of the agencies and commercial concerns which employ farm service personnel consider experience in teaching vocational agriculture as excellent preparation for work in their fields.

SOPHOMORE YEAR	1st	2nd	JUNIOR YEAR	1st	2nd
	SEMI	ESTER		SEMI	ESTER
English	3	3	Rural Education		3
Intro. Chem. or Intro. Physics	4-3	4-3	Farm Management	. 3	3
Principles of Economics	3	3	Woodland Management	. 3	3
General Psychology	3	3	Feeds and Feeding	. 3	
General Farm Crops	3		Milk Production	. 3	
Elective	0-2	2-6	Farm Power Mach. & Elec.	. 3	
			Farm Shop		3
			Elective	0-3	3-6
SENIOR YEAR			lst	2nd	
			SEMES	TER	
Farm Structures & Utilities	& S	oil an	d Water Engineering	3	
Methods of Teaching Young	z and	I Adu	It Farmer Classes		
Directed Practice Teaching	in V	o. Ag	riculture		
Marketing Farm Products	*******	-	Madalaanaa aa a	3	
Methods of Teaching Vo. A	Agric	ulture		3	
Mensuration				***	
Elective				6-9	

FRESHMAN YEAR - B

OPTIONS in Agronomy, Animal and Dairy Production, Botany, Dairy Manufacturing, Horticulture, and Poultry Husbandry 1st 2nd

	SEM	ESTER
English Composition	3	3
Freshman Math. (1, 2 or 11, 12)	3-5	3-5
Intro. Chemistry or General Chemistry	4-5	4-5
Intro. Botany or Intro. Zoology	4	•••
Public Speaking	***	3
Elective	0-4	0-5

AGRONOMY This option is designed to give students a fundamental background in the theory and practice of crop and soil science and to prepare them for graduate study in these fields. By proper selection of electives, students may specialize in either crops or soils. Upon completion of four years study, agronomy majors may enter federal, state or commercial employment in such areas as soil conservation, soil survey, soil analysis, fertilizers, field or forage crop production and management, seed production, weed control, and crop breeding or engage in practical farming. Graduates are qualified to do research, teaching or extension work in the above or related fields.

SOPHOMORE YEAR	lst	2nd	JUNIOR YEAR	1st	2nd
	SEM	ester		SEMI	ESTER
English	3	3	General Physics	4	4
Organic Chemistry or			Forage and Pasture Crops		3
Elem. Quant. Analysis	5-4	5-4	Soil Science and Management	4	
Principles of Economics	3	3	Plant Physiology or Field Crops	5-3	
Intro. to Zoo. or Intro. Geolog	y 4	•••	Bacteriology		3
General Soils		3	Elective	2-7	5-8
Elective	0-4	0-5			

CURRICULUM IN AGRICULTURE

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SENIOR YEAR	1st	2nd
,	SEMES	TER
Field Crops or Plant Physiology	3-5	•••
Farm Management	3	3
Soil Conservation		3
Seminar	1	1
Elective	8-9	8-11

ANIMAL AND DAIRY PRODUCTION This option provides technical and practical instruction in the field of animal husbandry with emphasis on the selection, breeding and management of dairy cattle. It prepares students for the operation of dairy farms and livestock enterprises; for field work in federal and state extension services, breed associations, farm organizations and commercial concerns; for positions in industries related to the processing and sale of dairy products and meats or with feed companies, dairy equipment and supply agencies; for graduate study leading to college teaching and research.

SOPHOMORE YEAR	1st	2nd	JUNIOR YEAR	1st	2nd
	SEMI	ESTER	-	\$EMI	ESTER
English	3	3	General Physics	4	4
Organic Chem. (31-32 or 35)	4-5	4-0	Anatomy and Physiology	. 3	
Principles of Economics	3	3	Animal Nutrition		2
General Dairying	3	***	Dairy Bacteriology	. 3	
Livestock other than Dairy		2	Feeds and Feeding	. 3	
General Farm Crops	3		General Soils		3
General Bacteriology		3	Diseases of Farm Animals		2
Elective	0	0-4	Advanced Judging		2
			Elective	. 2-5	2-5
SENIOR YEAR			1st	2nd	
· ·			SEME	STER	
Marketing Farm Products				3	
Farm Management				3	
Market Milk					
Genetics or Heredity		****			
Animal Breeding			-	3	
Milk Production			3		

Seminar

Elective

BOTANY Botany is that subdivision of biology which is the foundation of the various branches of plant science, whether theoretical or applied. Students from both the College of Agriculture and Arts and Sciences may select the botany option. The student receives general instruction in the physical and biological sciences while obtaining a liberal education. Such an undergraduate experience can be applied to many fields of future endeavor. A student takes beginning botany, physiology and morphology as prerequisite to four advanced courses. These courses are selected depending on the student's own interest in any one of the fields which constitute botany. In these courses he is introduced to the ideas, the technics and appropriate modern scientific apparatus. Students have a variety of choices open to them upon receiving the Bachelor's degree. Some go directly into agriculture, industry, government services, applied research, or biology teaching in the secondary schools.

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CURRICULUM IN AGRICULTURE

Others enter professional schools. Still others go on to graduate school to prepare themselves for more advanced positions.

SOPHOMORE YEAR	1st SEMI	2nd ESTER	JUNIOR YEAR	1st SEMI	2nd ESTER
English Intro. Botany or Intro. to Zoo. Organic Chem. or Elem.	3 4	3 	General Physics Foreign Language Plant Physiology	4 3 5	4 3
Quant. Analysis Social Science Morphology Elective	5-4 3 3 	5-4 3 3 2-4	Elective	3-6	8-11
SENIOR YEAR			lst Sem	2nd ESTER	
Foreign Language Elective				3 12-15	

Note: Four semester courses in botany are required in addition to those prescribed.

DAIRY MANUFACTURING Technical and practical instruction in the processing of milk and milk products prepares students for supervisory positions in the many different fields of operation in the dairy industry and also for advanced study and research in these fields.

SOPHOMORE YEAR	1 st SEMI	2nd ESTER	JUNIOR YEAR	1st Semi	2nd ISTER
English	3	3	General Physics	4	4
Organic Chem. (35 or 31-32)	5-4	0-4	Dairy Plant Engr. or Conc.		
Principles of Economics	3	3	Milk Products		2-3
General Dairying	3		Butter, Cheese and Casein		3
General Bacteriology		3	Principles of Accounting	3	3
Chem. & Testing of Dairy Prod.	•••	3	Dairy Bacteriology	3	
Elective	2-4	0-1	Elective	5-8	3-5
SENIOR YEAR			Ist	2nd	
			SEME	TER	
Ice Cream					
Concentrated Milk Product	s or	Dairy	Plant Engineer	3-2	

Concentrated Milk Products or Dairy Plant Engineer	***	3-2
Market Milk	2	•••
Technical Control of Milk Processing		2
Marketing Farm Products		3
Milk Production	3	
Seminar		1
Elective	7-10	7-9

Note: Four additional courses are required in commerce and economics, chemistry or biology, with the advice of the department.

HORTICULTURE This option is designed to prepare students for opportunities in the vast field of horticulture with particular emphasis on fruits and vegetables. Positions available to graduates include those with private or commercial concerns producing, manufacturing and distributing horticultural products and supplies; fruit or vegetable farm management; agricultural extension and positions with the U. S. Department of Agriculture. Students who so desire may prepare for advanced study.

AGRICULTURAL ENGINEERING CURRICULUM

SOPHOMORE YEAR	l st sem	2nd ESTER	JUNIOR YEAR	Íst Semi	2nd
English	3	3	Social Science	3	3
Organic Chemistry or Elem.			General Physics	4	4
Quant. Analysis	5-4	5-4	Foreign Language	3	3
Intro. Botany or Intro. to Zo	bo. 4		*Plant Physiology	5	
Plant Propagation		2	Elective	0-3	5-8
General Horticulture	3	3			
Elective	0-4	2-6			

SENIOR YEAR

OR YEAR	1st	2nd
	SEME	STER
Foreign Language	3	3
Genetics	3	•••
*Plant Breeding	•••	3
Seminar		1
Elective	9-1 2	8-11

* Junior or senior year, alternate year course.

POULTRY HUSBANDRY The poultry husbandry option gives training for poultry farm or hatchery operation; for commercial fields, such as marketing of poultry products, the manufacturing, selling and services of feed and equipment, and other allied industries; for graduate work; and for positions in teaching, extension, and research.

SOPHOMORE YEAR	1st	2nd	JUNIOR YEAR	1 st	2nd
х.	SEMI	ESTER		SEME	STER
English	3	3	Principles of Economics	3	3
Organic Chemistry or Elem.			Poultry Sanit. & Disease Con-		
Quant. Analysis	5-4	5-4	trol or Incub. and Brooding	•••	4
General Bacteriology		3	Poultry Feeding or Processing &		
General Poultry Husbandry	3	•••	Pkging. Poultry Products	3-4	
Incubation & Brooding or Poul-			Forage & Pasture Crops	•••	3
try Sanitation & Disease Con-			Farm Structures, Utilities and		
trol	•••	4	Soil & Water Engr.		3
Elective	4-8	0-4	Elective	9-11	2-5
SENIOR YEAR			1st	2nd	
			SEME	TER	
General Physics		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		4	
Poultry Feeding or Processi	ng &	Packa	ging Poultry Products 4-3	•••	
Anatomy & Physiology					
Farm Management				3	
Elective				8-11	

THE AGRICULTURAL ENGINEERING CURRICULUM

Agricultural engineering is the application of engineering principles and practices to agriculture. The several subdivisions of agricultural engineering are farm power and machinery, soil and water engineering, farm structures, and rural electrification and utilities. This curriculum leads to the professional Bachelor of Science in Agricultural Engineering degree. In addition to the courses listed below a sufficient number of electives will be taken to satisfy the 130 hour requirement. (There is a 134 hour requirement for those who must enroll in Mathematics 9; see footnote under Department of Mathematics for details.) The first two years emphasize basic engineering courses; while the last two years emphasize agricultural engineering courses along with additional basic engineering courses. The curriculum, the instructional staff, and the course content are jointly approved by the Colleges of Technology and Agriculture.

The student is prepared upon graduation to accept professional engineering employment in the field of farm equipment design, manufacture, sales, distribution, and public relations; the field of building materials; and the field of public utilities dealing with the application of electricity to agriculture; and the field of soil and water control.

There are opportunities for research in private industry and Federal and state experiment stations. Universities have positions for teachers in agricultural engineering and in extension engineering in which engineering assistance is given to the farmer. Employment may be found with various Federal organizations, such as the Soil Conservation Service and Farmers Home Administration. The student is prepared for advanced study in the field of agricultural engineering.

FRESHMAN YEAR	1st	2nd	SOPHOMORE YEAR	1st	2nd
	SEM	ESTER		SEM	ESTER
*Freshman Math. (Math. 11-12)	5	5	Soph. Math. (Math 21-22)	3	3
Intro. Chem. (Chem. 1-2)	4	4	Gen. Physics (Phys. 21-22)	5	5
Engin. Draw. (M.E. 1-2)	3	3	Expository Writing (Engl. 16)	3	***
+Engl. Comp. (Engl. 1-2)	3	3	Statics (C.E. 24)	3	***
Engin. Problems (M.E. 3-4)	1	1	Surveying (C.E. 53)	4	
0			Thermodynamics (M.E. 110)	***	2
		7	M.E. Laboratory (M.E. 82)		1
			General Soils (Agron. 2)		3
JUNIOR YEAR	1st	2nd	Dynamics (C.E. 130)		3
•	SEM1	ESTER			
Mech. of Materials (C.E. 131)	3		SENIOR YEAR	1st	2nd
Fluid Mechanics (ME 142)		4		SEM	ESTER
Thermodynamics (M.E. 111)	4		Agri Mach & Equip (A.F.		
Farm Utilities (A E 152) or	•		154) or Farm Utilities (A F		
Agr Mach & Equin. (A E.			152)		3
154)		3	Farm Structures (A E 151) or	***	
Farm Power Mach (AE 153)	•••	2	Farm Power Mach (AF		
or Farm Structures (A F			153)	2	
151)	3		+Soil & Water Engr (AE 155)	ź	
Flec in Agr (AF 156) or	,	2 74	Farm Shop (A F 52) or Elec-	,	
Earm Shop $(A \in \{2\})$		2	tricity in Apr. (A.F. 156)		2
Public Speaking (Speech 11)	•••	2	Earm Management (A Econ		,
Prin of Econ (C & E 11 12)	2	2	C101 102)	2	2
Finite Seminar (A \mathbf{E} 141 142)	5	5	Senior Seminar (A E 163 164)	1	1
Junior Seminar (A.E. 161-162)	1		Schlor Seminar (A.E. 163-164)	r	
Note: Sufficient elective courses n	tamet	he takes	n to make up the required 130 or	134	hours

Note: Sufficient elective courses must be taken to make up the required 130 or 134 hours as stated above.

* See footnote under Department of Mathematics.

⁺ Students exempted from English 1-2 on the basis of the placement test may substitute another course, normally in English.

‡ This course is given in alternate years. It may be taken in either the junior or senior year.

THE PRE-FORESTRY PROGRAM

This program provides the basic preparation of the first two years of a four-year forestry curriculum leading to the degree of Bachelor of Science in Forestry. The last two years of technical education are taken at an institution which confers the degree in forestry. The program permits adjustment of the subject matter for transfer with advanced standing in the forestry school selected. Professional forestry aims to develop men in the broad fields of forestry for the management of large and small public or private forest properties for timber production and utilization; wildlife management and administration; technical and managerial work in the wood-using industries; general administrative work in the United States Forest Service, Wildlife Service, National Park Service, Soil Conservation Service and other Federal agencies and state forestry services; research and teaching; and private forestry consultants.

FRESHMAN YEAR	1st semi	2nd ester	SOPHOMORE YEAR	lst semi	2nd ESTER
Freshman Math. (1, 2)	3	3	Dendrology		2
Dendrology	1	3	Expository Writing		3
Elements of Forestry		3	Introductory Chemistry	4	4
English Composition	3	3	Introductory Physics	3	3
Introductory Botany	4		Introduction to Zoology	4	
Introductory Geology	4	4	Principles of Economics	3	3
Engineering Drawing	3		Surveying	4	
Elective	0	0-2	Elective	0	0-3

THE PRE-VETERINARY PROGRAM

This program offers preparation for entrance to colleges of veterinary medicine. Adjustments of individual programs may be made to meet the requirements of different colleges. Students completing the prescribed courses with good grades and suitable qualifications may expect consideration for admission to veterinary colleges. Some farm experience is a definite advantage. Opportunities are available for graduate veterinarians in general practice, the armed services, public health, teaching and research, and federal state and municipal disease control work.

FRESHMAN YEAR	1st	2nd	SOPHOMORE YEAR	1st	2nd
	SEM	ESTER		SEMI	ESTER
English Composition	3	3	General Entomology	4	
Introductory Chemistry	4	4	Introductory Physics	3	3
Intro. to Zoology	4		Organic Chemistry	4	4
Intro. Botany	4		Public Speaking	•••	3
Freshman Math. (1)		3	Survey of Amer. History or		
Vertebrate Zoology		4	Amer. Govt.	3	3
Elective	0-3	1-4	Elective	1-4	2-5

THE CURRICULUM IN HOME ECONOMICS

This curriculum has two purposes: first, to provide through the general home economics course a liberal education including the areas of learning which relate to home and family; second, to provide several options which

CURRICULUM IN HOME ECONOMICS

are organized to give a more specialized training and background for the interesting professions that are a part of home economics.

THE GENERAL HOME ECONOMICS COURSE This course requires 42 credit hours in basic home economics and 53 credit hours of non-home economics subjects, as shown in the outline, and is designed primarily to prepare students for homemaking, not for professional positions in home economics. The other credits are elective and with counsel are selected to provide for the fullest development of the student.

Required non-home economics courses:

	HOURS
English	12
Laboratory Sciences	8
Psychology	6
Economics	., 6
Other Basic Social Science	6
Speech	3
Advanced Course in Science	6
Advance Course in the Humanities	6

1st 2nd

SOPHOMORE YEAR

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1st 2nd

FRESHMA	N 3	(EAR
LICESTIMU	LN J	LAN

	\$EM	AESTER		SEM	ESTER
*English Composition	3	3	English Elective	3	3
Social Science or Language	3	3	Household Technology (H.M.		
Laboratory Science	4	4	63-64)	2	2
Orientation (H.E. 1, 2)	1	1	Survey of Food Preparation (F.		
Design (R.A. 15)	3		& N. 53)	4	
Food Selection (F. & N. 11)	3		House Planning (H.M. 62)		2
Textile & Clothing Selection			Meal Management (F. & N.		
(T. & C. 16)		3	104)		3
Speech		3	Social Science or Elective	3	3
▲			Principles of Economics	3	3
IUNIOR YEAR	1st	2nd	Elective	3	2
•	SEN	IESTER			
General Psychology	3	3	SENIOR YEAR	1st	2nd
Consumer Problems (T. & C.	-	-		S EM	ESTER
109)	3		Home Management Residence		
Home Furnishings I (R.A. 108)		3	(H.M. 160)	3	or 3
Child Development (F.L. 130)	3	or 3	Family Relationship (F.L. 180)	3	01 5
Home Management (H.M. 112)		3	Advance Course in Science or	2	
Advanced Course in Science or			the Humanities	3	3
the Humanities	3	3	Elective	9-12	12-15
Elective	6-9	3-6			

* Students exempted from English Composition on the basis of the placement test may substitute another course in English.

THE PROFESSIONAL OPTIONS To provide concentration for students with special interests, the subject matter is divided into three options. The program for all freshmen is uniform with the selection of the professional option at the beginning of the sophomore year.

The food and nutrition option is planned to prepare students for positions as dietitians, both administrative and practicing, in hospitals, colleges, industry or other institutions; as nutrition or food specialists in utilities or commercial food firms; or as teachers of food and nutrition. This option meets

1 st

2nd

the academic requirements for membership to the American Dietetic Association, which makes it possible for an able student on graduation to become a dietetics interne in an institution approved by the Association.

The home economics education option supplies a background which prepares students to teach home economics on the secondary and adult level in Vermont and in some other states or to become home demonstration or 4-H club agents.

The related art and textiles and clothing option is planned for students who are interested in the fields of textile testing, costume designing, fashion illustrating, fashion merchandising, interior decorating, and the teaching of textiles and clothing. This option provides background upon which a talented student may with additional study or apprentice training build a career.

In order to provide the best possible program for the individual student within her professional choice, it may be necessary occasionally to make substitutions in the option as outlined.

Every candidate for the degree of Bachelor of Science in Home Economics must present a total of 130 semester hours of credit, exclusive of courses required in physical education. Students in home economics education must have a 75 average in their home economics subjects to be eligible for student teaching during their senior year.

OUTLINE OF PROFESSIONAL OPTIONS

UNIFORM FRESHMAN YEAR

	\$EM	ESTER
Design (R.A. 15)	3	
*English Composition	3	3
European History or American Government	3	3
Food Selection (F. & N. 11)	3	***
Basic Speech	•••	3
Orientation (H.E. 1, 2)	1	1
Introductory Chemistry	4	4
Textiles and Clothing Selection (T. & C. 16)		3

* Students exempted from English Composition on the basis of the placement test may substitute another course in English.

FOOD AND NUTRITION

SOPHOMORE YEAR	1st	2nd	JUNIOR YEAR	1 st	2nd
	SEM	STER		SEMI	ESTER
Introduction to Zoology	4		Consumer Problem (T. & C.		
Food Preparation (F. & N. 55-			109)	3	
56)	3	3	Biochemistry	3	
Household Technology (H.M.			Food Preservation and Econ.		
63-64)	2	2	(F. & N. 103)	3	
Outlines of Organic Chemistry	5		General Psychology	3	3
Principles of Economics	3	3	Child Development (F.L. 130)		3
Biochemistry		3	Home Management (H.M. 112)		3
General Bacteriology		3	Meal Management (F. & N.		
Elective		3	104)		3
			Physiology		3
			Food Production (I.M. 118)		3
			Elective	6	

CURRICULUM IN HOME ECONOMICS

SENIOR YEAR	1st Semi	2nd ester
Family Relationships (F.L. 180)	3	
Educational Psychology	3	
English	3	3
Nutrition and Diet (F. & N. G151)	4	•••
Experimental Foods (F. & N. G154)		3
Diet Therapy (F. & N. 152)		3
Home Management Residence (H.M. 160)	•••	3
Institution Administration (I.M. G166)		3
Food Cost Control (I.M. 169)	3	
Elective	•••	3

HOME ECONOMICS EDUCATION

SOPHOMORE YEAR	1st semi	2nd ESTER	JUNIOR YEAR	lst semi	2nd ESTER
Principles of Economics Food Preparation (F. & N. 55-	3	3	English Consumer Problems (T. & C.	3	3
56) Household Technology (H.M.	3	3	109) Clothing Construction II (T.	3	
63-64)	2	2	& C. 110)	3	
Outline of Organic Chemistry Clothing Construction I (T. &	5		Food Preservation & Economics (F. & N. 103)	3	
C. 58)		3	Education	3	
General Psychology	3	3	*Extension Methods		2
House Planning (H.M. 62)		2	Child Development (F.L. 130)		3
			Home Management (H.M. 112) Meal Management (F. & N.	***	3
			104)		3
			Home Furnishing I (R.A. 108) Principles of Nutrition (F. &	•••	3
			N. 106)	•••	3
			Elective	3	•••

SENIOR YEAR

1st 2nd

	SEX	AESTER
Family Relationships (F.L. 180)	3	
Demonstration Techniques (H.Ec.Ed. 121)	2	•••
Home Nursing	1	
School Lunch Management (I.M. 165)	3	•••
Methods of Teaching (H.Ec.Ed. 171)	3	•••
Special Problems in Home Economics Education (H.Ec.Ed. 174) or		
 - Senior Problems (H.Ec.Ed. 196)		2-3
Elective	3	•••
		1st Half
Student Teaching (H.Ec.Ed. 172)		7
		2nd Half
Home Management Residence (H.M. 160)		3
Adult Education (H.Ec.Ed. G176)		2

* Required of extension education students only.

RELATED ART AND TEXTILES AND CLOTHING

SOPHOMORE YEAR	1st	2nd	JUNIOR YEAR	1st	2nd
Principles of Economics Surv. Food Prep. (F. & N. 53) Meal Management (F. & N. 104) Household Technology (H.M. 63-64) Outline of Organic Chem. Costume Design (R.A. 57) Clothing Construction I (T. & C. 58) House Planning (H.M. 62)	SEMI 3 4 2 5 2 	BSTER 3 3 2 3 2 3 2	Consumer Problems (T. & C. 109)	SEM1 3 4 3 3	ESTER 3 3 3 3 3 3
1 cxthes (1. c C, 106)	***	3			

SENIOR YEAR

1st 2nd SEMESTER

English	3	3
Family Relationships (F.L. 180)	3	•••
Home Furnishing II (R.A. G156)	***	3
Home Management Residence (H.M. 160)	3	
Costume Design and Construction (T. & C. G158)	•••	3
Advanced Biological Science	•••	3 or 4
Elective	12	5-6

The College of Arts and Sciences

The College of Arts and Sciences aims to provide for young men and women the means and opportunity of fitting themselves intellectually, emotionally, and spiritually to play a responsible part in the world of thought and action.

It devotes itself to the inculcation of ideals and the cultivation of ideas. It seeks to encourage habits of clear, independent thinking and effective expression; to stimulate an appreciative understanding of the thought and achievement of man; to develop sound critical judgment and a spirit of tolerance; to arouse the intellectual curiosity which is the basis of continuing self-education.

Its fundamental purpose is to instill the courage and conviction to exemplify the enduring values of American democracy.

THE LIBERAL ARTS CURRICULUM

The curriculum in liberal arts, leading to the degree of Bachelor of Arts, is designed to assure adequate training in language, particularly in English, as the mother tongue and the chief tool of thought and expression, and in certain other subjects essential to an understanding of the various fields of human knowledge; and to provide for further study and mastery of a chosen field of concentration.

Every candidate for this degree must fulfill the requirements stated below, and present a total of 120 semester hours of credit. For those required to take military science and physical education the total of credit hours shall be increased by the number of hours required in those subjects.

REQUIRED OF ALL STUDENTS:

1. English. English Composition the first year, unless exempted, and the second year either English-American Literature or World Literature.

2. Foreign Language. One course of at least intermediate grade in French, German, Greek, Latin, or Spanish, to be completed as early as possible in the college career.

3. Science. One laboratory course, normally the first year, to be chosen from botany, chemistry, geology, physics, and zoology.

4. Physical Education and Military Science. Two years of physical education for men and women, two years of military science for men, a year course in hygiene for women.

5. Field of Concentration. Each student, in consultation with his adviser, must choose a field of concentration during his sophomore year. The specific courses making up the field, as well as the student's whole program for the last two years, are chosen in consultation with the Chairman of the Department in which the major part of the work is to be taken and must have his approval. There are certain restrictions to be met. (A) The field must be a well integrated whole, adapted to the student's special interests. (B) It must include a minimum of six courses totalling not less than 36 semester hours, at least half, but not all, to be taken in one subject. (C) It must contain at least two advanced courses in one subject and one advanced related course in another subject. (D) Each student must take at least one course, normally an advanced course, in his field of concentration in each semester of his junior and senior years.

ADDITIONAL REQUIREMENTS FOR STUDENTS CONCENTRATING IN FIELDS IN THE FOLLOWING DIVISIONS:

1. *Language and Literature, or Music: History (American, Ancient, Medieval, or Modern European) normally first year; a second foreign language reaching the intermediate level[†]; a second year course in Social Science Division.

2. Social Science: History (American, Ancient, Medieval, or Modern European) normally the first year; during the first two years a total of two year courses in different departments, chosen from the following: Economics, Philosophy, Political Science, and Psychology.

3. Science and Mathematics: Inorganic Chemistry (except for students concentrating in Mathematics), mathematics and physics as indicated below under requirements for special departments, and a total of two year courses (twelve semester hours or more) in departments other than the sciences and mathematics.

- * It is strongly recommended by the respective departments that students who wish to choose modern foreign language as their field of concentration complete Intermediate Latin in college unless they presented four years of Latin for entrance. The English Department states that "students concentrating in English will be aided by courses in Latin, particularly if they intend to continue with graduate study."
- † Students concentrating in English substitute an advanced literature course in foreign language for the second foreign language.

SPECIAL REQUIREMENTS FOR CONCENTRATION IN SPECIAL DEPARTMENTS:

BOTANY Mathematics 1, 2 or 7, 8 or 11, 12; Physics 5-6; Zoology 1; Botany 1, 53, 54, 103, and four additional semester courses. The advanced related course (six semester hours or more) is normally in one of the other sciences.

CHEMISTRY Mathematics 21-22 (Calculus); Physics 5-6 or 21-22; Chemistry 11-12, 21-22, 31-32, 41-42, 151-152, and 153-154. No advanced related course is required. Those who wish to qualify for accreditation by the American Chemical Society must also complete G137, six additional hours in advanced courses, and also German 11-12. Physics G171-172 is recommended. Only those who qualify as above will be recommended by the department as chemists.

ECONOMICS Courses in economics totalling at least twenty-four semester hours, including twelve or more of advanced grade. The related courses are chosen in consultation with the departmental adviser on the basis of the student's individual needs and plans.

ENGLISH Satisfactory completion of English-American Literature and six semester courses of advanced grade. The advanced related course may be in language, music, or any course approved by the department; it is expected

LIBERAL ARTS CURRICULUM

that this advanced related course will be taken in the senior year. An advanced literature course in a foreign language is required, but an intermediate course in a second foreign language is not required.

GEOLOGY Mathematics 11-12; Physics 5-6; eight semester courses in geology, of which four are of advanced grade; one advanced related course (six semester hours or more) in one of the other sciences or mathematics. A course in some other subject may be approved to meet particular needs.

GERMAN Satisfactory completion of eight semester courses in German, including at least four of advanced grade, and at least one advanced related year course, normally in a language.

GREEK Satisfactory completion of twenty-four semester hours, twelve of which must be in courses numbered above 100, and one advanced related course (at least six semester hours).

HISTORY Satisfactory completion of four year courses (twenty-four semester hours) in history, including two of advanced grade, and at least one advanced related course, ordinarily in one of the other social sciences.

LATIN Satisfactory completion of twenty-four semester hours, twelve of which must be in courses numbered above 100, and one advanced related course (at least six semester hours). Courses in Greek are strongly recommended, particularly to those who contemplate graduate work in classics.

MATHEMATICS Physics 5-6 or 21-22; Mathematics 21-22 and two advanced courses. The advanced related course is chosen in consultation with the department.

MUSIC Satisfactory completion of 1, 2, 7-8, and two of the following: G101-102, G105-106, G107-108, and 121, 122. It is recommended that the related course be an advanced course in French or German.

PHILOSOPHY Satisfactory completion of Philosophy 1, 2, 4, G107, G108, G114, and either G101 or G105, and an advanced related course or courses, chosen in consultation with the departmental adviser to fit the needs of the individual student.

PHYSICS Mathematics 111-112; Physics 21-22 and three advanced courses. German and Vector Analysis are strongly recommended.

POLITICAL SCIENCE Satisfactory completion of four semesters of advanced courses in political science and an advanced course (six or more semester hours) ordinarily in one of the other social sciences.

PSYCHOLOGY Satisfactory completion of at least twelve semester courses, eight in psychology, including 1-2, G104, and G107, and the other four either in zoology or philosophy. Zoology 1 and 4, in the freshman year if possible, are strongly recommended.

ROMANCE LANGUAGES Satisfactory completion of six semester courses of advanced grade, and at least one advanced course (six semester hours or more), ordinarily in another foreign language or English. SPEECH Satisfactory completion of nine semester courses in speech, as indicated below, and an advanced related course of courses (six semester hours or more) chosen in consultation with the departmental advisor. The courses in speech must include 1, 11, a one-semester course in three of the following five areas: public speaking (other than 11), oral interpretation, drama, radio, and speech correction, and four semesters of advanced courses.

ZOOLOGY Mathematics 1, 2; Physics 5-6; Botany 1; Zoology 1, 4, 110, G191, G192, and five additional semester courses, including at least eight semester hours in advanced courses. The advanced related courses (six semester hours or more) may be in one of the other sciences or psychology.

COURSES OFFERED IN OTHER COLLEGES ACCEPTABLE FOR CREDIT TOWARD THE **B.A. DEGREE:**

Botany: all courses

- Chem.: all courses except Outline of Organic Chemistry
- Econ. 1-2: World Economic Geography
- Econ. 11-12: Principles of Economics
- Econ. 15, 16: Economic History of the United States
- Econ. G101-102: Money and Banking
- Econ. 103: Economics of Taxation
- Econ. 105: International Trade and Finance
- Econ. 141: Labor Economics
- Econ. G142: Collective Bargaining
- Econ. 181: Transportation
- Econ. 182: Public Utilities
- Econ. 183: Economic Life and Government Control
- Econ. 184: The Economics of Consumption

Econ. G186: Intermediate Economic Analysis

Econ. G187: Economic Statistics

- Econ. G192: International Economic Problems and Policies
- Econ. G193-194: Money, Income and Prices
- Econ. G195: History of Economic Thought
- Econ. G196: Modern Economic Thought
- Econ. G197, 198: Seminar
- Family Living 130: Family Relationships Forestry 108: Biological Statistics
- Junior High School Educ. 111: Vermont History
- Mathematics: all courses
- Sec. Educ. 1: Principles of Education
- Sec. Educ. G102: Philosophy of Education

THE RESTRICTED LIST A given student may elect not more than twelve semester hours of credit in courses on this list, provided he has completed his basic distribution requirements, and provided that these courses are not to be counted as part of the minimum requirement for concentration:

- Agr. Biochem. 71: Elementary Biochemistry Agr. Biochem. 72: Chemistry of Foods Agr. Econ. 103: Rural Sociology Chem. 35: Outline of Organic Chemistry Econ. 13-14: Principles of Accounting Econ. G107: Corporation Finance Econ. G108: Investments Econ. G109-110: Business Law Family Living 180: Child Development Food and Nutrition 11: Food Selection Home Management 112: Home Management Mech. Engr. 1-2: Mechanical Drawing Related Art 15: Design
- Sec. Educ. 45, 46: Learning and the Adolescent

- Sec. Educ. 107: Secondary Methods and Procedures
- Sec. Educ. 108: Student Teaching in Secondary Schools
- Sec. Educ. G125: Teaching Social Studies in Secondary Schools
- Sec. Educ. G127: Teaching Science in Secondary Schools
- Sec. Educ. G132: School Administration
- Sec. Educ. G150: Guidance
- Sec. Educ. G152: Teaching Latin in Secondary Schools
- Sec. Educ. G156: Teaching Mathematics
- Sec. Educ. G157: Teaching Modern Languages
- T. & C. 16: Textile and Clothing Selection

PRE-PROFESSIONAL PREPARATION

Students who plan to enter professional colleges requiring previous collegiate preparation should register in the College of Arts and Sciences. The variety of courses offered and the freedom of election in that college is such that all the requirements for any professional school may be met. Many students will desire so to direct their four-year undergraduate course as to provide in addition to a sound general education appropriate pre-professional training for later work in the medical sciences, law, or theology.

MEDICINE AND DENTISTRY The prevailing requirements for admission to an accredited medical college usually include not less than three years of undergraduate work, during which courses in biology, chemistry, English and physics must be completed. Any student who wishes to enter medical college should by the beginning of his sophomore year consult the catalogue of the college of his choice and arrange to include in his program courses required by that particular school.

Each student, in consultation with his adviser, plans a four-year program of courses which will fulfill the requirements for the Bachelor of Arts degree. Those who wish to meet the minimum requirements for admission to medical college may follow the first three years of the program below. By successfully completing these three years and one year in an accredited medical college, they will qualify, on application, as candidates for a Bachelor of Science degree.

In the following outline, courses listed are normally taken in the year indicated. The program may be modified both for the needs of the individual student and to allow for concentration in a particular field. A student must have completed a total of 90 semester hours by the end of the third year to be considered for admission to a medical college.

FIRST YEAR	1st sem	2nd ESTER	SECOND YEAR	1st SEMI	2nd ESTER
English Composition Inorganic Chemistry Mathematics Zoology Foreign Language (Elementary or Intermediate)	3 4 3 4 3	3 4 3 4 3	English-Amer., or World Lit *Intermediate For. Lang. Quantitative Chemistry Physics Electives	3 3 4 3-6	3 3 4 3-6
THIRD YEAR	1st semi	2nd ESTER	FOURTH YEAR		
Organic Chemistry Social Science Electives Courses in field of concentra- tion and electives	4 6	4 6	Courses in field of concentra- tion and electives		

* Unless already completed.

The requirements for admission to colleges of dentistry vary but in all cases include at least two years of college work with at least one course each in biology, inorganic chemistry, physics, and English. Hence, the course of study advised as preparation for medicine may be used as a basis for selection by those interested in dentistry. LAW American law schools, as a rule, require graduation from a four-year college with a Bachelor's degree prior to admission. There is no prescribed curriculum which is requisite for admission, but the student is advised to include in his undergraduate course substantial elections in the fields of languages, literature, history, economics, political science, and philosophy.

THEOLOGY Graduation from a four-year college is prerequisite for admission to most theological seminaries. Although no prescribed curriculum is demanded as preparation for such professional schools, the student is advised to elect substantially from the departments of languages, particularly classics, history, philosophy, psychology, and social studies.

The School of Dental Hygiene

The School of Dental Hygiene, established in the fall of 1949 on authorization and a grant of money by the State Legislature and recently accredited by the Council on Dental Education of the American Dental Association, offers a two-year curriculum leading to a Certificate in Dental Hygiene. The purpose is to meet the ever-increasing need for dental health service. Students who are residents of the State have special tuition rates granted on agreement to stay in the State for two years after graduation for the purpose of furthering the dental health programs of the State.

The curriculum conforms to the requirements for accrediting of schools of Dental Hygiene as adopted by The Council on Dental Education of the American Dental Association on June 20, 1951. On successful completion of this curriculum, the student is eligible to take various examinations given by the State Board of Dental Examiners for licensing by that body.

Graduates of this school will be qualified to give oral prophylactic treatment; to chart the mouth, and to carry dental health education into the private dental practice, public institutions, hospitals and industrial clinics. The hygienist may be called upon to perform the following subsidiary functions as the supervising dentist may direct or approve; to X-ray teeth and develop X-ray films; to assist with laboratory work; to make appointments and keep office records; to give demonstrations of the proper method of using a toothbrush and massaging the gums; to lecture on oral hygiene, and to teach oral hygiene and the relation of diet to oral health. The role of the dental hygienist in the achievement of oral health is an extremely important one, and opportunities for well-rewarded service are practically unlimited.

The course of study is designed to give the student a background of knowledge sufficient to enable her to perform intelligently the tasks of her profession. Students applying for this program should be interested in and have aptitude for scientific studies. A general scientific background is acquired by courses in chemistry, bacteriology, anatomy, and physiology. Courses specifically relating to dental problems give the student an insight into the field of dentistry and dental health. English composition and public speaking teach the individual to express herself clearly on paper and by word of mouth. The proper approach to the patient is taught by courses in psychology and sociology. Skill and self-confidence are acquired by extensive work during the second year in the dental clinic.

The School of Dental Hygiene operates a ten chair clinic and offers its service for examination and charting of the teeth, prophylaxis treatments and the teaching of dental health to students, employees and faculty members of the University, in addition to the school children in surrounding areas.

Enrollment is limited to women between the ages of seventeen and thirtyfive who are high school graduates and otherwise eligible to enter the freshman class of the University. All candidates who plan to practice dental hygiene in Massachusetts or Vermont must be seventeen years of age by the first of June preceding their entrance into the School. Prospective applicants are invited to write the Director of Admissions for detailed information concerning such matters as requirements for admission and expenses. High school subjects which are helpful prerequisites include algebra, chemistry, physics or biology. Attributes necessary for success in this curriculum are good health, emotional stability, interest in the work, and the ability to get along well with people. Since the laboratory equipment in the School of Dental Hygiene is limited, prospective students are advised to submit their application by May of their senior year in high school.

THE FRESHMAN YEAR	1st	2nd	THE SOPHOMORE YEAR	1 st	2nd
	SEMI	ESTER		SEMI	ESTER
English Composition	3	3	Psychology	3	3
Dental Anatomy	4		Introductory Sociology	3	3
Dental Histology and			Oral Pathology	2	
Embryology	2		Radiology	1	
Chemistry (Nursing 9-10)	5	5	Public Health		2
Dental Hygiene			Clinic Practice	5	5
Orientation	1		Dental Health Education		2
Instrumentation		3	Pharmacology and Anesthesia		1
First Aid		1	Ethics and Office Management.		
Bacteriology		4	Dental Assisting	1	1
Human Anatomy and Physiol-		·	Public Speaking	3	
ogy (Nursing 15-16)	3	3	Food Selection	3	•••

The College of Education and Nursing

The College of Education and Nursing offers four-year curricula leading to the following degrees: in elementary, junior high and secondary education, the degree of Bachelor of Science in Education; in business education, the degree of Bachelor of Science in Business Education; and in music education, the degree of Bachelor of Science in Music Education.

This College also offers a four calendar year curriculum leading to the degree of Bachelor of Science in Nursing.

The objectives of the several curricula include growth in appreciation and understanding of the cultural heritage, development of social and civic competence, improvement of personality, stimulation of intellectual curiosity, strengthening of personal integrity, and development of competence and enthusiasm for the professions of teaching and nursing. To attain these objectives each curriculum provides for a balance of general education courses, professional courses, and laboratory experiences.

General education courses may be elected in the Colleges of Arts and Sciences, Technology, and Agriculture. Professional courses are taken in the College of Education and Nursing. Professional laboratory experiences are provided in the College of Education and Nursing and in schools and hospitals under the supervision of the College of Education and Nursing.

Education curricula in the College of Education and Nursing meet requirements for teaching certification in most of the states. Adjustments in individual programs may be made to fit special requirements for certification in specific states. If in doubt about certification requirements, students should consult with their advisers or with the Dean of the college.

The Vermont State Board of Education provides tuition scholarships for a specified number of qualified Vermont students who enroll in the elementary and junior high school programs and who declare their intention to teach in Vermont for a period equal to that for which tuition is provided. State Board Scholarships will be awarded upon the basis of academic standing, promise of success in teaching, financial need, and order of application. Entering students, if eligible, should apply for these scholarships at the time of application for admission to the University. Students who are already enrolled at the University should apply for these awards in May preceding the academic year for which they are desired.

SPECIAL FIFTH-YEAR PROGRAM IN EDUCATION A special fifth-year program can be arranged for students who hold the bachelor's degree and who wish to qualify for teaching certificates in either elementary or secondary education. To be accepted for this special program, candidates must have included appropriate academic courses in their degree work, and they must demonstrate their sincerity in wishing to teach.

CURRICULA IN EDUCATION

A combination of courses in education and in the teaching field will be arranged for the individual candidate in accordance with his qualifications and his announced objectives. More specific information concerning this fifth-year program can be obtained by writing to the dean of the college.

ELEMENTARY EDUCATION

The elementary education program is intended to prepare teachers for any of the elementary grades in schools of Vermont and other states. The degree Bachelor of Science in Education is awarded upon satisfactory completion of an approved program.

The elementary education curriculum includes a base of required academic courses, a planned sequence of professional courses and laboratory experiences, and elective academic courses which may be concentrated in a major field or may be distributed in several academic fields.

The foundation in general education includes required courses in the social sciences, in laboratory science, in English and literature, in phychology and in speech. All students are required to demonstrate proficiency in general mathematics by attaining satisfactory scores on standardized tests. Courses in fine arts and in languages may be elected.

The professional program begins with an orientation to education in the freshman year. The purpose of this orientation is to give the student an opportunity to consider the pros and cons of a career in education and to understand both the demands and the rewards of the profession. School visits, educational films, contacts with teachers and administrators from the field, and study and discussion are included in the orientation experiences.

In the sophomore year, students are offered field experience with children's groups in the community. These experiences serve the dual purpose of giving first hand information about children and of providing opportunity for determining the satisfaction which association with children of different age levels brings to the student.

In the junior year, the student in elementary education concentrates in professional course work and in special content courses for elementary teaching. Classroom observation and participation is included in the professional courses.

The senior year continues the professional methods courses with increased emphasis upon actual classroom participation leading to seven full weeks of student teaching in the elementary schools of Burlington and nearby communities. A seminar in which students examine the organization and activities of professional education associations, and an experience in citizenship and community study round out the requirements. Participation in the University reading clinic may be elected by a limited number of students.

In each year of the program, the curriculum provides for elective courses from other colleges. Total electives approximate thirty semester hours and open to the student in elementary education attractive majors in music, art, speech, language, literature, history, and other fields of study offered by the University.

CURRICULA IN EDUCATION

THE FRESHMAN YEAR	1st SEMI	2nd ESTER	THE SOPHOMORE YEAR	1st SEM	2nd ESTER
Orientation to Education *Speech or Geography Science English Composition †Approved Elective	2 3 4 3 3	2 3 4 3 3	Child & Community Psychology Speech or Geography Literature Approved Elective	1 3 3 3 6	1 3 3 3 6
THE JUNIOR YEAR	lst SEMI	2nd ESTER	THE SENIOR YEAR	1st SEMI	2nd ESTER
Art for Elem. Schools Child Growth & Develop Children's Literature Methods & Materials Fundamentals of Music Teaching Reading American History Approved Elective	 3 3 3 3 3 3	3 3 3 3 3 3 3	Methods & Materials Art for Elem. Schools Health & Phys. Educ. for Elem. Schools Student Teaching Philosophy of Education Seminar in Education Prob. in Citizenship Methods in Music for Elem. Schools Approved Elective	3 3 3 3-6	 7 3 2 3

* Both speech and geography are to be completed by the end of the sophomore year. † Political Science must be elected at some time during the program.

A minimum of 125 approved semester hours is required for the degree.

JUNIOR HIGH SCHOOL EDUCATION

The junior high school education program is intended to prepare teachers for the upper grades of the elementary school and for junior high school positions in Vermont and in other states where certification requirements can be met. The degree Bachelor of Science in Education is awarded upon satisfactory completion of the following program.

STER
3
3
3
3-4
3
2nd
STER
3
6
6
-
1

* Zoology or Botany recommended.

† All students should elect a course in speech. Vermont students are to elect Vermont History.

A minimum of 125 approved semester hours is required for the degree.

SECONDARY EDUCATION

The secondary education program is intended to prepare teachers for junior and senior high schools in Vermont and other states. The degree Bachelor of Science in Education is awarded upon satisfactory completion of an approved program.

During the first two years the curriculum consists generally of basic courses in English, fine arts, foreign languages, mathematics, science, and social science. Orientation to education as a career is provided during the freshman year. Sophomores begin concentration on majors and minors in chosen teaching fields and are given opportunity to participate in teaching experiences in local secondary schools. The junior and senior years combine courses in the elected teaching fields, professional courses in education, and laboratory experience in teaching.

PROFESSIONAL REQUIREMENTS Candidates for the degree in secondary education are required to complete with a high standard of scholarship at least eighteen semester hours of course work in professional education.

TEACHING MAJORS AND MINORS Candidates for the degree in secondary education are required to complete two teaching majors or one major and two minors in fields which are commonly taught in secondary schools, or candidates may elect to concentrate in one of two broad fields, such as general science or social science. A teaching major includes at least twentyfour semester hours in a given subject; a teaching minor, fifteen to eighteen semester hours. A single major in a broad field includes approximately fifty semester hours in related courses. The major-minor program must include advanced course work.

Students should choose majors and minors which bear logical relationships and which commonly occur as teaching combinations in secondary schools. Suggested major and minor fields are English, foreign languages, history, mathematics, political science, speech, and the sciences. Advisers can assist students in making choices which are in accord with student aptitudes and interests and which are likely teaching combinations. Outlines of suggested course sequences for majors and minors may be obtained from advisers or from the office of the dean of the college.

Students are expected to maintain a high standard of scholarship in their major and minor fields. A grade of less than 72 may not be credited toward a major or minor unless other grades in the field are sufficiently high to justify an exception.

STUDENT TEACHING During the senior year, students enrolled in the secondary education curriculum are required to take a laboratory course in teaching. Students are expected to spend six continuous weeks in a secondary school where they will follow a full teaching schedule. Students are to plan their programs so as to complete their academic subjects before the last semester of their senior year.

CURRICULA IN EDUCATION

THE FRESHMAN YEAR	1st semi	2nd ESTER	THE SOPHOMORE YEAR	lst SEM J	2nd ESTER
English Composition Foreign Language	3 3	3 3	EngAmer. Literature †Foreign Language	3 3	3 3
*History or Pol. Science	3	3	Psychology	3	3
Laboratory Science	4	4	Approved Electives	6	6
Orientation to Educ.	2	2	Participation	1	•••
THE JUNIOR YEAR	lst semi	2nd ESTER	THE SENIOR YEAR	lst SEMI	2nd ESTER
English or Elective	3	3	Secondary Educ. Meth.	3	
Learning and the Adolescent	3	3	Philosophy in Educ.	•••	3
‡Approved Electives	9-12	9-12	Student Teaching		6 3-6

* If history is chosen, Survey of European Hist. is recommended.

† An approved elective if intermediate language has been completed.

All students should elect a course in speech.

A minimum of 122 approved semester hours is required for the degree.

BUSINESS EDUCATION

The curriculum in Business Education is intended to prepare teachers of business subjects for the secondary schools.

THE FRESHMAN YEAR	1st	2nd	THE SOPHOMORE YEAR	1 st	2nd
	SEMI	ESTER		SEMI	ESTER
Economic Geography	3	3	Eng., Amer., or World Lit.	3	3
English Composition	3	3	Prin. of Economics	3	3
Algebra, Math. of Finance	3	3	Prin. of Accounting	3	3
Foreign Language or			General Psychology	3	3
American Government	3	3	Foreign Language, American		
Introduction to Business	3	3	Government, or History	3	3
THE IUNIOR YEAR	1st	2nd	THE SENIOR YEAR	1st	2nd
3	SEMI	STER		SEMI	ESTER
Advanced Accounting or			Advanced Shorthand	4	4
Approved Elective	3	3	Advanced Typewriting	3	3
Business Correspondence	3	3	Secretarial Prin. and Prac.	3	3
Elementary Shorthand	4	4	Office Techniques and Machines	3	
Elementary Typewriting	3	3	Teaching Business Subjects	3	
Educational Psychology	3		Observation and Student		
Principles of Business Ed.		3	Teaching		3-4
Business Law	3	3	Philosophy of Education	3	
			Education Elective		3

MUSIC EDUCATION

The curriculum in music education, leading to the degree of Bachelor of Science in Music Education, is recommended to students who have sufficient training and natural musical ability to justify a career in music. Graduates are qualified for positions as instructors and supervisors of music in the public schools of Vermont. The curriculum may be adapted to meet requirements elsewhere.

Students must pass the aptitude tests given by the Department of Music and must satisfy the general admission requirements of the University.

THE FRESHMAN YEAR	1st	2nd	THE SOPHOMORE YEAR	1st	2nd
	SEMI	STER		SEMI	ESTER
Survey of Musical Literature	3	3	Elementary Harmony	3	3
Elementary Sight-Singing	3	3	Advanced Sight-Singing	3	3
Applied Music (two courses)	2-3	2-3	Applied Music (two courses)	2-3	2-3
English Composition	3	3	Sophomore English Elective	3	3
Elementary German	3	3	Intermediate German	3	3
Laboratory Science	3-5	3-5	General Psychology	3	3
Choir or Orchestra	1	1	Choir or Orchestra	1	1
THE JUNIOR YEAR	l st SEMJ	2nd ESTER	THE SENIOR YEAR	1st Semi	2nd ester
Advanced Harmony	3	3	Orchestration and Conducting	3	3
Advanced Harmony Methods & Practice Teaching	3 3	3 3	Orchestration and Conducting Sec. Meth. & Prac. Teaching	3 3	3 3
Advanced Harmony Methods & Practice Teaching Applied Music (two courses)	3 3 2-3	3 3 2-3	Orchestration and Conducting Sec. Meth. & Prac. Teaching Applied Music Methods	3 3 1	3 3 1
Advanced Harmony Methods & Practice Teaching Applied Music (two courses) Greek Art: European Painting	3 3 2-3 3	3 3 2-3 3	Orchestration and Conducting Sec. Meth. & Prac. Teaching Applied Music Methods History of Music	3 3 1 3	3 3 1 3
Advanced Harmony Methods & Practice Teaching Applied Music (two courses) Greek Art: European Painting Education, Prin. & Phil.	3 3 2-3 3 3	3 3 2-3 3 3	Orchestration and Conducting Sec. Meth. & Prac. Teaching Applied Music Methods History of Music Applied Music (two courses)	3 3 1 3 2-3	3 3 1 3 2-3
Advanced Harmony Methods & Practice Teaching Applied Music (two courses) Greek Art: European Painting Education, Prin. & Phil Choir or Orchestra	3 2-3 3 3 1	3 3 2-3 3 3 1	Orchestration and Conducting Sec. Meth. & Prac. Teaching Applied Music Methods History of Music Applied Music (two courses) Elementary Italian	3 3 1 3 2-3 3	3 3 1 3 2-3 3

THE NURSING CURRICULUM

This four calendar year curriculum is designed to provide for qualified applicants the elements of a general college education together with professional education for nursing. It provides opportunities for developing social consciousness, desirable professional attitudes and nursing skills based on the understanding of scientific principles; it provides a background for the human understanding necessary, not only for the care of the sick, but for making a meaningful contribution to society. On completion of the program the student receives the degree of Bachelor of Science in Nursing. Applicants must satisfy the general admission requirements of the University. High school courses in biology and chemistry are highly desirable.

The first academic year is spent at the University. Following this, there is a summer session of ten weeks, during which instruction is correlated with supervised clinical practice in the Mary Fletcher Hospital, which adjoins the campus.

The second and third years are spent in clinical experience in the following cooperating agencies: Mary Fletcher Hospital, Burlington, Vermont; Children's Hospital, Philadelphia, Pennsylvania; Butler Hospital School of Psychiatric Nursing, Providence, Rhode Island; Veterans Tuberculosis Hospital, Rutland Heights, Massachusetts; the Vermont State Department of Health and other selected community agencies.

The major part of this experience is given in the Mary Fletcher Hospital, during which time the program consists of academic work at the University and field experience in various units of the hospital. The students live in the Nurses' Residences of the cooperating hospitals during the second and third years, except during the two months in public health experience.

The students return to the University for the fourth year for further study in liberal arts and selected professional courses.

All students are required to have twelve weeks of field experience following

their graduation in order to be eligible for examination to become registered nurses.

The program aims to prepare nurses for beginning positions in public health nursing, as well as in institutions which care for the sick, and for private duty nursing.

FIRST YEAR	1st	2nd	SECOND YEAR	1 st	2nd
(September to June)	SEM	ESTER	(11 months)	SEM:	ESTER
English Composition	3	3	Psychology	. 3	3
Chemistry for Nurses	5	5	Sociology	. 3	3
Human Anatomy and Physiol-			Child Growth and Development		3
ogy	3	3	Medical and Surgical Nursing	. 9	9
History of Nursing	3	•••	THIRD YEAR	1 st	2nd
ing Hygiene	2	3	(11 months)	SEM	ESTER
Basic Speech	•••	3	Obstetrical Nursing	. 6	
			Pediatric Nursing	6	
SUMMER SESSION	_	•	Psychiatric Nursing		6
(10 weeks)	C	redits	Public Health Nursing		4
Food and Nutrition		3	Principles of Public Health		2
Nursing		4	Communicable Disease Nursing		
Microbiology		3	(Tuberculosis)		2
FOURTH YEAR			lst	2nd	
(September to June)*			SEMES	TER	
English				3	
Nursing Seminar					
History or Political Science		*******		3	
Principles of Teaching				***	
Trends in Nursing			***	3	
†Ward Management				3	
‡Electives	*****			6	

* Followed by a required twelve-week period of clinical field experience.

† A liberal arts course may be substituted.

By special permission, a student may elect an additional liberal arts course in place of one of advanced professional nursing courses.

EXPENSES The total expenses for the four-year nursing program are approximately the same as for the other undergraduate programs, but they are distributed differently due to additional tuition payments for the freshman and senior summer sessions, transportation expenses to and from affiliations and also due to the lack of the usual board and room charges during the sophomore and junior years. An estimate of the expenses of the program follows. NOTE: The Board of Trustees will offer an appropriation bill to the 1955 session of the Legislature requesting public support for all divisions at the University in order to reduce the tuition of Vermont residents to \$225.00 per annum in all divisions except the College of Medicine. Action on this bill will probably not be taken until late spring.

FRESHMAN YEAR:		SOPHOMORE YEAR:	
Tuition\$	705.00	Tuition\$	705.00
Student Activity Fee	15.00	Activity Fee	15.00
Board and Room	550.00	Board and Room at	
Textbooks	40.00	Mary Fletcher Hospital	90.00
Uniforms	100.00	\$	830.00
\$1	,410.00		

CURRICULUM IN NURSING

SUMMER SESSION:	
Tuition\$	260.00
Board and Room	210.00
\$	470.00
JUNIOR YEAR:	
Tuition\$	705.00
Activity Fee	15.00
Transportation to and from	
Affiliations	100.00
Textbooks	10.00
Board and Room (8 weeks)	
Public Health Nursing	120.00
\$	950.00

SENIOR	YEAR:

Tuition	\$:	705.00)
Activity Fee		15.00)
Textbooks		30.00)
Board and Room		550.00)
	\$1,	300.00)
SUMMER SESSION:			
Tuition	\$	150.00)

In addition to the scholarships and loans which are available, students in the nursing program also have an opportunity to defray a part of their expenses in the senior year by working a maximum of sixteen hours a week in nursing.

PROFESSIONAL PERSONNEL IN COOPERATING FIELD AGENCIES

Dr. R. B. Aiken, Commissioner of Health, Vermont State Department of Health

Grace Buttolph, Assistant Director of Nursing, Mary Fletcher Hospital

Emily Dinegan, Director, Burlington Visiting Nurse Assocation

Mrs. Bess Ellison, Instructor, Tuberculosis Nursing, Veterans Administration Hospital, Rutland Heights, Mass.

Rita Kelleher, Acting Director, School of Nursing, Butler Hospital, Providence, R. I.

Geraldine Labecki, Director of Nursing, Mary Fletcher Hospital

Esther Martinson, Director, Department of Public Health Nursing, Vermont State Department of Health

Edith Rinell, Director of Nursing Education, The Children's Hospital of Philadelphia, Philadelphia, Pa.

Elizabeth A. Ulrich, Assistant Chief, Nursing Education, Veterans Administration Hospital, Rutland Heights, Mass.

The College of Technology

The College of Technology includes the Departments of Chemistry, Economics, Civil Engineering, Electrical Engineering, Mechanical Engineering, and Mathematics. It offers a number of specialized professional curricula in these fields and in medical technology, leading to the degree of Bachelor of Science in the field of specialization. Details are given in the sections immediately following. In addition to the courses listed in the several curricula, all students must fulfill the general requirements in physical education, military science, and hygiene. Students whose curricula require them to take two years of mathematics are referred to the footnote under the offerings of the Department of Mathematics for information concerning the possible sequences of courses in freshman mathematics.

THE CHEMISTRY CURRICULUM

The Department of Chemistry offers a specialized curriculum leading to the professional degree of Bachelor of Science in Chemistry. This curriculum is designed to give a sound basic training in chemistry, to prepare the student for service in some branch of the chemical profession, and to qualify him adequately for advanced study in graduate school. The department is accredited by the Committee on Professional Training of the American Chemical Society, which has established minimum requirements for the training of chemists at the bachelor's level. In accepting accreditation, the department has planned a curriculum which permits the student to reach these minimum objectives and will qualify the graduate for certification.

Those who wish a less intensive training in chemistry may take the liberal arts curriculum with a concentration in chemistry and receive the Bachelor of Arts degree. These students may also qualify for accreditation by satisfactorily completing certain courses beyond the minimum required for concentration, and only those who so qualify will be recommended as chemists by the department. A student can elect to concentrate in chemistry at the end of the freshman year or even as late as the end of the sophomore year and still qualify for accreditation. However, the department strongly recommends that the student choose before the start of his sophomore year. In the first year, and to some degree in the second year, prescribed courses are such that a student can transfer into the curriculum from liberal arts, or vice versa.

FIRST YEAR	1st	2nd	SECOND YEAR	1st	2nd
	SEM	ESTER		SEM)	ESTER
General Chemistry	5	5	Quantitative Analysis	4	4
*English Composition	3	3	Sophomore English	3	3
†Algebra, Trig., Anal. Geom	5	5	Calculus	3	3
Elementary German	3	3	Intermediate German	3	3
-			General Physics	5	5

* Students exempted from English composition on the basis of the placement test must substitute another English course in its place.

† See footnote under offerings of the Department of Mathematics.

CURRICULUM IN CHEMISTRY

THIRD YEAR	1st semi	2nd ESTER	FOURTH YEAR	1st semi	2nd ESTER
Physical Chemistry Organic Chemistry Advanced Physics or Mathematics Approved Elective Junior Seminar	\$ \$ 3 1	5 5 3 1	Iden. of Organic Compds. Senior Research †Advanced Organic Chem. †Advanced Physical Chem. †Advanced Inorganic Chem. †Advanced Inorganic Chem. *Advanced Theoretical Chem. Senior Seminar	5 2 3 3 3 1	 4 3 3 1
			Approved Elective ‡Inorganic Preparations	3 	3 2

† Six hours of courses chosen from these offerings are required each semester. ‡ Required of students deficient for accreditation in general chemistry laboratory.

THE MASTER'S DEGREE IN CHEMISTRY The department offers work leading to the degree of Master of Science, the thesis problem being selected from the fields of inorganic, analytical, organic, or physical chemistry. Students who do not already have a reading knowledge of German must take German concurrently with their graduate work.

FIRST YEAR	1st	2nd	SECOND YEAR	1st	2nd
	SEM	ESTER		SEMP	ISTER
*Graduate Research	5	5	Graduate Research	5	5
*Advanced Chemistry	6	6	Advanced Chemistry	6	6
Seminar	1	1	Seminar	1	1

* Identification of Organic Compounds required unless included in undergraduate training. G147-148 or the equivalent required of all graduate students.

THE COMMERCE AND ECONOMICS CURRICULUM

The Department of Commerce and Economics offers a specialized curriculum, leading to the degree of Bachelor of Science in Commerce and Economics. Those who wish a less intensive or less specialized training in economics may take the lib al arts curriculum, with a concentration in economics, and receive the Bachelor of Arts degree. An advisor from the department will assist students in building programs to meet their individual needs and plans.

The commerce curriculum is recommended for those who are preparing for a business career. It is intended to provide sound basic training in the various phases of business activity. The several options enable students to emphasize such specialized studies as accounting, banking, finance, insurance, government service, hotel and resort management, personnel management, production, sales management, and secretarial studies. The Department of Commerce and Economics cooperates with the Department of Mechanical Engineering in offering courses in the Management Engineering Curriculum. This curriculum is administered by the Department of Mechanical Engineering and is described in the section on engineering curricula.

The normal program for the first two years in the commerce and economics curriculum is as follows:



THE FRESHMAN PICNIC

U. V. M. CRASHES THROUGH





YOUNG SCIENTISTS IN THE FIELD

MEDICAL STUDENTS OBSERVING SURGERY


CURRICULUM IN COMMERCE AND ECONOMICS

THE FRESHMAN YEAR	1 st	2nd	THE SOPHOMORE YEAR	1st	2nd
	SEM	ESTER		SEME	STER
World Ec. Geography	3	3	Sophomore English	3	3
American Government	3	3	Prin. of Economics	3	3
\$English Composition	3	3	Ec. History	3	3
Algebra, Math. of Finance	3	3	Prin. of Accounting	4	4
*Foreign Language	3	3	Foreign Language, Calculus or		
			†General Psychology	3	3

* In place of the foreign language students may choose Mathematics 11-12 and Calculus. + Psychology should be elected by students who have completed the intermediate language requirement.

\$ Students exempted from English Composition on the basis of the placement test must substitute another English course in its place.

The freshman and sophomore year program for students in the Hotel and Resort Management option is specialized.

During the junior and senior years, commerce and economic students normally choose one of the following options:

ACCOUNTING

THE JUNIOR YEAR	lst	2nd	THE SENIOR YEAR	1st	2nd
	SEM)	ESTER		SEMI	ESTER
Advanced Accounting	3	3	Auditing	3	
Financial Statement Anal.	3		Cost Accounting		3
Tax Accounting		3	Economic Statistics	3	
Money and Banking	3	3	C.P.A. Problems		3
+Psychology	3	3	Securities Markets	3	
Business Law I	3	3	Corp. Finance	•••	3
Approved Electives	3	3	Business Law II	***	2
			Laboratory Science	4-5	4-5
			Approved Electives	3	3

BANKING, FINANCE, AND INSURANCE

THE JUNIOR YEAR	1st	2nd	THE SENIOR YEAR	1st	2nd
	SEMI	ESTER		SEMI	ESTER
Money and Banking	3	3	Laboratory Science	4-5	4-5
Securities Markets	3		Life Insurance	3	•••
Corp. Finance		3	Property and Casualty Ins.		3
Investments		3	Money, Income and Prices	3	3
Economic Statistics	3	•••	Business Law I	3	3
†Psychology	3	3	Business Law II	•••	2
Taxation	3	•••	Approved Electives	3	3
Approved Electives	3	6			

1st 2nd **SEMESTER**

BUSINESS ADMINISTRATION

SEMESTER SEMESTER Money and Banking 3 3 Laboratory Science 4-5 4-5 Securities Markets 3 Business Law I 3 3 Corp. Finance 3 Taxation 3 Investments 3 Small Bus. Operation Prin. of Marketing 3 Approved Electives Approved Electives	THE JUNIOR YEAR	1st	2nd	THE SENIOR YEAR	1st	2nd
Money and Banking33Laboratory Science4-54-5Securities Markets3-Business Law I33Corp. Finance-3Taxation3-Investments3-3Money, Income and Prices33Economic Statistics3-Small Bus. Operation33Prin. of Marketing333Approved Electives36	-	SEM	ESTER		SEMI	STER
Securities Markets 3 Business Law I 3 3 Corp. Finance 3 Taxation 3 Investments 3 Money, Income and Prices 3 3 Economic Statistics	Money and Banking	3	3	Laboratory Science	4-5	4-5
Corp. Finance 3 Taxation 3 3 Investments 3 Money, Income and Prices 3 3 Economic Statistics 3 Small Bus. Operation 3 3 Psychology 3 3 Approved Electives 3 3 Approved Electives 3 6 3 3	Securities Markets	3	•••	Business Law I	3	3
Investments 3 Money, Income and Prices 3 3 Economic Statistics 3 Small Bus. Operation 3 3 †Psychology 3 3 Approved Electives 3 3 Approved Electives 3 6 3 3	Corp. Finance		3	Taxation	3	•••
Economic Statistics3Small Bus. Operation3†Psychology33Approved Electives33Prin. of Marketing3633	Investments		3	Money, Income and Prices	3	3
†Psychology 3 3 Approved Electives 3 3 Prin. of Marketing 3 6 3 3	Economic Statistics	3	***	Small Bus. Operation		3
Prin. of Marketing	†Psychology	3	3	Approved Electives	3	3
Approved Electives	Prin. of Marketing	3				
	Approved Electives	3	6			

+ Students who have completed this course will enroll in an approved elective.

INDUSTRIAL MANAGEMENT

THE JUNIOR YEAR	1st	2nd
	SEMI	ester
Labor Economics	3	
Collective Bargaining		3
Industrial Organization	3	•••
Sci. Mgt. and Labor		3
Economic Statistics	3	***
Quality Control	***	3
*Psychology	3	3
Prin. of Marketing	3	
Problems in Marketing	•••	3
Approved Electives	3	3

THE SENIOR YEAR	lst SEM I	2nd ESTER
Laboratory Science	4-5	4-5
Time and Motion Study	4	
Plant Organization		4
Business Law I	3	3
Approved Electives	6	6

MARKETING AND MERCHANDISING

THE JUNIOR YEAR	1 st	2nd	THE SENIOR YEAR	1st	2nd
	SEM	ESTER		SEMI	STER
Principles of Marketing	3	•••	Laboratory Science	4-5	4-5
Problems in Marketing	•••	3	Personal Salesmanship	3	
Money and Banking	3	3	Small Bus. Operation	•••	3
Economic Statistics	3	***	Sales Management	3	***
Quality Control	•••	3	Advertising Prin. & Procedure		3
*Psychology	3	3	Business Law I	3	3
Approved Electives	6	6	Approved Electives	3	3

PERSONNEL MANAGEMENT

	3
Applied Psychology	1.4
Economic Statistics	4-)
Quality Control 3 Business Law I 3	3
Labor Economics	
Collective Bargaining	3
*Psychology	
Industrial Organization	3
Sci. Mgt. and Labor 3	
Approved Electives	

SECRETARIAL STUDIES

THE JUNIOR YEAR	1st	2nd	THE SENIOR YEAR	1st	2nd
	SEM	ESTER		SEM	E STER
Business Communications	3	3	Advanced Typing	3	3
Elementary Typing	3	3	Advanced Shorthand	4	4
Elementary Shorthand	4	4	Office Tech. & Machines	3	
*Psychology	3	3	Office Management		3
Business Law I	3	3	Sec. Principles & Practice	3	3
Approved Electives	3	3	Approved Electives	6	6

* Students who have completed this course will enroll in an approved elective.

HOTEL AND RESORT MANAGEMENT

THE FRESHMAN YEAR	1st	2nd	THE SOPHOMORE YEAR	1st	2nd
	SEMI	ESTER		SEM	ESTER
†English Composition	3	3	Sophomore English	3	3
American Govt.	3	3	Prin. of Economics	3	3
Algebra, Math. of Finance	3	3	Organic Chemistry	5	
Introductory Chemistry	4	4	Prin. of Accounting	3	3
Hotel & Resort Mtg. Survey		2	Food Preparation	3	3
Approved Elective	3	***	Public Speaking		3
Practical Experience: Ten 40-h	our	weeks	Practical Experience: Ten 40-h	our	weeks
during summer required.			during summer required.		

[†] Students exempted from English Composition on the basis of the placement tests must substitute another English course in its place.

THE JUNIOR YEAR	1st	2nd	THE SENIOR YEAR	1st	2nd
	SEMI	ESTER		SEME	ESTER
Economic Statistics	3		Business Law I	3	3
Taxation	3	•••	Personnel Administration	3	
General Psychology	3	3	Real Estate	·	3
Property & Casualty Insurance	•••	3	Labor Economics	3	
Buying Textiles & Clothing	3	***	Advertising		3
Meal Planning & Service		3	Hotel & Resort Administration	3	
Food Production		3	Hotel & Resort Problems		3
Hotel & Resort Equipment	3	***	Institution Marketing	2	
Hotel & Resort Structures &			Institution Equipment	•••	2
Maint.	•••	3	Approved Electives	3	3
Approved Electives	3	3			

Practical Experience: Ten 40-hour weeks during summer required. Special arrangements will be made for students attending ROTC Camp.

THE ENGINEERING CURRICULA

The engineering curricula are designed to help students learn how to approach and deal in a professional manner with problems and situations they will meet as engineers, citizens and individuals. In so doing, the curricula will assist them in preparing to continue to learn from experience and to grow in stature after graduation.

The Departments of Engineering offer instruction in four curricula, Civil, Electrical, Management, and Mechanical Engineering, each leading to the degree of Bachelor of Science in the field of specialization. Each curriculum includes the general subjects: mathematics, chemistry, physics, mechanical drawing, elements of electrical engineering, mechanics, economics, English, and contracts or business law.

All freshman and sophomore men are required to complete the two basic courses in military science for a total credit of eight semester hours, which become an integral part of the record and are counted toward graduation. Two years of physical education are required of all students.

An inspection trip is required of all engineering students in the junior year. This trip requires several days, and visits are made to plants in industrial centers in New England. The trip is required for graduation, but does not carry credit. The expense is borne by the student.

Students enrolled in the civil, electrical, and mechanical engineering cur-

ricula may become affiliated with their respective national professional engineering societies, the American Society of Civil Engineers, the American Institute of Electrical Engineers, and the American Society of Mechanical Engineers, as each of these organizations has authorized a student chapter at the University of Vermont. These student organizations sponsor frequent meetings, the purpose of which is to present an opportunity for students to conduct activities similar to those conducted by members of the national societies. These activities include meetings at which technical papers are presented by students and by engineers who are actively engaged in the profession, attendance at conventions, and inspection trips, all of which provide helpful contact with engineering practice and also assist in the development of the qualities of leadership which are so essential for success in the engineering profession.

The curricula in civil, electrical and mechanical engineering are accredited by the Engineers Council for Professional Development.

THE FRESHMAN YEAR		lst	2nd
(For All Curricula)		SEME	STER
†Freshman Math. (Math. 11-12)		5	5
Introductory Chemistry (Chem. 1-2)	****	4	4
Engineering Drawing (M.E. 1-2)		3	3
*English Composition (Engl. 1-2)	******	3	3
Engineering Problems (M.E. 3-4)		1	1

† See footnote under offerings of the Department of Mathematics.

* Students exempted from English Composition on the basis of the placement test must substitute another English course in its place.

			THE SOTHOMORE TEAK	SEM	2nu ESTEI
CIVIL			Calculus (Math. 21-22)	3	3
ENICINICED INIC			Gen'l Physics (Phys. 21-22)	s	ŝ
ENGINEERING			Expository Writing (Engl. 16)	3	
			Statics (C.E. 24)	3	
			Surveying (C.E. 51-52)	4	4
			Mech. of Materials (C.E. 131)		3
THE JUNIOR YEAR	1st sem	2nd ESTER	Summer, Engineering Camp. 6 wl	55.	4
Dynamics $(C \neq 130)$	3		THE SENIOR YEAR	1st	2nd
Eng Contracts (C.E. 151)	,	2		SEM	ESTEI
Prin of Econ. (Econ. 11-12)	3	3	Indet. Structures (C.E. 181)	3	
Eng. Geology (Geol. 21)	3		Advanced Struct, Design (C.F.	•	
Hydraulics (C.E. 162)		3	182)		4
Hydraulics Lab. (C.F. 168)		1	Water Supply Eng. (C.E. 165)	3	
Structural Analysis (C.E. 103)	4		Sewerage and Sewage Treatment		
Structural Design (C.E. 104)		4	(C.E. 166)		3
Electrical Eng. (E.E. 119)	4		Substructure Design (C.E. 158)		4
Mech. of Materials Lab. (C.E.			Transportation Eng. (C.E. 174)		3
114)		1	Reinforced Concrete (C.E. 155)	3	
Approved Elective	3	3	Soil Mechanics (C.E. 173)	3	
			Thermodynamics (M.E. 113)	3	
			Concrete Mixtures Lab (C.E.		
			113)	1	

CURRICULA IN ENGINEERING

			THE SOPHOMORE YEAR	1st SEMI	2nd
ELECTRICAL ENGINEERING			Calculus (Math. 21-22) Gen'l Physics (Phys. 21-22) Expository Writing (Engl. 16) Electric & Mag. Ccts. (E.E. 21) D-C Machines (E.E. 22) Statics (C.E. 24) Dynamics (C.E. 130) E. E. Lab. I (E.E. 24)	3 5 3 5 3 	3 5 4 3 1
THE JUNIOR YEAR	lst SEMI	2nd ESTER	THE SENIOR YEAR	1st	2nd
Differential Equations (Math					
Differential Equations (Math.				9CIVI J	SIEK
111)	3		Modern Physics (Phys. 172)		3
Applied Mathematics (Math.	3		Modern Physics (Phys. 172) A-C Machines (E.E. 107-108)	3EMI	3 3
Applied Mathematics (Math. 112)	3	 3	Modern Physics (Phys. 172) A-C Machines (E.E. 107-108) Thermodynamics (M.E. 113)	3 3 3	3 3
Applied Mathematics (Math. 112)	3	 3 	Modern Physics (Phys. 172) A-C Machines (E.E. 107-108) Thermodynamics (M.E. 113) Communication Ccts. (E.E. 115)	 3 3 4	3 3
Applied Mathematics (Math. 112) Mech. of Materials (C.E. 131) A-C Circuits (E.E. 103-104)	3 3 3	 3 3	Modern Physics (Phys. 172) A-C Machines (E.E. 107-108) Thermodynamics (M.E. 113) Communication Ccts. (E.E. 115) Power Transmission (E.E. 113)	3 3 4 3	3 3
Applied Mathematics (Math. 111) Applied Mathematics (Math. 112) Mech. of Materials (C.E. 131) A-C Circuits (E.E. 103-104) *Prin. of Economics (Econ. 11-	3 3 3	 3 3	Modern Physics (Phys. 172) A-C Machines (E.E. 107-108) Thermodynamics (M.E. 113) Communication Ccts. (E.E. 115) Power Transmission (E.E. 113) E. E. Laboratory III (E.E. 111-	 3 3 4 3	3 3
Applied Mathematics (Math. 111) Mech. of Materials (C.E. 131) A-C Circuits (E.E. 103-104) *Prin. of Economics (Econ. 11- 12)	3 3 3 3	 3 3 3	Modern Physics (Phys. 172) A-C Machines (E.E. 107-108) Thermodynamics (M.E. 113) Communication Ccts. (E.E. 115) Power Transmission (E.E. 113) E. E. Laboratory III (E.E. 111- 112)	 3 4 3	3 3 1
Applied Mathematics (Math. 111)	3 3 3 3 3	 3 3 4	Modern Physics (Phys. 172) A-C Machines (E.E. 107-108) Thermodynamics (M.E. 113) Communication Ccts. (E.E. 115) Power Transmission (E.E. 113) E. E. Laboratory III (E.E. 111- 112) Public Speaking (Speech 11)	 3 4 3 1	3 3 1 3
Applied Mathematics (Math. 111)	3 3 3 3 3	 3 3 3 4	Modern Physics (Phys. 172) A-C Machines (E.E. 107-108) Thermodynamics (M.E. 113) Communication Ccts. (E.E. 115) Power Transmission (E.E. 113) E. E. Laboratory III (E.E. 111- 112) Public Speaking (Speech 11) Contracts (C.E. 151)	 3 4 3 1 2	3 3 1 3
Applied Mathematics (Math. 111)	3 3 3 3 3 1	 3 3 4 1	Modern Physics (Phys. 172) A-C Machines (E.E. 107-108) Thermodynamics (M.E. 113) Communication Ccts. (E.E. 115) Power Transmission (E.E. 113) E. E. Laboratory III (E.E. 111- 112) Public Speaking (Speech 11) Contracts (C.E. 151) Fluid Mechanics (M.E. 142)	3 3 4 3 1 2	3 3 1 3 4

* This course may be deferred until the senior year for those students electing Advanced Military or Air Science.

+ Six hours of electives must be selected from one of the following: literature, sociology, religion, political science, psychology, history, philosophy, art, music, or language.

			THE SOPHOMORE YEAR	lst sem:	2nd ESTER
MECHANICAL ENGINEERING			Calculus (Mach. 21-22) Gen'l Physics (Physics 21-22) Mfg. Processes (M.E. 51-52) Expository Writing (Engl. 16) Statics (C.E. 24) Dynamics (C.E. 130) Thermodynamics (M.E. 92) M. E. Laboratory (M.E. 82)	3 5 2 3 3 	3 5 2 3 2 1
THE JUNIOR YEAR 1	st	2nd	THE SENIOR YEAR	1st SEM	2nd ESTER
Mech. of Materials (C.E. 131) Materials Lab. (C.E. 114) Mechanisms (M.E. 131)	3 4		Adv. Heat Power Engr. (M.E. 161) Adv. Fluid Mechanics (M.E.	5	**
Thermodynamics (ME 111)	Å		G186)		3
Differential Equations (Math			Machine Design (M.E. 151)	. 4	-
111)	3		†Contracts (C.E. 151)	2	

Economics (Econ. 11-12) 3

Elective

Engr. Analysis (M.E. G194)

Indus. Engineering (M.E. 174) ...

Seminar (M.E. 191)

3

3 ••••

4 ...

3 6

2 •••

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*Electrical Engr. (E.E. 101-102)	4	4	
M. E. Laboratory (M.E. 117)	1		
Metallurgy (M.E. 102)	•••	3	
Machine Design (M.E. 134)		4	
Fluid Mechanics (M.E. 142)	•••	4	
*Public Speaking (Speech 11)		3	

* E.E. 101-102 or Speech 11 may be deferred to senior year for those in Advanced Military Science or for those wishing to substitute Economics 11-12 at this time.

+ Contracts will not be required of those students enrolled in Advanced Military Science.

CURRICULUM IN MEDICAL TECHNOLOGY

			THE SOPHOMORE YEAR	lst SEMI	2nd ESTER
1.6 A 1.7 A (1773-6771-1797			Calculus (Math. 21-22)	3	3
MANAGEMENI			Gen I Physics (Physics 21-22)	,	,
ENGINEERING			Prin. of Econ. (Econ. $11-12$)	2	2
			Mirg. Processes (M.E.)1-32)	2	2
			E-marite Writing (Paul 16)		,
			Expository writing (Engl. 16)	د	
THE IUNIOR YEAR	1st	2nd	THE SENIOR YEAR	1st	2nd
	SEMI	ESTER		SEMI	STER
Prin. of Accounting (Econ.			Labor Economics (Econ. 141)	3	
13-14)	4	4	Collective Bargaining (Econ.		
Gen'l Psychology (Psych. 1-2)	3	3	142)		3
Dynamics (C.E. 130)	3		Indust. Organization (Econ.		
Mech. of Materials (C.E. 131)	3		143)	3	
Indus, Metallurgy (M.E. 102)		3	Business Law (Econ. 109)	3	
Fluid Mechanics (M.E. 142)		4	Ec. Life & Govt. Control		
Thermodynamics (M.E. 113)	3		(Econ. 183)		3
Statistics (Econ. 187)	3		Motion and Time (M.E. 175)	4	
Public Speaking (Speech 11)		3	Plant Organ. (M.E. 176)		4
Parl. Procedure (Speech 3)	1		Elec. Ccts. & Mach. (E.E.		
Sci. Mang. & Labor (Econ. 154)		3	101-102)	4	4
			Electives	3	3

AGRICULTURAL ENGINEERING

For the Agricultural Engineering Curriculum see College of Agriculture.

THE MEDICAL TECHNOLOGY CURRICULUM

The curriculum is divided into two parts, the pre-clinical period consisting of three years of work in the College of Technology (ninety-one semester hours) and the clinical period of fifteen months under the supervision of the College of Medicine.

The work of the pre-clinical period is designed to give the students a scientific background which will enable them to learn to perform intelligently the highly specialized techniques of the modern diagnostic laboratory. The work of the clinical period consists of learning techniques, taking prescribed courses in the College of Medicine, and practical experience in the laboratories of the teaching hospitals.

The clinical period begins with the summer following completion of the junior year in the College of Technology. At the end of eleven months, if the student's work is satisfactory, the degree of Bachelor of Science in Medical Technology is conferred at the regular Commencement exercises. The final four months of the program are devoted to full-time work in the hospital laboratory, at the end of which time the student may be recommended to the Registry of Medical Technologists as eligible to take the examination for certification by that body.

CURRICULUM IN MEDICAL TECHNOLOGY

FIRST YEAR	1st SEMI	2nd ESTER	THIRD YEAR	lst SEMI	2nd ESTER
English Composition	3	3	Organic Chemistry	4	4
Introductory Chemistry	4	4	*Intermediate French or German	3	3
Introductory Zoology	4		Zoology (Histology)		4
Mathematics (Algebra & Trigo-			Introductory Physics	3	3
nometry)	3	3	Approved Nonscience Electives	6	
Approved Non-science Elective	***	3			
			SUMMER		
SECOND YEAR	1st	2nd	Basic Technics	3	hours
	SEM	ESTER			
English-Amer. or World Lit.	3	3	FOURTH YEAR	1st	2nd
Elementary Quantitative	•	-		SEM	ESTER
Analysis	4	4	Basic Technics (continued)		2
Zoology (Comparative Anatomy	•	•	tClinical Pathology	3	2
& Vertebrate)	4	4	Biochemistry	5	4
Bacteriology		3	Hospital Assignments		6
French or German (Elem. or			+Bacteriology	7	-
Inter.)	3	3	120000000000000000000000000000000000000		
Approved Non-science Elective	3	-			

* Those excused from elementary foreign language will take intermediate language the sophomore year and six additional hours of approved non-science electives in the junior year.

+ For description of these courses see catalog of the College of Medicine.

The following courses in medical technology are taught by staff members of the College of Medicine:

BASIC TECHNICS Principles, procedures and sources of error in medical laboratory tests; includes hematology, bacteriology, serology, parasitology, blood bank, urinalysis and basal metabolism. Lectures and laboratory sessions during last six weeks of summer preceding fall semester. Three hours. Seminars and special problems, spring semester. Two hours.

HOSPITAL ASSIGNMENTS Rotating assignments in various departments of hospital, medical college and public health diagnostic laboratories designed to give the student actual experience in medical laboratory procedures. Spring semester and summer following graduation. Six hours.

BIOCHEMISTRY FOR MEDICAL TECHNOLOGISTS First semester: (2-6) A study of methods basic to clinical chemistry. Students prepare reagents, carry out representative analytical procedures including volumetric and manometric gas analyses, titrations, spectrophotometric measurements, enzyme assays, and measurement of pH. Controlled practice in use of technique is conducted in the Mary Fletcher Hospital Biochemistry Laboratory. Five hours. Dr. Sims.

Second semester: (4-0) The course covers human physiological chemistry. Topics discussed include the chemistry of lipids, carbohydrates, proteins, enzymes, digestion, absorption, excretion, hormones, fluid and electrolyte balance, blood, urine, vitamins, foods, and nutrition. Four hours. Drs. Sims, Schein, Lamden and staff.

The Graduate College

The purpose of the Graduate College is to serve the needs of college graduates who desire a broader and more thorough knowledge of scholarship and research in their chosen fields. Master's degrees may be earned by qualified students in regular or summer sessions of the University.

Programs leading to the degrees of Master of Arts and Master of Science offer advanced instruction in the field chosen, and aim to develop both the discipline and the enthusiasm necessary for original research through close association with mature scholars, both in the classroom and in the library or the laboratory. Graduate programs leading to the Master of Arts degree are offered in the following departments of the University: Classics, Economics, English, German, History, Mathematics, Music, Political Science, Psychology and Romance Languages. Programs leading to the Master of Science degree are offered in the following departments: Agricultural Biochemistry, Agricultural Economics, Agronomy, Animal and Dairy Husbandry, Animal Pathology, Bacteriology, Biochemistry, Botany, Chemistry, Commerce, Electrical Engineering, Home Economics, Mechanical Engineering, Pharmacology, Physics, Physiology and Zoology.

Programs leading to the degrees of Master of Education and Master of Arts in Teaching are intended to increase the professional competence and capacity of teachers by instruction at an advanced level. The program leading to the Master of Education degree is designed primarily for teachers who intend to qualify for various administrative positions. The program leading to the degree of Master of Arts in Teaching is designed to include a maximum of advanced instruction in the teachers' subject-matter field and aims to increase the effectiveness of classroom instruction.

The degrees of Civil Engineer, Mechanical Engineer and Electrical Engineer are professional degrees in engineering and are awarded only to graduates of the University of Vermont.

ADMISSION

Students seeking admission to the Graduate College must make application to the Dean of the Graduate College. Admission is limited to students who intend to become candidates for an advanced degree either at the University of Vermont or at other fully accredited institutions. Students who wish to pursue studies at the graduate level but who do not intend to become candidates for degrees should enroll as special students in the appropriate undergraduate college.

In order to be admitted to the Graduate College an applicant should hold a Bachelor's degree from a fully accredited college or university and his undergraduate record must show that he is capable of successful work at the graduate level. An applicant should be prepared to submit to the Dean, along with a transcript of his undergraduate record, his scores attained in the Graduate Record Examinations, though this latter requirement may be waived in individual cases by the Dean or the department concerned. Full information concerning these examinations may be obtained from the Educational Testing Service, Box 592, Princeton, New Jersey.

Graduates of four-year institutions which are not yet fully accredited may be admitted to the Graduate College only if their undergraduate record and Graduate Record Examination scores show unusual promise.

Only applicants who desire to work along lines in which the University offers graduate programs will be admitted in the Graduate College. Because of the individual nature of most graduate study and because the facilities of the University are not unlimited, it is sometimes necessary to limit the number of graduate students in a department. A graduate student whose work is unsatisfactory may be requested at any time by the Dean or the department concerned to withdraw from candidacy and from the Graduate College.

Admission to the Graduate College does not mean that a student is automatically accepted as a candidate for an advanced degree. Acceptance to candidacy is granted only in cases where the student has fully met all undergraduate prerequisites in his chosen field of concentration. Students in the Graduate College therefore fall into three categories: (1) duly admitted students accepted to candidacy (2) degree candidates at other institutions who work at the University of Vermont for transfer of credit (3) duly admitted students not yet accepted to candidacy.

MINIMUM RESIDENCE REQUIREMENTS

Each candidate for a Master's degree must study in residence at the University of Vermont at least two semesters or five summer sessions and must satisfactorily complete at least twenty hours of graduate credit while in residence. A thesis written under the supervision of a faculty member may be accepted in lieu of one summer's residence. Individual departments may require a longer period of residence than the minimum stated above.

MAXIMUM TIME LIMITS

A program leading to the Master's degree must be completed within a span of three years if carried on during the regular academic year; if the program is carried on during summer sessions, it must be completed within a span of seven years. Only in special cases will credits earned outside these time limits be re-evaluated and accepted; requests for such re-evaluation must be addressed to the Dean and must be accompanied by a full statement of the extenuating circumstances. This time limit applies both to study at the University of Vermont and to courses taken in other institutions and presented for transfer of credit. For students whose graduate work has been interrupted by service in the armed forces the time limits are extended automatically by the length of time of such service.

TRANSFER OF CREDIT

Not more than eight semester hours of credit (or the equivalent thereof) for graduate courses taken in other institutions can be transferred for credit toward the Master's degree. Such courses must have been taken in a fully accredited college or university which offers graduate study and must be ac-

GRADUATE COLLEGE

ceptable toward graduate degrees in that institution. Credit cannot be transferred for (1) courses which would not, if taken at the University of Vermont, receive graduate credit, (2) courses in which a grade lower than 82 per cent (B-) was received, (3) extension courses given by institutions other than the University of Vermont, (4) correspondence courses.

EXTENSION COURSES

Not more than eight semester hours of credit toward the Master's degree may be earned by taking extension or adult education courses offered by the University of Vermont. Graduate credit cannot be given for courses which would not offer graduate credit if given in regular or summer sessions at the University of Vermont. Only students whose academic qualifications would qualify them for admission to the Graduate College can be granted full graduate credit for work done in extension courses. Therefore students seeking graduate credit who have not been admitted to the Graduate College must have their academic credentials approved by the Dean before graduate credit can be granted.

REQUIREMENTS FOR DEGREES

A total of thirty semester hour credits is the minimum number required for the Master's degree. Credit for the preparation of a thesis under the direction of the particular department, when required, will be considered part of the program.

Each student must maintain an average of 85 (B). A course in which a grade lower than 82 (B-) is received will not be accepted toward an advanced degree. Certain departments require a higher average than the 85 specified above, and students are apprised of this before their first enrollment in those departments.

MASTER OF ARTS AND MASTER OF SCIENCE

FIELD OF SPECIALIZATION In judging the attainments of candidates, great emphasis is placed upon ability to do original research in the chosen field of specialization. Hence the number of courses required will vary with the preparation and needs of the individual student. In order to plan his individual program, a new student should consult as early as possible with the chairman of the department in which he is specializing. At least 20 hours of graduate credit (including credit for the thesis and research leading to the thesis) must be earned in the field of specialization. All course credits included in these 20 hours must have been earned in courses which are designated by the letter "G."

THESIS Each candidate will undertake a problem of original research under the direction of a member of the department in which he is specializing. At the conclusion of the investigation the student must present a thesis which embodies the results of his work and which demonstrates his capability for independent research. The original copy of this thesis must be bound for deposit in the University Libraries; some departments require that additional copies be bound for deposit within the department. RELATED STUDY Usually a graduate program will include advanced courses outside the field of specialization. In order to be included as part of the Master's program these supplementary courses must be approved by the department in which the student is specializing. These courses need not necessarily be courses designated by the letter "G," but under no circumstances can credit earned in a course offered below the junior-senior undergraduate level be included in the minimum 30 hours required of M.A. and M.S. candidates.

MASTER OF EDUCATION

The graduate program of each student admitted to candidacy for the degree of Master of Education is planned and supervised by an individual committee, which includes *ex-officio* the Deans of the Graduate College and the College of Education. A graduate program is planned in view of a student's undergraduate curriculum and in the light of his aims and purposes in pursuing his Master's degree. Programs are planned in such a way that their subject-matter will be concentrated as far as possible within a general area of study. Each program must include at least thirty semester hours of approved course work, and if a student's preparation is inadequate for him to begin study at the graduate level in certain aspects of his program, additional undergraduate courses will be required.

Except under most unusual circumstances, a candidate will be required to present evidence of a full year of successful teaching experience before the degree of Master of Education can be awarded. It is strongly recommended that prospective candidates for the degree meet this requirement prior to making application for acceptance to candidacy.

MASTER OF ARTS IN TEACHING

A minimum of thirty semester hours of graduate work is required, of which not less than six semester hours shall be in Department of Education. Apart from this requirement, a student will specialize in a single department offering courses for graduate credit or in any acceptable combination of such departments. Students who enroll for this degree must have completed an undergraduate major in the area of their specialization and must be acceptable to the department or departments concerned.

In his undergraduate and graduate work a student must complete eighteen semester hours in education which must include the following courses or their equivalent: History of Education, General Methods or Procedures, Student Teaching, and Educational Psychology or Principles of Education.

PROFESSIONAL DEGREES IN ENGINEERING

The advanced degrees of Civil Engineer, Mechanical Engineer, and Electrical Engineer will be granted only to engineering graduates of the University of Vermont. At least four years must have elapsed since the candidate graduated. For at least three years the candidate must have held positions of responsibility in his profession and have shown ability to design and execute important engineering work.

GRADUATE COLLEGE

At least six months before the end of the year in which the degree is sought the candidate must present to the Dean of the Graduate College a statement of his technical training and experience, together with the topic upon which he proposes to submit a thesis. The thesis must embody the results of original investigation upon some technical subject. The professional record and thesis topic must be approved by the College of Technology and by the Executive Committee of the Graduate College.

The thesis must be presented to the Dean of the Graduate College not later than three weeks prior to commencement. The thesis must then be approved by the College of Technology and by the Executive Committee of the Graduate College.

EXAMINATIONS

The examinations culminating the program of graduate study for the Master's degree are as follows:

- I. For the Degrees of Master of Arts and Master of Science:
 - a. Written comprehensive examination (two hour minimum) in the field of specialization.
 - b. If required by the department in which the candidate is specializing, a written examination in a field related to the field of specialization.
 - c. An oral examination (one hour minimum) on the thesis.
- II. FOR THE DEGREE OF MASTER OF EDUCATION:
 - a. A written comprehensive examination (three hour mininum) in the field of education.
 - b. A comprehensive oral examination (one hour minimum) in the field of education.
- III. FOR THE DEGREE OF MASTER OF ARTS IN TEACHING:
 - a. A written comprehensive examination (two hour minimum) in the field of education.
 - b. A written comprehensive examination (two hour minimum) in the field of specialization.
 - c. A comprehensive oral examination (one hour minimum) in the field of specialization.

Success in the written examinations is prerequisite to taking the oral examinations. Written examinations must precede the oral examination by at least two weeks, except that students taking the examinations in summer session may be permitted a shorter interval by the Dean of the Graduate College. It is recommended, however, that the interval be longer than two weeks and that the students who work for degrees in summer session plan to take the written examinations during the summer prior to that in which the oral examination is taken. One re-examination only is permitted for each of these final comprehensive examinations.

EXPENSE AND FINANCIAL AIDS

For information concerning fees and other costs, see the index. Graduate students may receive scholarship aid on the same basis as undergraduate students. Details are given under "Student Aid," for which also see the index.

FELLOWSHIPS

The Graduate College offers each year two Graduate Fellowships, each of \$400 plus exemption from tuition charges, which are open to applicants in any field in which the University offers graduate work. Holders of Graduate Fellowships are expected to carry a full time graduate program towards a Master's degree. Applications for Graduate Fellowships should be addressed to the Dean and should be filed not later than March 15 of the academic year preceding the year for which the application is made.

The George H. Walker Dairy Fellowship is awarded every third year, the next award to be made in 1957-58. It provides a stipend not less than \$700, along with exemption from tuition charges. It is available to graduate students who during their undergraduate courses have studied "agriculture, chemistry, and bacteriology" and who desire to study the problems relating to the production of a sanitary milk supply on comparatively small plants and farms. Applications should be addressed to the Chairman of the Department of Animal and Dairy Husbandry.

ASSISTANTSHIPS

The University of Vermont offers a number of assistantships in teaching and research. The stipends are \$1,400 for the academic year with exemption from tuition charges up to twelve hours per semester. The recipient of an assistantship is required to work towards the Master's degree and to assist in the department in which he is a graduate student. A maximum of half-time assistance in the department is expected of a graduate assistant, and he must expect that more than one academic year will be necessary to complete the requirements for his Master's degree. Applications for assistantships should be addressed to the chairman of the department concerned and should be filed not later than March 15 of the academic year preceding that for which the application is made. Assistantships for the year 1955-56 are offered by the following departments: Agricultural Biochemistry, Agricultural Economics, Agronomy, Animal and Dairy Husbandry, Bacteriology, Bio-chemistry, Botany, Chemistry, Horticulture, Mathematics, Music, Pharmacology, Physics, Physiology, Romance Languages, and Zoology.

RESIDENCE HALL ASSISTANTSHIPS

Three graduate assistants in men's residence hall counseling are appointed annually, with remuneration of \$1,000 per year, plus tuition and room rent. Holders of these assistantships must be unmarried men who are qualified for admission to the Graduate College. Duties in the residence halls total at least thirty hours each week; a maximum of eighteen semester hours of academic credit may be carried each year. Applications for these assistantships should be addressed to the Director of Student Personnel.

The College of Medicine

REQUIREMENTS FOR ADMISSION

The usual requirements for admission to the College of Medicine are four years of college work done in an institution listed among the "Approved Colleges of Arts and Sciences," compiled and published by the Council on Medical Education and Hospitals of the American Medical Association. The College of Medicine requires one year each of English, general chemistry, organic chemistry, physics (including laboratory), biology, and a satisfactory one semester course in quantitative chemistry. The College strongly recommends additional courses in English and mathematics (at least one year). These should be regarded by the student as minimum basic requirements. A major in science is not required.

Although the minimum requirements must be satisfactorily completed, additional well-planned courses of study in the fields of history, economics, sociology, psychology, philosophy, music and the arts should be included. This is possible if students carefully plan programs of study aimed at individual scholarship and development of a field of interest early in their academic careers. In this way the student develops a general background and at the same time prepares himself for the study of medicine. Each of these is equally important. The well-trained physician should be a welleducated person.

Students must satisfactorily complete all requirements for admission to the College of Medicine in any given year by July 1 preceding the September admission.

The Admissions Committee expects applicants to have completed a program equivalent to that outlined but reserves the privilege, at its discretion, to give favorable consideration to applicants with college work of a different type, provided it includes acceptable credits in the required courses.

Eligibility for admission to the College of Medicine of an applicant, who has fulfilled the entrance requirements as stated, is determined by the Admissions Committee of the College of Medicine on the basis of the following:

- 1. Personality and aptitude of the applicant for the study and practice of medicine. This is determined by recommendations and especially by personal interview with the Admissions Committee. Dates for these interviews are announced by the Committee.
- 2. The scholastic record of the applicant in his premedical work.
- 3. The Medical College Admission Test recommended by the Association of American Medical Colleges is required of each applicant. The scores made in this test are taken into consideration but are not used as a final determinant in accepting students.
- 4. Recommendations of the applicant's college teachers.

Because of limited teaching facilities, a maximum of fifty students is

admitted to the entering class. In selection of eligible applicants for admission, preference is given according to the following priorities:

- 1. Qualified residents of Vermont.
- 2. Qualified residents of the New England states, especially those from Maine and New Hampshire.
- 3. Qualified residents of other areas.

Sons and daughters of the alumni of the College of Medicine of the University of Vermont are given special consideration within the framework of the above policy.

The State of Vermont by statute requires every resident of the State who enjoys reduced tuition and who enrolls in a curriculum leading to the degree of Doctor of Medicine to sign an agreement to practice medicine in Vermont for the period of one year for each year of enrollment. In lieu of this, the student may refund to the State Treasurer, through the University, the difference between the total tuition paid and the total unit cost to the State of the curriculum pursued.

Application blanks may be secured from the Dean's Office, College of Medicine, University of Vermont, Burlington, Vermont.

Applications for admission to the class entering in September of any year will close on March 1 preceding the September admission. Applications postmarked up until midnight of the last day of February will be considered. An application fee of ten dollars, payable to the University of Vermont and State Agricultural College, must accompany all applications.

THE CURRICULUM

First Year: Anatomy, physiology and biochemistry are integrated in such a fashion that topics are considered simultaneously by all departments in so far as possible. Thus when the abdomen is being dissected, the physiology of the gastro-intestinal system and the biochemistry of digestion are being considered at the same time. A course in psychobiology includes lectures, moving pictures and discussion. Small groups of ten students are met by the dean and the secretary of the faculty for informal discussion of general topics related to medicine and medical school chosen by the students. These exercises are conducted with the support of the Lamb Foundation.

Second Year: The curriculum is divided into three parts and correlated in time.

Course A—Morphology, Physiology and Chemistry of the Abnormal runs throughout the entire year and includes pharmacology, pathology, clinical pathology, psychopathology, and public health. A conjoint course meets once a week during the second semester in an attempt to relate certain aspects of clinical medicine to the preclinical sciences.

Course B—Elicitation of Data—includes history taking and examination which are taught cooperatively by the various specialists under the general supervision of an internist. This is given in the second semester only.

Course C-Introduction to Clinical Medicine-consists of didactic lectures and case presentations covering elementary medicine, pediatrics, surgery, obstetrics, gynecology and oral medicine, and is given in the second semester. The schedule varies from week to week because the subject material presented by the different departments is correlated.

Third Year: A clinical clerkship divided into four quarters is conducted from September to the following August. One half of the year is devoted to medicine and pediatrics but included in this period are clinical conferences, discussion groups, and field trips covering preventive medicine, psychiatry, dermatology, radiology, and ophthalmology. Limited responsibility for and observation of patients in the two local hospitals are the primary activities. Rounds, tutorial sessions, and informal conferences are held. The third quarter includes a clerkship on surgery with clinical conferences for the students in neurosurgery, otolaryngology, clinical surgery, orthopedic surgery, and surgical pathology. Teaching is accomplished by tutorial instruction, rounds, staff conferences and operating room work. The final quarter is a clerkship on obstetrics and gynecology, including tutorial instruction, ward, delivery and operating room experience. Manikin work, conferences, rounds, tutorial sessions, and sessions with fresh gynecological pathological material are included.

Fourth Year: This year includes further general hospital and specialty hospital experience and, in addition, experience in the care of the ambulatory patient. Seniors attend school from September to June. They are given increasing responsibility, live at general hospitals outside of Burlington, but are supervised by staff members. Tuberculosis and psychiatric specialty hospitals are included in the rotation program. Ambulatory patient service is experienced in the Burlington Free Dispensary (operated by the College of Medicine), in the outpatient departments of the general hospitals, on home care visits, and during preceptorships with general practitioners.

All of the usual medical specialties are represented including mental hygiene clinics and cerebral palsy clinics.

The curriculum is not static and an active curriculum committee is meeting continually to evaluate the present curriculum and plan changes.

TEACHING FACILITIES

The College of Medicine Building and the College of Medicine Annex contain offices, lecture rooms, student and research laboratories. Clinical facilities for teaching in the third and fourth years include the two Burlington hospitals with a total of 483 beds (not including bassinets) and 12,000 annual admissions. Five general and two specialty (tuberculosis and psychiatric) hospitals in Vermont and New York State with a total bed complement of 2,113 are used.

In Burlington there are three outpatient departments with 16,000 patient visits annually, and the Home Care Service with 6,653 home visits annually. Elective preceptorships with general practitioners are available.

The University Extension

The University through its extension services aims to broaden the horizon of those who have not attended college and to afford an opportunity for those who have attended college to keep in touch with academic thought along their favorite lines or to gain information about subjects which they have not studied in college.

THE SUMMER SESSION

A six weeks Summer Session offers courses on both the graduate and undergraduate level in many subjects, including art, botany, chemistry, commercial subjects, conservation, dramatic art, economics, education, English, French, geography, German, history, home economics, mathematics, music (instrumental and vocal), philosophy, physical education, physics, political science, psychology, Spanish, speech and zoology.

The offerings are diversified to meet the needs of the following various groups of students: those with adequate preparation who desire courses leading to a Bachelor's degree; those with adequate preparation who wish to do graduate work for the Master's degree; principals and superintendents of schools who desire fundamental or specialized courses in the fields of educational administration and supervision; teachers in elementary or secondary schools who seek credit toward State teachers' certificates or who desire to broaden their knowledge of special subjects; persons who desire college level courses for self-improvement. Students must have sufficient maturity and background to profit from the courses in which they enroll.

By completing satisfactorily two courses, qualified students may earn six semester hours credit towards a degree. Through work in the Summer Session it is possible to earn the degrees of Master of Arts, Master of Science, Master of Arts in Teaching, and Master of Education. A special bulletin giving a full description of courses will be sent upon application to the Director of the Summer Session.

ADULT EDUCATION

Continuing education for adults in the State of Vermont is provided under the Adult Education Program offered by the University. Members of the faculty at the University and others working under temporary appointment offer evening or extension courses in arts and sciences and education. A variety of courses are presented in evening sessions on campus throughout the college year. Some of these may be taken for credit while others are noncredit and are designed for the adult who is interested in continuing his education for the pleasure of self improvement.

Courses are given in towns and cities throughout the state wherever a group of sufficient size to meet the expense of the offering can be assembled.

Arrangements for Adult Education courses are made through the Adult Education Office, 147 Waterman Building. A non-credit enrollment costs \$20.00 and tuition for credit courses is \$15.00 per semester hour. Any person taking a course for credit towards a degree at the University is advised to secure the approval of the appropriate dean. All persons desiring graduate credit must secure the approval of the Dean of the Graduate College.

Typical courses in the Adult Education Program are:

Accounting	Mental Hygiene
American Foreign Policy	Personnel Administration
Arts and Crafts	Principles of Marketing
Audio-Visual Aids	Public Speaking
Contemporary Fiction .	Retail Merchandising
Contemporary History	Russian
Developmental and Remedial Reading	Salesmanship
Drawing and Painting	School and Society
Educational Measurements	Short Story and Article Writing
English Composition	Structural Drafting
French	Teaching Social Studies and Science
Guidance	Training of the Speaking Voice
Intellectual Backgrounds of Modern Life	Vermont History
Journalism	Vermont Folklore
Labor and Management Relations	Vocational and Educational Testing
Music Appreciation	World Problems Lecture Series

THE ROBERT HULL FLEMING MUSEUM

The Museum provides a fourfold educational service to the University and the State—through its permanent collections, temporary exhibitions, the Fleming Museum Association Program Series, and children's classes.

The Museum's permanent collection is set up to augment, in so far as possible, the University's teaching programs in varied fields; it includes art from earliest to modern times, zoology, geology, and technology. Gallery talks and coffee hours, based upon works in the collection and open to the public, are given regularly. Temporary exhibitions range widely through history, science, arts and crafts; there is a particular emphasis on encouragement of creative effort in all fields in Vermont, through one-man shows, group shows like the All-Vermont Camera Club Exhibit, the Northern Vermont Artists' Exhibition and the Vermont Children's Art Exhibit, and by bringing to the state outstanding examples of creative work of all sorts. Whenever possible, temporary exhibitions are opened with a preview, tea, and lecture, which offer an opportunity for personal and congenial contacts of the exhibitors and their public.

The Fleming Museum Association Program Series is open to the public; it brings to the campus motion pictures and lectures designed to broaden the cultural horizons of University and community. For children, the Museum offers a comprehensive program of painting and dance classes for all ages up to early teens; there are frequent tours through the Museum of school children from all over the state.

Lecture and conference rooms, an auditorium, and a kitchenette are available for business and social functions, lectures, class meetings, and quiet study. Also housed in the Museum are the Wilbur Library of Vermontiana, the University's seismograph station, and a Carnegie collection of several thousand photographs of paintings, sculpture, and architecture. The Museum building was dedicated in 1931 and is named in honor of Robert Hull Fleming of the class of 1862.

AUDIO-VISUAL SERVICES

The Vermont Film Library, operated by the Department of Audio-Visual Services, and jointly sponsored by the State Department of Education and the University, serves the schools, colleges, churches, societies, and individuals of the State by making materials for visual education programs available for their use on a rental or membership basis. The library owns over 1,000 sound 16mm films suited to age levels from grade one to adult, produced by companies who specialize in educational films; 1,200 $3\frac{1}{4} \times 4$ slides on Vermont history, United States history, biology and ethnology; a collection of 2 x 2 slides on contemporary American art; over 100 filmstrips on aviation and mechanical education, the United Nations organization and other subjects. The Services Department provides equipment and projectionists for college classroom use and rents to other nearby groups. Consultation on audiovisual materials and their sources is also available.

THE GOVERNMENT CLEARING HOUSE

The purpose of the Government Clearing House is to promote a practical approach to the study of government by students in the University and also to provide information relative to problems of government, upon request, primarily to town and city officials in the State, but also to officials of other government units and to private citizens.

The Clearing House cooperates with such organizations as the New England Council in sponsoring such activities as the annual "Town Report Contest." It also cooperates with the Governor and other state officers, including those in the Vermont Development Commission, in sponsoring the annual Town Officers' Educational Conferences. A Public Affairs Library is maintained as a memorial to the late James P. Taylor whose efforts to expand citizen interest in good government is well known throughout the State.

CONFERENCES

During the course of the year, many conferences are held on the campus. Every week one or more groups closely associated with some phase of the University's activities meet to discuss problems and to exchange ideas. Groups interested in arranging such conferences should write to the Director of Public Relations for details.

It has become the policy of the University to hold annually in March an educational conference with the schools of the State. The project is a part of the University's contribution to the effort which is being made by the various educational forces of the State to improve our institutions of all grades, from the primary school to the college and the University. In selecting a topic for the conference an effort is made to look to the future and anticipate the problems which Vermont must consider. The aim is to bring to the teachers of the State, year by year, expert reports and opinions relating to some of our many serious educational problems. This conference is held in connection with the convention of the Champlain Valley Teachers' Association.

Courses of Instruction

A separate number is used for each semester course and for each semester of a year course. The form 1, 2 indicates that the separate semesters may be taken independently for credit, while 1-2 indicates that they may not be taken independently for credit and, unless otherwise stated, must be taken in the sequence indicated.

Courses numbered from 100 to 199 are advanced courses, normally open only to juniors and seniors; those numbered from 200 to 299 are for graduate students only. The letter "G" preceding the course number indicates that the course may be taken for graduate credit and may be included in the field of concentration of a candidate for the Master's degree.

The letter "S" preceding the course number indicates the course is offered normally in the Summer Session.

The number of credit hours per semester is indicated in each course description.

In some instances, a form such as (2-3) immediately follows the course title. This indicates the number of class hours respectively of lecture or recitation and of laboratory.

Courses bearing odd numbers are offered the first semester; even numbers the second semester, unless otherwise indicated when the Roman I (first) or II (second) is used.

AGRICULTURAL BIOCHEMISTRY (College of Agriculture)

Professor Little; Associate Professor Johnstone; Assistant Professor Foote

72, 73 ELEMENTARY BIOCHEMISTRY (2-2) An introductory treatment of the chemistry of carbohydrates, proteins, lipids, enzymes, vitamins, and hormones and their relation to processes of biological significance. The basic principles of analytical procedures involved in biochemical methods will be included. *Prerequisite:* Chemistry 31-32 or 35 for 72; 72 for 73. Three hours. Mr. Foote.

G151-152 PLANT AND ANIMAL BIOCHEMISTRY An intensive study of the chemical reactions, compounds and energy relationships pertinent to the survival and function of living cells. The dependence of such cells upon energy derived from the environment is emphasized during a consideration of photosynthesis, digestion, metabolism of foodstuffs (carbohydrates, fats, and proteins) and the nature and function of enzymes and coenzymes. *Prerequisite:* Chemistry 31-32 or 35. Three hours. Mr. Little. (Offered in alternate years, 1955-56.

G153 MICROBIAL BIOCHEMISTRY (2-3) An advanced course dealing with the chemical composition, energy utilization and metabolism of

AGRICULTURAL ECONOMICS

microbial cells. *Prerequisite:* Botany 56; Chemistry 31-32 or 35 and departmental permission. Three hours. Mr. Johnstone. (Offered in alternate years, 1955-56.)

197, 198 SENIOR RESEARCH Each student works on a research problem under the direction of a qualified staff member and submits the findings in written form as prescribed by the department. *Prerequisite:* senior standing. Three hours. The staff.

G201, 202 BIOCHEMISTRY SEMINAR A topical seminar with discussion of assigned and collateral reading. Required of graduate students in agricultural biochemistry. One hour. The staff.

G295, 296 GRADUATE RESEARCH Each student completes a research problem under the direction of a qualified staff member and submits the findings in written form in accordance with the specifications for a Master's thesis. Credit as arranged. The staff.

AGRICULTURAL ECONOMICS (College of Agriculture)

Professor T. M. Adams and Carter; Assistant Professor Tremblay; Messrs. Aplin, England, Sinclair

2 WORLD AGRICULTURE (2-2) Historical development and pattern of agriculture up to the present day with emphasis on the adjustment of agriculture to natural and economic phenomenon. Present pattern of crop and livestock production, trade, and consumption in Vermont, the United States, and the world. Three hours. Mr. Tremblay.

21 AGRICULTURE COOPERATION The nature and development of cooperative business enterprises, their organization, financing, and business management. *Prerequisite:* sophomore standing. Two hours. Mr. England.

22 AGRICULTURAL BUSINESS (2-2) A consideration of the principles and practices of the business aspects of agriculture encountered by farmers, farm organizations, and agricultural businesses. Emphasis on financial structure, tax policies and accounting methods with special emphasis on common legal problems facing farmers and agricultural businesses. Prerequisite: sophomore standing. Three hours.

G101-102 FARM MANAGEMENT (2-2) The organization and operation of a successful farm business. *Prerequisite:* Economics 11-12 and senior standing. (Agricultural Education option, junior year.) Three hours. Mr. Tremblay.

103 RURAL SOCIOLOGY A study of the anatomy or structure of the rural community and of other rural social groupings. Introduction to some of the psychological and social controls to be observed and some practice in current method now employed in maintaining communication within rural areas. Some consideration is given to rural community problems. *Prerequisite:* Economics 11-12 or permission of the department. Three hours. Mr. England. G104 MARKETING FARM PRODUCTS (2-2) The distribution of farm products and the problems involved, with particular emphasis on the Vermont situation. *Prerequisite:* Economics 11-12. Three hours. Mr. Adams.

G106 PUBLIC PROBLEMS OF AGRICULTURE Price fluctuations as they affect farming, agricultural legislation, land use, costs of local government, and other problems of contemporary interest to farmers. *Prerequisite*: Economics 11-12. Three hours. Mr. Adams.

108 FARM CREDIT (2-2) The types and sources of credit used by farmers, and the lending practices and problems of credit agencies. Appraisal of farm real estate and personal property. *Prerequisite:* Economics 11-12. Three hours. Mr. Sinclair.

G151, 152 RESEARCH METHODS Efficient procedures for students engaged in scientific research. *Prerequisite*: Economics 11-12; senior standing and permission of the department. Three hours.

197, 198 SENIOR RESEARCH Each student works on a research problem under the direction of a qualified staff member and submits the findings in written form as prescribed by the department. *Prerequisite:* senior standing. Three hours. The staff.

G295, 296 GRADUATE RESEARCH Each student completes a research problem under the direction of a qualified staff member and submits the findings in written form in accordance with the specifications for a Master's thesis. Credit as arranged. The staff.

AGRICULTURAL EDUCATION (College of Agriculture)

Assistant Professor Cushman; Mr. Davison

100 RURAL EDUCATION (2-2) The organization of rural education with emphasis on current problems. *Prerequisite:* junior standing. Three hours. Mr. Cushman.

102 EXTENSION METHODS (1-2) Methods and techniques of extension teaching. *Prerequisite:* junior standing. Two hours. Mr. Davison. (Offered in alternate years, 1955-56.)

G151, 152 METHODS OF TEACHING VOCATIONAL AGRICUL-TURE (2-2) First semester: selecting, planning, and supervision of farming programs for all-day students of vocational agriculture. Planning courses of study and teaching units of instruction. Directing the work of an FFA chapter. Second semester: selection of pupils. Developing and maintaining facilities for vocational agriculture. Professional improvement responsibilities of and ethics for teachers of vocational agriculture. Prerequisite: senior standing; 100 or permission of the department. Three hours. Mr. Cushman.

G153 METHODS OF TEACHING YOUNG AND ADULT FARMER CLASSES IN VOCATIONAL AGRICULTURE (2-2) Locating, surveying, and determining the educational needs of young and adult farmers. Planning programs and teaching groups. Giving on-farm instruction to young and adult farmers. *Prerequisite:* senior standing; 100 or permission of the department. Three hours. Mr. Cushman.

155 DIRECTED PRACTICE TEACHING IN VOCATIONAL AGRICULTURE Practice teaching for an eight week period in selected high school departments of vocational agriculture under the guidance of experienced critic teachers and the teacher trainer. *Prerequisite:* G151 and G153 or permission of the department. Six hours. Mr. Cushman.

G295, 296 GRADUATE RESEARCH Each student completes a research problem under the direction of a qualified staff member and submits the findings in written form in accordance with the specifications for a Master's thesis. Credit as arranged. The staff.

AGRONOMY (College of Agriculture)

Professor Midgley; Associate Professor Wood; Assistant Professor Flanagan

1 GENERAL FARM CROPS (2-2) Introduction to field, forage and pasture crops common in Vermont and the United States, including production, management and uses. Three hours. Mr. Wood.

2 GENERAL SOILS (2-2) An introductory course dealing with the origin, formation, and classification of soils; elementary principles of fertility and management. Three hours. Mr. Flanagan.

21 FIELD CROPS (2-2) The theory and practice of producing, improving and managing field crops. *Prerequisite*: sophomore standing. Three hours. Mr. Wood. (Offered in alternate years, 1955-56.)

22 FORAGE AND PASTURE CROPS (2-2) The theory and practice of producing, improving and managing forage and pasture crops including study of silage and hay making. *Prerequisite*: sophomore standing. Three hours. Mr. Wood.

23 SOIL SCIENCE AND MANAGEMENT (3-2) The geology, physics, chemistry, fertility, and biology of soils. *Prerequisite:* 2; sophomore standing. Four hours. Mr. Flanagan.

101 FERTILIZERS Principles of plant nutrition, nutrient deficiency symptoms, grade formulation, rates and ratios for specific crops. *Prerequisite:* 2; junior standing. Two hours. Mr. Flanagan. (Offered in alternate years, 1956-57.)

G152 SOIL CONSERVATION (2-2) A study of erosive forces and the physical properties, tillage, and management of soils, and of crops as applied to soil conservation. *Prerequisite:* senior or graduate standing or permission of the department. Three hours. Mr. Flanagan.

G181, 182 AGRONOMY SEMINAR Discussion of agronomic topics. Students are required to present papers on selected subjects. *Prerequisite:* senior or graduate standing or permission of the department. One hour. The staff. 197, 198 SENIOR RESEARCH (0-3) The student works on a research problem under the direction of a qualified staff member and submits the findings in a written form prescribed by the department. *Prerequisite:* senior standing. Three hours. The staff.

G295, 296 GRADUATE RESEARCH Each student completes a research problem under the direction of a qualified staff member and submits the findings in written form in accordance with the specifications for a Master's thesis. Credit as arranged. The staff.

AIR SCIENCE AND TACTICS (Air Force ROTC)

Col. Herzberg; Lt. Col. Schepis; Captains Aldrich, Meurlin and Nelson

1-2 FIRST YEAR BASIC Introduction to Air Force ROTC; introduction to aviation; fundamentals of global geography; international tensions and security organizations; instruments of national military security; basic military training. Two hours.

11-12 SECOND YEAR BASIC Elements of aerial warfare; introduction to Air Force aircraft, weapons, targets, and air bases; careers in the Air Force; cadet noncommissioned officer training. Two hours.

101-102 FIRST YEAR ADVANCED Introduction to advanced AFROTC; the Air Force commander and his staff; communicating and instructing process; AF correspondence; military laws, courts and boards; applied air science and air doctrine; aircraft engineering; air navigation; meteorology; leadership laboratory. Three hours.

111-112 SECOND YEAR ADVANCED Seminar on leadership concepts; career guidance; military aviation and the evolution of warfare; military aspects of world political geography; briefing for AF commissioned service; leadership laboratory. Three hours.

ANIMAL AND DAIRY HUSBANDRY (College of Agriculture) Professors Riddell and Newlander; Associate Professor Bradfield; Assistant Professors Atherton, Fitzsimmons; Mr. Balch

1 GENERAL DAIRYING (2-3) Introductory course in dairy cattle management and judging; quality milk production; Babcock test. Three hours. Messrs. Fitzsimmons and Bradfield.

2 LIVESTOCK OTHER THAN DAIRY (1-3) Types, breeds, and market classes. Two hours. Mr. Balch.

21 MILK AND MILK PRODUCTS (2-0) Introduction to products made from milk. History, development, role of these products in the dairy industry, markets and principles of processing. *Prerequisite:* sophomore standing. Two hours. Messrs. Atherton and Bradfield. 44 ADVANCED STOCK JUDGING (0-6) Judging, fitting and showing, with emphasis on dairy cattle. *Prerequisite:* 1. Two hours. Messrs. Fitzsimmons and Balch.

46 BUTTER, CHEESE, AND CASEIN (1-6) Theory and practice. Prerequisite: junior standing. Three hours. Mr. Atherton. (Offered in alternate years, 1956-57.)

103 LIVESTOCK PRODUCTION (2-3) Production and management of horses, sheep, swine and beef cattle. *Prerequisite:* 2. Three hours. Mr. Balch.

104 CHEMISTRY AND TESTING OF DAIRY PRODUCTS (2-3) Chemical and physical properties of milk and milk products. Standard methods of analysis. *Prerequisite*: Chem. 1-2. Three hours. Mr. Newlander.

105 FEEDS AND FEEDING (2-3) Feeds, rations and feeding practice. Prerequisite: junior standing. Three hours. Mr. Newlander.

G106 ANIMAL NUTRITION Nutrients, their function and utilization, and requirements for growth, reproduction and lactation. *Prerequisite*: 105; Chem. 31-32 or 35. Two hours. Mr. Newlander.

109 DAIRY BACTERIOLOGY (1-4) Relation of microorganisms to milk and milk products, methods of examination and control. *Prerequisite*: Botany 56. Three hours. Mr. Atherton.

G111 ICE CREAM (2-3) Principles and practices of ice cream making, including a study of physiochemical and biological factors involved; calculation of formulas; sherbets and specialties; merchandising, soda fountain management and sanitary control. *Prerequisite:* 104, 109 (which may be taken concurrently); junior standing. Three hours. Mr. Bradfield.

G114 CONCENTRATED DAIRY PRODUCTS (2-3) Methods and technical problems in manufacture and storage of condensed milk and milk powder. Physio-chemical characteristics of milk. Thermodynamics of condensing. Distribution and utilization of concentrated milks. *Prerequisite*: 104, 109; junior standing. Three hours. Mr. Atherton. (Offered in alternate years, 1955-56.)

116 DAIRY PLANT ENGINEERING (1-2) Theory and practical problems in selection and use of dairy processing equipment. *Prerequisite:* Physics 5; junior standing. Two hours. Mr. Bradfield in conjunction with the Agricultural Engineering Department. (Offered in alternate years, 1956-57.)

G151 MILK PRODUCTION (2-2) Growth and development; physiology of milk secretion; scientific feeding and management of dairy herd. *Prerequisite*: 105, senior standing or permission of department. Three hours. Messrs. Riddell and Fitzsimmons.

153 MARKET MILK (1-3) Milk handling from farm to consumer. Quality control, processing, cleaning methods. Grade A and Certified milk. *Prerequisite:* 21, 109; senior standing or permission of department. Two hours. Mr. Atherton. G154 TECHNICAL CONTROL OF MILK PROCESSING (1-3) Principles and practices of producing high quality milk, cream, cultured and flavored milks; sanitary regulations, laboratory tests and plant management. *Prerequisite:* 153 and 104; senior standing or permission of the department. Two hours. Mr. Bradfield.

G180 ANIMAL BREEDING. Physiology of reproduction; theory and practical application of genetic principles to breeding of livestock. *Prerequisite:* Botany 105 or Zoology 115; senior standing or permission of department. Three hours. Messrs. Fitzsimmons and Riddell.

G181, 182 ANIMAL AND DAIRY HUSBANDRY SEMINAR Reports and discussions of problems and special investigations in selected fields. One-two hours. (Maximum credit 1 hour senior, 3 hours graduate.) The staff.

197, 198 SENIOR RESEARCH The student works on a research problem under the direction of a qualified staff member and submits the findings in a written form prescribed by the department. *Prerequisite:* senior standing. Three hours. The staff.

G295, 296 GRADUATE RESEARCH Each student completes a research problem under the direction of a qualified staff member and submits the findings in written form in accordance with the specifications for a Master's thesis. Credit as arranged. The staff.

ANIMAL PATHOLOGY (College of Agriculture)

Professor Bolton; Associate Professor Durrell.

55 ANATOMY AND PHYSIOLOGY The various anatomical structures and their physiological functions. *Prerequisite:* sophomore standing. Three hours. Dr. Durrell.

56 DISEASES OF FARM ANIMALS The causes, symptoms, and prevention of diseases of farm animals. *Prerequisite:* sophomore standing. Two hours. Dr. Durrell.

116 POULTRY SANITATION AND DISEASE CONTROL (3-2) The causes, symptoms, and prevention of parasitic, infectious, and nutritional diseases of poultry. A discussion of the hygienic and sanitary measures used in incubation, brooding and rearing poultry will be given as indicated. Demonstrations and necropsies. *Prerequisite:* Botany 56. Four hours. Dr. Bolton.

197, 198 SENIOR RESEARCH The student works on a research problem under the direction of a qualified staff member and submits the findings in a written form prescribed by the department. *Prerequisite:* senior standing. Three hours. The staff.

G250-251 ARTIFICIAL INSEMINATION Theory and fundamentals of microscopic semen analysis and the physiological and related influences on semen efficiency. *Prerequisite:* 55, 56; Botany 56; Chemistry 31-32; graduate standing and permission of the department. Five hours. The staff. G295, 296 GRADUATE RESEARCH Each student completes a research problem under the direction of a qualified staff member and submits the findings in written form in accordance with the specifications for a Master's thesis. Credit as arranged. The staff.

ART (College of Arts and Sciences)

Professor Colburn; Assistant Professors Gowans and Mills

1 ART IN THE ANCIENT WORLD The principles and cultural significance of painting, sculpture, and architecture from prehistoric through Roman times to ca. 330 A.D., including the ancient art of Egypt, Mesopotamia, Greece, and Hellenistic lands. Three hours. Mr. Gowans. (Offered in alternate years, 1956-57.)

2 MEDIEVAL ART Art during the Middle Ages, from ca. 330 A.D. to ca. 1400 A.D., in the Byzantine Empire and western Europe. The history of painting, sculpture, and architecture is studied from the viewpoint of (1) the development of art as a vehicle for expressing Christian ideas and (2) the formation of a coherent style from diverse Oriental, classical, and Celto-Teutonic elements. *Prerequisite*: 1 or permission of instructor. Three hours. Mr. Gowans. (Offered in alternate years, 1956-57.)

4 MODERN ART Study and appreciation of contemporary trends in sculpture, architecture, and painting from the period of Impressionsm through Surrealism. *Prerequisite:* sophomore standing. Three hours. Mrs. Mills.

5 RENAISSANCE AND BAROQUE ART The development and cultural significance in western Europe of painting, sculpture, and architecture during the period from ca. 1400 to 1750, with particular emphasis on the principles and theory of Renaissance humanism and the Baroque reaction, and the art of the "Old Masters," including Van Eyck, Van der Weyden, Leonardo, Michelangelo, Bernini, and Rembrandt. Three hours. Mr. Gowans. (Offered in alternate years, 1955-56.)

6 MODERN ARCHITECTURE The development of architecture from 1750 to the present. Theory of Victorian eclecticism and modern architecture; analysis of the work of great modern architects, especially Gropius and the Bauhaus, Le Corbusier, and Frank Lloyd Wright. *Prerequisite:* 5 or permission of instructor. Three hours. Mr. Gowans. (Offered in alternate years, 1955-56.)

8 PAINTING IN AMERICA The development of painting in America from colonial times to the present, with emphasis on social and economic forces which at times channelled American artistic expression. Two hours. Mr. Colburn.

11, 12 ARTS AND CRAFTS Experiences in functional design using various media to develop good taste and creative ability including leather tooling, block-printing, ceramics, and work with metal. A weekly lecture

period relates the history and appreciation of arts and crafts to student work. *Prerequisite:* sophomore standing. Three hours. Mrs. Mills.

21-22 DRAWING AND PAINTING Composition and painting techniques, with emphasis on a clearer understanding of modern schools of painting and on individual development. *Prerequisite:* junior standing. *Two hours. Mr. Colburn.

For courses in ART EDUCATION, see Elementary Education 4-5, 101.

* To receive credit a student must complete at least two semesters. By permission of the instructor, the course may be taken a second time for credit.

BOTANY (College of Agriculture)

Professors Marvin and Gershoy; Associate Professors Johnstone, Sproston and Taylor; Assistant Professor Raynor

Note: Botany 3-4 (General Botany), which was offered prior to 1954, may serve as a prerequisite in place of Botany 1 (Introductory Botany) for most courses.

1 INTRODUCTORY BOTANY (2-4) Fundamental principles of biology illustrated by the morphology, physiology, and reproduction of vascular plants. A study of forms and functions, leading to an understanding of the plant as a dynamic unit. Four hours. Messrs. Taylor, Marvin, and Miss Raynor. (An equivalent course is offered in Summer Session.)

2 GENERAL BOTANY (2-4) A second semester for those desiring a year of botany. Study of plant groups, their relationships to each other. Plant distribution, geographical and historical. The role of plants in the world today. *Prerequisite:* 1. Four hours. Miss Raynor.

S10 FIELD BOTANY (2-4) Native plants and their habitats. Field identification and laboratory study. A projected series of courses encompassing the plant kingdom. Four hours. The staff. (Offered in the Summer Session only.)

53, 54 MORPHOLOGY (2-3) Comparative study of the structure, reproduction, and phylogenetic relationships of the major plant groups. First semester: algae, fungi, liverworts and mosses. Second semester: ferns and seed plants. *Prerequisite*: 1. Three hours. The staff. (Offered in alternate years, 1956-57.)

56 GENERAL BACTERIOLOGY (1-4) Principles and techniques employed in the study of micro-organisms, their isolation and culture with reference to human disease and public health; their importance to agriculture, industry and foods. *Prerequisite*: 1 or Zool. 1; Chem. 1-2. Three hours. Mr. Johnstone.

58 PLANT PATHOLOGY (2-0) or (2-4) Diagnosis, life history, and control of plant diseases caused by fungi, viruses, bacteria, nematodes. *Prerequisite:* 1. Two hours, lectures only; four hours, lectures and laboratory. Mr. Sproston.

* To receive credit a student must complete at least three semester hours. By permission of the instructor, the course may be taken a second time for credit.

101 ECONOMIC BOTANY (2-2) The relation of plants to human history and contemporary life. Botanical and economic aspects of plants used as sources of foods, drugs, and other products of importance in everyday living. Library study, periodic reports and visits to plant utilizing industries replace formal laboratory work. *Prerequisite:* 1; junior standing or permission of the department. Three hours. Mr. Taylor. (Offered in alternate years, 1955-56.)

102 MICROTECHNIQUE (1-6) Preparation and study of microscopic biological material with emphasis on vegetative and reproductive cells and their modifications. Slide making techniques; optics in relation to the microscope. *Prerequisite:* 1; junior standing or permission of the department. Four hours. Miss Raynor. (Offered in alternate years, 1955-56.)

103 PLANT PHYSIOLOGY (2-6) Mechanisms of absorption, translocation, synthesis, and utilization of materials; the role of internal and external factors in growth. *Prerequisite*: 1; Chem. 1-2; junior standing. Five hours. Mr. Marvin. (Offered in alternate years, 1956-57.)

105 GENETICS (2-2) Basic principles and theory of modern plant and animal breeding; elementary concepts of variation, inheritance, biometry, and cytogenetics. (No student may receive credit both for this course and for Zool. 115.) *Prerequisite:* 1; Zool. 1; junior standing or permission of the department. Three hours. Mr. Gershoy.

110 ECOLOGY (2-2) The concept of plant communities as an organism; endemism; invasion and succession in climax formations. Environmental factors of the habitat. Life forms. Ecological classification and nomenclature. *Prerequisite*: 103; junior standing. Three hours. The staff. (Offered in alternate years, 1955-56.)

112 TAXONOMY (1-4) Principles of classification: as exemplified in living plants and herbarium material. Significant phylogenetic schemes and modern systems of classification: the species concept; variation and discontinuity; specification. *Prerequisite*: 1; junior standing. Three hours. The staff. (Offered in alternate years, 1956-57.)

G151 PLANT ANATOMY AND HISTOLOGY (2-4) Development of the organism and accompanying integration of cellular tissues. Ontogeny of vegetative tissues; modifications of the cell wall. *Prerequisite:* 53, 54; or permission of the department. Four hours. Mr. Taylor. (Offered in alternate years, 1956-57.)

G152 FUNGI (2-4) The reproductive processes of the common molds, yeasts, and actinomycetes and their classification. Physiological studies; antibiosis. *Prerequisite*: 103 or permission of the department. Four hours. Mr. Sproston. (Offered in alternate years, 1955-56.)

G153 CYTOLOGY (2-4) The dynamics of the protoplast; nuclear division, gamete formation, syngamy and substitute methods of reproduction. Interrelation of chromosomal and genetic phenomena. *Prerequisite*: 105 or

Zool. 115; Chem. 31-32 or Chem. 35 or permission of the department. Four hours. Miss Raynor. (Offered in alternate years, 1957-58.)

G156 CYTOGENETICS (2-4) Normal and aberrant chromosome behavior in relation to genetic ratios, reproductive phenomena and evolutionary development. *Prerequisite*: 105 or Zool. 115; G154 or permission of the department. Four hours. Mr. Gershoy. (Offered in alternate years, 1956-57.)

G157 PLANT GROWTH (2-4) The nutrition of plant cells, growth hormones, cyclic variation of environmental factors, morphogenesis. Prerequisite: 103; Chem. 31-32 or Chem. 35 or permission of the department. Four hours. Mr. Marvin. (Offered in alternate years, 1955-56.)

197, 198 SENIOR RESEARCH The student works on a research problem under the direction of a qualified staff member and submits the findings in a written form prescribed by the department. *Prerequisite:* senior standing. Three hours. The staff.

G201, 202 BOTANY SEMINAR A topical seminar with discussion of assigned and collateral reading. Required of graduate students in botany. One hour. The staff.

G295, 296 GRADUATE RESEARCH Each student completes a research problem under the direction of a qualified staff member and submits the findings in written form in accordance with the specifications for a Master's thesis. Credit as arranged. The staff.

CHEMISTRY (College of Technology)

Professors Braun and Gregg; Associate Professor Crooks; Assistant Professors Brown, Cook, Inskeep, Lucarini and Whitcher

Note: Credit cannot be granted for 1-2 and also 11-12; nor for 35 and also 31-32.

1-2 INTRODUCTORY CHEMISTRY (3-3) An introductory course in general inorganic chemistry. Lectures, recitations and laboratory. Acceptable as a prerequisite to advanced courses. *Prerequisite:* at least one year of high school mathematics. Four hours. Mr. Gregg, Miss Brown and staff.

11-12 GENERAL CHEMISTRY (3-6) Lectures, recitations and laboratory, including general experiments in elementary qualitative analysis. Recommended for those concentrating in science. *Prerequisite:* at least one year of high school mathematics. Five hours. Mr. Inskeep, Miss Brown and staff.

21-22 ELEMENTARY QUANTITATIVE ANALYSIS (2-6) Introduction to the theory and practice of quantitative methods, both gravimetric and volumetric, including also a theoretical discussion of indicators, buffers and pH. Prerequisite: 1-2. Four hours.⁺ Messrs. Whitcher and Lucarini.

31-32 ORGANIC CHEMISTRY (3-6)* Organic chemistry for chemistry majors, premedical students and those concentrating in the biological and physical sciences. *Prerequisite*: 1-2; 21-22 recommended. Five hours.[‡] Messrs. Braun and Cook and staff.

35 OUTLINE OF ORGANIC CHEMISTRY (3-4) An introduction to organic chemistry, primarily for students in agriculture, home economics and nursing. *Prerequisite:* 1-2. Five hours. Mr. Crooks and staff.

41-42 PHYSICAL CHEMISTRY (3-6)*§ Introduction to the kinetic theory and its application to gases; thermodynamics and the application to liquids and solutions; chemical equilibria; fundamentals of electrochemistry and atomic structure. *Prerequisite*: Physics 21-22; Math. 21-22; Chem. 21-22 recommended. Five hours.[‡] Messrs. Cook and Inskeep.

ADVANCED INORGANIC CHEMISTRY

108 INORGANIC PREPARATIONS Laboratory preparations of inorganic compounds. *Prerequisite:* 1-2. Two hours. Mr. Crooks.

G112 ADVANCED INORGANIC CHEMISTRY A survey of the chemistry of the elements with particular attention to the relation of structure to properties, and to coordination compounds, complex ions, radioactivity, and stereoisomerism. *Prerequisite:* credit or concurrent enrollment in 41-42. Three hours. Mr. Whitcher.

ADVANCED ANALYTICAL CHEMISTRY

G121 ADVANCED THEORETICAL CHEMISTRY Selected topics in theoretical chemistry with frequent reference to analytical applications. *Prerequisite:* credit or concurrent enrollment in 41-42. Three hours. Mr. Whitcher.

ADVANCED ORGANIC CHEMISTRY

G130 CHEMISTRY OF THE CARBOHYDRATES Detailed description of the chemistry of the more common carbohydrates, including proofs of structure. *Prerequisite:* 31-32; credit or concurrent enrollment in 41-42. Three hours. Mr. Braun. (Not offered every year.)

G131-132 SPECIAL TOPICS IN ORGANIC CHEMISTRY An elaboration of structural and configurational isomerism, modern acid-base theory, molecular rearrangement and organic free radicals. *Prerequisite:* 31-32; credit or concurrent enrollment in 41-42. Three hours. Mr. Gregg. (Offered in alternate years, 1954-55.)

G133-134 PHYSICAL ORGANIC Physical organic chemistry, with emphasis on structural aspects and reaction mechanisms. *Prerequisite*:

* This course is regarded as an advanced course, meeting requirements for concentration in the liberal arts curriculum.

† May be taken by certain students for three hours credit, with only one three-hour laboratory period.

* May be taken by certain students for four hours credit, with only one three-hour laboratory period.

§ May be taken without the laboratory work for three hours credit by permission of the department.

31-32; credit or concurrent enrollment in 41-42. Three hours. Mr. Cook. (Offered in alternate years, 1955-56.)

G136 CHEMISTRY OF CYCLIC COMPOUNDS The chemistry of alicyclic and of the more common heterocyclic compounds. *Prerequisite*: 31-32; credit or concurrent enrollment in 41-42. Three hours. Mr. Braun. (Offered in alternate years, 1954-55.)

G137 IDENTIFICATION OF ORGANIC COMPOUNDS (3-8) A discussion of the methods, both chemical and physical, of identifying organic compounds, their separation, and the determination of their functional groups. *Prerequisite:* 31-32; credit or concurrent enrollment in 41-42. Five hours. Mr. Braun and staff.

G138 ORGANIC REACTIONS Discussion, presented from the preparative viewpoint, of applications, limitations, and experimental conditions of the more important reactions of organic chemistry. *Prerequisite:* 31-32; credit or concurrent enrollment in 41-42. Three hours. Mr. Braun. (Not offered every year.)

ADVANCED PHYSICAL CHEMISTRY

G147-148 ADVANCED PHYSICAL CHEMISTRY. A consideration at a higher level of the topics discussed in 41-42. Emphasis is placed on thermodynamics, kinetics and spectra. Statistical mechanics and quantum theory are introduced. *Prerequisite*: 41-42. Three hours. Messrs. Cook and Inskeep.

G149 SPECIAL TOPICS IN PHYSICAL CHEMISTRY Discussions of specific topics in physical chemistry at the advanced level. Such topics as molecular and atomic spectra, theory of solutions, quantum theory or statistical mechanics may be considered. *Prerequisite*: G147-148 or its equivalent. Three hours. Messrs. Cook and Inskeep.

G241 CHEMICAL THERMODYNAMICS A systematic study of the application thermodynamics in the solution of chemical problems. *Pre*-requisite: G147-148. Three hours. Mr. Inskeep.

G242 CHEMICAL KINETICS The velocity of chemical reactions in both homogeneous and heterogeneous systems. *Prerequisite*: G147-148. Three hours. Mr. Cook.

SEMINARS AND RESEARCH

Seminars are required of graduate students and juniors and seniors concentrating in chemistry.

151-152 JUNIOR SEMINAR (2-0) One hour. Messrs. Lucarini and Inskeep.

153-154 SENIOR SEMINAR (2-0) One hour. The staff.

197-198 SENIOR RESEARCH (0-6, 0-12) The student elects a field for special study in inorganic, analytical, physical or organic chemistry,



SHAKESPEARE IN THE MUSEUM

RADIO WORKSHOP ON THE AIR





works under the direction of a staff member, and submits his findings in written form and suitably bound. Required of seniors in the Chemistry Curriculum. Two hours. I. Four hours. II. The staff.

G251-252 GRADUATE SEMINAR (2-0) One hour. The staff.

G297-298 GRADUATE RESEARCH Each student completes a research problem and submits the findings in written form in accordance with the specifications for a Master's thesis. Five hours. The staff.

For additional offerings see AGRICULTURAL BIOCHEMISTRY.

CLASSICAL LANGUAGES (College of Arts and Sciences)

Professors Kent and Kidder; Associate Professor Pooley; Assistant Professor Lane

GREEK

1-2 ELEMENTARY GREEK The essentials of Attic Greek. Prose compositions and selected readings from Greek authors. No prerequisite. Four hours. Mr. Pooley.

11-12 INTERMEDIATE GREEK Plato's Euthyphro and Apology; selections from the *lliad* and the Odyssey. Prerequisite: 1-2 or its equivalent. Three hours. Mr. Lane.

101 GREEK ORATORS Selected speeches of Lysias and Demosthenes. *Prerequisite:* 11-12. Three hours. Mr. Kent. (Offered in alternate years, 1956-57.)

102 GREEK COMEDY Two plays of Aristophanes. Prerequisite: 11-12. Three hours. Mr. Kent. (Offered in alternate years, 1956-57.)

103 GREEK HISTORIANS Thucydides, Books I and II; selections from Herodotus and Xenophon's *Hellenica*. *Prerequisite*: 11-12. Three hours. Mr. Kent. (Offered in alternate years, 1955-56.)

104 GREEK TRAGEDY Sophocles' Antigone and Euripides' Medea, or two equivalent plays. Prerequisite: 11-12. Three hours. Mr. Lane. (Offered in alternate years, 1955-56.)

For GREEK ART, see Art 1; for GREEK LITERATURE IN TRANSLATION, see General Literature 51; and for GREEK PHILOSOPHY, see Philosophy 107.

LATIN

1-2 ELEMENTARY LATIN The essentials of Ciceronian Latin. For students who present less than two years of high-school Latin.* *Credit is* allowed only if Latin 11-12 is also completed. Three hours. Mr. Pooley.

* Students who have completed two years of high-school Latin more than two years prior to their entrance into the University may be permitted by action of the department to enroll in Latin 1-2 for credit. 11-12 INTERMEDIATE LATIN Extensive review of Latin syntax. Cicero, In Catilinam I, II; Pro Archia. Vergil, Aeneid, Books I and II. Prerequisite: 1-2, or two years of high-school Latin. Three hours. Mr. Lane.

32 ENGLISH WORDS Derivation of English words from Greek and Latin roots. Principles of word formation; development of meanings; training in the analysis of unfamiliar words, with special attention to scientific vocabulary. No previous knowledge of Greek or Latin required. I and II. Three hours. Mr. Lane.

51-52 LIVY AND HORACE Selected passages from Livy XXI and XXII; lectures on Roman historiography. Selections from Horace's Odes, with special attention to metre and diction. *Prerequisite*: 11-12, or four years of high-school Latin. Three hours. Mr. Kent.

113 REPUBLICAN PROSE Extensive reading in Caesar and Sallust, and in the speeches of Cicero. Prerequisite: 51-52. Three hours. Mr. Kent.

114 EPIC POETS Extensive reading in Vergil, Ovid, and others. Prerequisite: 51-52. Three hours. Mr. Pooley.

121 LATIN PROSE COMPOSITION Required of those who wish to be recommended to teach Latin. *Prerequisite:* 51-52. Three hours. Mr. Pooley.

G151 ROMAN LETTERS Selected letters of Cicero, Pliny, and Fronto. *Prerequisite*: 113, 114. Three hours. Mr. Pooley. (Offered in alternate years, 1956-57.)

G152 COMEDY Two plays of Plautus and Terence. Study of the development of this literary form. *Prerequisite:* 113, 114. Three hours. Mr. Kent. (Offered in alternate years, 1956-57.)

G155 HISTORIANS OF THE EMPIRE Augustus, Res Gestae; Tacitus, Annals, I-IV; selections from Suetonius and Ammianus Marcellinus. Prerequisite: 113, 114. Three hours. Mr. Kent. (Offered in alternate years, 1955-56.)

G156 SATIRE Selections from Horace and Persius; Juvenal, Satires, I, III, X. Study of the development of this literary form. *Prerequisite*: 113, 114. Three hours. Mr. Kent. (Offered in alternate years, 1955-56.)

G201-202 GRADUATE COURSES Offered on occasion for resident candidates for the Master of Arts degree.

For LATIN LITERATURE IN TRANSLATION, see General Literature 52; for the TEACHING OF LATIN, see Secondary Education 152.

COMMERCE AND ECONOMICS (College of Technology)

Professors Lohman and Briggs; Associate Professors Greif, Maybury, Nulty and Woodard; Assistant Professor Nadworny; Messrs. Beach, Hooley, LeSourd, Lovejoy, Mieczkowski, Nyquist, Severance, Wick and Mrs. Pettis

*1-2 WORLD ECONOMIC GEOGRAPHY Geography as a basis for economic development; importance of resources to production, exchange, con-
sumption, population, and national economies. Three hours. Miss Woodard and Mr. Mieczkowski.

*11-12 PRINCIPLES OF ECONOMICS Fundamental economic principles as an aid to the understanding of modern economic society. *Prerequisite:* sophomor⁻ standing. Three hours. The staff.

13-14 PRINCIPLES OF ACCOUNTING (2-4) An elementary course in the problems of the financial control of business, with the necessary practice work. *Prerequisite:* sophomore standing. Four hours. Messrs. Briggs and Nyquist.

*15, 16 ECONOMIC HISTORY OF THE UNITED STATES Description and analysis of capitalism as it developed first in Western Europe and later in the United States as a basis for an understanding of our modern economic systems. *Prerequisite:* sophomore standing. Recommended to be taken concurrently with 11-12. Three hours. The staff.

31 ENGINEERING ACCOUNTING A course emphasizing cost and depreciation accounting, designed primarily to meet the needs of the engineer. *Prerequisite:* 11-12. Three hours. Mr. Briggs.

49 GENERAL TYPING Instruction in correct technique; mastery of the keyboard; practice to attain typing proficiency. Fee \$22.50 per semester. Not open to secretarial or business education students. Two hours. I and II. Mrs. Pettis.

65, 66 BUSINESS COMMUNICATIONS A study of the principles involved in solving business problems through the media of written communications. Format and composition are considered, and actual practice in writing letters and reports is required. *Prerequisite*: junior standing. Three hours. Mrs. Maybury.

BANKING, FINANCE, AND INSURANCE

*G101-102 MONEY AND BANKING The functions of money, credit, and banking in modern economic society. The theory of the internal and external value of money; the control of the money market; interrelationship of monetary and fiscal policies and their effects upon national and international price movements. *Prerequisite*: 11-12. Three hours. Mr. Lovejoy.

*G103 ECONOMICS OF TAXATION Revenues and expenditures of federal, state, and local governments and their effects upon individuals, business institutions, and the national economy. *Prerequisite*: 11-12. Three hours. Mr. LeSourd.

*105 INTERNATIONAL TRADE AND FINANCE Theory of international values, mechanism of adjustment of international balances, foreign exchange theory, the international aspects of monetary and banking theory, and tariff theory. *Prerequisite:* G101-102. Three hours. Mr. Mieczkowski.

G106 SECURITIES MARKETS Analysis of the organization and operation of organized and over-the-counter securities markets; different * Courses accepted for credit in College of Arts and Sciences. types of securities; primary and secondary markets in the process of capital formation; securities price behavior; government and self-regulation of securities markets. *Prerequisite*: 11-12 and 13-14. Three hours. I. Mr. Lohman.

G107 CORPORATION FINANCE A comparison of the various types of business forms with chief attention to the financing of corporations. *Prerequisite*: 11-12 and 13-14. Three hours. II. Mr. Lohman.

G108 INVESTMENTS A study of the various media of investments and of the operation of financial institutions. Special consideration of investment analyses of industrials, financial institutions, public utilities, and railroads. Practical application of available statistical and accounting tools. *Prerequisite:* G106. Three hours. Mr. Lohman.

109-110 BUSINESS LAW I First semester: a survey of the American system of law with particular reference to some of the fundamental legal concepts relating to business, especially as found in the law of contracts, sales, bailments, and negotiable instruments. Second semester: a continuation of the study of the legal aspects of business with specific reference to the law of agency, partnerships, and corporations. *Prerequisite*: 11-12. Three hours. Mr. Wick.

111 ECONOMICS OF LIFE INSURANCE Types of life insurance contracts and their application; premium and reserve computation, social security and other forms of life insurance. *Prerequisite*: 11-12 and 13-14. Three hours. Mr. Lohman.

112 PROPERTY AND CASUALTY INSURANCE The principles underlying property and casualty insurance. *Prerequisite*: 11-12 and 13-14. Three hours. Mr. Lohman.

113 URBAN AND INDUSTRIAL LAND ECONOMICS Economic principles underlying the utilization and conservation of urban and industrial land resources. *Prerequisite*: 11-12. Three hours.

114 REAL ESTATE The principles underlying the leasing, purchasing, selling, valuation, and financing of real estate for personal and business uses. *Prerequisite:* 11-12 and 13-14. Three hours.

120 BUSINESS LAW II The law in relation to financial instruments such as documents of title for collateral security, chattel mortgages, real estate mortgages, and suretyship and guaranty. *Prerequisite*: 109. Two hours. Mr. Wick.

HOTEL AND RESORT MANAGEMENT

4 HOTEL AND RESORT MANAGEMENT SURVEY Introduction to hotel and resort management and its various aspects. Two hours. Mr. Beach.

166 HOTEL AND RESORT EQUIPMENT A study of various types of hotel and resort equipment, their operation and application. *Prerequisite*: 4. Three hours. I. Mr. Beach. 167 HOTEL AND RESORT STRUCTURES AND MAINTENANCE Materials and methods of building construction, repair and maintenance. Specification and repair of hotel and resort fixtures and furniture. *Prerequisite*: 166. Three hours. II. Mr. Beach.

177 HOTEL AND RESORT ADMINISTRATION The study of hotel and resort organization and administration. *Prerequisite*: 4. Three hours. Mr. Beach.

178 HOTEL AND RESORT PROBLEMS A study of the specific problems arising in the management and operation of hotels and resorts. *Prerequisite:* 177. Three hours. Mr. Beach.

MARKETING AND MERCHANDISING

121 PRINCIPLES OF MARKETING The place of marketing in our economy. An intensive analysis of the marketing structure by functions, institutions, and commodities. *Prerequisites* 11-12. Three hours. Mr. Greif.

122 PROBLEMS IN MARKETING The application of the case method to discover solutions to problems which challenge producers and middlemen in the marketing of goods and services. *Prerequisite:* 121. Three hours. Mr. Greif.

123 PERSONAL SALESMANSHIP A practical approach through class participation and individual demonstration to modern salesmanship, emphasizing the approach to, presentation and close of the sale. *Prerequisite:* 121. Three hours. Mr. Greif.

125 AMERICAN MARKETING SPEAKS A symposium for the analysis of trends in the American marketing structure. Outstanding leaders in American business will present their opinions. Class analyses to follow each presentation. *Prerequisite*: 121. Three hours. Mr. Greif.

126 OPERATION OF SMALL BUSINESS AND SERVICE ESTAB-LISHMENTS A practical consideration of how the individual establishing his own business meets the problems of finance, location, display, merchandising, promotion, and control. Individual project development. *Prerequisite*: 121. Three hours. Mr. Greif.

131 SALES MANAGEMENT The new and established trends of the sales manager's job. Method of selection, training, testing, compensation and control, including marketing policies and the coordination of related departmental functions. *Prerequisite*: 121. Three hours. Mr. Greif.

132 FUNDAMENTALS OF ADVERTISING Advertising as an economic and social influence. A study of principles and techniques of copy preparation, media of selection and advertising activities. Students will receive practice in preparation of advertising copy and layout. *Prerequisite*: 121. Three hours. Mr. Greif.

INDUSTRIAL AND PERSONNEL MANAGEMENT

*141 LABOR ECONOMICS History of the American labor movement; objectives, policies, and tactics of labor unions; public policy with respect to labor organizations. *Prerequisite*: 11-12. Three hours. Mr. Nadworny.

*G142 COLLECTIVE BARGAINING The collective labor agreement; techniques of the bargaining process; arbitration; the administration of the labor contract. *Prerequisite*: 141. Three hours. Mr. Nadworny.

143 INDUSTRIAL MANAGEMENT Fundamentals of management decisions in the organization and operation of industrial plants, including production and quality control; plant layout; equipment and maintenance; personnel management and industrial relations. *Prerequisite:* 11-12. Three hours. Mr. Nadworny.

G151-152 PERSONNEL ADMINISTRATION Functions and objectives of a personnel department; instruments of control, testing, and safety; incentive plans; placement, selection, and interview techniques. Field trips to factories, stores and offices. *Prerequisite*: 142. Three hours. Mr. Nadworny.

G154 SCIENTIFIC MANAGEMENT AND LABOR Description and analysis of the development of scientific management, reactions and relationship of organized labor to it; long-range effects of scientific management on the structure and policies of industry and organized labor. *Prerequisite*: 143. Three hours. Mr. Nadworny.

For TIME AND MOTION STUDY and PLANT ORGANIZATION, required of students in this option, see Engineering, Mechanical (M.E. 175, 176).

ACCOUNTING

161-162 ADVANCED ACCOUNTING Advanced valuation problems in the financial control of business. *Prerequisite*: 13-14. Three hours. Mr. Briggs.

163 FINANCIAL STATEMENT ANALYSIS Preparation and analysis of the more common types of accounting statements. *Prerequisite*: 13-14. Three hours. Mr. Briggs.

164 TAX ACCOUNTING The technical and accounting aspects of the income, estate, gift, and excise tax laws. *Prerequisite*: 13-14. Three hours. Mr. Briggs.

G171 AUDITING The theory and practice of auditing, types of audits, audit procedures, working papers, and reports. *Prerequisite*: 161-162. Three hours. Mr. Briggs.

G172 COST ACCOUNTING A thorough consideration of the basic principles of cost accounting and their practical application. *Prerequisite*: 161-162. Three hours. Mr. Briggs.

G176 C.P.A. PROBLEMS Accounting theory and practice for those interested in professional accounting. *Prerequisite*: 161-162. Three hours. Mr. Briggs.

* Courses accepted for credit in the College of Arts and Sciences.

ECONOMICS

*181 TRANSPORTATION Social and economic aspects of the transportation problems as revealed by an analysis of the nature, history, and problems of the various transportation agencies of the United States. *Prerequisite*: 11-12; Pol. Sci. 1, 2. Three hours. Mr. Lovejoy.

*182 PUBLIC UTILITIES The economics of public utility enterprise with special reference to franchises, capital structure, valuation, rate-making, and governmental regulation. *Prerequisite*: 11-12; Pol. Sci. 1, 2. Three hours. (Offered in alternate years, 1955-56.)

*183 ECONOMIC LIFE AND GOVERNMENT CONTROL A study of the economic causes and consequences of government regulation and control of business activities. *Prerequisite:* 11-12; Pol. Sci. 1, 2. Three hours. Mr. Lovejoy.

*184 THE ECONOMICS OF CONSUMPTION Consumption and consumers' choice; their relationship to the modern exchange economy; measurements of consumption; methods proposed for the increase and diversification of consumption. *Prerequisite*: 11-12. Three hours. Mr. Severance.

*G186 ECONOMIC ANALYSIS An analysis of consumer demand, supply, market price under competitive conditions and monopolistic influences, and the theory of income distribution. *Prerequisite*: 11-12 and one other semester course. Mr. Severance.

*187 ELEMENTARY STATISTICS (2-2) The theory and interpretation of statistics, including frequency distributions, measurement of central tendency and dispersion, analysis of variance, tests of significance, the elementary theory of probability and simple correlation. *Prerequisite:* 11-12; Math. 1 and 4. Three hours. Mr. Hooley.

*G188 QUALITY CONTROL (2-2) The application of statistical tools to industrial problems. Topics covered include control charts, sampling plans, index numbers and measurement of trends. *Prerequisite*: 187. Three hours. Mr. Hooley.

*G192 INTERNATIONAL ECONOMIC PROBLEMS AND POL-ICIES Important aspects of international cooperation and conflict in the economic sphere; the quest for foreign markets, raw materials, investment opportunities, and population outlets. *Prerequisite*: 105. Three hours. Mr. Mieczkowski.

*G193-194 MONEY, INCOME AND PRICES An analysis and description of cyclical fluctuations. The problems of cyclical control, employment, and price levels, as well as overall planning, are discussed in the second semester. *Prerequisite*: G101-102 or concurrent enrollment. Mr. Severance.

*G195 HISTORY OF ECONOMIC THOUGHT The development of economic ideas from classical antiquity to modern times, with emphasis on the Classical, Historical, Socialist, Optimist, Marginalist, and Neoclassical Schools. *Prerequisite:* G185-186 or consent of instructor. Three hours. Mr. Hooley.

* Courses accepted for credit in the College of Arts and Sciences.

*G196 MODERN ECONOMIC THOUGHT A survey of the leading 20th Century economists and their doctrines including studies of J. B. Clark, Thorstein Veblen, Alfred Marshall, W. C. Mitchell, J. A. Hobson, J. M. Keynes, J. R. Hicks, and others. *Prerequisite*: G195. Three hours. Mr. Hooley.

*G197, 198 SEMINAR Designed for students concentrating in the department. Review of recent books and periodical literature; discussions of topics of contemporary interest; student reports based upon personal investigation. *Prerequisite:* senior standing; consent of chairman. Three hours. The staff.

*G201-202 INDEPENDENT READING AND RESEARCH A course designed to meet the special research problems of graduate students. Consent of the department required. Hours to be arranged. The staff.

SECRETARIAL STUDIES

53-54 ELEMENTARY SHORTHAND Instruction in the fundamental principles of Gregg Shorthand. Dictation and transcription of business letters. Four hours. Miss Nulty.

55-56 ADVANCED SHORTHAND Dictation covering a broad business vocabulary and a variety of literary and technical subject matter. Emphasis on speed in taking dictation and transcribing. *Prerequisite:* 53-54. Four hours. Miss Nulty.

59-60 ELEMENTARY TYPEWRITING Instruction in the care of the typewriter; correct technique; mastery of the keyboard; practice in variety of forms of material. Three hours. Mrs. Pettis.

61-62 ADVANCED TYPEWRITING Development of typing speed; projects covering the different kinds of commercial typing; transcription of shorthand notes. *Prerequisite:* 59-60. Three hours. Mrs. Maybury.

69 OFFICE TECHNIQUES AND MACHINES Instruction in the operation of office machines (including calculating, transcribing, and duplicating equipment) and in filing principles. Bases for the selection of machines and equipment, and application of them to specific office problems. *Prerequisite:* senior standing. Three hours. Mrs. Maybury.

70 OFFICE MANAGEMENT Organization and supervision of office activities from the standpoint of the office manager; office job analysis, selection and training of personnel; the office structure with regard to production standards, office forms, systems, equipment and supplies, flow of work and the physical layout of the office. *Prerequisite:* senior standing. Three hours. Mrs. Maybury.

71-72 SECRETARIAL PRINCIPLES AND PRACTICE An opportunity for secretarial majors to study the basic principles governing secretarial activity. Responsibility is placed on the students for judgment and decision in coordinating skills and job knowledge as they are efficiently ap-* Courses accepted for credit in the College of Arts and Sciences. plied in a variety of secretarial duties. *Prerequisite:* senior standing. Three hours. Mrs. Maybury.

DENTAL HYGIENE (School of Dental Hygiene)

Dr. Sawabini, Director; Assistant Professors Marceau and Okey; Drs. Conklin, Faigel, Reiman and Slack; Mrs. Lane; Misses Derouin and Quinby

1 ORIENTATION TO DENTAL HYGIENE (1-0) A general study of the dental hygiene movement; history, growth, status of dental hygienist, scope of operations, standards and ethics, personal qualifications and personsality traits. One hour. Miss Quinby.

2 INSTRUMENTATION (0-6) The principles and technics of instrumentation for scaling and polishing teeth with use of manikins. Examination and charting of mouth and general clinical procedures. Three hours. Miss Quinby.

11 DENTAL ANATOMY (2-4) Study of anatomy of head and neck; the form and structure of teeth, including nomenclature and relationship; calcification and eruption of teeth; drawing, carving, and identification of individual teeth. Four hours. Dr. Marceau.

21 GENERAL AND DENTAL HISTOLOGY AND EMBRYOLOGY (1-2) Introductory study of the microscopic structure and development of the basic tissues of the body and oral cavity. Emphasis is based upon dental and oral material. Use of microscope, colored slide projections and drawings comprise laboratory work. Two hours. Dr. Reiman.

32 FIRST AID (1-0) The basic principles of first aid are taught to the student in order that she may prevent and cope with emergencies that arise in the dental office. One hour. Mrs. Lane.

51 ORAL PATHOLOGY (2-0) An introduction to general pathology with special consideration of the more common diseases affecting the human body. Emphasis is placed upon the pathology of the teeth and their supporting structures. Two hours. Dr. Sawabini.

52 PHARMACOLOGY AND ANESTHESIOLOGY (1-0) Lectures on the reaction and uses of drugs. Also a study of anesthesia, general and local, as it is used in dental practice. One hour. Dr. Faigel.

61 RADIOLOGY (1-1) The study, demonstration, and practice of the fundamentals of intra-oral radiographic technic including electrophysics; angulation of machine; placing of films in mouth and complete processing of films. One hour. Dr. Slack.

72 DENTAL HEALTH EDUCATION (2-0) Demonstrations and practical applications of modern methods of dental health education. Study of teaching methods; visual aids; surveys and statistics; materials; campaigns; school dental programs. Two hours. Miss Quinby. 74 PUBLIC HEALTH (2-0) Public health as it applies to community sanitation; communicable disease control; organization, powers and function of health departments and voluntary health agencies; relation of dentistry to public health. Two hours. Mr. Okey.

81-82 DENTAL HYGIENE CLINIC PRACTICE (0-15) Actual clinic practice on patients beginning with simple cases and gradually progressing to more difficult cases with children and adults. Practice in the field is done by the student at local dental clinics, hospitals and in Children's Homes. Five hours. Miss Quinby and staff.

91-92 DENTAL ASSISTING, DENTAL MATERIALS, ETHICS AND OFFICE MANAGEMENT (1-0) The principles of professional ethics and economics; office management and essentials of practice building; dental assisting and materials used in dental practice. One hour. Dr. Conklin.

94 BACTERIOLOGY (2-4) An introduction to the study of infectious agents. General considerations of modes of transmission of infectious disease, manner of disease production and methods by which the body combats infection. Special consideration of infectious diseases of the oral cavity. Four hours. Bacteriology staff.

EDUCATION (College of Education and Nursing)

1, 2 ORIENTATION TO EDUCATION Orientation to education as a career; consideration of opportunities in teaching; survey of the evolution and examination of the structure of the American school system; study of the role of education in society. Two hours. The staff.

120 SEMINAR IN EDUCATION A consideration of the purpose, organization, and activities of professional organizations in education; and a study of selected professional problems which affect the welfare of teachers and the quality of the educational program. Two hours. The staff.

G123, 124 READING CLINIC Study of techniques in the diagnosis and correction of reading difficulties; clinical experience with remedial cases which have been accepted by the reading clinic. Enrollment by permission of the director of the reading clinic and the dean of the college. Two-four hours. Miss Otterman.

140 PROBLEMS IN CITIZENSHIP Opportunities for study of current problems of citizenship at community, state and national levels. Field contacts and experiences are utilized where possible. The major objective of the course is to awaken the student to the challenge of active citizenship. The course is offered for senior students in education and is arranged to fit the student teaching schedule of the final semester. Three hours. Mr. Haugen.

ELEMENTARY EDUCATION

Associate Professor Pappoutsakis; Assistant Professors Adams, Male, Mills, O'Neill and Phillips

3-4 CHILD AND COMMUNITY Supervised experiences with children's groups in the community. One hour. Mr. O'Neill.

11-12 MUSIC Ear training, music reading and writing, elementary theory, history and appreciation. Three hours. Mr. Pappoutsakis.

13 SCHOOL MUSIC Basic principles in elementary school music teaching. *Prerequisite:* 11-12 or Music 1, 2 and 5-6. Three hours. Mr. Pappoutsakis.

21 TEACHING READING Principles underlying the teaching of reading; materials of instruction; reading readiness; vocabulary development; development of correct study skills; observation in the demonstration school. *Prerequisite*: Psych. 1-2. Three hours. Mrs. Adams.

31 CHILD DEVELOPMENT The physical, mental, social and emotional development of the child; a study of methods of guiding this development. Observation in elementary schools. Three hours. Mrs. Adams.

34 CHILDREN'S LITERATURE Literature "old and new" for children. The course aims to acquaint students with the great body of both traditional and modern literature in prose and poetry, to help them to appreciate literature suitable for children at different age levels, and to establish some criteria for judging books for children. The principles and techniques of story telling, as well as practice in this art, are an integral part of this course. Three hours. Mrs. Adams.

43-44 METHODS AND MATERIALS I Principles, methods and materials in teaching language arts, social studies, science, and arithmetic in the elementary school. Observations and participation in elementary schools. Three hours. Mr. O'Neill.

70-71 ART FOR THE ELEMENTARY SCHOOL A study of the purposes and methods of contemporary art education in the development of the child. The course includes lectures, discussions, and direct experiences in creative art. Designed for classroom teachers. Three hours. Mrs. Mills.

101 HEALTH AND PHYSICAL EDUCATION Development of a program of health and physical education for the elementary school. Principles, methods and materials appropriate for the several age and grade groups. Three hours. Miss Phillips.

105 METHODS AND MATERIALS II Classroom management, lesson planning, and teaching. Participation in elementary schools preparatory to full-time student teaching. Three hours. The staff.

106 STUDENT TEACHING Teaching in the elementary schools of Burlington and vicinity under the guidance of critic teachers and college supervisors. Students spend seven full weeks in the elementary schools. *Prerequisite:* senior standing. Seven hours. Mr. O'Neill.

JUNIOR HIGH SCHOOL EDUCATION Professors Huden and Pearl

2 JUNIOR HIGH SCHOOL MATHEMATICS A review of arithmetic and elementary algebra from the viewpoint of the prospective junior high school teacher; the aims and objectives determining the selection and presentation of subject matter; selected advanced topics in arithmetic; development of skill in computation and in solving problems; use of computing devices; graphs and scale drawings. Three hours. Mr. Huden. I.

62 THE JUNIOR HIGH SCHOOL CURRICULUM. The curriculum of the junior high school, its objectives and content; proper grade placement of curriculum content; laboratory experience in junior high schools; appropriate teaching procedures; observation and participation in various subject fields and on different grade levels; appraisal of the results of educational effort. *Prerequisite*: Psych. 1-2. Three hours. Mr. Pearl and staff.

101 ORGANIZATION AND MANAGEMENT The organization, administration, and management of the junior high school for the efficient attainment of educational objectives; the establishment of desirable routine; the practice of democratic procedures; the attainment of individual and group self-discipline. *Prerequisite:* Psych. 1-2; junior standing. Three hours. Mr. Pearl.

108 OBSERVATION AND STUDENT TEACHING The integration of the various subjects in the junior high school education curriculum on the operative level through directed experience; the development of teaching competence and efficient school and class control, leading to individual and group self-discipline and good citizenship on the part of pupils; experience in discharging the responsibilities of the teacher to the school and the community; instructional planning; observation, participation, and directed teaching leading to responsible student teaching. *Prerequisite:* 62; 101; Sec. Ed. 107. Six hours. Mr. Pearl and staff.

116 HEALTH EDUCATION The development of a program of health education for the school including health appraisal, health needs, health adjustments, and conservation based upon scientific knowledge of the developing human body and its functioning. Two hours. I and II. The staff.

SECONDARY EDUCATION

Professors King, Carpenter, Huden, Kent and Pearl; Assistant Professors Adams, Male and Otterman

1 PRINCIPLES OF EDUCATION The aims and principles of American education; the organization of the public school system; enrollment; qualifications of teachers; study of the curriculum; principles of learning. *Prerequisite:* junior standing; Psych. 1-2. Three hours. Mrs. Adams.

15 PARTICIPATION Students are provided with an opportunity to observe and participate in classroom work in junior and senior high schools. One hour. The staff. 45, 46 LEARNING AND THE ADOLESCENT A study of the developing adolescent, psychology of learning with particular application to the adolescent, and measurement and evaluation of adolescent learning and development. *Prerequisite:* General Psychology. Three hours. Mr. Huden.

G102 PHILOSOPHY OF EDUCATION Educational theory based upon psychological principles, the contributions of leading educational philosophers, and present day social needs; the relationships of education to social welfare and the demands made upon education by a democratic society. *Prerequisite:* 12 semester hours in education and psychology. Three hours. Mr. Male.

107 SECONDARY METHODS AND PROCEDURES General methods of secondary school instruction; problems of classroom management; pupil diagnosis and guidance; observation and participation in selected secondary schools of the state. *Prerequisite*: satisfactory completion of an introductory course in education; senior standing; high standing in the field of specialization. Three hours. Mr. Pearl.

108 STUDENT TEACHING IN SECONDARY SCHOOLS Students are assigned to observe, participate in classroom work, and teach in junior or senior high school classes. Their teaching is directed, observed, and evaluated by critic teachers, the supervisors of student teaching, and the principals of the schools. Individual conferences with critic teachers, the supervisors of student teaching, and the principals occur at frequent intervales. *Prerequisite:* satisfactory completion of 107; high standing in professional subjects and in the field of specialization; approval by the director of student teaching. Six hours. Mr. Pearl.

G111 EDUCATIONAL MEASUREMENTS An introductory course dealing with the essential principles of measurement in education. Topics include statistics applied to education; improvement of teacher-made measures of achievement; construction of objective tests and inventories; analysis of standard tests. *Prerequisite*: 12 semester hours in education and psychology. Mr. Huden.

G125 TEACHING SOCIAL STUDIES IN SECONDARY SCHOOLS Special methods in the field of social studies; aims and objectives; motivation; individual differences; selection of teaching material and visual aids. *Prerequisite:* 12 semester hours in education and psychology; 18 semester hours in social studies. Three hours. Mr. Male.

126 READING AND STUDY IN THE SECONDARY SCHOOL A course designed to acquaint the teacher with the reading and study skills which are necessary for success in the secondary school and to show how these skills may be developed at the secondary school level. *Prerequisite:* six hours of psychology and/or education. Three hours. Miss Otterman.

G127 TEACHING SCIENCE IN SECONDARY SCHOOLS A broad view of modern teaching philosophy and how it may be applied in teaching science through methods proved by experience to be workable and effective. *Prerequisite:* 12 semester hours in education and psychology; 18 semester hours in science. Three hours. I or II. Mr. Huden. G132 SCHOOL ADMINISTRATION A general course in school administration designed for both teachers and administrators. Considers the roles of teachers and administrators in the organization and management of curriculum, extra-curricular activities, pupil classification, school plant and equipment, school finance, supervision, in-service education, and community relationships. *Prerequisite:* senior standing: 12 hours in education and psychology. Three hours. I. Mr. King.

G150 GUIDANCE The underlying principles of guidance and the development of a guidance program for the school; the organization of the school program to meet individual needs of pupils; the use of tests in guidance; ways of meeting personality and behavior problems; the guidance function of the home room; the development and use of cumulative records; counseling pupils with reference to ethical and health problems, leisure time activities, educational programs, and vocational goals. *Prerequisite:* 12 semester hours in education and psychology. Three hours. Mr. Pearl.

G152 TEACHING LATIN IN SECONDARY SCHOOLS The place of Latin in the curriculum; the aims of Latin teaching; ways of studying vocabulary, syntax, and derivatives; the selection and use of textbooks and illustrative material. Required for recommendation to teach Latin. *Prerequisite*: Latin 102. Three hours. Mr. Kent.

G156 TEACHING MATHEMATICS The place of mathematics in the curriculum, organization of subject matter, aims and practices in teaching. *Prerequisite:* 12 semester hours in education and psychology. Three hours. Mr. Huden.

G157 TEACHING MODERN LANGUAGES A survey of past methods and procedures; careful consideration of the contribution made by the study of modern languages to the general aims of the secondary curriculum; discussion and evaluation of present-day methods, textbooks, and illustrative material; demonstration by each student of classroom procedures; in place of a final examination, preparation of a syllabus outlining a course of at least three years at the secondary level. *Prerequisite:* at least junior standing; teaching field in a modern language. Three hours. Mr. Carpenter.

G197-198 PROBLEMS IN EDUCATION Individual work on a problem involving research. Problem to be selected by the student in consultation with a staff member. Enrollment by permission of the Dean and the staff member who will direct the study. Open to seniors and to graduate students who have at least 12 hours in education and psychology. Credit to be arranged. The staff.

G201, 202 RESEARCH IN EDUCATION Problems in present-day education studied by individuals and the class; methods of investigation and standards for the presentation of material; thesis writing; presentation of individual and committee reports. *Prerequisite*: graduate standing; 12 hours in education and psychology including Educational Measurements. Three hours. Mr. Huden. G230 SEMINAR IN EDUCATIONAL ADMINISTRATION Problems of school organization and structure, school finance, school buildings, personnel policies, educational program, and public relations. Individual and group investigation, reports, and discussion. *Prerequisite:* graduate standing; one course in administration or experience in the field. Three hours. Mr. King.

G291-292 THESIS RESEARCH Candidates for the degree of Master of Education may elect with the approval of the Dean to complete a thesis in lieu of six hours of course work. Three hours.

BUSINESS EDUCATION

Associate Professor Nulty

102 PRINCIPLES OF BUSINESS EDUCATION Basic principles, practices, and problems of and trends in business education. *Prerequisite:* Psychology 1-2, Sec. Educ. 1 or 7. Three hours. Miss Nulty.

105 TEACHING BUSINESS SUBJECTS Principles and techniques in the organization and the teaching of business subjects in the high school. *Prerequisite:* 102. Three hours. Miss Nulty.

110 OBSERVATION AND STUDENT TEACHING Directed observation and supervised practice in teaching business subjects in a junior or senior high school in or near Burlington. General conference once a week; individual conferences with supervisors and training teacher. Continuation of the study of special methods. *Prerequisite:* senior standing; 105; approval of Departments of Education and Economics. Three or four hours. Miss Nulty.

MUSIC EDUCATION

Professor Bennett; Assistant Professors Marston, Start and Weinrich

31, 32 ELEMENTARY SCHOOL METHODS AND PRACTICE TEACHING The teaching of music in the primary and grammar grades. Observation and practice teaching in the schools of Burlington or vicinity. *Prerequisite:* Music 1, 2; credit or enrollment in Music 5-6. Three hours. Miss Marston. (Offered in alternate years, 1953-54.)

151, 152 SECONDARY SCHOOL METHODS AND PRACTICE TEACHING The administration and content of required and elective high school music courses. Observation and practice teaching in the schools of Burlington or vicinity. First semester: junior high school music; second semester: senior high school music. *Prerequisite:* credit or enrollment in Music 1, 2 and Music 5-6. Three hours. Miss Marston. (Offered in alternate years, 1954-55.)

155-156 APPLIED MUSIC METHODS Methods of teaching piano, organ, voice or violin. *Prerequisite:* three years' instruction in chosen instrument at the University, or equivalent. One hour. Miss Marston, Mr. Weinrich, and Mrs. Start.

ENGINEERING, AGRICULTURAL (College of Agriculture)

Associate Professors Schneider and Arnold

52 FARM SHOP (0-6) Instruction in wood and metal working by hand and machine methods, sheet metal work, welding, rope work, tool fitting, and concrete work. Includes demonstrations and methods of teaching these operations. Problems in safety, shop care, layout, and selection of equipment. *Prerequisite:* sophomore standing. Three hours. Mr. Schneider.

53 FARM POWER, MACHINERY AND ELECTRICITY (2-2) Principles of operation and maintenance of internal combustion engines and farm tractors. Principles of operation and the maintenance of farm machinery. Principles of electricity and the utilization of electricity and electrical equipment on the farm. *Prerequisite:* sophomore standing. Three hours. Mr. Schneider.

54 FARM STRUCTURES AND UTILITIES AND SOIL AND WATER ENGINEERING (2-2) Principles and methods of construction on the farm including planning and selection of materials. Principles of operation and selection and maintenance of farm water systems and sewage disposal systems. Principles of operation of refrigeration units used on the farm. Soil conservation practices and surveying. *Prerequisite*: sophomore standing. Three hours. Mr. Schneider.

151 FARM STRUCTURES (2-2) The design of farm structures, materials, structural requirements, functional requirements, insulating, heating, and ventilating. *Prerequisite:* C.E. 131 or concurrent enrollment in C.E. 131. Three hours. Mr. Arnold. (Offered in alternate years, 1956-57.)

152 FARM UTILITIES (2-2) The theory and application of water systems and plumbing, sewage disposal and refrigeration. *Prerequisite:* M.E. 142 or concurrent enrollment and Physics 21-22. Three hours. Mr. Arnold. (Offered in alternate years, 1956-57.)

153 FARM POWER MACHINERY (2-2) The theory, design, operation, and maintenance of tractors and their engines. *Prerequisite:* M.E. 82, 110, 111, 117. M.E. 111, 117 may be taken concurrently. Three hours. Mr. Arnold. (Offered in alternate years, 1955-56.)

154 AGRICULTURAL MACHINERY AND EQUIPMENT (2-2) Theory, design, and operation and maintenance of agricultural machinery and equipment. *Prerequisite:* Physics 21-22, C.E. 130. Three hours. Mr. Arnold. (Offered in alternate years, 1955-56.)

155 SOIL AND WATER ENGINEERING (2-2) The engineering problems involved in the application of hydrologic and agronomic data to the design, location, and construction of farm ponds, drainage and irrigation systems, and erosion control facilities. *Prerequisite:* C.E. 53 or permission of the department, and Agronomy 2. Three hours. Mr. Arnold. (Offered in alternate years, 1955-56.)

156 ELECTRICITY IN AGRICULTURE (2-2) Theory and engineering practices in the application of electricity to agriculture. Pre-

requisite: Physics 21-22. Three hours. Mr. Arnold. (Offered in alternate years, 1956-57.)

161-162 JUNIOR SEMINAR (1-0) Review and discussion of current agricultural engineering research, student reports and studies of agricultural engineering problems. *Prerequisite:* junior standing and permission of the department. One hour. The staff.

163-164 SENIOR SEMINAR (1-0) Review and discussion of current agricultural engineering research, student reports and studies of agricultural engineering problems. *Prerequisite:* junior seminar or permission of the department. One hour. The staff.

ENGINEERING, CIVIL (College of Technology)

Professor Milbank; Associate Professor Root; Assistant Professors Fay and Knight

24 STATICS (3-0) The fundamentals of statics including composition and resolution of forces, the analysis of force systems in two and three dimensions, centroids and moments of inertia. *Prerequisite*: Math. 21 or concurrent enrollment. Three hours. I, II.

51-52 SURVEYING (3-4) First semester: fundamental surveying methods; measurement of lines, angles, and difference in elevation; land surveying, areas, and plotting. Second semester; city and mine surveying; elements of practical astronomy; theory of curves, earthwork calculations; elements of photographic surveying; topographic surveying; elements of geodetic surveying. *Prerequisite:* Math. 11-12. Four hours.

53 PLANE SURVEYING (3-4) Use of the steel tape, level, and transit; elements of topographic surveying; special problems as presented and solved in fields affected. For those not enrolled in civil engineering. *Prerequisite*: Math. 11 or Math. 1, 2. Four hours.

54 ENGINEERING CAMP Six weeks summer field practice between the sophomore and junior years. Topographic, hydrographic and route surveys; triangulation, precise leveling, and base line measurements; solar observations. *Prerequisite:* 51-52. Four hours.

103 STRUCTURAL ANALYSIS (3-3) Analysis of stresses in statically determinate structures; calculation of reactions, shears, and bending moments; wind stresses; effect of moving loads by influence lines; criteria for positioning highway and railroad type loadings; mill bents. Laboratory work in graphic statics and comprehensive analysis problems. *Prerequisite*: 131. Four hours.

104 STRUCTURAL DESIGN (3-3) Theory and design of steel and timber beams, girders, columns, truss members, base plates, direct and eccentric connections; AISC, AREA, and AASHO specifications; combined bending and axial load. Laboratory work in design of mill bents, riveted and welded plate girders, and highway bridges. *Prerequisite:* 103. Four hours. 113 CONCRETE MIXTURES LABORATORY (0-3) Laboratory practice in testing materials used in concrete; design of concrete mixes to obtain specified compressive and flexural strength, durability, yield, and economy. Effect of admixtures. *Prerequisite*: 131. One hour.

114 MECHANICS OF MATERIALS LABORATORY (0-3) A study of experimental stress analysis methods; fundamental properties of metals, plastics, and wood; the effects of size, shape, method and speed of loading, and strain history on these properties. *Prerequisite*: 131 or concurrent enrollment. One hour.

130 DYNAMICS (3-0) The fundamentals of kinematics covering rectilinear and curvilinear motion, relative motion, Coriolis acceleration, translation, rotation, and plane motion. The fundamentals of kinetics covering translation, rotation, and plane motion of particles and rigid bodies; work, energy, power; impulse and momentum; simple harmonic motion. *Prerequisite:* 24, also Math. 21. Three hours. I, II.

131 MECHANICS OF MATERIALS (3-0) The study of the elastic and plastic behavior of materials; normal and shearing stresses from axial, torsional, and flexural loading combinations; deflections due to torsion and bending; applications to statically indeterminate members; analysis of plane stress and strain, failure theories, and design criteria. *Prerequisite:* 24; also Math. 21. Three hours. I, II.

151 ENGINEERING CONTRACTS (2-0) Study of contract law and engineering specifications, ethics and professional conduct. *Prerequisite*: senior standing. Two hours. I, II.

155 REINFORCED CONCRETE (3-0) Analysis of stresses in plain and reinforced concrete members. Design of reinforced concrete structures. Theory of prestressed concrete. *Prerequisite:* concurrent enrollment in 181. Three hours.

158 SUBSTRUCTURE ANALYSIS AND DESIGN (3-3) Evaluation of subsoil conditions and earth pressures; design of retaining walls, substructures for buildings and bridges, and cofferdams. *Prerequisite*: 155 and 174. Four hours.

157 BUILDING CONSTRUCTION (3-0) Practical building construction in building materials. Construction processes and estimating. Elective course. *Prerequisite:* senior standing. Three hours.

162 HYDRAULICS (3-0) The mechanics of liquids with emphasis upon flow meters; flow in pipe systems; flow in open channels; elements of fluid mechanics; elements of hydraulic machinery. *Prerequisite*: 24 and 130. Three hours.

163 HYDROLOGY (3-0) The basic theory of precipitation, run-off, infiltration and ground water. The presentation of precipitation and runoff data. The application of the data for use in development of natural water resources. Elective course. *Prerequisite*: 162 or M.E. 142. Three hours.

G164 WATER POWER ENGINEERING (3-0) The hydrologic, hydraulic, and geologic studies of water power sites; selection of turbines and

equipment; economic considerations. Elective course. Prerequisite: 162 or M.E. 142. Three hours.

165 WATER SUPPLY ENGINEERING (2-3) Sources of water supply, quantity available, uses and rates of demand; quality, examination, and treatment; collection, storage, and distribution. Laboratory periods cover field trips to and reports on existing water supply systems, design problems, and cost estimates. *Prerequisite:* 162. Three hours.

166 SEWERAGE AND SEWAGE TREATMENT (2-3) Design of sanitary and storm sewers; methods of treatment of sewage. Laboratory periods cover field trips to and reports on existing sewage treatment plants; design problems of sewer systems and sewage treatment plants. *Prerequisite*: 162. Three hours.

168 HYDRAULICS LABORATORY (0-3) To be taken in conjunction with 162. Laboratory studies for illustration of theory and behavior of metering devices; pipe line flow and hydraulic machinery. One hour.

173 SOIL MECHANICS (2-3) Identification, description, and physical properties of soils; subsurface exploration; engineering characteristics of natural deposits of soil. Laboratory practice in sampling; classification and identification; mapping; and testing for index and engineering properties. Current research and design problems considered. *Prerequisite:* 104. Three hours.

174 TRANSPORTATION ENGINEERING (3-0) Relation of highway, waterway, railway, pipeline, and airway transportation. Consideration of economic and planning studies, soils, drainage, highway and airport surfaces, geometric design of modern highways. Design of municipal airports with access roads. *Prerequisite*: 173. Three hours.

181 INDETERMINATE STRUCTURES (3-0) Analysis of statically indeterminate structures by consistent deformation, least work, slope deflection, and moment distribution; prefaced by determinations of deflections by virtual work, moment area, conjugate beam, and Williot-Mohr diagram. Continuous structures and rigid frames considered. *Prerequisite*: 104. Three hours.

182 ADVANCED STRUCTURAL DESIGN (3-3) Advanced theory and design of structures with emphasis on continuous frames and trusses. Consideration of wind stress analysis, space frames, moment connections, and camber diagrams. Comparative studies of specifications for design in steel; aluminum design. Laboratory problems in design of steel building frames and continuous highway girder and truss bridges. *Prerequisite*: 181. Four hours.

G183 INDETERMINATE STRUCTURES (3-0) Continuation of 181 with applications to analysis of statically indeterminate structures starting with a brief review and proceeding to the analysis of indeterminate trusses, and building frames. Elective course. *Prerequisite*: 181. Three hours. II.

ENGINEERING, ELECTRICAL (College of Technology)

Professors McKee and Smith; Associate Professors Hoilman, Mosher and Shorey; Assistant Professor Steinmann

21 ELECTRIC AND MAGNETIC CIRCUITS (5-0) The application of fundamental principles to the solution of electric and magnetic circuits; a study of the properties of metallic conductors; non-linear resistances; the generation of voltages; and the behavior of circuits containing inductance and capacitance. *Prerequisite*: credit or enrollment in Math. 21. Five hours.

22 DIRECT CURRENT MACHINES (4-0) The construction and operating characteristics of direct current generators and motors with special emphasis on internal reactions; parallel operation of generators; starting and speed control of motors; and machine efficiency. *Prerequisite:* 21. Four hours.

24 ELECTRICAL LABORATORY I (0-3) Fundamental experiments in resistor combinations, meter operation, heating, and circuit analysis; direct current machine experiments such as the saturation curve; generator characteristics, and parallel operation of generators. *Prerequisite*: 21. One hour.

101-102 ELECTRICAL CIRCUITS AND MACHINES (3-3) The work of the first semester covers direct current and magnetic circuits and the applications of this theory to direct current machines. The work of the second semester includes the theory of alternating current circuits and the principal features of alternating current machinery. Intended for management and mechanical engineers. *Prerequisite:* Math. 22; Physics 21-22. Four hours.

103-104 ALTERNATING CURRENT CIRCUITS (3-0) The analysis of alternating current circuits in the steady state. Basic circuit concepts and mathematical techniques involving trigometric functions, complex algebra and calculus are used in the study of periodically varying sinusoidal and non-sinusoidal quantities in single-phase and polyphase circuits. *Prerequisite:* 21; Math. 22. Three hours.

105-106 ELECTRICAL LABORATORY II (0-3) Direct current motor characteristics, separation of losses and efficiency; three-wire distribution, Ward-Leonard control, the Amplidyne generator, and the direct current watthour meter. The application of fundamental principles to alternating current circuits including voltage vector combinations, the relations of impedance and power factor to frequency, resonance, phase rotation, and the measurement of three-phase power. *Prerequisite:* 22, 24; credit or enrollment in 104 for 106. One hour.

107-108 ALTERNATING CURRENT MACHINES (3-0) A study of the principal types of alternating current machinery from the physical and mathematical standpoint. Construction, uses, development of the theory, constants, losses and efficiency, flux and current relations, and characteristics. First semester: single and three-phase transformers including special types; synchronous generators. Second semester: synchronous motors, polyphase induction motors and single-phase motors of various types. *Prerequisite*: 104. Three hours. 109-110 ELECTRONICS (3-0, 3-3) First semester; electron ballistics, characteristics of vacuum tubes, gas tubes, phototubes, and solid state elements; and equivalent circuit of the class A amplifier. Second semester: untuned voltage amplifiers, low and high frequency compensation, voltage and current feedback; untuned power amplifiers single stage and push-pull; tuned amplifiers class A and class C; oscillators—tuned circuit, phase shift, negative resistance, and crystal. *Prerequisite*: 102 or 103. Three hours—I. Four hours—II.

111-112 ELECTRICAL LABORATORY III (0-3) The principal alternating current machine characteristics by actual test and their comparison with those calculated from test constants. Measurement techniques and special methods. First semester: Transformers and synchronous generators. Parallel operation. Second semester: Synchronous motors, polyphase induction motors, special experiments in related topics. *Prerequisite*: 106 and credit or enrollment in 107-108. One hour.

113 POWER TRANSMISSION (3-0) A general survey of the engineering and economic principles affecting the transmission of electrical energy. Development of the basic electromagnetic and electrostatic fields and application of these principles; using the methods of geometric means, hyperbolic functions, general circuit constants to transmission lines. The development and application of symmetrical components and their use in the solution of faulted three-phase line conditions. *Prerequisite*: 104. Three hours.

115 COMMUNICATION CIRCUITS (3-3) Long lines in steady state, filters, networks and loading. *Prerequisite:* 104. Four hours.

G117 INDUSTRIAL ELECTRONICS (3-3) Characteristics of gas tubes and their application to rectifiers and inverters. Semi-conductors, photo tubes, and circuits. Electronic control of motors, elementary servomechanisms, radio frequency heating, timing controls, X rays. *Prerequisite*: 110. Four hours.

119 ELEMENTS OF ELECTRICAL ENGINEERING (3-3) Elements of electric and magnetic circuits and the application of these principles to the theory and performance of direct and alternating current machines. Intended for civil engineers. *Prerequisite*: Math. 22; Physics 21-22. Four hours.

G120 TRANSIENT PHENOMENA (3-3) The mathematical development of voltage and current transients with experimental check by means of the oscillograph. *Prerequisite*: 104. Four hours.

G121 ADVANCED ELECTRONICS (3-3) Modulation and detection of amplitude and angular modulated waves and their application to the transmission and reception of audio and video information. Square law and linear methods of amplitude modulation and detection, the heterodyne principle. Reactance tube, Armstrong and phasitron methods of angular modulation. Limiter and discriminator circuits. The analysis of special circuits for wave shaping and for computing operations. *Prerequisite:* 110. Four hours. G122 ELECTROMAGNETIC WAVE THEORY (3-3) Maxwell's equations, the Poynting vector, guided waves and radiation. High frequency oscillators, the Klystron, magnetron, and traveling wave tubes. *Prerequisite:* 110. Four hours.

G123, 124 SPECIAL TOPICS (2-3) Formulation and solution of theoretical and practical problems dealing with electrical circuits, apparatus, machines, or systems. *Prerequisite:* 22, 104. Three hours.

G125, 126 POWER SYSTEMS (3-0) First semester: economics of electric systems; elementary corporate finance; economics of location, conductor size, station and line costs; station auxiliaries; regulatory bodies. Second semester: machine and line transients; steady state and transient stability of power systems; circuit breakers, relay systems, lightning, wave propagation, and short circuit conditions; coordination of power and telephone systems. *Prerequisite:* credit or enrollment in 107 for G125; credit in 113 for G126. Three hours.

G128 U.H.F. CIRCUITS (3-3) Circuits and techniques for use at ultra-high frequencies. *Prerequisite:* 121. Four hours.

G197-198 SEMINAR (1-0) Presentation and discussion of advanced electrical engineering problems and current developments. *Prerequisite:* senior or graduate engineering enrollment. One hour.

G200 SERVOMECHANICS (3-3) A study of the theory, performance and stability of servomechanism systems of control. Limited to candidates for the Master's degree and others with the permission of the instructor. *Prerequisite:* Math. 112 and G120. Four hours.

G203-204 RESEARCH An original investigation of an electrical engineering problem. A detailed report in the form of a thesis is required upon completion of the work. Limited to candidates for the Master's degree. Three to five hours.

ENGINEERING, MECHANICAL (College of Technology)

Professor Sidle; Associate Professors Tuthill and Duchacek; Assistant Professors Carpenter, Paquet, and Marshall

1 ENGINEERING DRAWINGS (1-8) A study of the use of graphical methods in the solution of scientific and engineering problems. To accomplish this and to be able to convey such information to others, thorough instruction in orthographic projection and use of modern drafting equipment is given. This knowledge is also applied to machine drawing with emphasis on the ability to dimension properly. Three hours.

2 ENGINEERING DRAWING (1-8) A continuation of the first semester by adding a complete coverage of descriptive geometry by both direct, mongean and analytical methods; followed by a study of all the forms of pictorial drawing. Throughout the work, theory is applied to practical problems in science and engineering. Three hours. 3-4 ENGINEERING PROBLEMS (0-3) The nature of engineering principles and the kinds of work done in the fields of engineering. Development of skill and systematic methods in the solution of problems related to engineering. Enrollment restricted to freshman engineering students. One hour.

51-52 MANUFACTURING PROCESSES (1-3) A study of metal machining, casting, welding, forming and inspection methods including economic factors and choice of methods. Laboratory work involves further study of variables, applications and limitations of some of the more common processes. *Prerequisite:* 2. Two hours.

82 MECHANICAL ENGINEERING LABORATORY I (0-3) An introduction to laboratory instruments, their use and calibration. Verification of thermodynamic principles. *Prerequisite:* concurrent enrollment with 92. One hour.

92. THERMODYNAMICS (2-0) The fundamental principles of engineering thermodynamics with particular emphasis on energy forms and the first law, and an introduction to perfect gas and steam. *Prerequisite:* concurrent enrollment in Math. 22. Two hours.

102 INDUSTRIAL METALLURGY (2-3) The fundamentals of ferrous and non-ferrous physical metallurgy. The correlation of the metallographic structure and physical properties of metals and alloys with their heat treatments and uses. Topics include studies of iron-carbon alloys, heat treatment of steels, low alloy steels, high alloy steels, tool steels, case hardening, cast irons, hardenability, precipitation hardening, copper and nickel base alloys, light metals and their alloys, heat resistant alloys and corrosion of metals. *Prerequisite:* Chemistry 2; Physics 22. Three hours.

111 THERMODYNAMICS AND HEAT TRANSFER (3-3) The second law of thermodynamics and the application of thermodynamic principles to thermodynamic cycles, prime movers, compressors, refrigeration and heat transfer. *Prerequisite*: 110. Three hours.

113 THERMODYNAMICS FOR ELECTRICAL ENGINEERING STUDENTS (3-0) The fundamental principles of engineering thermodynamics and the application of these principles to thermodynamic cycles, prime movers, compressors, and heat transfer. *Prerequisite:* Physics 21; Math. 22; C.E. 130. Three hours.

116 POWER ENGINEERING (3-3) A short course in the fields of steam and internal combustion engine power. Mechanical, thermodynamic, and economic analysis of the design, operation, and performance of characterstic equipment and stations. *Prerequisite*: 111 or 113. Four hours.

117 MECHANICAL ENGINEERING LABORATORY II (0-3) Coordinated with ME 111 to verify and demonstrate thermodynamic principles and applications as studied in class. Experiments dealing with steam calorimetry, the first law with unsteady flow, air flow measurement, air compression, refrigeration, heat transfer, etc. *Prerequisite:* concurrent enrollment in 111. One hour. 131 MECHANISMS (3-3) The analysis of displacements, velocities, and accelerations in machines and the application of such analysis to cams, gears, and other mechanisms, with emphasis placed upon the graphical methods. A study of rolling contact, cam and gear design, flexible connectors, and miscellaneous mechanisms. *Prerequisite:* 2; CE 130. Four hours.

134 MACHINE DESIGN I (3-3) Analysis of loads in machine elements and their design, considering stress, deflection, wear, cost, etc. *Prerequisite:* 131; CE 131. Four hours.

142 FLUID MECHANICS (3-3) Fluid statics. Kinematics of fluid flow; thermodynamics of steady flow of any fluid; viscosity; dimensional analysis and dynamic similarity; pipe and channel flow for incompressible fluids; momentum and propulsion; resistance and lift of immersed bodies; compressible fluid flow in nozzles, wind tunnels, pipes, etc.; fluid machinery; mathematical study of fluid motion. *Prerequisite*: 111 or 113; CE 130. Four hours.

151 MACHINE DESIGN II (3-3) A continuation of 134. Experimental stress analysis and graphical methods. *Prerequisite:* 134. Four hours.

154 TOOL ENGINEERING (2-3) An introduction to the problems involved in tooling a manufacturing plant for production. Analysis of production requirements, the design and use of cutting tools, jigs and fixtures, dies, gages, and miscellaneous auxiliary equipment; economic aspects. *Prerequisite:* 52, junior standing. Three hours.

G155 MECHANICAL VIBRATIONS An advanced course in the field of machine design with special emphasis on problems of vibrations. Topics include causes of vibrations, methods of study of vibratory motion, determination of vibration stresses, and methods of balancing and damping. *Prerequisite*: 151 and permission of department. Three hours. I or II.

161 ADVANCED HEAT POWER ENGINEERING (3-6) Application of theoretical power cycles to actual plant cycles and equipment, including turbines, internal combustion engines, gas turbines, boilers, accessories, etc. Performance characteristics; analysis and selection of equipment; development of station energy balances; economic factors. *Prerequisite*: 111 or 113. Five hours.

G167, 168 ADVANCED HEAT ENGINES Advanced study in theoretical thermodynamics with applications in specific types of heat engines according to the interests of the students. *Prerequisite*: 111 and permission of department. Three hours.

174 INDUSTRIAL ENGINEERING (3-3) Principles of industrial organization, plant facilities and layout, production and quality control, motion and time study, wage incentives, job evaluation and safety engineering. Four hours

175 MOTION AND TIME STUDY (3) Principles and methods of analyzing work; job improvement; stop watch studies; elemental and predetermined time standards and miscellaneous related topics. Open to students of Commerce and Economics and Management Engineering. Prerequisite: Economics 143. Four hours.

176 PLANT ORGANIZATION (2-6) Analysis of plant requirements as to location, layout and materials handling; plant services and maintenance. Open to students of Commerce and Economics and Management Engineering. *Prerequisite:* Economics 143. Four hours.

181 AIR CONDITIONING (3-3) The application of the fundamental principles of thermodynamics, heat transfer and fluid mechanics to the design and performance of air conditioning systems and equipment. *Prerequisite*: 111 or 113; 142. Four hours.

182 AERODYNAMICS (3-0) The application of the principles of fluid mechanics to the design and performance of aircraft; fluid dynamics; experimental facilities; airfoil characteristics; aspect ratio and plan-form influences; viscosity phenomena as applied to boundary layer; transition and separation on various shapes; compressibility phenomena; the optimum airfoil; performance. *Prerequisite:* 142. Three hours.

G186 ADVANCED FLUID DYNAMICS AND FLUID MACHINERY (3-0) Steady compressible flow; compressible flow in pipes and channels with heat and friction; boundary layer effects; general features and factors influencing design of fluid machinery; performance features of pumps, compressors, fluid couplings, torque converters, turbines; fluid vibrations; mathematics of two dimensional flow, vorticity and circulation, stream functions. *Prerequisite*: 142. Three hours.

191 SEMINAR (2-0) Discussions of the mechanical engineering profession, the ethics, responsibilities, and status of members of the profession, and timely activities of present-day practice. Current issues of pertinent publications are used as collateral reading and as guides in the study and discussion of contemporary progress in the field. *Prerequisite:* senior standing. Two hours.

G193 NOMOGRAPHY (3-0) The theory of graphical computing methods, alignment charts and nomographs. *Prerequisite:* senior or graduate standing in engineering. Three hours. I or II.

G194 ENGINEERING ANALYSIS (1-6) Application of scientific principles to the analysis of comprehensive engineering problems. Particular emphasis is given to the development of a well ordered logical approach to the statement and solution of the problems and to the conclusions and decisions involved. *Prerequisite:* senior standing. Three hours.

195 SPECIAL PROBLEMS A study and investigation on a topic or problem of special interest to the student. Formal submission of results in thesis form required. Problems must be approved by the department before election of the course. Three hours. I or II.

G201 ADVANCED MACHINE DESIGN Advanced mechanics of materials and applications to mechanical design according to the interests of the student. *Prerequisite:* 152. Three hours. I or II.

G203 BALANCING OF MACHINERY A theoretical study of balancing problems and discussion of balancing machines. *Prerequisite*: 152. Three hours. I or II.

G295 THESIS RESEARCH Each student completes a research problem and submits the findings in written form in accordance with the specifications for a Master's thesis. Credit as arranged. I or II.

ENGLISH (College of Arts and Sciences)

Professors Pope and Hugbes; Associate Professors Bogorad, Dean, Marston, Trevithick and Wainwright; Assistant Professors Aldridge, Bandel, Long and McArthur; Messrs. Brownfield, Cochran, Guiet, Jones and Miss Schroeder

1-2 ENGLISH COMPOSITION Criticism of the common errors of writing and speech; study of words, sentences, and paragraph construction; theme writing, oral reports, study of selected literature illustrative of the principles discussed. Required of all freshmen, except those who demonstrate proficiency by a preliminary test; these freshmen must take a sophomore English course, normally English-American Literature or World Literature. Three hours. The staff. (See also Writing and Speaking 1-2.)

13, 14 PERIODICAL WRITING First semester: news writing and journalism; second semester: the commercial short story, articles, and other forms of periodical writing. *Prerequisite:* 1-2 or exemption therefrom. Three hours. Mr. Dean.

16 EXPOSITORY WRITING The writing of expository papers and articles. Required of sophomore engineers, but open to others. *Prerequisite*: 1-2 or exemption therefrom. Three hours. I, II. The staff.

18 ADVANCED COMPOSITION Instruction and practice in the writing of novels, plays, short stories, and poetry. The standards of the course are those of serious art. *Prerequisite*: 1-2 or exemption therefrom. Three hours. Mr. Aldridge.

25, 26 WORLD LITERATURE A detailed study, in English translation, of ten masterpieces of world literature which have made significant contributions to the development of western culture. *Prerequisite*: 1-2 or exemption therefrom. Three hours. The staff.

27, 28 ENGLISH-AMERICAN LITERATURE A study of selected English and American authors from early to modern times. Required of students concentrating in English. *Prerequisite:* 1-2 or exemption therefrom. Three hours. The staff.

G101 CHAUCER The principal works of Chaucer, with emphasis on reading them as poetry, on Chaucer's literary scope and qualities, and on the picture of his time portrayed in his writings. *Prerequisite*: 25, 26 or 27, 28. Three hours. Miss Hughes.

G106 ELIZABETHAN DRAMA A study of drama in England from its beginning to 1642, exclusive of Shakespeare. *Prerequisite:* 25, 26 or 27, 28. Three hours. Mr. Pope. (Offered in alternate years, 1954-55.) G107-108 SHAKESPEARE Literary study and textual interpretation of most of Shakespeare's works. *Prerequisite:* 25, 26 or 27, 28. Three hours. Mr. Pope.

G111 RENAISSANCE POETRY The major poets of Tudor and Stuart England, from Wyatt and Surrey to Donne and his followers, with special emphasis on Spenser and the development of Elizabethan lyric poetry. *Prerequisite:* 25, 26 or 27, 28. Three hours. Mr. Long. (Offered in alternate years, 1955-56.)

G112 MILTON The works of Milton including Paradise Lost, Paradise Regained, Samson Agonistes, some of the minor poems, and selections from the prose works. Lectures, discussions, and reports. Prerequisite: 25, 26 or 27, 28. Three hours. Mr. Bogorad. (Offered in alternate years, 1955-56.)

G117 RESTORATION AND EIGHTEENTH-CENTURY DRAMA The development of English drama from Dryden to Sheridan. The lectures, discussions, and reports consider the literary and theatrical qualities of representative plays. *Prerequisite:* 25, 26 or 27, 28. Three hours. Mr. Bogorad. (Offered in alternate years, 1954-55.)

G118 RESTORATION AND EIGHTEENTH-CENTURY PROSE AND POETRY The works, including selected novels, of significant writers from Dryden to Johnson. Particular emphasis on the development of the essay, the satires of Pope and Swift, and the works of the Johnson-Boswell circle. *Prerequisite:* 25, 26 or 27, 28. Three hours. Mr. Bogorad. (Offered in alternate years, 1954-55.)

G121, 122 THE ROMANTIC PERIOD First semester: the development of the Romantic Movement through Wordsworth and Coleridge; second semester: Byron, Shelley, Keats, and other Romantic poets and prosewriters. *Prerequisite:* 25, 26 or 27, 28. Three hours. Mr. Pope. (Offered in alternate years, 1955-56.)

G127-128 ENGLISH NOVEL English fiction from its origins through the nineteenth century. Masterpieces are stressed and read critically. *Prerequisite:* 25, 26 or 27, 28. Three hours. Mr. Wainwright. (Offered in alternate years, 1955-56.)

G131, 132 VICTORIAN LITERATURE (1832-1900) A study of the lives and the works (except the novels) of the significant writers of the era by lectures, discussion, and reports. Outstanding poets and prose writers are studied as spokesmen of their own age and harbingers of the present one. *Prerequisite:* 25, 26 or 27, 28. Three hours. Mr. Wainwright. (Offered in alternate years, 1954-55.)

G137 MODERN NOVEL Prerequisite: 25, 26 or 27, 28. Three hours. Mr. Marston.

G138 MODERN DRAMA Prerequisite: 25, 26 or 27, 28. Three hours. Miss Bandel. (Offered in alternate years, 1954-55.)

G139 MODERN POETRY Prerequisite: 25, 26 or 27, 28. Three hours. Mr. Wainwright.

G140 MODERN SHORT STORY Limited to seniors, except with permission of the instructor. *Prerequisite*: 25, 26 or 27, 28. Three hours. Mr. Wainwright.

G151, 152 AMERICAN NOVEL Masterpieces of nineteenth-century American fiction selected on the basis of literary merit. Lectures, class discussions, oral and written reports. First semester: Hawthorne, Melville, and others; second semester: Mark Twain, Howells, James and others. *Prerequisite*: 25, 26 or 27, 28. Three hours. Mr. Trevithick. (Offered in alternate years, 1954-55.)

G153 AMERICAN COLONIAL LITERATURE Intellectual and literary origins, in the seventeenth and eighteenth centuries, of American culture. In particular, the works of Edwards, Taylor, Franklin, Woolman, Hamilton and Jefferson. Lectures, discussions, oral and written reports. *Prerequisite*: 25, 26 or 27, 28. Three hours. Mr. Trevithick. (Offered in alternate years, 1955-56.)

G154 EMERSON, THOREAU AND THEIR CIRCLE Special attention to the essays, journals, and poetry of Emerson, and to Thoreau's *Walden*. Minor writers in the group will receive briefer treatment. Lectures, discussions, oral and written reports. *Prerequisite*: 25, 26 or 27, 28. Three hours. Mr. Trevithick. (Offered in alternate years, 1955-56.)

G155 AMERICAN POETRY Major American poets from the 18th century to the First World War, including Poe, Whitman, Emily Dickinson, Robinson, Frost and others. Lectures, discussions and reports. *Prerequisite:* 25, 26 or 27, 28. Three hours. Mr. Marston. (Offered in alternate years, 1954-55.)

G156 LITERATURE OF THE AMERICAN FRONTIER A study of frontier, local-color and regional writing in America from 1830 to 1920, including Parkman, Harte, Mark Twain, Garland and others. Lectures, discussions and reports. *Prerequisite:* 25, 26 or 27, 28. Three hours. Mr. Marston. (Offered in alternate years, 1955-56.)

G160 MODERN ENGLISH The development of Modern English; Modern English usage, with readings of illustrative selections. *Prerequisite*: 25, 26 or 27, 28. Three hours. Miss Hughes. (Offered in alternate years, 1955-56.)

G162 OLD AND MIDDLE ENGLISH Development of the language through the Old and Middle English periods, with readings of illustrative selections. *Prerequisite:* 25, 26 or 27, 28. Three hours. Miss Hughes. (Offered in alternate years, 1954-55.)

G171 BIBLIOGRAPHY Methods of literary study, research, and scholarship. *Prerequisite*: 25, 26 or 27, 28. Three hours. Mr. Pope. (Offered in alternate years, 1954-55.)

G172 HISTORY OF CRITICISM Principles and theories of criticism from Aristotle to the twentieth century. *Prerequisite:* 25, 26 or 27, 28. Three hours. (Offered in alternate years, 1955-56.)

G174 TECHNIQUE AND CRITICISM OF POETRY A study of poetic theory with close analysis of selected poems, past and present, designed

to show their organic structure, the relation between poetic intention and sense, mood, tone, imagery, stanzaic form, and meter. Lectures, discussions, reports. *Prerequisite:* 25, 26 or 27, 28. Three hours. Mr. Bogorad. (Offered in alternate years, 1955-56.)

G175-176 CREATIVE CRITICISM A seminar devoted to critical analysis of contemporary fiction. *Prerequisite*: 25, 26 or 27, 28. Three hours. Mr. Aldridge.

G181-182 CREATIVE WRITING The development of extended projects in the creation of literature, such as a novel, a group of short stories, or a sequence of poems. *Prerequisite*: 25, 26 or 27, 28, and one of the following: 13, 14, 16, or 18. Three hours. Mr. Aldridge.

G190 SEMINAR FOR PROSPECTIVE TEACHERS OF ENGLISH Problems of grammar and language, of literary interpretation and criticism, with allied problems useful to teachers of English. Open to seniors and graduate students. *Prerequisite:* 25, 26 or 27, 28 and Secondary Education G107. Three hours. Miss Hughes.

G201, 202 THESIS RESEARCH Investigation of a research topic, culminating in a Master's thesis. *Prerequisite*: admission to candidacy for the Master's degree. Credit to be arranged.

FORESTRY (College of Agriculture)

Professor W. R. Adams; Assistant Professor Fordham; Mr. Taylor

2 ELEMENTS OF FORESTRY Introduction to specialization in forestry and conservation. Open to pre-forestry students only. Three hours. Mr. Fordham.

3 DENDROLOGY (0-3) Field identification and characteristics of the more important forest trees and formation of forest types. One hour. Mr. Adams.

4 DENDROLOGY OF ANGIOSPERMS (2-3) Classification and silvical characteristics of the more important broad leaf forest trees of North America. Twig identification. *Prerequisite:* 3. Three hours. Mr. Fordham.

6 DENDROLOGY OF GYMNOSPERMS Classification and silvical characteristics of the more important native and exotic coniferous forest trees of North America. *Prerequisite:* 3. Two hours. Mr. Fordham.

103-104 WOODLAND MANAGEMENT (2-3) Establishment, protection, and management of farm woodlands and small forests areas. *Prerequisite:* junior standing. Three hours. Messrs. Adams, Fordham and Taylor.

105 MENSURATION (1-3) Timberland surveying, timber estimating, log scaling, and growth determinations of trees and stands. *Prerequisite:* 3 or 103-104. Two hours. Mr. Fordham.

106 UTILIZATION OF WOODLAND PRODUCTS (1-3) Sawmilling, wood products manufacture, maple products, wood preservation, and private and cooperative marketing practices. *Prerequisite*: 103 or permission of the department. Two hours. Mr. Taylor. G108 BIOLOGICAL STATISTICS The application of statistics to the analysis of biological data. Interpretation of statistical analysis. *Prerequisite:* senior standing. Three hours. Mr. Adams.

197, 198 SENIOR RESEARCH The student works on a research problem under the direction of a qualified staff member and submits the findings in a written form prescribed by the department. *Prerequisite:* senior standing. Three hours. The staff.

G295, 296 GRADUATE RESEARCH Each student completes a research problem under the direction of a qualified staff member and submits the findings in written form in accordance with the specifications for a Master's thesis. Credit as arranged. The staff.

GENERAL LITERATURE (College of Arts and Sciences)

51 GREEK LITERATURE IN TRANSLATION Lectures on the development of the various branches of Greek literature and on its chief authors, with special emphasis on Homer and the drama. Readings in standard translations from the major authors. No knowledge of Greek required. *Prerequisite:* junior standing. Three hours. Mr. Lane.

5.2 LATIN LITERATURE IN TRANSLATION Lectures on the development of Latin literature and on the principal Latin authors, with attention to the relation of Latin literature to Greek and English literature. Readings in standard translations from the major authors. No knowledge of Latin required. *Prerequisite:* junior standing. Three hours. Mr. Lane.

62 GERMAN LITERATURE IN TRANSLATION Lectures on the development of German literature; reading and discussion of representative works. No knowledge of German required. *Prerequisite:* junior standing. Three hours. Mr. Carpenter.

GEOLOGY (College of Arts and Sciences)

Professor Doll; Assistant Professor Doten; Mr. Apsouri

1-2 INTRODUCTORY GEOLOGY (3-2) The composition, structure, and surface forms of the earth, and the agencies active in their production; a general survey of the earth's history as recorded in the rocks. Field trips and lantern slides. Four hours.

11 MINERALOGY (2-2) The crystallographic and physical properties of minerals, and their determination by means of the blowpipe. *Prerequisite*: 1-2. Three hours.

14 PETROLOGY (2-2) Study of the origin and characteristics of igneous, sedimentary, and metamorphic rocks and related ore deposits. *Pre-requisite:* 11. Three hours.

21 ENGINEERING GEOLOGY (2-2) The recognition of common minerals and rocks; rock structures and their effects on engineering problems. Required of students in civil engineering, not open to others. Three hours. 101 OPTICAL MINERALOGY (1-4) Introduction to the study of the optical properties of non-opaque minerals and their determination by means of the polarizing microscope. *Prerequisite:* 14. Three hours.

102 PETROGRAPHY (1-4) Classification, origin and composition of the more important igneous, sedimentary and metamorphic rocks, by means of the polarizing microscope and thin sections. *Prerequisite*: 101. Three hours.

103-104 ECONOMIC GEOLOGY (2-2) The characteristics, occurrence, distribution, production, and uses of the more important mineral resources. First semester: nonmetallics; second semester: metallics. Trips to Vermont localities of economic interest. *Prerequisite*: 14. Three hours.

G107 IGNEOUS GEOLOGY (2-2) Detailed consideration of the paragenesis of igneous rocks, with laboratory work on selected suites of specimens. *Prerequisite*: 102. Three hours.

G108 METAMORPHIC GEOLOGY (2-2) Detailed consideration of metamorphic processes and types of metamorphic rocks, with appropriate laboratory study of metamorphic suites. *Prerequisite*: 102. Three hours.

111 STRUCTURAL GEOLOGY (2-2) Structural features of the earth's crust produced by earth movements. Emphasis on the mechanics of folding, fracturing, faulting, and rock flowage, and the relation of such structures to mountain building. *Prerequisite:* 14. Three hours.

112 FIELD GEOLOGY (1-6) Field methods in the geologic mapping of an assigned area. One conference a week on the problems and progress of the field work; a written report on the area, accompanied by a field map, submitted at the end of the course. *Prerequisite:* 111. Three hours.

G115 GEOMORPHOLOGY (2-2) The land forms of the surface of the earth and their origins; external and internal forces modifying the earth. The physiographic provinces of North America are emphasized. *Prerequisite:* 14. Three hours.

G116 GLACIAL GEOLOGY (2-3 A survey of the origin, mechanics and effects of past and present glaciations. *Prerequisite*: 115. Three hours.

121 PALEONTOLOGY (2-2) Invertebrate fossils; their evolution, morphology and classification, and their importance in the interpretation of earth history. *Prerequisite:* 14. Three hours.

G122 INDEX FOSSILS (2-2) Characteristic fossils of various geologic horizons, with emphasis on their uses for correlation purposes, especially in strata of economic importance. *Prerequisite*: 121. Three hours.

G123 SEDIMENTATION (2-2) The processes active in the erosion, transportation and deposition of sediments, their consolidation into sedimentary rocks, and methods of sedimentary petrology. *Prerequisite*: 14. Three hours.

G124 STRATIGRAPHY (2-2) The sequential development and distribution of the sedimentary rocks. *Prerequisite*: 121. Three hours.

GERMAN (College of Arts and Sciences)

Professor Carpenter; Assistant Professors Kabn and Webster

1-2 ELEMENTARY GERMAN For beginners and students who present less than two years of preparatory German. Three hours each week are devoted to grammar and reading. Two additional hours provide oral and aural practice and drill in conversation. The tape recorder and records are used and cultural material introduced. Credit is allowed only if German 11-12 is also completed. Four hours. Messrs. Carpenter, Kahn and Webster.

11-12 INTERMEDIATE GERMAN Intensive and extensive reading of short stories, novels, plays, and some scientific material, with particular emphasis on the acquisition of a basic vocabulary necessary for reading German works in any field. *Prerequisite*: 1-2 or equivalent. Three hours. Messrs. Kahn, Carpenter and Webster.

21, 22 COMPOSITION AND CONVERSATION Training in writing and speaking German. Translation into German, free composition, and oral reports are required. *Prerequisite*: 11-12 and permission of the department. Three hours. Mr. Kahn.

23-24 SCIENTIFIC GERMAN A course in the reading of scientific prose which aims not only to build up reading ability in that branch of science in which the student is specializing, but also to acquaint him with the general development of thought and method in his field. After the first four weeks, individual assignments are made along the line of each student's main interest. *Prerequisite*: 11-12 and permission of the department. Three hours. Mr. Kahn.

101-102 INTRODUCTION TO GERMAN LITERATURE Selected works of Goethe, Schiller, and Lessing, and a survey of the development of German literature from the beginnings through the classical period, with practice in hearing, writing, and speaking German. *Prerequisite*: 11-12. Three hours. Mr. Webster.

G105 GOETHE'S FAUST Reading in class of Part I and most of Part II; study of sources of the poem and its influence, particularly on English literature; outside reading of several plays from other literatures, which deal with a similar theme. *Prerequisite*: 101-102. Three hours. Mr. Carpenter. (Offered in alternate years, 1955-56.)

G106 GERMAN LITERATURE: 1800-1850 The Romantic Movement and Young Germany. Reading of selected lyrics, short stories, and dramas. *Prerequisite*: 101-102. Three hours. Mr. Carpenter. (Offered in alternate years, 1955-56.)

G107 GERMAN LITERATURE: 1850-1900 Reading in class of plays, beginning with dramas of Hebbel, illustrating the development of the realistic trend which burst forth in Naturalism; study of impressionism and Neoromanticism; outside reading of typical short stories and novels. *Prerequisite*: 101-102. Three hours. Mr. Carpenter. (Offered in alternate years, 1954-55.) G108 GERMAN LITERATURE: THE 20TH CENTURY Reading in class of selected works, mainly dramas, exemplifying Expressionism and New Reality; collateral reading of typical short stories and novels. *Prerequisite*: 101-102. Three hours. Mr. Carpenter. (Offered in alternate years, 1954-55.)

HEBREW (College of Arts and Sciences)

1-2 ELEMENTARY HEBREW Reading, pronunciation, elements of grammar and conversation; exercises in composition and translation, designed to prepare the student to understand the Hebrew Scriptures and modern Hebrew literature. Three hours. Mr. Kahn.

11-12 INTERMEDIATE HEBREW Translation, conversation, and reading of texts designed to give some knowledge of the development of Hebrew life, thought, and culture from Biblical times to the present. *Prerequisite*: 1-2 or equivalent. Three hours. Mr. Kahn.

HISTORY (College of Arts and Sciences)

Professor Evans; Associate Professors Pooley, Putnam and Schultz (Chairman); Assistant Professors Cooley and Lane

1-2 ANCIENT HISTORY A survey of the ancient Greek and Roman worlds. Three hours. Mr. Lane.

3-4 ENGLISH HISTORY England in world history since Roman days. Three hours.

5-6 MEDIEVAL EUROPE The history of Europe from the late Roman Empire to the Renaissance, with particular emphasis on political and cultural developments. Three hours. Mr. Pooley.

11-12 SURVEY OF EUROPEAN HISTORY An introduction to European history, commencing with the rise of the national state and the beginnings of modern economic life. Three hours. Mr. Cooley.

21, 22 AMERICAN HISTORY SINCE 1783 A general survey of American history from the early national period. *Prerequisite:* sophomore standing; 21 or 31 for 22. Three hours. Mr. Schultz.

23-24 AMERICAN HISTORY TO 1783. American history from the discovery through the American Revolution. *Prerequisite*: sophomore standing. Three hours. Mr. Putnam.

26 HISTORY OF VERMONT A history of Vermont since its foundation. Prerequisite: sophomore standing. Three hours. Mr. Cooley.

31 HISTORICAL DEVELOPMENT OF AMERICAN FOREIGN POLICY Foreign relations of the United States, 1775-1900. *Prerequisite*: sophomore standing. Three hours. Mr. Cooley.

111-112 EARLY MODERN HISTORY The Renaissance, the Reformation, and sixteenth century Europe, with special attention to the economic and social history of the period. *Prerequisite:* one course. Three hours. Mr. Evans. (Offered in alternate years, 1955-56.) 113, 114 EUROPE IN THE MODERN AGE History of Europe from the seventeenth century to 1914. *Prerequisite:* one course; 113 for 114. Three hours. Mr. Evans. (Offered in alternate years, 1954-55.)

123-124 AMERICAN HISTORY SINCE 1900 Prerequisite: one course. Three hours. Mr. Putnam.

G127-128 AMERICAN FRONTIERS The westward movement to the end of the nineteenth century and its influence in shaping American ideals and institutions. *Prerequisite:* 121-122, or 123-124. Three hours. Mr. Putnam. (Offered in alternate years, 1956-57.)

G141-142 FRENCH REVOLUTION AND NAPOLEON French history from 1789 to 1815, with special attention to the impact of French ideas and power upon Europe. *Prerequisite*; 113, 114 and one other course. Three hours. Mr. Evans.

G151-152 CONTEMPORARY HISTORY The world since 1918, stressing the background of current events. *Prerequisite:* two courses, preferably 113, 114 and 123-124. Three hours. Mr. Evans.

G157, 158 AMERICAN STATESMEN The thought and practices of leading American politicians. *Prerequisite:* junior standing; 21 for 157; 22 and 157 for 158. Three hours. Mr. Schultz. (Offered in alternate years, 1955-56.)

G161-162 LATIN AMERICAN HISTORY The political, social, and economic development since the Spanish Conquest. *Prerequisite:* two courses. Three hours. Mr. Putnam. (Offered in alternate years, 1956-57.)

G165-166 CANADIAN HISTORY Canadian development from the French exploration and settlement to the present with emphasis on the evolution of self-government and relations with the United States. *Pre-requisite:* two courses. Three hours. Mr. Putnam. (Offered in alternate years, 1955-56.)

G191-192 SEMINAR Advanced study in a selected field. Open to graduate students and to seniors by permission. Three hours. Mr. Putnam. (Offered in alternate years, 1955-56.)

HOME ECONOMICS (College of Agriculture)

Professor King; Associate Professors Bailey, Caldwell, Godfrey and Knowles; Assistant Professors Brazner, M. Brown, Brownfield, Colton and Williams; Misses H. Brown, Pecheniuk and Mrs. Bickford.

1, 2 ORIENTATION The problems of adjustment to college life; evaluation of professional opportunities in home economics. One hour.

FOOD AND NUTRITION

11 FOOD SELECTION The essential dietary requirements for growth and health with applications to individual and family groups. Three hours. Misses Bailey and Pecheniuk. 52 FOOD AND NUTRITION (1-4) The principles of food preparation with laboratory application and the fundamentals of normal nutrition. For students in nursing education. Three hours. Misses Bailey and Williams.

53 SURVEY OF FOOD PREPARATION (2-4) Basic principles of food preparation, with some laboratory application. Four hours. Miss Williams.

55-56 FOOD PREPARATION (1-6) The scientific principles and fundamental processes underlying food preparation, with practical applications. *Prerequisite:* Chemistry 2 and, concurrently, Chemistry 35. Three hours. Miss Williams.

103 FOOD PRESERVATION AND ECONOMICS (1-4) The scientific principles and methods involved in the preservation of food. The factors of production, processing and distribution governing the buying of foods. *Prerequisite:* 56. Three hours. Miss Bailey.

104 MEAL MANAGEMENT (1-5) The principles involved and practice in planning, preparing, and serving family meals at different cost levels. *Prerequisite:* 53 or 56. Three hours. Misses Bailey and Williams.

106 PRINCIPLES OF NUTRITION (2-2) Nutrition and the individual; people's food habits and the problems involved in food selection to promote good nutrition. *Prerequisite:* 56. Three hours. Miss Williams.

G151 NUTRITION AND DIET (3-2) The principles of human nutrition; the nutritive value of foods with application in calculating food requirements and diets for children, adults and family groups. *Prerequisite:* 55-56; Agricultural Biochemistry 72, 73; Zoology 52. Fours hours. Miss Bailey.

152 DIET THERAPY (2-2) The adaptations of the normal diet in conditions affected by or affecting the utilization of food. *Prerequisite:* 151. Three hours. Miss Bailey.

G153 READINGS IN FOODS A critical survey of the literature on the recent developments in food research. *Prerequisite:* senior standing; 55-56; Agricultural Biochemistry 72, 73. Two or three hours.

G154 EXPERIMENTAL FOOD PREPARATION (1-4) Methods and techniques used in experimental work in foods. Independent laboratory study of problems in food preparation. *Prerequisite:* 55-56; H.M. 63-64; Agricultural Biochemistry 72, 73. Three hours.

G156 READINGS IN NUTRITION A critical survey of the literature on recent developments in nutrition. *Prerequisite*: G151. Two or three hours. Miss Bailey.

RELATED ART

15 DESIGN (1-4) The fundamentals of color and design. Three hours. Misses Caldwell and Colton.

57 COSTUME DESIGN (0-4) Color and design fundamentals and principles applied to costume planning. *Prerequisite*: 15. Two hours. Miss Colton.

107 HISTORY OF COSTUME (1-4) History of costume as a source of inspiration for modern costume design. *Prerequisite:* 57 and T&C 58. Three hours. Miss Caldwell.

108 HOME FURNISHING I (1-4) The application of the fundamental elements of color and design to the problems involved in furnishing the home. *Prerequisite:* T&C 109. Three hours. Miss Colton.

G156 HOME FURNISHING II (1-4) Studies in home decorating with special emphasis given to period furnishing, its present use and influence upon modern furnishing. *Prerequisite*: 108. Three hours. Miss Caldwell.

TEXTILES AND CLOTHING

16 TEXTILES AND CLOTHING SELECTION (2-2) Textiles, their selection and care, as a basis for appropriate personal apparel. *Prerequisite*: RA 15. Three hours. Misses Caldwell and Colton.

58 CLOTHING CONSTRUCTION I (0-6) The development of techniques of clothing construction with the ease of fabric manipulation and previous construction experience as the basis for the selection of the class problems. *Prerequisite*: 16. Three hours. Mrs. Brazner and Miss Colton.

106 TEXTILES (1-4) Testing techniques and a study of the new developments in textiles. *Prerequisite*: 109 and Chemistry 35. Three hours. Mrs. Brazner.

109 CONSUMER PROBLEMS (2-2) The factors of production and distribution as related to the buying of merchandise for the family, home, and institution. *Prerequisite*: 16, or permission of the department. Three hours. Mrs. Brazner.

110 CLOTHING CONSTRUCTION II (0-6) The further development of construction techniques with emphasis on tailoring problems. *Prerequisite:* 58, 106 or permission of the instructor. Three hours. Mrs. Brazner and Miss Caldwell.

G158 COSTUME DESIGN AND CONSTRUCTION (1-4) The development of the original costume plan by draping and flat pattern design. *Prerequisite*: 110. Three hours. Miss Caldwell.

HOME MANAGEMENT

62 HOUSE PLANNING Functional housing, including problems of financing, site location, utilization of space. Two hours. Miss Knowles.

63-64 HOUSEHOLD TECHNOLOGY (1-2) The application of scientific principles to the selection, operation and care of household equipment. Two hours. Miss Knowles.

112 HOME MANAGEMENT (2-2) A study of how families use their material and human resources to secure their goals. *Prerequisite*: Economics 12. Three hours. Miss Knowles.

160 HOME MANAGEMENT RESIDENCE Practical application of home management and group living in the Home Management Residence. A charge of \$11.00 per week is made to cover cost of board and partial operating expenses. Students not living on campus are also charged \$40.00 for room rent. *Prerequisite*: 112. Three hours. Miss Pecheniuk.

G163 HOME MANAGEMENT PROBLEMS Application of economic and sociological principles to some problems of the home and family. *Prerequisite:* 63-64; 112; Psychology 1-2. Three hours. Miss Knowles.

INSTITUTIONAL MANAGEMENT

118 FOOD PRODUCTION (1-6) Practical application of principles, methods, and techniques used in large quantity food preparation. *Prerequi*site: F&N 56. Three hours. Misses Godfrey and H. Brown.

165 SCHOOL LUNCH MANAGEMENT (1-6) The organization, operation, and control of different types of school lunches. Opportunities for some practical training in menu planning, and in the buying, preparation, and serving of food in quantities. *Prerequisite:* F&N 56. Three hours. Misses Godfrey and H. Brown.

G166 INSTITUTION ADMINISTRATION The organization and personnel management of various types of food service units. *Prerequisite*: 118; Agricultural Biochemistry 72, 73. Three hours. Miss Godfrey.

167 INSTITUTION MARKETING Present day food markets, and problems in institutional buying, with some training in buying techniques and procedures. *Prerequisite*: 118. Two hours. Miss Godfrey.

168 INSTITUTIONAL EQUIPMENT Institution kitchen, serving room, dining room layouts, including materials, fabrication, construction, installation, operation and care. *Prerequisite*: 118. Two hours. Miss Godfrey.

169 FOOD COST CONTROL (1-4) A study of adequate systems of food control for various types of food service. *Prerequisite:* 118. Three hours. Miss Godfrey.

HOME ECONOMICS EDUCATION

121 DEMONSTRATION TECHNIQUES (0-4) Practice in the presentation of information and the teaching of skills by visual methods. *Prerequisite:* junior standing. Two hours. Miss Knowles.

171 METHODS OF TEACHING Methods of teaching homemaking in junior and senior high schools, and general administration of homemaking departments in secondary schools. *Prerequisite:* Psychology 2. Three hours. Miss M. Brown.

172 STUDENT TEACHING Supervised observation and teaching in approved secondary schools of the State. *Prerequisite:* 171. Seven hours. Miss M. Brown.

174 SPECIAL PROBLEMS IN HOME ECONOMICS EDUCATION Individual investigation on selected study to meet special needs of students. *Prerequisite*: 171. Two or three hours. Miss M. Brown and staff. G176 TEACHING ADULTS (1-2) Problems of organization and of teaching classes in home economics to meet the needs of adults; supervised experience in techniques of teaching adults. *Prerequisite*: 171 and one of the following secondary education courses; 45, 46 or Agricultural Education 100. Two hours. Miss M. Brown.

FAMILY LIVING

130 CHILD DEVELOPMENT (2-2) Growth and development of the child within the family group. Opportunity for direct observation and participation with children of pre-school age. *Prerequisite:* Psychology 1; junior standing. Three hours. Mrs. Brownfield.

180 FAMILY RELATIONSHIPS An examination of the changing structure and functions of the American family; the effects of interpersonal family relationships on the behavior and personality of the developing individual; the periods of courtship, engagement and marriage are studied. *Prerequisite*: Psychology 2; junior standing. Three hours. Mrs. Brownfield.

SEMINARS AND RESEARCH

195, 196 SENIOR PROBLEMS The student works under a staff member in one of the fields of Home Economics and submits the findings in written form prescribed by the department. *Prerequisite:* senior standing. One to three hours.

G295, 296 GRADUATE RESEARCH Each student completes a research problem under the direction of a qualified staff member and submits the findings in written form in accordance with the specifications for a Master's thesis. Hours to be arranged. The staff.

HORTICULTURE (College of Agriculture)

Professor Blasberg; Assistant Professor Hopp; Mr. Calahan

1, 2 GENERAL HORTICULTURE (3-0) (2-2) A survey of the field of horticulture. First semester: the requirements of horticultural crops for productive growth. Mr. Blasberg. Second semester: fundamentals supporting some of the horticultural practices. *Prerequisite*: 1 for 2. Three hours. Messrs. Blasberg and Hopp.

4 SMALL FRUIT CULTURE (2-2) Some fundamental principles underlying plant growth and fruit production and the relation of these principles to practice. Three hours. Mr. Blasberg.

6 PLANT PROPAGATION (1-2) The history, theory, and practice of multiplying plants by various methods. Two hours. Mr. Hopp.
103 ADVANCED TREE FRUITS (2-2) A study of cultural practices and the principles involved in modern fruit production. *Prerequisite*: 2. Three hours. Mr. Calahan. (Offered in alternate years, 1956-57.)

105 ADVANCED VEGETABLE CULTURE (2-2) A study of the culture of the more important vegetable crops and a review of some of the recent experimental work. *Prerequisite:* 2. Three hours. Mr. Hopp. (Offered in alternate years, 1955-56.)

152 PLANT BREEDING (2-2) Application of the principles of genetics to practical plant breeding. *Prerequisite:* Botany 105 or Zool. 115. Three hours. Mr. Hopp. (Offered in alternate years, 1956-57.)

G154 PLANT NUTRITION (2-4) The effect of soil management, fertilizers, environmental factors and mineral deficiencies on the functioning and performance of plants. *Prerequisite*: Botany 103, Chem. 31-32 or 35, or permission of the department. Four hours. Mr. Blasberg. (Offered in alternate years, 1955-56.)

G181, 182 HORTICULTURE SEMINAR Discussion of horticultural topics. Students are required to prepare and present papers on selected subjects. Open to graduate students and seniors by permission. One hour. The staff.

197, 198 SENIOR RESEARCH The student works on a research problem under the direction of a qualified staff member and submits the findings in a written form prescribed by the department. *Prerequisite:* senior standing. Three hours. The staff.

G295, 296 GRADUATE RESEARCH Each student completes a research problem under the direction of a qualified staff member and submits the findings in written form in accordance with the specifications for a Master's thesis. Credit as arranged. The staff.

MATHEMATICS (College of Technology)

Professors Hershner, Bullard and Fraleigh; Associate Professors Dwork and Kimball; Assistant Professors Nicholson, Riggs, Simond and Smith; Mrs. Steinmann and Miss Morrissey

1, 2 FRESHMAN MATHEMATICS For students who do not intend to concentrate in science or mathematics. First semester: elementary college algebra; second semester: plane trigonometry. *Prerequisite*: 1 for 2. Three hours.

4 MATHEMATICS OF FINANCE The mathematical theory of finance applied to interest and investments, annuities, and life insurance. *Prerequisite:* 1. Three hours.

6 ELEMENTARY COLLEGE ALGEBRA With emphasis on topics useful in the practice of agriculture, including the fundamental algebraic operations, solution of linear and quadratic equations, variations, progressions and logarithms. Open only to those students in the College of Agriculture enrolled under the options of General Agriculture, Agricultural Economics and Agricultural Education. Three hours. 7,8 FUNDAMENTALS OF MATHEMATICS To provide an understanding of basic logical and mathematical ideas (both ancient and modern) and some of their applications to other fields of knowledge. Emphasis is on logical methods of reasoning rather than on the development of techniques. Many of the usual topics of algebra, trigonometry and analytic geometry are considered in their relation to certain basic concepts pervading all mathematics. For students in the arts, social sciences, and others. *Prerequisite*: 7 for 8. Three hours.

9 COLLEGE ALGEBRA* For students who intend to concentrate in science or mathematics, but who are not sufficiently well prepared in algebra to take Mathematics 11. Four hours.

11-12 FRESHMAN MATHEMATICS For students who intend to concentrate in science or mathematics. This course includes plane trigonometry, plane analytical geometry and differential calculus with applications. *Prerequisite:* 9 or the equivalent^{*}. Five hours.

21-22 SOPHOMORE MATHEMATICS For students who intend to concentrate in science or mathematics. This course includes solid analytical geometry and integral calculus with applications. *Prerequisite:* 12. Three hours.

31 GENERAL ASTRONOMY An elementary course intended to acquaint the student with the basic facts of astronomy. The course includes a study of the history of astronomy, the solar system and stellar astronomy, time and calendar, and a brief survey of astrophysics. *Prerequisite:* 12. Three hours. (Offered in alternate years, 1955-56.)

32 THEORY OF EQUATIONS Properties of polynomials in a field, equations in the rational and real number fields, elimination, resultants, symmetric functions, algebraic field extensions, and related topics. *Prerequisite:* 21. Three hours. (Offered in alternate years, 1954-55.)

G103 THEORY OF DETERMINANTS AND MATRICES A study of the basic concepts and theorems concerning determinants and matrices. *Prerequisite:* 22. Three hours. (Offered in alternate years, 1954-55.)

G107-108 ADVANCED CALCULUS A critical study of the calculus beginning with limits, continuity, differentiation, and Riemann integrals, together with a treatment of those topics not included in the earlier course as a foundation for more advanced courses in analysis and applied mathematics. *Prerequisite:* 22. Three hours.

G109, 110 MODERN GEOMETRY Projective geometry, differential geometry, foundations of geometry, algebraic geometry and topology. *Pre-requisite:* 22; G109 for G110. Three hours. (Offered in alternate years, 1954-55.)

^{*} The registration of students who desire to take Mathematics 11-12 will depend on their work on a mathematics examination and their previous record. Those who are satisfactorily prepared in algebra will be enrolled in Mathematics 11, and those who are unsatisfactorily prepared in algebra will be enrolled in Mathematics 9. A student who takes Mathematics 9 in the fall of his freshman year and who because of his chosen curriculum needs to have completed calculus by the end of his sophomore year, will need to take Mathematics 12 during the summer between his freshman and sophomore years.

G111 DIFFERENTIAL EQUATIONS Solutions of linear ordinary differential equations, the Laplace transformation, and numerical methods for solving ordinary differential equations. *Prerequisite:* 22. Three hours.

G112, 113 APPLIED MATHEMATICS First semester: series solutions of differential equations, boundary-value problems and orthogonal functions, and vector analysis. Second semester: partial differential equations, solutions of partial differential equations of mathematical physics, and functions of a complex variable. *Prerequisite*: G111; G112 for G113. Three hours.

G115-116 HIGHER ALGEBRA An introduction to the fundamental concepts of modern higher algebra—in particular: matrices, polynomials, groups, rings and fields, with application to the theory of vector spaces and quadratic forms. *Prerequisite:* 32 or G103. Three hours. (Offered in alternate years, 1955-56.)

G118 MATHEMATICAL STATISTICS A study of frequency distributions including the calculation of moments, standard deviations and related quantities, the theory of least squares and its application to scientific problems, the Chi-square test and Student's t-test with a discussion of the validity of statistical results. *Prerequisite:* 22. Three hours. (Offered in alternate years, 1955-56.)

G120 VECTOR ANALYSIS An introduction to vector methods including the elements of vector algebra and vector calculus with applications to physics and mechanics. *Prerequisite:* 22. Three hours. (Offered in alternate years, 1954-55.)

G131-132 FUNCTIONS OF A COMPLEX VARIABLE Differentiation and integration of a function of a complex variable, mapping of elementary functions, infinite series, properties of analytic functions, analytical continuation, calculus of residues, contour integration, integral functions, meromorphic functions, periodic functions, Riemann surfaces, and conformal representation. *Prerequisite:* G108. Three hours. (Offered in alternate years, 1954-55.)

G133-134 THEORY OF FUNCTIONS The functions of real variables, including such topics as point sets and measure, transfinite numbers, Riemann and Lebesgue integrals, and sequences of functions. Considerable outside reading is assigned. *Prerequisite*: G108. Three hours. (Offered in alternate years, 1955-56.)

G201-202 THESIS Investigation intended to culminate in a Master's thesis. Required of graduate students in mathematics seeking the Master's degree. Six hours credit will be given on satisfactory completion of the thesis.

MILITARY SCIENCE AND TACTICS (Army ROTC)

Lt. Col. Cox; Major Powers; Captains Barnett, Joy and Nelson

1-2 FIRST YEAR BASIC Organization of the Army; introduction to ROTC; American military history; individual weapons and marksmanship; school of the soldier and exercise of command. Two hours. 11-12 SECOND YEAR Crew-served weapons familiarization; gunnery principles and methods of controlling the firepower potential; military map and aerial photograph reading; school of the soldier and exercise of command. Two hours.

101-102 FIRST YEAR ADVANCED Small unit tactics; signal communications; organization, function and mission of the arms and services; military teaching methods; leadership; school of the soldier and exercise of command. Three hours.

111-112 SECOND YEAR ADVANCED Command and staff; estimate of the situation and combat orders; military intelligence; the military team; training management; military administration; military justice; the role of the U. S. in world affairs and the present world situation; leadership; officer orientation; supply and evacuation; troop movements; motor transportation; school of the soldier and exercise of command. Three hours.

MUSIC (College of Arts and Sciences)

Professor Bennett; Associate Professor Pappoutsakis; Assistant Professors Kinsey, Marston, Start and Weinrich.

HISTORY AND THEORY OF MUSIC

1, 2 SURVEY OF MUSICAL LITERATURE Orchestral, chamber, choral, and operatic music for concert and radio listeners. No previous technical knowledge is required. First semester: from Palestrina to Beethoven; second semester: from Schubert to Stravinsky. Three hours. Mr. Bennett.

4 SURVEY OF OPERA A course for opera listeners. The Metropolitan Opera repertory, also early and recent operas will be studied—works by Monteverdi, Purcell, Gluck, Mozart, Beethoven, Weber, Rossini, Bellini, Donizetti, Meyerbeer, Wagner, Verdi, Gounod, Bizet, Puccini, Moussorgsky, Debussy, Strauss, Berg, Britten, Menotti and others. Attention will be given to the sources of the texts, to national and individual styles, and to various theories concerning the union of drama with music. No previous technical knowledge is required. Three hours. Mr. Bennett.

5-6 ELEMENTARY SIGHT-SINGING, EAR-TRAINING, AND THEORY Three hours. Mr. Pappoutsakis and Mrs. Start.

7-8 ELEMENTARY HARMONY Structure and use of chords; harmonization of melodies in various styles; simple original composition. *Prerequisite:* familiarity with scales and keys, and ability to read simple music at the piano. Three hours. Mr. Kinsey.

11-12 ADVANCED SIGHT-SINGING, EAR-TRAINING, AND THEORY Prerequisite: 5-6. Three hours. Mr. Pappoutsakis.

G101-102 ADVANCED HARMONY AND HARMONIC ANALYSIS Prerequisite: 7-8. Three hours. Mr. Kinsey.

G105-106 COUNTERPOINT Prerequisite: 7-8. Three hours. Mr. Bennett.

G107-108 ORCHESTRATION AND CONDUCTING The characteristics of instruments; arranging for orchestra; technique of the baton; principles of instrumental technique. *Prerequisite:* 7-8; G101-102 is also desirable. Three hours. Mr. Pappoutsakis. (Offered in alternate years, 1954-55.)

G109-110 ADVANCED ORCHESTRATION Arranging for full orchestra, including a study of the less frequently used instruments. This course presupposes a knowledge of the range, transposition, and characteristics of the usual orchestral instruments, and the ability to arrange music of moderate difficulty for strings, woodwind and brass. *Prerequisite:* G107-108. Three hours. Mr. Pappoutsakis. (Offered in alternate years, 1955-56.)

G121, 122 HISTORY OF MUSIC Changes in musical structure and style, and their relation to contemporaneous artistic, literary, religious, and social movements. First semester: the Renaissance, Bach, Mozart; second semester: Beethoven, Romanticism, Brahms, the Twentieth Century. *Prerequisite*: 1, 2 and 7-8. Three hours. Mr. Bennett.

MUSIC EDUCATION

31, 32 ELEMENTARY SCHOOL METHODS AND PRACTICE TEACHING The teaching of music in the primary and grammar grades. Observation and practice teaching in the schools of Burlington or vicinity. *Prerequisite:* 1, 2; credit or enrollment in 5-6. Three hours. Miss Marston. (Offered in alternate years, 1955-56.)

151, 152 SECONDARY SCHOOL METHODS AND PRACTICE TEACHING The administration and content of required and elective high school music courses. Observation and practice teaching in the schools of Burlington or vicinity. First semester: junior high school music; second semester: senior high school music. *Prerequisite*: credit or enrollment in 1, 2, and 5-6. Three hours. Miss Marston. (Offered in alternate years, 1954-55.)

155-156 APPLIED MUSIC METHODS Methods of teaching piano, organ, voice or violin. *Prerequisite:* three years' instruction in chosen instrument at the University, or equivalent. One hour. Miss Marston, Mr. Weinrich and Mrs. Start.

For SCHOOL MUSIC, see Elementary Education 11-12 and 13-14.

APPLIED MUSIC

41, 42 CHOIR Study of works by Bach, Handel, Palestrina, modern Russian composers and others. Weekly services; Christmas, Lenten-Easter, and other concerts; annual opera; Baccalaureate service. Three hours of rehearsal weekly, if taken for credit. *One hour. Mr. Bennett, director; Miss Marston, organist.

43, 44 ORCHESTRA Study of symphonic and other instrumental literature. The orchestra plays at concerts and the opera, alone and with the choir, and at Commencement. Three hours of rehearsal weekly. *One hour. Mr. Pappoutsakis, conductor.

* See footnote on following page.

47, 48 PIANO Adapted to the student's purposes and needs; may include repertoire, technic, improvising accompaniments to melodies, and sight-reading. *One or two hours. Miss Marston and Mr. Kinsey.

49, 50 ORGAN Preparation for recital and church service playing, including hymns and accompaniments. *One or two hours. Miss Marston.

53, 54 VOICE Instruction in accepted natural vocal production; repertoire (in the course of four years) of old Italian songs, German lieder, modern French songs, oratorio and operatic arias. *One or two hours. Mr. Weinrich.

55, 56 VIOLIN Study of fundamental technic and tone production, preparing for orchestral, chamber music and solo performance. For those qualified, advanced study of artist repertoire. *One or two hours. Mrs. Start.

For the fees for instruction and use of organ, see the Index under "Fees."

NURSING (College of Education and Nursing)

Professors Crabbe, Schein; Associate Professors Bailey, Gjessing, Harsbberger, Lamden, Oakley; Assistant Professors Brownfield, Ichter, Milligan, Woodruff; Instructors Billings, Caffina, Dustan, Hunt, MacNeil

1-2 ORIENTATION TO NURSING, INCLUDING HYGIENE The study of health conservation, its relationship to the individual and the community. An approach to the patient as an individual and the role of the nurse as a teacher. An introduction to the principles, skills and techniques of basic nursing. Two hours; three hours. Miss Milligan.

3 NURSING Continued study of the principles, skills and techniques of basic nursing with application in the clinical laboratory. *Prerequisite*: 1-2. Four hours. Miss Milligan

5 HISTORY OF NURSING The historical development of nursing from the Christian Era to the present, tracing the rise of nursing as an educational system. Three hours. Miss Crabbe.

7 HOME NURSING (0-2) The care of the family during illness. *Pre-requisite:* junior standing in home economics curriculum. One hour. Miss Milligan.

9-10 CHEMISTRY FOR NURSES (4-3) Inorganic, organic and biological chemistry with special emphasis on the integration of the principles of chemistry in situations dealing with sickness and health. Five hours. Messrs. Schein and Lamden.

12 MICROBIOLOGY The study of the characteristics of microorganisms, with particular reference to microbial control, sources and modes of

* All courses in applied music may be taken for several years, but no student may receive credit toward graduation totalling more than six semester hours in choir or orchestra or both together. One hour of credit per semester will be given for one private lesson in piano, organ, voice, or violin under a member of the department, and five hours practice per week, on condition that the instruction be accompanied or preceded by either Music 1, 2 or 7-8; two hours credit will be given for two private lessons and ten hours practice per week, on the same condition. infection and means of prevention of common infectious diseases. Three hours. Miss Woodruff.

15-16 HUMAN ANATOMY AND PHYSIOLOGY (2-2) The study of the human body with emphasis on physiological principles of importance to the student of nursing. Three hours. Misses Ichter and Woodruff.

19-20 NURSING IN MEDICAL AND SURGICAL CONDITIONS Includes the principles of diet therapy, operating room technique, pharmacology and medical and surgical specialties such as eye, ear, nose and throat, orthopedics, urological and dermatological nursing. The study of the principles and practice of nursing in conditions treated medically and surgically, including etiology, prevention, treatment, rehabilitation, and the health and emotional needs of individuals and families affected by medical and surgical illness. The role of the community agencies in the social and economic aspects of illness. Guided clinical practice at Mary Fletcher Hospital. Nine hours each semester. Misses Hunt and Milligan and medical and surgical specialists.

23 OBSTETRICS AND GYNECOLOGICAL NURSING The physiological and pathological aspects of labor and the puerperium and the immediate care of the newborn. Correlated supervised clinical practice. Six hours.

25 PEDIATRIC NURSING The growth and development of the child; principles in the care of well and sick infants and children; lectures and clinical presentation of the etiology, symptoms and treatment of diseases of infancy and childhood. This course is taught in a pediatric hospital during a three months' affiliation in experience in the care of infants and children. Six hours.

27 PSYCHIATRIC NURSING The more common psychiatric disorders; problems surrounding hospitalization, special therapeutics. The course is taught in a psychiatric hospital during a three months' affiliation in experience in the care of the mentally ill. Six hours.

29 COMMUNICABLE DISEASE NURSING An epidemiological approach to control of communicable disease and the broad implications for prevention and rehabilitation will be studied, focusing on the care of the patient with tuberculosis. Local, national and international programs for prevention and control of communicable diseases will be emphasized. Guided experience in the care of the tuberculosis patient will be combined with clinics, conferences and individual instruction, serving to increase understanding of the patient with long term illness, as well as to gain skill in nursing care and treatment of patients with tuberculosis. The course covers a six week period in a hospital caring for tuberculosis patients. Two hours.

31 PRINCIPLES OF PUBLIC HEALTH NURSING A study of public health nursing functions, trends, and activities with special emphasis on the role of the nurse in family health services. Ways and means of utilizing community resources, especially in rural areas, are considered. The course includes field experiences in the local health agencies. Four hours.

32 PRINCIPLES OF PUBLIC HEALTH A series of lectures by Vermont Department of Health personnel on the various public health services such as maternal and child health, cancer, and crippled children. Two hours. 101, 102. NURSING SEMINAR An integration of scientific principles in total nursing situations. Three hours. Miss Crabbe.

107 PRINCIPLES OF TEACHING The development of sound educational procedures and principles for effective and successful teaching; the guidance and fostering of learning; management techniques; the qualities of the effective teacher; evaluating teaching. Three hours. Miss Crabbe.

113 MANAGEMENT OF HOSPITAL NURSING UNIT Principles and practices in organization and management of a nursing service. Three hours. Miss Oakley.

114 CLINICAL TEACHING Adaptations of principles and methods of teaching. Three hours. Miss Oakley.

118 TRENDS IN NURSING A survey of development in nursing and nursing education during the past thirty years including legislation, accreditation, activities of nursing organizations, important studies and surveys. Three hours. Miss Oakley.

PHILOSOPHY AND RELIGION (College of Arts and Sciences)

Professor Dykbuizen; Associate Professors Feuer and Hall; Mr. Miller

PHILOSOPHY

1 INTRODUCTION TO PHILOSOPHY A presentation of the chief problems of philosophy. *Prerequisite:* sophomore standing. Three hours. Messrs. Dykhuizen and Feuer.

2 LOGIC The principles and conditions of correct thinking with emphasis on the detection of fallacies of thought. *Prerequisite:* sophomore standing. Three hours. Mr. Feuer.

4. ETHICS An examination of the ideas underlying man's moral behavior. The aim is to develop an acceptable and coherent theory of conduct. *Prerequisite:* sophomore standing. Three hours. Mr. Dykhuizen.

20 SOCIAL PHILOSOPHY OF AMERICAN AGRICULTURE European backgrounds; the history of American thought regarding agriculture in this country; the more important agricultural problems of today in the light of American democratic thought. Normally open for credit only to students in agriculture. *Prerequisite:* senior standing. Three hours. I. Mr. Dykhuizen.

G101 CONTEMPORARY PHILOSOPHIC THOUGHT A study of the philosophic ideas of such men as Russell, Dewey, and Whitehead, and of such movements as pragmatism, logical empiricism and existentialism. *Prerequisite:* 1; junior standing. Three hours. Mr. Feuer. (Offered in alternate years, 1955-56.)

G105 SOCIAL PHILOSOPHY The meanings and values inherent in social life. *Prerequisite*: 1 or 4; junior standing. Three hours. Mr. Feuer. (Offered in alternate years, 1956-57.) 107, 108 HISTORY OF PHILOSOPHY First semester: ancient and medieval philosophy; second semester: modern philosophy. *Prerequisite:* 1, junior standing. Three hours. Mr. Dykhuizen.

109 HISTORY OF AMERICAN PHILOSOPHY The thought of leading American philosophers from colonial times to the present. *Prerequisite:* 1, junior standing. Three hours. The staff.

G114 INTELLECTUAL BACKGROUND OF MODERN LIFE Intellectual movements which have influenced the thought and life of today. *Prerequisite:* senior standing or permission of the instructor. Three hours. Mr. Dykhuizen.

For ECONOMIC PHILOSOPHY, see Economics G195 and G196; and for POLIT-ICAL PHILOSOPHY, see Political Science G193, 194.

RELIGION

1-2 HISTORY OF RELIGION Religion from early primitive forms to the great world religions of the present. Study of the living religions of today with most emphasis given to Hinduism, Buddhism, Confucianism, Shinto, Judaism, Islam, and Christianity. *Prerequisite:* sophomore standing. Three hours. Mr. Hall.

11-12 OLD AND NEW TESTAMENT A critical study of the Jewish-Christian tradition. It includes much reading in the Scriptures as well as in background material. *Prerequisite:* sophomore standing. Three hours. Mr. Hall.

PHYSICAL EDUCATION (Men)

Associate Professors Post and Evans; Assistant Professors Donnelly and Strassburg; Mr. LaPointe

REQUIRED COURSES: A two-year program of general physical education, to be completed during the freshman and sophomore years, is required of all college men. Those with serious physical defects may be given restricted work or may be excused by the Director of Student Health. The semester hours listed for physical education are in addition to the total number of hours required for a degree in a specific curriculum.

FRESHMAN AND SOPHOMORE PHYSICAL EDUCATION A seasonal sports program with attention given to posture, body-building exercises, and the fundamentals and skills of various sports and physical activities. Aims to develop and improve skills, coordination and endurance; to establish regular habits of exercise; and to instill an intelligent attitude toward and interest in athletic activities. Fall-winter: football, touch football, cross country, tennis, calisthenics, basketball, volleyball, wrestling, apparatus and tumbling, handball, swimming, skiing, badminton. Winter-spring; badminton, basketball, calisthenics, volleyball, wrestling, handball, apparatus and tumbling, swimming, skiing, indoor and outdoor track, softball, tennis, baseball. Two hours weekly. One hour. The staff. 21-22 ADMINISTRATION AND COACHING The theory and practice of selected sports: football (Mr. Donnelly), basketball (Mr. Evans), track and field (Mr. Post), baseball (Mr. LaPointe); the administration and organization of interscholastic and intramural athletics (Mr. Post); athletic training (Mr. Strassburg). Open to juniors and seniors. *Prerequisite:* completion of two years of required courses in physical education. Two hours. (Offered in alternate years, 1955-56.)

PHYSICAL EDUCATION (Women)

Assistant Professors Phillips and Euler; Misses Hood and Howe

REQUIRED COURSES: A two-year program of physical education, normally completed during the freshman and sophomore years, is required of all college women. Medical and physical examinations are required of all new students, and recommendations are made as to the quantity and type of activity advisable. The semester hours listed for physical education and hygiene are in addition to the total number of hours required for a degree in a specific curriculum.

1-2 FRESHMAN PHYSICAL EDUCATION Provides experiences in a variety of sports, in dance, and fundamentals of movement to stimulate the desire for optimum fitness essential for a well-integrated personality, to develop desirable attitudes and skills in responsible cooperative behavior and democratic understandings for the socially mature person, and to develop competencies for reevaluating experiences in terms of individual needs and capacity for growth in intelligent self-direction. Two hours weekly. One hour.

11-12 SOPHOMORE PHYSICAL EDUCATION Provides opportunities for electing a variety of sports to develop competencies in special interest areas. Fall: archery, dance, field hockey, golf, riflery, swimming and tennis. Winter: badminton, basketball, bowling, dance, recreational games, riflery, skiing, swimming, live saving and water safety instruction. Spring: archery, dance, golf, sailing, softball, swimming and tennis. Two hours weekly. One hour.

41-42 HYGIENE One hour.

PHYSICS (College of Arts and Sciences)

Professors Walbridge, Holmes and Skapski; Associate Professors Rooney and Woodward; Assistant Professor Ellis

Note: Full credit can be granted for not more than one of the following year courses: 1-2; 5-6; 21-22.

1-2 INTRODUCTORY PHYSICS (2-2) For students not concentrating in a science. Subjects included are mechanics, heat, sound, light, electricity, and magnetism. Demonstration lectures, presenting experimental facts and theoretical conclusions, are closely coordinated with laboratory work. *Prerequisite:* one year each of secondary school algebra and geometry. Three hours. The staff. 5-6 GENERAL PHYSICS (3-2) For students concentrating in a biological science. The first semester deals with mechanics and heat; the second with sound, light, electricity, magnetism and atomic physics. *Prerequisite:* Math. 1, 2 or 7, 8 or 11. Four hours. The staff.

21-22 GENERAL PHYSICS (4-2) For engineers and students concentrating in a physical science. The first semester deals with mechanics and heat; the second with sound, light, electricity, magnetism, and atomic physics. *Prerequisite*: Math. 21-22 taken concurrently. Five hours. The staff.

G111, 112 MECHANICS AND WAVE MOTION (3-0) Continuation and developments of the principles and methods of mechanics with emphasis on the integration of fundamental physical principles with mathematics and with the extension of these principles to wave motion. First semester: forces and other vector quantities, work and energy; second semester: the dynamics of rigid bodies and wave motion. Prerequisite: 21; Math. G111 taken concurrently; G111 for G112. Three hours. Mr. Ellis. (Offered in alternate years, 1956-57.)

G121, 122 HEAT AND THERMODYNAMICS Experimental facts and theoretical principles of heat. First semester: thermometry, expansion, specific heat and gas laws (2-2); second semester: thermal conduction and thermodynamics (3-0). The basic theory of the conduction of heat and the relation between work and heat; various thermodynamical cycles and the thermodynamics of radiation. *Prerequisite:* 21 and Math. 21-22 for G121; G121 and Mathematics G111 for G122. Three hours. Mr. Woodward. (Offered in alternate years, 1956-57.)

131, 132 DEVELOPMENT OF SCIENCE (3-0) The history of formation of the scientific method from the earliest beginning till the present time; the rise and fall of different scientific concepts and theories; the accumulation of information from observation and experiment and the evolution of the experimental method; the relation between science, technology and their contemporary cultural and social environment. *Prerequisite:* a one year college course in each mathematics, physics and chemistry. Three hours. Mr. Skapski.

G141, 142 ELECTRICITY AND MAGNETISM (2-2) The fundamental principles; magnetic and electric field strengths and potentials. Resistance and energy relations in direct current circuits; capacitance and inductance; applications to transient phenomena; alternating currents. First semester: basic principles of magnetism and electrostatics, resistance and energy relations; second semester: capacitance, inductance and alternating currents. Prerequisite: 22 and Math. G111 taken concurrently for G141; G141 for G142. Three hours. Mr. Holmes.

G161, 162 OPTICS (2-2) A geometrical theory of reflection and refraction, mirrors and lenses; the wave properties of light, interference and diffraction, polarized light. First semester: the centered optical system; second semester: physical optics and spectroscopy. *Prerequisite*: 22 for G161;

G161 and Math. 21-22 for G162. Three hours. Mr. Woodward. (Offered in alternate years, 1955-56.)

171, 172 MODERN PHYSICS (2-2) First semester: behavior of electrons in electric and magnetic fields, photoelectricity, thermonic emission, simple vacuum tube circuits, particles and waves. Second semester: atomic structure, X rays and crystals, nuclear transformations, nuclear power and semiconductors. *Prerequisite:* 22 and Math. 21-22 for 171; 171 or E.E. 110 for 172. Three hours. Mr. Rooney.

G173, 174 ADVANCED ELECTRON AND ATOMIC PHYSICS (3-0) Further consideration of some of the subject matter of G171, 172 with special attention to more advanced mathematical theory. First semester: free electrons and electromagnetic radiations, spectroscopy; second semester; special relativity, X rays, nuclear physics. *Prerequisite*: 172 and Math. G111; G173 for G174. Three hours. Mr. Walbridge. (Offered in alternate years, 1956-57.)

G175, 176 THEORETICAL PHYSICS (3-0) Selected chapters from theoretical physics, especially a brief outline of the theories of elementary particles and atoms. *Prerequisite:* 171, 172 and Math. G111, 112; G175 for G176. Three hours. Mr. Skapski. (Offered in alternate years, 1955-56.)

G201-202 SEMINAR Members of the staff and graduate students meet once a week to study contemporary advances in physics and for reports on research being done in the department. One hour. The staff.

G203-204 QUANTUM MECHANICS (3-0) Theoretical background of quantum mechanics including the approaches of DeBroglie, Schroedinger and Heisenberg; Dirac's symbolic theory; relativistic quantum mechanics and Dirac's relativistic electron; applications of the above theories to atoms, molecules and the solid state. *Prerequisite*: G174 or G176. Three hours. Mr. Skapski. (Offered in alternate years, 1956-57.)

G205, 206 ELECTROMAGNETIC THEORY (3-0) The field equations, stress and energy, waves and radiation. *Prerequisite:* G141, 142, Math. G112 and G120; G205 for G206. Three hours. The staff. (Offered on demand.)

G211-212 RESEARCH For students seeking a Master of Science degree. A problem is selected in consultation with a member of the staff. *Prerequisite:* nine semester courses in the 100 group and either Math. G107-108 or Math. G111, 112. Nine to twelve hours. The staff.

POLITICAL SCIENCE (College of Arts and Sciences)

Professor Nuquist; Associate Professors Babcock, Haugen and Little; Messrs. Eastman, Gould, Krislov, Simon, Yates, and Zariski

1, 2 AMERICAN GOVERNMENT First semester: state and local governments; second semester: national government. Three hours. The staff.

11, 12 INTRODUCTION TO POLITICAL SCIENCE First semester: elements of political science; second semester: comparative governmental institutions. Three hours. Mr. Nuquist. 51, 52 INTERNATIONAL RELATIONS First semester: development and principles of international politics; second semester: international organization. *Prerequisite:* sophomore standing and 51 for 52. Three hours. Messrs. Little, Gould, and Simon.

54 GEOGRAPHIC BACKGROUNDS OF POLITICS Prerequisite: 51. Three hours. Mr. Zariski.

61, 62 LOCAL GOVERNMENT First semester: government of counties, towns, and other rural units; second semester; municipal government. *Prerequisite:* sophomore standing. Three hours. Mr. Nuquist.

71 GOVERNMENT OF GREAT BRITAIN Prerequisite: sophomore standing. Three hours. Mr. Haugen.

72 GOVERNMENTS OF CONTINENTAL EUROPE Prerequisite: sophomore standing. Three hours. Mr. Haugen. (Offered in alternate years, 1954-55.)

74 GOVERNMENTS OF THE BRITISH EMPIRE AND THE COM-MONWEALTH Prerequisite: sophomore standing. Three hours. Mr. Haugen. (Offered in alternate years, 1955-56.)

111 GOVERNMENTS OF THE FAR EAST *Prerequisite:* sophomore standing. Three hours. Mr. Little. (Offered in alternate years, 1955-56.)

113 GOVERNMENTS OF LATIN AMERICA Prerequisite: sophomore standing. Three hours. Mr. Gould. (Offered in alternate years, 1954-55.)

151, G152 AMERICAN FOREIGN POLICY First semester: the development of American foreign policy; second semester: the formation of American foreign policy. *Prerequisite:* any course except 1, 2; 151, History 31 or permission of the instructor for G152. Three hours. Mr. Little (*Note:* 151 will not be offered in 1955-56; see History 31.)

G153-154 WORLD POLITICS An analysis of the foreign policies of countries other than the United States, with emphasis on selected problems in Europe, Latin America, and the Pacific Area. *Prerequisite:* 51, 52. Three hours. Mr. Little. (Offered in alternate years, 1955-56.)

G155 INTERNATIONAL LAW Principles and applications of public international law. *Prerequisite:* 51, 52. Three hours. Mr. Little. (Offered in alternate years, 1954-55.)

G156 INTERNATIONAL ADMINISTRATION Theory and practice in international agencies. *Prerequisite:* 51, 52. Three hours. Mr. Little. (Offered in alternate years, 1954-55.)

G163 STATE GOVERNMENT Organization and administration of state government. *Prerequisite:* 1, 2 or 11, 12 and one other course. Three hours. Mr. Babcock.

G167, 168 POLITICAL PARTIES AND PRESSURE GROUPS First semester: political parties; second semester: citizen participation and interest groups. *Prerequisite:* 1, 2 or 11, 12 and one other course. Three hours. Mr. Yates. G173, 174 CONSTITUTIONAL LAW First semester: an historical and analytical study of the problems of judicial review, the judicial power, the relation between state and nation, citizenship, the police power of the state in relation to private rights; second semester: an historical and analytical study of the problems of the legislative power, the executive power, due process of law, interstate and foreign commerce, the Bill of Rights. *Prerequisite:* 1, 2 or 11, 12 and one other course, or Economics 11, 12; junior standing. Three hours. Mr. Gould.

G175 THE LEGISLATIVE PROCESS Study of Congressional organization and procedure. *Prerequisite:* 11, 12 or 1, 2, and one other course. Three hours. Mr. Haugen. (Offered in alternate years, 1955-56.)

G176 LAWMAKING AND PUBLIC POLICY Influence of the executive and problems of congressional control. *Prerequisite:* 1, 2, or 11, 12, and one other course. Three hours. Mr. Haugen. (Offered in alternate years, 1955-56.)

G177, 178 INTERGOVERNMENTAL RELATIONS First semester: problems of the federal system; second semester: national-state-local cooperative administration of selected public functions. *Prerequisite:* 1, 2 or 11, 12 and either one other course or Econ. 103-104. Three hours. Mr. Haugen. (Offered in alternate years, 1954-55.)

G183 ORGANIZATION AND FUNCTION OF PUBLIC ADMIN-ISTRATION Prerequisite: 1, 2 or 11, 12 and one other course. Three hours. Mr. Nuquist.

G184 ADMINISTRATIVE PROCEDURES Prerequisite: G183. Three hours. Mr. Nuquist. (Offered in alternate years, 1954-55.)

G186 ADMINISTRATIVE LAW Prerequisite: G183. Three hours. Mr. Nuquist. (Offered in alternate years, 1955-56.)

G193, 194 POLITICAL THEORY First semester: development of political theory; second semester: recent political theory. *Prerequisite:* two courses. Three hours. Messrs. Babcock and Yates.

G195, 196 POPULAR GOVERNMENT Seminar for students who intend to pursue graduate study in political science, international relations, or public administration, or to enter the public service. The staff.

POULTRY HUSBANDRY (College of Agriculture)

Associate Professor Henderson

1 GENERAL POULTRY HUSBANDRY (2-2) The principles of poultry husbandry and their application to general farm conditions. Three hours. Mr. Henderson.

56 POULTRY JUDGING AND SELECTION (1-4) A consideration of the physiological and morphological characters correlated with egg production. The judging of standard bred poultry, laboratory practice in judging both utility and exhibition poultry. *Prerequisite:* 1. Three hours. Mr. Henderson. 101 POULTRY FEEDING (3-2) Feeding poultry for egg production, growth and fattening. Practice in compounding rations. Experimental work and feeding problems. *Prerequisite:* junior standing. Four hours. Mr. Henderson. (Offered in alternate years, 1955-56.)

102 INCUBATION AND BROODING (2-4) General biology as applied to incubation and the fundamental principles underlying incubation practices. The theory and practice of brooding chicks and other poultry. *Prerequisite*: 1 and sophomore standing. Four hours. Mr. Henderson. (Offered in alternate years, 1954-55.)

103 PROCESSING AND PACKAGING POULTRY PRODUCTS (2-2) The principles of marketing as they apply to eggs and poultry meat. Candling, grading, and packing eggs for market. Preparation of poultry for market. A one-week inspection trip to the Boston market for which there is a charge of \$25.00. Prerequisite: junior standing. Three hours. Mr. Henderson. (Offered in alternate years, 1955-56.)

197, 198 SENIOR RESEARCH Each student works on a research problem under the direction of a qualified staff member and submits the findings in written form as prescribed by the department. *Prerequisite:* senior standing. Three hours. The staff.

PSYCHOLOGY (College of Arts and Sciences)

Professors Chaplin and Ansbacher; Assistant Professors Anger and Murdock; Mr. Cann and Miss Gustafson

1-2 GENERAL PSYCHOLOGY An introduction to the entire field, emphasizing the normal adult human being. *Prerequisite*: sophomore standing. Three hours. The staff.

G101 SOCIAL PSYCHOLOGY Principles, problems and research techniques of social psychology; beliefs and attitudes; groups, morale, leadership. *Prerequisite*: 1-2. Three hours. Mr. Ansbacher.

G102 PHYSIOLOGICAL PSYCHOLOGY (2-2) Relationships between psychological processes and the functions of the nervous system and endocrine glands. *Prerequisite*: 1-2. Three hours. Mr. Chaplin.

103 APPLIED PSYCHOLOGY Applications of psychological methods and theories to problems of education, medicine, crime, and industrial relations. *Prerequisite:* 1-2. Three hours. Mr. Murdock.

104 STATISTICAL METHODS IN PSYCHOLOGY Measures of central tendency and variability; the normal probability curve; reliability; testing of hypotheses; correlation techniques. *Prerequisite:* 1-2; Math. 1 or the equivalent. Three hours. Mr. Ansbacher.

105 CHILD PSYCHOLOGY The development of the human mind from birth to maturity. Prerequisite: 1-2. Three hours. Mr. Chaplin.

106 CHARACTER AND PERSONALITY A survey of approaches used and results obtained in the study of the nature of the mature individual. *Prerequisite:* 1-2. Three hours. Mr. Murdock. G107 SYSTEMATIC PSYCHOLOGY A comparative study of the leading contemporary schools of psychological thought. *Prerequisite*: 1-2. Three hours. Mr. Anger.

108 ABNORMAL PSYCHOLOGY The more unusual mental processes, the methods of observing and interpreting them, and their bearing on our understanding of the normal mind. *Prerequisite*: 1-2. Three hours. Mr. Anger.

G109-110 PSYCHOLOGICAL TESTS (2-2) A survey with emphasis on the most important clinical tests of ability and personality; and training in the administration of individual intelligence tests. *Prerequisite:* 104. Three hours. Mr. Ansbacher.

G111-112 EXPERIMENTAL PSYCHOLOGY (2-4) The student performs experiments designed to develop skill in psychological methods of procedure and thought. *Prerequisite*: 104. Four hours. Messrs. Chaplin and Murdock.

ROMANCE LANGUAGES (College of Arts and Sciences)

Professors Daggett and Johnston; Associate Professor Doane; Assistant Professors Towne, Whittemore and Schwartz; Messrs. Parker and Romey and Mrs. Mosher

FRENCH

1-2 ELEMENTARY FRENCH Grammar, pronunciation, composition, translation, dictations, and use of the spoken language, for beginners and those who present less than two years of preparatory French. *Credit is given only if Intermediate French is also completed*. Three hours. Mr. Whittemore and others.

11-12 INTERMEDIATE FRENCH Grammar, composition, translation, and conversation. The class work is conducted, as much as possible, in French. *Prerequisite:* 1-2 or two years of preparatory French. Three hours. Mr. Johnston and others.

101-102 INTRODUCTION TO FRENCH LITERATURE Recitations, lectures, outside reading and reports. Selected texts of outstanding French authors from medieval times to the present are the basis of study. *Prerequisite*: 11-12. Three hours. Messrs. Daggett and Johnston.

G107, 108 FRENCH LITERATURE: 19TH CENTURY Recitations, lectures, outside reading, and reports. A careful study of the outstanding authors of the romantic, realistic, and naturalistic schools. *Prerequisite*: 101-102, G107 for G108. Three hours. Mr. Doane.

G111 FRENCH LITERATURE: 18TH CENTURY Selected readings, lectures on the main currents of the literature of the century with emphasis on Montesquieu, Diderot, Voltaire, and Rousseau. Lesage, Marivaux, and Beaumarchais will be studied in the drama. *Prerequisite*: 101-102. Three hours. Mr. Johnston. (Offered in alternate years, 1955-56.) G112 FRENCH LITERATURE: 20TH CENTURY Readings, reports, lectures on the principal literary movements in this period based on a careful study of selected work of outstanding authors. *Prerequisite*: 101-102. Three hours. Mr. Johnston. (Offered in alternate years, 1955-56.)

G113, 114 FRENCH LITERATURE: 17TH CENTURY Lectures, recitations, outside reading, and reports. The influence of society, the Academy, and the Church on the literature of the period is emphasized. *Prerequisite*: 101-102, G113 for G114. Three hours. Mr. Whittemore. (Offered in alternate years, 1956-57).

121-122 COMPOSITION AND CONVERSATION Composition, conversation, and phonetics. Required of those who wish to be recommended to teach French. *Prerequisite*: good standing in 11-12. Three hours. Mr. Johnston.

G123-124 ADVANCED COMPOSITION AND CONVERSATION Translation into French of difficult English prose, free composition and discussion of questions of style. Practice in advanced conversation. Required of those who wish to be recommended to teach French. *Prerequisite*: 121-122. Three hours. Mr. Daggett.

G201, 202 GRADUATE COURSES Courses are offered for resident candidates for the Master of Arts degree, and further opportunities for independent work are provided. Three hours.

ITALIAN

1-2 ELEMENTARY ITALIAN Grammar, composition, translation, and practice in the spoken language for beginners. *Prerequisite*: permission of the department. Three hours. Mr. Johnston.

11-12 INTERMEDIATE ITALIAN Grammar, composition, translation, and conversation. *Prerequisite:* 1-2 or its equivalent. Three hours. Mr. Johnston.

SPANISH

1-2 ELEMENTARY SPANISH Grammar, composition, and translation for beginners, with frequent practice in pronunciation and use of the spoken language. *Credit is given only if Intermediate Spanish is also completed*. Three hours. Mr. Doane and others.

11-12 INTERMEDIATE SPANISH Readings from selected authors. Composition, grammar, and practice in conversation. Spoken Spanish is used to a considerable extent in class. *Prerequisite:* 1-2 or two years of preparatory Spanish. Three hours. Mr. Towne and others.

101-102 INTRODUCTION TO SPANISH LITERATURE Recitations, lectures, outside reading, and reports. Selections from the outstanding works of Spanish literature from the medieval period to the present are studied. *Prerequisite*: 11-12. Three hours. Mr. Towne.

G105-106 SPANISH-AMERICAN LITERATURE The evolution of Latin-American thought as reflected in the literatures of the various Spanish-

speaking countries from the 15th century to the present. *Prerequisite*: 101-102 and permission of the department. Three hours. (Not offered 1955-56.)

G107 SPANISH LITERATURE: 19TH CENTURY The principal literary currents of the 19th century, from Romanticism up to the generation of 1898. Representative readings from the poetry, drama, and novel of the period. *Prerequisite*: 101-102. Three hours. Mr. Schwartz. (Offered in alternate years, 1955-56.)

G108 SPANISH LITERATURE: 20TH CENTURY The origins and main aspects of the intellectual conflicts in modern Spain, as reflected in the literary works from the generation of 1898 to the present. *Prerequisite*: G107. Three hours. Mr. Schwartz. (Offered in alternate years, 1955-56.)

G113, 114 SPANISH LITERATURE: GOLDEN AGE Selected readings from the novel, poetry, drama of the 16th and 17th centuries with special attention to Cervantes and the dramatists. *Prerequisite*: 101-102, G113 for G114. Three hours. Mr. Schwartz. (Offered in alternate years, 1956-57.)

121-122 CONVERSATION AND COMPOSITION Composition, conversation, and phonetics. Required of those who wish to be recommended to teach Spanish. *Prerequisite:* good standing in 11-12. Three hours. Mrs. Mosher and Mr. Romey.

G201, 202 GRADUATE COURSES Courses are offered for resident candidates for the Master of Arts degree and further opportunities for independent work are provided. Three hours.

RUSSIAN (College of Arts and Sciences)

1-2 ELEMENTARY RUSSIAN Grammar, translation, extensive practice in the spoken and written language. For beginners. *Prerequisite:* sophomore standing. Three hours. Mr. Lane. (Offered in alternate years, 1955-56.)

11-12 INTERMEDIATE RUSSIAN Systematic review of grammar; composition; extensive oral practice. Readings from Pushkin, Lermontov, Gogol, Tolstoy, and others. *Prerequisite:* 1-2, or its equivalent. Three hours. Mr. Lane. (Offered in alternate years, 1956-57.)

SOCIOLOGY (College of Arts and Sciences)

1-2 INTRODUCTORY SOCIOLOGY The basic features of group behavior; sociological concepts, social organization, and social interaction. *Prerequisite:* sophomore standing. Three hours. Mr. Feuer.

102 SOCIAL PROBLEMS A descriptive analysis of particular social problems. *Prerequisite*: 1-2 or Phil. 4 or Psych. 1-2; junior standing. Three hours. Mr. Feuer. SPEECH (College of Arts and Sciences)

Professor Huber; Associate Professor Luse; Assistant Professors Falls, Helgesen and Lewis; Mr. Oppfelt

1 BASIC SPEECH The elements of speech and their practical application to the individual. Exercises for developing better communication through vocal and bodily control. Three hours. I, II. The staff.

3 PARLIAMENTARY PROCEDURE Study and practice in the fundamentals of conducting a meeting. The class meets twice a week with one hour of outside preparation. *Prerequisite:* sophomore standing. One hour. Mr. Helgesen.

11 PUBLIC SPEAKING Preliminary analysis, gathering material, organization and delivery of speeches with special attention on the use of visual aids and the speech to inform. Two-thirds of the time is devoted to student performance. Three hours. I, II. The staff.

12 ARGUMENTATION Inductive, deductive, causal, and reasoning from analogy as applied to the speaking situation; designed to develop through performance skill in logical expression of thought. *Prerequisite*: 11. Three hours. I, II. Mr. Huber.

14 GROUP DISCUSSION The basic methods of procedure in committees, round table discussions, lecture forums, symposiums, panels, and other types of discussion; designed to develop through performance skill in the thought processes involved in discussion leadership. *Prerequisite:* 11. Three hours. Mr. Helgesen.

31 ORAL INTERPRETATION OF LITERATURE The basic principles and techniques of oral interpretation of literature. Emphasis is placed on the analysis and appreciation of poetry, prose and drama through the development of ability in communicating the logical, emotional and aesthetic values of literature to an audience. *Prerequisite:* 1. Three hours. I, II. Mr. Falls and Miss Luse.

71 VOICE SCIENCE The physical, anatomical, physiological, and phonetic factors of speech. *Prerequisite:* 1; sophomore standing. Three hours. II. Miss Luse. (Offered in alternate years, 1956-57.)

74 INTRODUCTION TO SPEECH CORRECTION A basic course in the causes, symptoms, and treatment of speech disorders. *Prerequisite*: 1; sophomore standing. Three hours. I. Miss Luse. (Offered in alternate years, 1956-57.)

111 PERSUASION Human motivation, attitudes and how to change them, emotion, stereotypes, attention, and audience psychology; training in their use through student performance. *Prerequisite:* six hours, including 11. Three hours. Mr. Huber. (Offered in alternate years, 1956-57.)

116 SPEECH COMPOSITION A study of speech style and rhetorical criticism by analysis of great speeches and by writing longer speeches. *Pre-requisite:* six hours, including 11. Three hours. Mr. Huber. (Offered in alternate years, 1956-57.)

133 ACTING AND DIRECTING Half the semester is devoted to acting: character analysis, improvisation, body control, and styles of acting in plays of any period; half to the problems and techniques of directing: staging, movement of actors, script analysis, and rehearsal techniques. *Prerequisite:* six hours, including 1. Three hours. II. Mr. Falls. (Offered in alternate years, 1955-56.)

140 PLAY PRODUCTION The elements of play production except acting and directing; scene design, lighting, makeup, costumes and stage and theatre management. *Prerequisite*: six hours of speech. Three hours. I. Mr. Falls. (Offered in alternate years, 1955-56.)

145-146 DEVELOPMENT OF WESTERN THEATRE A survey of the history of theatre and drama in western civilization from ritual drama to the present. Plays from all major periods are read, and extensive work on the theatrical environment of theses plays is done. *Prerequisite:* junior standing, English 25, 26 or 27, 28. Three hours. Mr. Falls.

161 ELEMENTS OF RADIO BROADCASTING Radio and television as media of mass communication, their structure and programs, their psychological and educational impact upon our society; the techniques and procedures fundamental to radio production. *Prerequisite:* six hours of speech, including 1. Three hours. Mr. Lewis. (Offered in alternate years, 1956-57.)

162 WRITING FOR RADIO The fundamental principles and techniques of writing for radio and television, with emphasis upon problems of adaptation, radio journalism, the documentary style, and the writing of feature and dramatic scripts. *Prerequisite:* 161 or permission of the instructor. Three hours. Mr. Lewis. (Offered in alternate years, 1956-57.)

171, 172 SPEECH CORRECTION The etiology, symptoms and treatment of voice and articulatory disorders; the problems of stuttering and organic disorders of speech. *Prerequisite*: 74. Three hours. Miss Luse. (Offered in alternate years, 1955-56.)

WORLD PROBLEMS (College of Arts and Sciences)

101, 102 WORLD PROBLEMS Each semester a different major issue of particular importance to men and women in the modern world will be presented by various instructors from the humanities, the sciences, and the applied arts. The topic for the spring semester, 1955, is "Freedom and Authority as This Problem Affects the Educated Man of the Modern Western World." Lectures, weekly seminars, readings, and written reports. This course does not count toward concentration requirements. *Prerequisite:* senior standing or permission of the director. Three hours. Mr. Trevithick and others.

WRITING AND SPEAKING (College of Arts and Sciences)

1-2 WRITING AND SPEAKING The study and development of those tools which will improve reading and listening comprehension and will increase the effectiveness of oral and written communication. Four hours. Messrs. Huber and Marston.

ZOOLOGY (College of Arts and Sciences)

Professors Moody and Lochhead; Associate Professor Rowell; Assistant Professors Bond, Paulsen and Potash; Messrs. Mitchell and Torch

1 INTRODUCTION TO ZOOLOGY (2-4) An examination of the structure and function of selected animal forms designed to give the general student a greater appreciation of the world of animals and man, and the science student a background for further study in zoology. Four hours. Miss Paulsen and staff.

4 VERTEBRATE ZOOLOGY (2-4) Survey of Phylum Chordata; structure and biology of vertebrate animals; dissection of typical submammalian vertebrates. *Prerequisite*: 1. Four hours. Mr. Bond and staff.

6 PRINCIPLES OF EVOLUTION (3-2) Survey of biological principles connected with the development of life on the earth; evidences that evolution occurs; history of animal and human evolution; means by which evolution occurs. *Prerequisite*: 1. Four hours. Mr. Moody and staff.

21 ORGANIC EVOLUTION A non-laboratory course for students interested in the theory of evolution. For material covered see description of 6. A student may not receive credit for both 6 and 21. *Prerequisite:* sophomore standing. Three hours. Mr. Moody.

31 GENERAL ENTOMOLOGY (2-4) Introduction to the study of insects, with emphasis on morphology, physiology, and evolution. *Prerequisite:* 1. Four hours. Mr. Potash.

52 PHYSIOLOGY Introduction to some chemical and mechanical fundamentals of animal physiology, with special reference to man. *Prerequisite:* 1, junior standing; some knowledge of chemistry. Three hours. Mr. Lochhead.

101 COMPARATIVE ANATOMY (2-4) Study of the evolution of the organ systems of vertebrates, accompanied by the dissection of a mammal. *Prerequisite:* 4. Four hours. Mr. Bond.

G102 PRIMATE ANATOMY (0-8) Detailed dissection of the monkey. Prerequisite: 101; senior standing. Four hours. Mr. Bond.

104 ANIMAL ECOLOGY (2-4) Relationships between animals and their environments; dynamics of animal populations; aspects of wildlife conservation. *Prerequisite:* one year of zoology; some knowledge of chemistry is desirable. Four hours. Mr. Potash.

105 COMPARATIVE HISTOLOGY (2-4) Microscopic anatomy of invertebrate and vertebrate tissues. Basic tissue similarities and specializations in relation to function. *Prerequisite*: 101; 106 or Botany 52. Four hours. II. Mr. Rowell.

106 VERTEBRATE EMBRYOLOGY (2-4) General principles of development; comparisons of organogenesis in frog, chick, and mammal. *Prerequisite:* 4, junior standing. Four hours. I. Mr. Rowell. 110 INVERTEBRATE ZOOLOGY (2-4) Anatomy, physiology, and life histories of selected representatives of the more important invertebrate phyla. Required of all students concentrating in zoology. *Prerequisite*: 1, and 4 or 31; junior standing. Four hours. Mr. Lochhead.

115 HEREDITY Principles of inheritance and their physical basis. (No student may receive credit both for this course and for Botany 105.) *Prerequisite:* junior standing and four semesters of courses selected from botany, psychology, and/or zoology. Three hours. Mr. Moody.

G116 HUMAN GENETICS Principles of human inheritance; population genetics; interaction of heredity and environment; application of principles of heredity to human problems on both individual and social levels. *Prerequisite*: 115 or Botany 105. Three hours. Mr. Moody.

G120 MODERN EVOLUTIONARY THEORY Contributions of modern research in genetics, systematics, distribution, experimental embryology, serology, and related fields to problems of the means and methods of evolutionary change. *Prerequisite:* a course in evolution and one in heredity or genetics. Three hours. Mr. Moody.

SG135 FRESH-WATER BIOLOGY (2-4) Organisms of lakes, ponds and streams; their adaptations to varying physical, chemical and biotic conditions. *Prerequisite:* a course in invertebrate zoology, or entomology, or ecology, and a course in inorganic chemistry. Four hours. Mr. Potash. (Offered in the Summer Session only.)

G191, 192 SEMINAR Review and discussion of current zoological research. Required of graduate students and seniors concentrating in zoology; open to others by special permission only. One hour. The staff.

G201, 202 ADVANCED READINGS Readings, with conferences, to serve two objectives for graduate students: (1) to provide those working for the M.S. degree with background for, and specialized knowledge relating to, their research; (2) to provide those working for M.A. in Teaching and M.Ed. degrees with advanced study in phases of zoology in which formal courses are not available. *Prerequisite:* graduate standing; an undergraduate major in zoology. Credit as arranged.

G203, 204 RESEARCH Original investigation intended to culminate in a Master's thesis. Required of graduate students in zoology working for M.S.; not open to others. Credit as arranged.

Personnel

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THE FACULTY

Dates after names represent the year of original appointment. Asterisk indicates member of Graduate Faculty.

JOHN ABAJIAN, JR., M.D. (1940-42; 1945) Professor of Anesthesia NELLE ALEXANDER ADAMS (Mrs. W. R.), A.M. (1926) Assistant Professor of Education *THURSTON MADISON ADAMS, Ph.D. (1943) Professor of Agricultural Economics *WILLIAM RITCHIE ADAMS, Ph.D. (1926) Professor of Forestry ROBERT BASCOM AIKEN, M.D. (1941) Associate Professor of Preventive Medicine FREDERICK CECIL ALDRICH, B.Ed., Captain U. S. Air Force (1954) Assistant Professor of Air Science and Tactics JOHN WATSON ALDRIDGE, B.A. (1950-53; 1954) Assistant Professor of English SINCLAIR TOUSEY ALLEN, JR., M.D. (1948) Associate Professor of Medicine ELLSWORTH LYMAN AMIDON, M.D. (1933) Professor of Medicine Instructor in Clinical Medicine RICHARD WALKER AMIDON, M.D. (1949) Assistant Professor of Psychology DOUGLAS GEORGE ANGER, A.B. (1954) *HEINZ LUDWIG ANSBACHER, Ph.D. (1946) Professor of Psychology (On leave, 1954-55) RICHARD DAVISON APLIN, M.S. (1953) Instructor in Agricultural Economics (On leave, 1954-55) CONSTANTIN N. APSOURI, Ph.D. (1953) Instructor in Geology EARL LEE ARNOLD, Ph.D. (1953) Associate Professor of Agricultural Engineering HENRY VERNON ATHERTON, Ph.D. (1949-51; 1953) Assistant Professor of Dairy Manufacturing ROBERT SHILLING BABCOCK, Ph.D. (1946) Associate Professor of Political Science FLORENCE EMILY BAILEY, M.S. (1923) Associate Professor of Home Economics DONALD JAMES BALCH, M.S. (1952) Instructor in Animal and Dairy Husbandry BETTY BANDEL, Ph.D. (1947) Assistant Professor of English Instructor in X-Ray Technique RALPH JOHN BANNISTER (1950) DAVID EUGENE BARNETT, JR., B.S., Captain, U. S. Army (1952) Assistant Professor of Military Science and Tactics Lecturer in Commerce and Economics DAVID E. BEACH, B.S. (1954) Associate Professor of Orthopedic Surgery IOHN FRYE BELL, M.D. (1947) Professor of Music *HOWARD GORDON BENNETT, A.M. (1925) CHARLOTTE MAE BILLINGS, B.S. (1954) Instructor in Nursing JOHN HARDESTY BLAND, M.D. (1949) Assistant Professor of Medicine Associate Professor of Horticulture *CHARLES HUGO BLASBERG, Ph.D. (1944) *SAMUEL NATHANIEL BOGORAD, Ph.D. (1946) Associate Professor of English Professor of Animal Pathology *WESSON DUDLEY BOLTON, D.V.M. (1950) CHARLES FARRINGTON BOND, M.A. (1950) Assistant Professor of Zoology DAVID MARSH BOSWORTH, M.D. (1922-25; 1942) Consultant in Orthopedic Surgery Associate Professor of Dairy Manufacturing *ALEC BRADFIELD, M.S. (1945) Pomeroy Professor of Chemistry *CHARLES ERNEST BRAUN, Ph.D. (1928) MRS. HELEN MARY BRAZNER, M.S. (1952) Assistant Professor of Home Economics LELAND LAWRENCE BRIGGS, M.B.A. (1927) Professor of Economics Instructor in Pharmacology SHEILA MAUREEN BRISCO, B.A. (1954) Instructor in Psychiatry GEORGE WILSON BROOKS, M.D. (1953)

Assistant Professor of Chemistry CONSTANCE LORRAINE BROWN, M.S. (1928) MARION HUNTINGTON BROWN, M.S. (1942) Assistant Professor of Home Economics MRS. EDITH DOROTHY BROWNFIELD, M.S.W. (1953) Assistant Professor of Home Economics JACK RYAN BROWNFIELD, M.A. (1954) Instructor in English Assistant Professor of Pathology ROY VEDDER BUTTLES, M.D. (1950) MOLLY CAFFINA, M.A. (1954) Clinical Instructor in Nursing ROBERT NOLAN CAIN, M.D. (Jan. 1953) Instructor in Clinical Surgery Lecturer in Horticulture CHARLES LYMAN CALAHAN, M.S. (1948) MARTHA MARIE CALDWELL, M.S. (1954) Associate Professor of Home Economics THOMAS WRIGHT MOIR CAMERON, Ph.D., D.Sc. (1942) Visiting Professor of Tropical Medicine Instructor in Psychology MICHAEL ARTHUR CANN, M.A. (1954) MARTIN JOHN CANNON, M.D. (1953) Instructor in Clinical Obstetrics and Gynecology MAURICE RAYMOND CARON, M.D. (1953) Instructor in Psychiatry *FRED DONALD CARPENTER, Ph.D. (1918) Professor of the German Language and Literature HOWARD JULIAN CARPENTER, M.S. (1947) Assistant Professor of Mechanical Engineering *ROBERT MCCRILLIS CARTER, JR., Ph.D. (1944) Professor of Agricultural Economics *ALFRED HAYES CHAMBERS, Ph.D. (1948) Associate Professor of Physiology and Biophysics Professor of Psychology * JAMES PATRICK CHAPLIN, Ph.D. (1947) RUPERT ADDISON CHITTICK, M.D. (1944) Professor of Psychiatry BENJAMIN FRANKLIN CLARK, M.D. (1952) Assistant Professor of Obstetrics and Gynecology PAUL DENNISON CLARK, M.D. (1930) Associate Professor of Pediatrics Instructor in English ROBERT WILLARD COCHRAN, M.A. (1954) Instructor in Psychiatry IULIUS GEORGE COHEN, M.D. (1950) FRANCIS PEABODY COLBURN, Ph. B. (1942) Professor of Art SUSANNA BOYLSTON COLTON, M.S. (1954) Assistant Professor of Home Economics RICHARD KISTLER CONKLIN, D.D.S. (1950) Instructor in Dental Hygiene CLINTON DANA COOK, Ph.D. (1952) Assistant Professor of Chemistry ROGER GREENWOOD COOLEY, M.A. (1949) Assistant Professor of History Instructor in Pediatrics DOROTHY BLACK CORBIN, M.D. (1940-42; 1950) ROY EDWARD CORLEY, M.D. (1937) Associate Professor of Pediatrics WILLIAM ELLIS COX, B.S., Lieutenant Colonel, U. S. Army (1953) Professor of Military Science and Tactics Professor of Nursing FAYE CRABBE, A.M. (1943) Instructor in Clinical Surgery ALBERT JAMES CRANDALL, M.D. (1939) GEORGE CHAPMAN CROOKS, Ph.D. (1930) Associate Professor of Chemistry JOHN CHARLES CUNNINGHAM, M.D. (1946) Shipman Professor of Ophthalmology HAROLD ROBERT CUSHMAN, Ph.D. (1952) Assistant Professor of Agricultural Education Professor of Romance Languages *MALCOLM DANIEL DAGGETT, Ph.D. (1945) JOHN FIDLAR DALY, M.D. (1949) Professor of Dermatology Associate Professor of English LEON W. DEAN, A.B. (1923) Instructor in Clinical Surgery WILLIAM STEPHEN DEMPSEY, M.D. (1951) Instructor in Clinical Anesthesia GINO ALDO DENTE, M.D. (1950)

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MARIE JOAN DEROUIN (1952) Instructor in Dental Hygiene Associate Professor of Romance Languages ROLAND FREEMAN DOANE, D.U. (1925) Professor of Geology and Mineralogy *CHARLES GEORGE DOLL, Ph.D. (1927) RAYMOND MADIFORD PEARDON DONAGHY, M.D. (1946) Professor of Neurosurgery JOHN EDWARD DONNELLY, M.A. (1952) Assistant Professor of Physical Education for Men ROBERT KINGSLAND DOTEN, Ph.D. (1951) Assistant Professor of Geology HOWARD DUCHACEK, M.S.A.E. (1949) Associate Professor of Mechanical Engineering *FRED WILLIAMS DUNIHUE, Ph.D. (1936) Professor of Histology and Embryology *WINFIELD BOOTH DURRELL, D.V.M. (1949) Associate Professor of Animal Pathology LAURA CORBIN DUSTAN, M.N. (1954) Instructor in Nursing JULIUS SOLOMON DWORK, Ph.D. (1954) Associate Professor of Mathematics Professor of Philosophy *GEORGE DYKHUIZEN, Ph.D. (1926) OLIVER ROLFE EASTMAN, M.D. (1948) Assistant Professor of Obstetrics and Gynecology ROBERT WEBSTER EASTMAN, LL.B. (1953) Instructor in Political Science DONALD M. ELDRED, M.A. (1949) Instructor in Clinical Psychology Assistant Professor of Physics WILLIAM NICE ELLIS, M.S. (1952) GEORGE MACINTOSH ENGLAND, M.S. (1951) Instructor in Agricultural Economics LOUIS WILLIAM ESPOSITO, M.D. (1954) Instructor in Clinical Urology **IEANNE MARGARET EULER, M.Ed. (1943)** Assistant Professor of Physical Education for Women JOHN CILFFORD EVANS, B.S. (1937) Associate Professor of Physical Education for Men *PAUL DEMUND EVANS, Ph.D. (1930) Professor of History WILLIAM THOMAS FAGAN, JR., M.D. (1953) Instructor in Clinical Urology DAVID S. FAIGEL, D.D.S. (1954) Instructor in Dental Hygiene GREGORY ALEXANDER FALLS, Ph.D. (1952) Assistant Professor of Speech DOUGLAS PATTEN FAY, M.S. (1953) Assistant Professor of Civil Engineering ROBERT FITZSIMMONS, M.S. (1949) Assistant Professor of Animal and Dairy Husbandry THEODORE ROSS FLANAGAN, Ph.D. (1953) Assistant Professor of Agronomy Assistant Professor of Dermatology ARTHUR HOWARD FLOWER, JR., M.D. (1950) JOSEPH CLAYTON FOLEY, M.D. (1954) Instructor in Radiology MURRAY WILBUR FOOTE, Ph.D. (1947-51; 1953) Assistant Professor of Biochemistry (Agr.) ROY EDWARDS FORDHAM, M.S. (1954) Assistant Professor of Forestry JOHN LOUIS PHILIPPE FOREST, M.D. (1942) Instructor in Clinical Psychiatry ERALD FAIRBANKS FOSTER, M.D. (1931) Instructor in Public Health Assistant Professor of Psychology HARRIET WILSON FOSTER, Ph.D. (1954) *PERCY AUSTIN FRALEIGH, Ph.D. (1927) Flint Professor of Mathematics ALDO GINO FRANCESCHI, M.D. (1946) Instructor in Clinical Urology PAUL KENDRICK FRENCH, M.D. (1924) Professor of Clinical Medicine *FRED WILLIAM GALLAGHER, Ph.D. (1944) Professor of Bacteriology *ALEXANDER GERSHOY, Ph.D. (1923) Professor of Botany Associate Professor of Biochemistry ERLAND CHENEY GJESSING, Ph.D. (1954) Associate Professor of Clinical Surgery ARTHUR GLADSTONE, M.D. (1936) Associate Professor of Home Economics RUTH LORETTA GODFREY, M.S. (1945)

LYMAN JAY GOULD, M.A. (1953) Instructor in Political Science ALFRED GREER, M.Ed., Captain, U. S. Air Force (1953) Assistant Professor of Air Science and Tactics *DONALD CROWTHER GREGG, Ph.D. (1946) Professor of Chemistry Associate Professor of Economics EDWIN CHARLES GREIF, M.S. (1950) HOWARD THEODORE GUARE, M.D. (1952) Assistant Professor of Clinical Radiology PIERRE GUIET, M.A. (1954) Instructor in English MONA ELAINE GUSTAFSON, M.A. (1953) Instructor in Psychology CARLETON RAYMOND HAINES, M.D. (1950-52; 1954) Instructor in Surgery RAYMOND AVERY HALL, A.M. (1923) Associate Professor of Religion JOHN BACON HARRINGTON, LL.B. (1953) Instructor in Speech JANE YARD HARSHBERGER, M.A. (1954) Associate Professor of Nursing ROLF NORDAHL BRUN HAUGEN, Ph.D. (1947) Associate Professor of Political Science CHARLES RICHARD HELGESEN, M.A. (1952) Assistant Professor of Speech DONALD CEDRIC HENDERSON, M.S. (1944) Associate Professor of Poultry Husbandry *IVAN RAYMOND HERSHNER, JR., Ph.D. (1953) Professor of Mathematics ALLEN FORREST HERZBERG, M.B.A., Colonel U. S. Air Force (1954) Professor of Air Science and Tactics CHARLES WILLIAM HOILMAN, M.S. (1949) Associate Professor of Electrical Engineering JANE LOUISE HOOD, M.A. (1952) Instructor in Physical Education for Women RICHARD WENDROTH HOOLEY, M.A. (1952) Instructor in Economics FREDERICK SHERMAN HOPKINS, JR., M.F. (1950) Assistant Professor of Forestry (On leave, 1954-55) *RICHARD JOHN HOPP, M.S. (1947) Assistant Professor of Horticulture Instructor in Physical Education for Women MARTHA BACON HOWE, M.A. (1953) ROBERT BRUCE HUBER, Ph.D. (1946) Professor of Speech * JOHN CHARLES HUDEN, Ph.D. (1950) Professor of Education *MURIEL JOY HUGHES, Ph.D. (1942-44; 1945) Professor of English Assistant Professor of Nursing JEAN ELOISE ICHTER, M.S. (1948-52; 1953) RICHARD GUY INSKEEP, Ph.D. (1953) Assistant Professor of Chemistry ELBRIDGE EUGENE JOHNSTON, M.D. (1951) Assistant Professor of Medicine *STUART LYNDE JOHNSTON, Ph.D. (1940-44; 1946) Professor of Romance Languages Instructor in Clinical Radiology WILLIAM HERBERT JOHNSTON, M.D. (1952) *DONALD BOYES JOHNSTONE, Ph.D. (1948) Associate Professor of Microbiology LEONIDAS MONROE JONES, Ph.D. (1951) Instructor in English Professor of Histology and Embryology HOVEY JORDAN, M.S., A.M. (1913) ALBERT ENFO JOY, M.A., Captain, U. S. Army (1952) Assistant Professor of Military Science and Tactics HARRY HELMUTH KAHN, M.A. (1950-53; 1954) Assistant Professor of German +LEONARD S. KAPLOW, B.S. (1951) Laboratory Instructor in Clinical Pathology JAY EDGAR KELLER, M.D. (1950) Instructor in Clinical Surgery * JOHN HARVEY KENT, Ph.D. (1950) Roberts Professor of Classical Languages and Literature GEORGE VINCENT KIDDER, Ph.D. (1922) Professor of Classical Languages and Literature *FLORANCE BEESON KING, Ph.D. (1940) Professor of Home Economics THOMAS CLAIR KING, Ed.D. (1951) Professor of Education + Resigned February 1, 1955.

Assistant Professor of Music DAVID LESLIE KINSEY, M.A. (1950) Assistant Professor of Civil Engineering STEPHEN CECIL KNIGHT, JR., M.S. (1952) ESTHER LUCILE KNOWLES, M.S. (1945) Associate Professor of Home Economics KERMIT EDWARD KRANTZ, M.D. (1951) Assistant Professor of Obstetrics and Gynecology SAMUEL KRISLOV, M.A. (Feb. 1955) Instructor in Political Science RAYMOND FRANK KUHLMAN, M.D. (1951) Instructor in Orthopedic Surgery Assistant Professor of Psychiatry ELIZABETH KUNDERT, M.D. (1942) *MERTON PHILIP LAMDEN, Ph.D. (1947) Associate Professor of Biochemistry KATHLEEN SMITH LANE (Mrs. R. E.), B.S. (Jan., 1955) Instructor in Dental Hygiene ROBERT EDWIN LANE, M.A. (1951) Assistant Professor of Classical Languages and Literature Instructor in Physical Education for Men RALPH ROBERT LAPOINTE, B.S. (1951) PETER PAUL LAWLOR, M.D. (1939) Assistant Professor of Otalaryngology and Rhinology EUGENE LEPESCHKIN, M.D. (1947) Associate Professor of Experimental Medicine Instructor in Economics DAVID ALLEN LESOURD, M.A. (1952) Assistant Professor of Speech WILLIAM J. LEWIS, M.A. (1954) Assistant Professor of Preventive Medicine LEON ROBERT LEZER, M. D. (1954) Associate Professor of Political Science *GEORGE THOMAS LITTLE, Ph.D. (1950) Professor of Biochemistry (Agr.) * JOHN ERNEST LITTLE, Ph.D. (1945) * JOHN HUTCHISON LOCHHEAD, Ph.D. (1942) Professor of Zoology *PHILIPP HANS LOHMAN, Ph.D. (1945) Converse Professor of Commerce and Economics Assistant Professor of English LITTLETON LONG, Ph.D. (1949) Instructor in Economics WALLACE FRANCIS LOVEJOY, M.A. (1954) CARL LUCARINI, A.M. (1928) Assistant Professor of Chemistry Professor of Speech ELEANOR MERRIFIELD LUSE, Ph.D. (1947) Instructor in Clinical (Industrial) Surgery JOHN FREDERICK LYNCH, M.D. (1939) HERBERT CHRISTIAN MCARTHUR, Ph.D. (1950) Assistant Professor of English Instructor in Surgery JAMES BISHOP McGILL, M.D. (1952) ROBERT JAMES MCKAY, JR., M.D. (1950) Associate Professor of Pediatrics Professor of Electrical Engineering EDD RUTHVEN McKEE, M.S., E.E. (1934) KARL CORNELIUS MCMAHON, M.D. (1925) Assistant Professor of Otolaryngology and Rhinology ANNE MACNEIL, M.S. (1954) Instructor in Nursing Assistant Professor of Gynecology EDWARD DOUGLAS McSWEENEY, M.D. (1923) Professor of Surgery ALBERT GEORGE MACKAY, M.D. (1933) WILLIAM HOOPER MACMILLAN, B.A. (1954, Jan.) Instructor in Pharmacology JOHN VAN SICKLEN MAECK, M.D. (1948) Associate Professor of Obstetrics and Gynecology Assistant Professor of Education GEORGE ALBERT MALE, Ph.D. (1952) Instructor in Dental Hygiene J. EDWARD MARCEAU, D.D.S. (1950-52; 1954) GILBERT ADAMS MARSHALL, M.S. (1947) Instructor in Mechanical Engineering *FREDERICK CARVER MARSTON, JR., Ph.D. (1948) Associate Professor of English Assistant Professor of Music MIRIAM NATILEE MARSTON, A.M. (1926) Instructor in Clinical Neurology HERBERT LLOYD MARTIN, M.D. (1954) * JAMES WALLACE MARVIN, Ph.D. (1939) Professor of Botany Assistant Professor of Medical Technology and INA MAXSON, M.S. (1947) Assistant in Clinical Pathology

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ELIZABETH PAULSEN, M.S. (1946-50; 1952) Assistant Professor of Zoology HERBERT DEAN PEARL, A.M. (1941-45; 1947) Professor of Education OLGA PECHENIUK, M.S. (1954) Instructor in Home Economics OSCAR SYLVANDER PETERSON, JR., M.D. (1944) Associate Professor of Radiology and Associate in Biophysics FREDA PHILLIPS, M.S. (1954) Assistant Professor of Physical Education for Women *HAROLD BARNARD PIERCE, Ph.D. (1937) Professor of Biochemistry JAMES EUGENE POOLEY, A.M. (1928) Associate Professor of Classical Languages and History *WILLARD BISSELL POPE, Ph.D. (1934) Frederick Corse Professor of English Language and Literature ARCHIBALD THOMPSON POST, Ed.M. (1929) Associate Professor of Physical Education for Men MILTON POTASH, Ph.D. (1951) Assistant Professor of Zoology PLATT RUGAR POWELL, M.D. (1949) Assistant Professor of Urology GEORGE McLEOD POWERS, A.B., Major, U. S. Army (1954) Assistant Professor of Military Science and Tactics HENRY LEWIS PRATT, M.D. (1952) Instructor in Clinical Obstetrics and Gynecology WILLIAM ARTHUR PRATT, M.D. (1950) Instructor in Clinical Medicine *HERBERT EVERETT PUTNAM, Ph.D. (1931) Associate Professor of History PHYLLIS MELVILLE QUINBY, B.S. (1949) Instructor in Dental Hygiene *WILHELM RAAB, M.D. (1939) Professor of Experimental Medicine *LOUISE ADELE RAYNOR, Ph.D. (1946) Assistant Professor of Botany ELMER McCREADY REED, M.D. (1948) Assistant Professor of Otolaryngology and Rhinology WALFORD TUPPER REES, M.D. (1925) Professor of Clinical Surgery EDWARD K. REIMAN, D.D.S. (1951) Instructor in Dental Hygiene *WILLIAM HUGH RIDDELL, Ph.D. (1948) Professor of Animal and Dairy Husbandry HEATH KENYON RIGGS, Ph.D. (1953) Assistant Professor of Mathematics *WILLIAM VAN BOGAERT ROBERTSON, Ph.D. (1945) Professor of Biochemistry and Associate Professor of Experimental Medicine DAVID ROMEY, M.A. (Feb. 1955) Instructor in Romance Languages ALBAN BENNETT ROONEY, M.S. (1922) Associate Professor of Physics JAMES ALBERT ROOT, M.C.E. (1948) Associate Professor of Civil Engineering LYMAN SMITH ROWELL, M.S. (1925) Associate Professor of Zoology CHARLES BRUSH RUST, M.D. (1948) Assistant Professor of Orthopedic Surgery RICHARD HENRY SAUNDERS, JR., M.D. (1950) Assistant Professor of Clinical Pathology and Medicine WADI I. SAWABINI, D.D.S. (1950) Instructor in Dental Hygiene ROBERT NEWTON SAXBY, M.D. (1950) Instructor in Clinical Radiology *ARNOLD HAROLD SCHEIN, Ph.D. (1947) Associate Professor of Biochemistry THOMAS FREDERIC SCHEPIS, B.A., Lieutenant Colonel, U. S. Air Force (Jan. 1954) Assistant Professor of Air Science and Tactics EDWIN CALVIN SCHNEIDER, M.S. (1946) Associate Professor of Agricultural Engineering EVA IDA SCHROEDER, Ph.D. (1952) Instructor in English *HAROLD SEESSEL SCHULTZ, Ph.D. (1946) Professor of History GEORGE ADAM SCHUMACHER, M.D. (1950) Professor of Neurology KESSEL SCHWARTZ, Ph.D. (1953) Assistant Professor of Romance Languages MALCOLM FLOYD SEVERANCE, M.A. (1951-52; 1953) Instructor in Economics

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EDD RUTHVEN McKEE, M.S., E.E. REGINALD V. MILBANK, M.S. ROBERT GOODFELLOW SIDLE, M.M.E. Director and Electrical Engineer Civil Engineer Mechanical Engineer

AGRICULTURAL EXTENSION SERVICE STAFF

The Vermont Agricultural Extension Service is a cooperative undertaking of the State of Vermont, the College of Agriculture, the United States Department of Agriculture, and the several counties of the State. It has a State staff, with headquarters at the University, and a staff of county extension agents in each county. Its purpose is "to aid in diffusing among the people . . . useful and practical information on subjects relating to agriculture and home economics, and to encourage the application of the same." It works primarily with the rural people of the State, including both adults and children.

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ERDEN WELLS BAILEY, B.S. (Assistant)	Middlebury
Chil. HADDIET ELLICE DEOCTOR BS	Middlebury
Cino: HARRIEI ELLICE FROCIOR, B.S.	Middlebury
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WALTER GENE ROCKWOOD, B.S. (Assistant)	St. Albans
(Effective Mar. 1, 1955)	
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Club: MRS. LOIS ALGER SOULE, B.S.	North Hero
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Club: JOHN FRANKLIN ADAMS, B.S.	Morrisville
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Home Demonstration: MARY ANNA BURBANK, B.S.	Chelsea
Club: RUSSELL WILLARD SMITH, B.S.	Chelsea
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JOHN ROBERT PRICE, B.S. (Assistant)	Newport
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Club: MRS. ALICE MARGARET LEONARD (Acting)	Newport
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DAVID PAUL NEWTON, B.S. (Assistant)	Rutland
Home Demonstration: MKS. BETHIA NUBLE MUNGER, B.S.	Rutland P1
CIMO: EDWIN EMIL DERGSTROM	Kutiand

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Agricultural: GORDON EARL BUTLER, B.S.	Montpelier
Home Demonstration: MRS. HAZEL C. BROWN, M.S.	Montpelier
Club: ERMA JOSEPHINE HARD, B.S.	Montpelier
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Club: GEORGE JOHN BROADWELL, B.S.	Brattleboro
Windsor County	
Agricultural: WILLIAM WILLARD STONE, B.S.	Woodstock
JOYCE WILLIAM SUMNER , B.S. (Assistant)	Woodstock
Home Demonstration: MRS. JENNIE ARMSTRONG HALL, B.S.	Woodstock
Club: MRS. ISABELLE PAIGE BARDEN, B.S.	Woodstock

RELATED SERVICES STAFF

The Related Services Division renders various services in the fields of agriculture and home economics, such as inspection of feed, seeds, and fertilizer; analysis of soils, milk, and other agricultural products on request; diagnosis of diseases of plants, poultry, and other livestock; and conduct of short courses and educational conferences.

JOSEPH EDWARD CARRIGAN, M.A., LL.D., D.Ec.Sc. Director Associate Director PAUL ROBERT MILLER, B.S. Associate Director ROBERT POWERS DAVISON, M.Ed. Assistant to the Director and Farm Superintendent EDMUND MORTON ROOT, B.S. WESSON DUDLEY BOLTON, D.V.M., M.S. Associate Animal Pathologist ALEC BRADFIELD, M.S. Associate Dairy Husbandman (Dairy Manufactures) OSMAN MYRON CAMBURN, M.S. Consultant Associate Animal Pathologist WINFIELD BOOTH DURRELL, D.V.M., M.S. Assistant Dairy Husbandman ROBERT FITZSIMMONS, M.S. JAMES MARSHALL FRAYER, M.S. Consultant Assistant Horticulturist RICHARD JOHN HOPP, M.S. LUCIEN DEMERS PAQUETTE, B.S. Superintendent, Morgan Horse Farm Assistant Chemist HENRY LEONARD SAWYER, JR., B.S. Assistant Superintendent, Morgan Horse Farm JOHN FRANKLIN STEPHENSON, B.S. JAMES ROGER WADSWORTH, V.M.D., M.S. Assistant Animal Pathologist LEWELL SETH WALKER, B.S. Consultant Chemist ROBERT THOMAS WETHERBEE, M.S.

The Alumni Council

Organized in 1920, the objectives of the Alumni Council are to advance the interests and influence of the University; to strengthen the relations between the alumni and the University; to encourage sufficient class organization; to aid and assist in the establishment of alumni associations and promote their interest and effectiveness; to report from time to time to the Board of Trustees any facts and recommendations by the Council deemed material or for the interests of the University; to act as a medium that may make known the ideas of the alumni to the University, and the wishes of the University to the alumni; to keep in touch with the undergraduate activities, and to act in an advisory capacity through the Executive Committee and office of Alumni Council to such of the undergraduates as may desire to consult it in reference to their occupation after graduation.

The Alumni Council is composed of one member from each of the fifty classes last graduated, one member from each active alumni club, twenty members at large, one-half of such members being women.

PRESIDENT-Chester B. Eaton, '34, 141 Ash St., Rutland, Vt.

SECRETARY-Isabelle Y. Gallup, 530 North St., Burlington, Vt.

ALUMNI EDITOR-Leon W. Dean, '15, 308 S. Prospect St., Burlington, Vt.

- Chairman of Finance Committee: David W. Webster, 31 Cliff St., Burlington, Vt.
- Co-Chairmen of Commencement: John H. Suitor, '38, Deerfield, Mass., and Dudley H. Davis, '43, 233 Crescent Rd., Burlington, Vt.
- Chairman of Undergraduate Activities: Roger G. Cooley, '47, 23 Ledgemere St., Burlington, Vt.
- Chairman of Scholarship Committee: Willis R. Buck, '17, 414 Colchester Ave., Burlington, Vt.
- Ex-Officio: William M. Lockwood, '27, 273 S. Prospect St., Burlington, Vt.; Lawrence F. Killick, '22, 10 Greene St., Burlington, Vt.; Harold C. Collins, '28, 127 Mansfield Ave., Burlington, Vt.

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Honorary Members:

President Dr. Carl W. Borgmann, 25 Colchester Ave., Burlington, Vt. Dr. Clarence H. Beecher, '00, 151 Robinson Pkwy., Burlington, Vt.

CLASS REPRESENTATIVES

- 1905 Fred B. Wright, Cliff Pl., Pelham 65, N. Y.
- 1906 Robert L. Whipple, 4 Wheeler Ave., Worcester, Mass.
- 1907 Martin Hervey Rice, 77 Ledge Rd., Burlington, Vt.
- 1908 William L. Blanchard, 89 Walton Park, Melrose Highlands, Mass.
- 1909 William L. Gardner, 17 Overlake Park, Burlington, Vt.
- 1910 Albert Valentine Kieslich, 167 North Ave., Burlington, Vt.

- 1911 Ray R. Allen, South Hero, Vt.
- 1912 Albert L. Gutterson, 49 Cherry Hill, Springfield, Vt.
- 1913 Charles P. Smith, Jr., Appletree Point, Burlington, Vt.
- 1914 Harold F. Johnson, 60 Hopkins Pl., Longmeadow, Mass.
- 1915 Joseph B. Johnson, 1 Hillcrest Rd., Springfield, Vt.
- 1916 Morris R. Wilcox, 152 Lyman Ave., Burlington, Vt.
- 1917 F. Raymond Churchill, Middlebury, Vt.
- 1918 George C. Stanley, 86 Loomis St., Burlington, Vt.
- 1919 Herbert D. Pearl, 154 Summit St., Burlington, Vt.
- 1920 Mrs. Elizabeth Howe Putney, 955 Shelburne Rd., Burlington, Vt.
- 1921 Mrs. Helen Stiles French, Rt. 1, Hinesburg Rd., Burlington, Vt.
- 1922 Lawrence F. Killick, 10 Greene St., Burlington, Vt.
- 1923 Wesley W. Smith, Jr., Middlebury, Vt.
- 1924 Daniel B. Dyer, St. Johnsbury, Vt.
- 1925 Leon D. Latham, Jr., 112 Bradley Rd., Burlington, Vt.
- 1926 Olney W. Hill, 539 St. Paul St., Burlington, Vt.
- 1927 N. Dean Rowe, Johnson, Vt.
- 1928 Sabin C. Abell, Box 568, Burlington, Vt.
- 1929 Constans M. Holden, 257 So. Union St., Burlington, Vt.
- 1930 Harry G. Adams, 32 Brookes Ave., Burlington, Vt.
- 1931 John A. Bradish, Williston, Vt.
- 1932 James W. Marvin, South Burlington, Vt.
- 1933 Mrs. C. Antoinette Hubbard Loudon, 140 Ferguson Ave., Burlington, Vt.
- 1934 John C. Arnold, Jr., 420 So. Winooski Ave., Burlington, Vt.
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- 1937 Feno H. Truax, Box 22, Vergennes, Vt.
- 1938 Albert C. Spaulding, III, 49 Bay View St., Burlington, Vt.
- 1939 Mrs. Martha Douglass Peterson, 142 No. Church St., Rutland, Vt.
- 1940 Florence I. Wade, 38 So. Union St., Burlington, Vt.
- 1941 Kenneth W. Johnson, University of Mass., Amherst, Mass.
- 1942 Hazen F. Wood, 31 Mansfield Ave., Essex Junction, Vt.
- 1943 Paul N. Sutton, 140 Summit St., Burlington, Vt.
- 1944 Robert R. Pond, Spear St., Burlington, Vt.
- 1945 Mrs. Harriet Pearl Grant, 156 Summit St., Burlington, Vt.
- 1946 Charles A. Plumley, Box 93, Rutland, Vt.
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- 1948 Philip E. Robinson, 1246 So. Taylor St., Arlington, Va.
- 1949 Mitchell J. Hunt, 600 Farmers & Mechanics Bldg., West Chester, Penna.
- 1950 Franklin M. Peabody, 522 E. State St., Ithaca, N. Y.
- 1951 Edward F. Streeter, Wilmington, Vt.
- 1952 Arthur J. Pruneau, 619 Nattie St., Schenectady, N. Y.
- 1953 Rodney Belden, 94 So. Winooski Ave., Burlington, Vt.
- 1954 Martha J. Edson, 82 Davis St., Rutland, Vt.

MEMBERS-AT-LARGE

Term Expires 1955

David W. Howe, '14, 385 So. Prospect St., Burlington, Vt. Mary Jean Simpson, '13, 61 No. Prospect St., Burlington, Vt. Harris W. Soule, '22, 308 Main St., Burlington, Vt. Mrs. Lillian Cohen Samuelson, '30, Spear St., Burlington, Vt.

Term Expires 1956

John S. Wright, 1 West 54th St., New York 19, N. Y. Thomas J. Mulcare, Jr., '09, 414 Mt. Auburn St., Cambridge 38, Mass. Mrs. Alice Hamilton Myers, '37, 387 So. Union St., Burlington, Vt. Robert F. Patrick, '25, 74 Overlake Park, Burlington, Vt.

Term Expires 1957

Leon W. Dean, '15, 308 So. Prospect St., Burlington, Vt. H. Marian Way, '23, 115 Summit St., Burlington, Vt. Dr. Albert G. Mackay, 120 Ledge Rd., Burlington, Vt. Charles H. Stevens, '28, 36 Hillcrest Rd., Burlington, Vt.

Term Expires 1958

Dr. W. A. R. Chapin, '15, 40 Riverside Ter., Springfield, Mass. Mrs. Natalie Noyes Viets, '20, P.O. Box 7, Hyde Park, Vt. Mrs. Ethel Southwick Eastman, '09, 135 College St., Burlington, Vt. Raymond A. Briggs, '18, Overlake Park, Burlington, Vt.

Term Expires 1959

Dr. John C. Cunningham, Bilodeau Ct., Burlington, Vt. Mrs. Laura P. Meredith, '17, Montpelier, Vt. Col. Dana G. McBride, '18, Burlington, Vt. Jesse E. Sunderland, '24, St. Albans, Vt.

CLUB REPRESENTATIVES

Out-of-State

Boston, Mass.—Dr. Walter S. Denning, '29, 28 Davis Ave., Brookline, Mass. Buffalo (Western N. Y.)—Chas. F. Blair, '99, 810 White Bldg., Buffalo, N. Y.

California-Marguerite E. Jones, Palos Verdes Estates, Calif.

Chicago, Ill.-Harold C. Carter, '25, 242 Columbia Ave., Park Ridge, Ill.

Cleveland, Ohio-Earle W. Brailey, '14, 19201 So. Moreland Blvd., USSN Sta., Cleveland 22, Ohio

- Detroit, Mich.—Edward D. Trowbridge, '26, 722 Notre Dame, Grosse Point 30, Mich.
- Hartford, Conn., Alumnae-Mrs. Lucy Eaton Ellis, 263 Brimfield St., Wethersfield, Conn.

Hartford, Conn., Alumni-Jas. H. Naylor, Jr., '37, Rt. 3, Rockville, Conn.

Hampshire County, Mass.—James P. Reed, '10, R. F. D. 3, Amherst, Mass. Maine Club—Joyce E. Byington, '45, 11 State St., Portland, Me.

- New York Alumni-Robert S. Buttles, '25, 120 Broadway, N. Y. City
- New York Medical Alumni—Dr. Allen M. Margold, '25, 148 East Ave., Norwalk, Conn.
- New York Capital District—Dr. Arthur Q. Penta, '25, 1301 Union St., Schenectady 8, N. Y.
- Philadelphia, Pa.-Stoddard H. Martin, 1920 Sansom St., Philadelphia 3, Pa.
- Pittsburgh, Pa.-Harold E. Hazen, '24, 435 Avenue D, Pittsburgh 21, Pa.
- Rochester, N. Y.-Arthur B. Corey, 155 Summit Dr., Rochester, N. Y.
- Springfield, Mass.—Raymond G. Kinsler, 409 Trafton Rd., Springfield, Mass.
- Washington, D. C.—O. Neil Tolman, '26, 1025 Connecticut Ave., N.W., Washington, D. C.
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- Addison County-Arthur B. Delano, '11, Shoreham, Vt.
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- Burlington Alumnae-Mrs. Ursala Kimball Jordan, '20, 449 So. Prospect St., Burlington, Vt.
- U. V. M. Medical-Dr. Peter P. Lawlor, 65 Pine St., Burlington, Vt.
- Caledonia County—James B. Campbell, '09, 15 Summer St., St. Johnsbury, Vt.
- Bennington County-Dr. John C. Armstrong, '25, No. Bennington, Vt.
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- Lamoille County-Edward C. Glysson, '22, Hyde Park, Vt.
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- Rutland County-Raymond E. Holway, '25, Box 347, Rutland, Vt.
- Washington County (Orange, Williamstown and Washington)—Hubert S. Brooks, Jr., '51, 7 Clarendon Ave., Montpelier, Vt.
- Windham County-Harriett P. Bolles, '33, 23 Williams Terrace, Bellows Falls, Vt.
- Windsor County-Wilbur Y. Handy, '15, 10 Harvard St., Springfield, Vt.

Enrollment Statistics

SUMMARY OF RESIDENT ENROLLMENT FALL SEMESTER, 1954-55

THE UNDERGRADUATE COLLEGES	3:		Men	Women	Total
Colleges of Arts and Sciences	*******	*****		330	937
College of Technology		******		63	669
College of Agriculture	******			168	427
College of Education and Nursing				358	429
TOTAL				919	2462
Unclassified Division			31	23	54
Graduate College				10	43
College of Medicine		*****		9	190
School of Dental Hygiene			0	33	33
TOTAL				994	2782
UNDERGRADUATE COLLEGES BY	CLASSES	:	Men	Women	Total
Class of 1955				175	415
Class of 1956				170	526
Class of 1957		******************************		274	688
Class of 1958			533	300	833
TOTAL	******	•••••••••••		919	2462
BREAKDOWN OF UNDERGRADUA AND DENTAL HYGIENE STU In-State	TE, UN Dents:	CLASSIFI	ED, GRAD Men 	UATE, M Women 441	EDICAL Total 1234
Out-of-State	*******			553	1548
TOTAL	*****			994	2782
In addition to the above regularly enrolle Residents—Medical Pre-clinic Nurses	d studen	ts are the :	following:		28 51
TOTAL		******			79
GRAND TOTAL — I	FALL SE	MESTER 1	954 - 286	1	
	Arts	Tech	Ag	E & N	Total
Class of 1955	168	95	65	87	415
Class of 1956	209	145	94	78	526
Class of 1957	248	191	117	132	688
Class of 1958	217	* * *			
	312	238	131	132	833

ENROLLMENT BY DIVISIONS I. COLLEGE OF ARTS AND SCIENCES: In-State Out-of-State In & Out F т F Т М М Total Class of 1955 Class of 1956 Class of 1957 Class of 1958 TOTAL Women Total BY CURRICULA: Men General Liberal Arts Pre-Dental Pre-Medical TOTAL II. COLLEGE OF TECHNOLOGY: In-State In & Out Out-of-State F F T Т Total М М Class of 1955 Class of 1956 Class of 1957 Class of 1958 Men Women Total BY CURRICULA: Engineering-Undecided Civil Engineering Electrical Engineering Management Engineering Mechanical Engineering Commerce and Economics Secretarial Professional Chemistry Medical Technology TOTAL

III. COLLEGE OF AGRICULTURE:

		In-State	2	0	ut-of-Si	tate	In & Ou		
-	М	F	T	м	F	T	Total		
Class of 1955	25	17	42	14	9	23	65		
Class of 1956	32	12	44	22	28	50	94		
Class of 1957	43	23	66	29	22	51	117		
Class of 1958	65	21	86	29	36	65	151		
TOTAL	165	73	238	94	95	189	427		
BY CURRICULA:					Men	Women	Total		
Agriculture (General)					196	8	204		
Agricultural Engineering			*****		31	0	31		
Pre-Forestry					13	0	13		
Pre-Veterinary		*****	*******		19	4	23		
Home Economics				*******	0	156	156		
TOTAL			*******	-	259	168	427		

STATISTICS

		In-State			Out-of-S	In & Out	
	М	F	T	М	F	T	Total
Class of 1955	10	48	58	1	28	29	87
Class of 1956	11	31	42	6	30	36	78
Class of 1957	12	64	76	4	52	56	132
Class of 1958	21	53	74	6	52	58	132
TOTAL	54	196	250	17	162	179	429
BY CURRICULA:					Men	Women	Total
Elementary	******	****			2	193	195
Junior High						31	69
Secondary			*****		26	20	46
Business						16	19
Music					, 2	10	12
Nursing			*******			88	88
TOTAL			*****		71	358	429
V. GRADUATE COLLEGE	:					_	_
					Men	Women	Total
In-State		*****			14	7	21
Out-of-State					19	3	22
TOTAL	*****		******		33	10	43
VI. COLLEGE OF MEDIC.	INE:	In-State			Out-of-S	tate	In さ Out
•	М	F	T	м	F	T	Total
Class of 1955	15	0	15	32	0	32	47
Class of 1956	14	ĩ	15	29	1	30	45
Class of 1957	19	1	20	26	1	27	47
Class of 1958	23	4	27	23	1	24	51
TOTAL	71	6	77	110	3	113	190
VII. UNCLASSIFIED DIVI	SION	(Special St	udents):				
		In-State		•	Out-of-Si	tate	In & Out
-	М	F	T	М	F	T	Total
Arts and Sciences	7	4	11	4	5	9	20
Technology	6	4	10	4	0	4	14
Agriculture	3	2	5	1	0	1	6
Education & Nursing	4	6	10	2	2	4	14
TOTAL	20	16	36	11	7	18	54
VIII. SCHOOL OF DENTA	L HY	GIENE:			• • • •	o	
·					1n-State	Out-of-Si	tate Total
Second Year				••••••	. 13	1	14
First Year		******	*****		. 14	5	19
TOTAL	*****	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			27	6	33

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IV. COLLEGE OF EDUCATION AND NURSING:

Degrees and Prizes

Commencement—Sunday, June 13, 1954

SCHOOL OF DENTAL HYGIENE

Cynthia Jane Berry, Montpelier Cynthia Emma Dow, Warner, N. H. Deborah Madaline Emmons, Danville Bettie Ann Farrar, Craftsbury Common Charlotte Lou Fink, Essex Junction Juanita Giacomuzzi, Barre Nona Winifred Harris, Burlington

Ada Rosemary Lamoray, St. Johnsbury Colleen Wheaton Miller, St. Johnsbury Margaret Ann Reed, Melrose, Mass. Marjorie Louise Ruggles, Lyndonville Eloise Ann Sears, Keene, N. H. Meredith Steere, Needham, Mass.

COLLEGE OF EDUCATION AND NURSING

BACHELOR OF SCIENCE IN NURSING

Charlotte Mae Billings, Plympton, Mass. Jeanette Butterfield, Middlebury Ruth Crofut, Martinsville, N. J. Joyce Sundberg Fellows, Burlington Joyce Elizabeth Harrington, North Pomfret

Mary Elizabeth James, Albany, N. Y. Betty Ann Kramer, Lynn, Mass. Charlotte Elaine Parker, Morrisville Beverly Echo Purinton, Lincoln Joan Schwarz, Groton

BACHELOR OF SCIENCE IN NURSING EDUCATION

*Mary Ellen Hunt, cum laude, Burlington

BACHELOR OF SCIENCE IN BUSINESS EDUCATION

Mary Ann Clowse, Richmond Katherine Elizabeth Mattson, Chester Depot

Margaret Eileen Monta, Colchester Marilyn Anne Reed, Burlington

BACHELOR OF SCIENCE IN MUSIC EDUCATION

Herbert Howe Eaton, South Royalton

Arthur Serville Paré, magna cum laude, Burlington

BACHELOR OF SCIENCE IN EDUCATION

Mary Ellen Adams, Nashua, N. H. John Foster Andrews, Morrisville Eileen Louise Armstrong, Sussex, N. J. Margaret Keefe Ayers, Essex Junction Marilyn Frances Balducci, Poultney Nancy Jean Beals, Burlington Andrea Carol Bean, Lake Dunmore Nancy Anne Beebe, Orono, Me. Jeanette Rita Belanger, Orwell Anne Gregory Belden, Little Silver, N. J. Claire Lois Bevins, Burlington Helen Sylvia Bevins, Burlington Norma Ann Bodette, Vergennes Noel Catherine Booth, Larchmont, N. Y. * As of October 17, 1953.

- † As of February 20, 1954.

- Germaine Elisabeth Brugler, Livingston, N. J.
- Patricia Lois Cella, Barre
- Beverly Joanne Chase, Fitchburg, Mass.
- Shirley May Chase, Winter Harbor, Me.
- *Wilma McLane Chates, Essex Junction
- Elaine Grace Clark, Bristol
- †Barbara Ann Cockey, Middletown, N. Y. Edward Johnson Cram, New Bedford, Mass.
- Carol Cross, Manhasset, N. Y. *Gordon Everett Curtis, Bolton
- *Janice Zita Delaire, Underhill
- Richard Edward Dufour, Lyndonville
- Nathalie Sanger Frank, Ogdensburg, N. Y.

Sylvia French, Burlington Beatrice Mae Gates, White River Junction Marilyn Ann Giles, Hewlett, N. Y. Edward Lewis Godfrey, Morrisville Frances Marcia Hauptman, Mt. Vernon, N. Y. Daniel Parker Huden, Burlington Carroll George Hull, Franklin Allen Frederick Johnson, Burlington Doris Anne Jones, Poultney Jean Elizabeth Joslin, Waitsfield Kevin Emmet Kearney, Hackensack, N. J. *Lloyd Aral Kelley, Jr., Morrisville †Mary Whitney Kidd, Montpelier Janice Danforth Knickerbocker, Underhill Norma Martha Kudiesy, Burlington Patricia Morse Kynoch, Montpelier Florence Anne Ladue, Essex Junction Denis Emery Lambert, Burlington Warren Nelson Lazelle, Jr., Brattleboro * Joan Patricia Lucas, Wellesley Hills, Mass. Carol Allen Luce, Amityville, N. Y. Maureen Frances Lyons, Orange, N. J Hugh Stephenson MacLeod, Freeport, N. Y.

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† As of February 20, 1954.

Randall George Munson, Roseland, N. J. Richard Ray Russell, Bristol Albert George Story, East Fairfield

Suzanne LaCroix, Glen Ridge, N. J.

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- Marvin Allen Cooper, Mt. Vernon, N. Y. Donald Merwin Crofut, cum laude, Arlington
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- * As of October 17, 1953.
- † As of February 20, 1954.
- ‡ As of December 19, 1953.

- Lawrence G. Gould, Springfield, Mass. *John William Hartman, Burlington
- Robert Harvey Hartman, Burlington Culver Forest Hayes, Jr. Guilderland, N. Y.
- Robert Joseph Healey, Mount Kisco, N. Y. Edmund Jacques Huott, Jr., Dobbs Ferry, N. Y.
- Joseph Carey Impallaria, Wellesley Hills, Mass.

Wayne Lester Jensen, Westfield, N. J. Bruce Whitcomb Judd, Burlington

#Mortimer Mayer Kaufman, Burlington Robert Dennis Law, Burlington Thomas Adam McGwire, Watchung, N. J.

William Gerard McKernan, Brooklyn, N. Y.

- *Patricia Carroll Mahoney, Westfield, N. J. Albert Malinverni, Niagara Falls, N. Morton Ira Marks, White Plains, N. Y. George Caleb Marsh, Hingham, Mass. Marcia Merwin, Rutherford, N. J. Charles Gordon Mudge, Westfield, N. J.
 - Joseph Edward Normandeau, Montpelier
 - Gena Louise Palermo, Waterbury Frank Louis Passaro, Fair Lawn, N. J.
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- Manuel Saenz, Jr., El Paso, Tex.
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- Edward Joseph Rynn, Jr., Woonsocket, R. I. Nancy Hutchinson Turner, Burlington Audrey Sue Van Wagner, Rockville Centre, N. Y.

James Ingalls Walsh, Norwood, N. Y.

- William Henry Webster, Orleans
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 - Marvin Leonard Woolf, Mt. Vernon, N. Y.

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Helen Claire Brunelle, St. Johnsbury Marilyn Jean Duprey, Proctor

* As of October 17, 1953. † As of February 20, 1954. # As of December 19, 1953. Elizabeth Plumley Flint, Westfield, N. J. Carolyn Pepicelli, Schenectady, N. Y.

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- Marjorie Louise Annis, Morris Plains, N. J. Mary Jane Helen Arcand, Winooski Peter Vincent Arcidiacono, Albany, N. Y.
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- John Dana Clark, Burlington
- *Hester Ann Brown Claypoole, New Rochelle, N. Y.
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- Sarah Elizabeth Cobb, Hardwick
- John Marshal Barrett Conant, Hanover, N. H.
- Priscilla Corliss, East Corinth
- Allan Gildersleeve Cummings, Crestwood, N. Y.
- Nancy Joyce Cureau, Tarrytown, N. Y.
- * As of October 17, 1953.
- † As of February 20, 1954.
- # As of December 19, 1953.

Joel Curtis, Brooklyn, N. Y.

- John Joseph Dalton, Jr., Poultney Susan Aubrey Dart, White Plains, N. Y. *Robert MacDonald Davidson, New Rochelle, N. Y.
- Malia Warden Dean, Burlington
- Kathryn Mary Dimick, Richmond
- *Irene Vera Dodd, North Sheldon
- Sylvia Agnethe Dunham, Scotia, N. Y.
- Marvin Ernest Eisenstadt, Brooklyn, N. Y.
- ‡Robert Warren Ellis, Mount Vernon, N. Y.
- Alan William Epstein, Brooklyn, N. Y.
- *Clarence Edward Fagan, Jr., Rutland
- M. Thomson Fagan, Rutland
- David Warren Fagell, Brookline, Mass.
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- Blanche Marion FitzSimons, Westfield, N. J.
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- Sondra Joyce Stollmack Fram, Brooklyn, N. Y.
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- Donald Tripp Fuller, Barton
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- Vincent James Gabianelli, Bridgeport, Conn.
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- N. Y. *Burton Boutwell Gale, Montpelier
- †Gretchen Ganow, Caldwell, N. J.
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- †Christos Georgoulis, Lowell, Mass.
- Andrew Jay Gerber, Brooklyn, N. Y.
- Marijane Gilfillan, Springfield
- Nathan Charles Gilman, St. Johnsbury
- Norman Gootman, New York, N. Y.
- Arnold Goran, Brooklyn, N. Y.
- Karl Greenman, Newton, Mass.
- *Kenneth Boris Grinspoon, Newton, Mass Robert Cesare Guiduli, Barre
- Norman David Hadley, Burlington
- Ronald Saul Hafter, Brooklyn, N. Y.
- Donna Mae Hagelberger, Buffalo, N. Y.
- Mary Jane Harvey, cum laude, Burlington
- Ralph Leslie Haslund, Wilmington Michael Hauptman, Brooklyn, N. Y.
- Jane Elizabeth Heffron, Foxboro, Mass.
- Barbara Ann Hill, Little Neck, N. Y.
- Ellen Marjory Hind, Maplewood, N. J.
- Shirley Gale Smith Hoover, Melrose, Mass.
- Sheldon Horowitz, cum laude, Bronx, N. Y. George Poustie Hulburd, Burlington

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- Thelma Jean Jolivette, Bennington
- *Samuel Merrimore Jones, New Rochelle, N. Y.
- Audrey Edna Karolshak, Wallingford, Conn.
- Adrian Ira Karp, Newark, N. J.
- Kenneth Jay Keating, Glen Ridge, N. J.
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- Leeba Ada Alpern Manes, Brookline, Mass.
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- Mary Jane Martin, Manhasset, N. Y.
- Martha Ann Marvin, Essex Junction
- Wallace-Mae Mellor, Morrisville
- Theodore Kastle Milberg, Brooklyn, N. Y.
- Myrna Ann Morrill, Stowe
- Philip Joseph Murphy, Rutland
- Harriet Jane Nicholson, Brandon
- Donald Novick, Brooklyn, N. Y. Marilyn Noyes, Bethlehem, N. H.
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- *George Poulos, Brattleboro
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- Martha Goode Riddell, Burlington
- Thomas Erdmann Rogers, Ridgewood, N. J. Fayette Cecil Root, Burlington
- Jane Sproule Ross, Garden City, N. Y.
- * As of October 17, 1953.
- † As of February 20, 1954.
- # As of December 19, 1953.

- Richard Warren Ross, Brookline, Mass. Joan Frances Saltzberg, Chestnut Hill, Mass.
- Gerald Arthur Samuels, Montclair, N. J. *Arthur Gordon Sarlat, Weehawken, N. J.
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- †William Allen Seymour, Williamstown, Mass.
- Carl Heinz Shipman, Newfane
- †Sari Ann Smith Silveira, East Orange, N. J.
- Donald Skib, South Vernon, Mass.
- Joan Patricia Slack, Hague, N. Y.
- William Meldrum Smart, Burlington
- William Graham Smith, St. Albans
- Charles Snow, Brooklyn, N. Y.
- Patricia Elizabeth Speer, Jackson Heights, N. Y.
- Duncan Lansing Spooner, West Orange, N. J.
- Jacquelyn Stowell, Chester
- Francine Edith Strickler, New Rochelle, N. Y.
- Eugenia George Striphas, Newburgh, N. Y.
- Alfred Willett Studwell, Springdale, Conn.
- David Marshall Sussman, Allentown, Pa.
- Deirdre Jeanne Sullivan Sweeney, Bayside, N. Y.
- Gordon Paul Sweeney, Burlington
- Mary Leeds Tate, Rochester, N. Y.
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- Paul Francis Theriault, Newton Centre, Mass.
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- Ronald Orrin Weinraub, cum laude, Bronx, N. Y.
- Charles Edward Wheeler, Burlington
- Helen Virginia Wills, Stanhope, N. J.
- Harris Winitz, Yonkers, N. Y.
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- Madeline V. Wooley, Woodbridge, N. J. John Joshua Zeitlin, New York, N. Y.

ADVANCED DEGREES

MASTERS OF EDUCATION

*Robert Lincoln Bacon, B.A. (Syracuse), 1943, East Thetford *Norma Louise Bailey, B.Ed. (Castleton Teachers), 1944, Barre

- Hiram Orlando Bevins, B.Ed. (UVM), 1941, Milton
- *Ruth Ardelle Child, A.B. (Bryant), 1941, Winchendon, Mass. Robert Wellington Chutter, B.S. (UVM), 1922, Pittsford
- *Sidney Albert Dewey, B.Ed. (Johnson Teachers), 1948, Middlebury
- *Stephen Alfred Doran, B.A. (Michigan), 1930, Waterbury
- *Helen Alene Durant, B.Ed. (UVM), 1945, East Middlebury
- *Kenneth Frank Elliot, B.A. (Sir George Williams), 1948, St. Lambert, P. Q. Harlan Russell Farnsworth, B.S. (UVM), 1951, Burlington

- *Dorothy Brown Gough, B.A. (UVM), 1931, Waterbury *Ralph Michael Guzewicz, B.S. (UVM), 1952, Taunton, Mass.
- Robert Charles Ianni, B.A. (UVM), 1951, Rutland
- †Reginald Glenwood Kierstead, B.S. (UVM), 1949, McIndoe Falls
- *Leland Harvey MacDonald, B.S. (UVM), 1952, South Ryegate
- Albert William Martin, A.B. (Dartmouth), 1946, Rutland
- Phyllis Ann Palmgren, B.S. (Lowell State Teachers), 1953, Chelmsford, Mass. Calvin William Parrow, B.S. (UVM), 1949, Shelburne
- Jane Mary Rendleman, B.S. (Illinois), 1953, Anna, Ill.
- * Josie Pomeroy Sherrer, B.Ed. (Lyndon Teachers), 1945, Miami, Fla.
- *Gertrude Elizabeth Sinclair, B.Ed. (Johnson Teachers), 1944, Johnson
- *Gerald Merchant Turner, B.S. (UVM), 1952, Burlington
- *Willard Philip Walker, A.B. (Middlebury), 1941, Danby
- *Laura Lucille White, B.Ed. (UVM), 1944, Ryegate

MASTERS OF ARTS IN TEACHING

* John Lincoln Ballard, B.A. (UVM), 1950, Milton Clifton Dow Farrand, B.S. (UVM), 1948, Hardwick *Charles Welch Robbe, B.S. (Illinois), 1944, Orangeville, Ill. *Esther Jane Urie, Ph.B. (UVM), 1933, Burlington

MASTERS OF SCIENCE

AGRICULTURAL ECONOMICS

Harry Robert Mitiguy, B.S. (Cornell), 1945, North Bennington Thesis: A Method of Farm Management Planning on Individual Dairy Farms in the Northeast

AGRONOMY

*Richard Arthur Southwick, B.S. (UVM), 1950, Burlington

Thesis: Factors Affecting the Production and Quality of Birdsfoot Trefoil (Lotus corniculatus L.) Seed

ANIMAL AND DAIRY HUSBANDRY

- Lloyd Harry Button, Jr., B.S. (UVM), 1953, Burlington Thesis: Comparative Nutritive Values of Low and Medium Dry Matter Grass Silages for Growth of Dairy Calves
- Everett Perkins Merrill, B.S. (UVM), 1949, Burlington
- Thesis: A Bacteriological Study of Retail Ice Cream Dipping Operations, with Special Emphasis on the Coliform Group
- Gerald Ian Pritchard, B.S. (McGill), 1952, Alcove, P. Q.
- Thesis: Antibiotics in the Nutrition of Young Dairy Calves
- * As of October 17, 1953.
- † As of February 20, 1954.

BIOCHEMISTRY

Jerrold Gilbert Goldman, B.A. (New York), 1951, Newark, N. J. Thesis: The Metabolism of Uracil in Rat Liver

Alice Margaret Laughlin, B.S. (St. Joseph), 1949, Rutland

Thesis: A Study of Certain Factors Influencing the Precipitation of Mucin from Synovial Fluid

BOTANY

*Edward Graham Bassett, B.S. (UVM), 1952, Ticonderoga, N. Y. Thesis: The Paper Chromatography of Some Naphthoquinones, and the Application

Thesis: The Paper Chromatography of Some Naphthoquinones, and the Application of Chromatography to Impatiens balsamina L.

CHEMISTRY

James Edward Cassidy, B.S. (Massachusetts), 1949, Springfield, Mass.

Thesis: The Polarographic Characteristics of Furfurylideneacetophenone and Some of Its Derivatives

Kevork Vartan Nahabedian, B.S. (M.I.T.), 1952, Roxbury, Mass. Thesis: Studies on the Desulfurization of a Thiourea in the Presence of a Biguanide

Norris Gile Nash, B.S. (St. Michael's), 1952, Richmond Thesis: The Rearrangement of the 2,6-Di-tert-butyl-4-Methylphenoxy Radical

Philip Reece Wilson, B.S. (Ohio), 1952, Parkersburg, W. Va. Thesis: Kinetics of the Decomposition of Decalin Hydroperoxide

Edwin Thomas Yates, B.S. (UVM), 1952, Chester Thesis: Studies on Some Benzhydryl Aryl Sulfides

COMMERCE

* Joseph Nick Manganaro, B.A. (Gettysburg), 1951, Berwick, Pa.

Thesis: An Analysis of the Wholesaling Function as it Relates to a Specific Case Study in the Marketing of Fruits, Vegetables, and Groceries

MICROBIOLOGY

Benjamin John Cosenza, B.S. (Connecticut), 1951, New London, Conn. Thesis: Vitamin B-12 Producing Actinomycetes from Vermont Soils

PATHOLOGY

†Mohammed Yusuf Mahju, B.S., M.B. (King Edward Medical College), 1929, T.D.D. (Punjab University), 1950, Lahore, Pakistan

Thesis: A Study of Transplantable Melanomas and Normal Tissues of the Mouse, with Special Reference to Enzyme Systems

PHYSICS

Ralph Webster Preston, B.S. (UVM), 1951, Lowell Thesis: The Absorption Coefficient of Circular Ripples

ZOOLOGY

David Eisen Doniger, B.A. (UVM), 1952, Burlington

Thesis: A Serologic Investigation of Rodent Relationships Using Two Antiporcupine Sera

* As of October 17, 1953.

† As of February 20, 1954.

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ENGLISH

Robert Wayne Caswell, B.A. (UVM), 1953, Burlington

Thesis: The Fire and the Hearth Conflict and Affirmation in William Faulkner Mary Elizabeth Mitiguy, B.S. (UVM), 1947, Burlington Thesis: The Comic Spirit in T. S. Eliot

FRENCH

+Ruth Pearl Willard, B.Ed. (UVM), 1945, Lincoln, Ill.

Thesis: The Youthful Henri Beyle Reflected in the Heroes of Stendhal's Four Great Novels

HISTORY

* James Elmer Carter, B.A. (UVM), 1951, Burlington

Thesis: Vermont Congregationalism and Jeffersonian Democracy, 1800-1812 ‡Frederick George Hinett, B.A. (Gordon), 1939, B.D. (Acadia), 1947, Burnt Hills, N. Y. The Nationalization of History Exemplified by the History of the War of Thesis: 1812

LATIN

*Anita Bagdikian, B.A. (UVM), 1951, Bath, Me. Thesis: The Local Officials of Roman Corinth

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- * As of October 17, 1953.
- † As of February 20, 1954.
- ‡ As of December 19, 1953.

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- Peter John Palmisano, B.S., Barre
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- James Seward Shea, A.B., Bennington

Marvin Silk, A.B., Providence, R. I.

- Herbert Carl Sillman, B.A., cum laude, West Hartford, Conn.
- Wendell Earl Smith, A.B., Springfield

John Peter Tampas, B.S., Burlington

Thomas Bartholomew Tomasi, Jr., cum laude, Burlington

DEGREES HONORIS CAUSA

Richard David Aplin, Wellesley, Mass., Doctor of Science

- Harry Barker, New York City, Doctor of Engineering
- Rebecca Ida Everts, East Middlebury, Doctor of Education

SPECIAL HONORS

ENGLISH

Ronald Saul Hafter, '54 Thesis: William Faulkner's Perception of Reality

PSYCHOLOGY

Ronald Orrin Weinraub, '54

Thesis: The Development of a New Method for the Determination of the Absolute Taste Threshold for Phenylthiocarbamide

PRIZES

- THE GEORGE H. WALKER DAIRY PRIZE-John William Whitehill, '54
- THE ELWIN L. INGALLS 4-H PRIZE-Robert Edward Benoit, '56
- THE EMERSON PRIZE IN HISTORY-Arnold Goran, '54
- THE GERMAN LITERARY PRIZE-Ruel Guy Barrett, '55
- KIRBY FLOWER SMITH LATIN PRIZE-Beverly Echo Purinton, '54
- THE EDWARD PAGE BUTLER DEBATING PRIZES—First: Pauline Joyce Wescott, '54. Second: Claire Margaret Battles, '55. Third (tie): Nancy Jean Beals, '54; Eileen Claire Kenney, '57; Leonie Joy Strachan, '56
- THE ROBERT ASHTON LAWRENCE DEBATING PRIZES—First: Herzl Robert Spiro, '56. Second: Kevin Emmet Kearney, '54. Third (tie): Edwin Stewart English, '56; Pauline Joyce Wescott, '54
- THE ROBERT ASHTON LAWRENCE AND GEORGE EDWIN LAWRENCE DEBAT-ING PRIZES—First: Pauline Joyce Wescott, '54. Second: Claire Margaret Battles, '55
- THE HANNAH G. SOLOMON PRIZE-Audrey Sue Van Wagner, '54
- THE B'NAI B'RITH PRIZE-Mary Ellen Adams, '54
- THE A. ATWATER KENT PRIZE-Roger Craig Chapman, Jr., '54

THE EDMUND F. LITTLE CUP-Harry Edward Romer, '54

- THE FRED T. KIDDER MEDAL-Hugh Paul Sherlock, '54
- THE WASSON ATHLETIC PRIZE-Albert Malinverni, '54

THE ATHLETIC COUNCIL MANAGERIAL PRIZE—Charles Norman Perkins, Jr., '54 CARBEE MEDICAL PRIZE—Edmund Brown McMahon, B.S., '54

WOODBURY PRIZES IN MEDICINE-Thomas Bartholomew Tomasi, Jr., A.B., '54

LAMB FOUNDATION PRIZES—First: Elsie Frances Noe, B.A., '54. Second: Margaret Newton, A.B., '54. Third: Jacqueline Anne Noonan, B.A., '54

THE VERMONT BANKERS ASSOCIATION PRIZE—Kenneth Johnson English, '54 ALPHA LAMBDA DELTA AWARD—Mary Jane Harvey, '54

- Henry Carmer Van Buren, A.B., Cape May Court House, N. J.
- Herbert White, A.B., M.S., Lawrence, Mass.
- Michael Selig Wiedman, A.B., Burlington
- Kenneth Owen Williams, A.B., New York, N.Y.
- Sumner Jason Yaffe, A.B., M.A., Mattapan, Mass.
- Julian Ira Lindsay, Burlington, Doctor of Humane Letters
- Hyder Edward Rollins, Cambridge, Mass., Doctor of Humane Letters

Donald Beates Watt, Putney, Doctor of Laws

Loan Funds, Scholarships, and Prizes

LOAN FUNDS

AMERICAN AGRICULTURALIST RESEARCH FOUNDATION For juniors and seniors in home economics.

REV. STEPHEN G. BARNES To provide loans or gifts for needy students to attend religious conferences.

CHARLES H. BAYLEY Established in 1937 by Laura Morse Bayley in memory of her husband.

JOHN H. AND MARY A. BLODGETT Established in 1938 by bequest of Mary A. Blodgett of Bellows Falls, preference to be given to graduates of the Kurn Hattin and Warner Memorial Homes and to residents of Rockingham.

DR. MOSES DYER CARBEE, '73 Established by Mrs. May D. Carbee in memory of her husband for students of the College of Medicine.

ELIZABETH CHAPMAN Established by bequest in 1950.

CLASS OF 1923 Available to students in the academic colleges.

CLASS OF 1929 Established in 1936, for students in the academic colleges.

THE CONSOLIDATED FUND Composed of the following: the Class of 1924 Fund, the Class of 1925 Fund, the Emergency Loan Fund, the Julia I. Bates Fund, the Student Loan Fund, the B. F. Taylor Fund, the New York Alumni Fund of November, 1927, the Edmund Seymour Fund, the Kidder Loan Fund, and the Lydia M. Blood Loan Fund.

LEONARD PERLEY DICKINSON For students in engineering, preference to be given to those in electrical engineering.

ANNETTE FISKE MERENESS For the benefit of women students.

ASA FISKE Established for women students by Annette Fiske Mereness in memory of her father.

MARY GRAVES Established for women students by Annette Fiske Mereness in memory of her mother.

JOSEPH LAWRENCE HILLS Established by friends of Dean Hills, who completed fifty years of service to the University in 1937.

STEPHEN DWIGHT AND LIDA MASON HODGE For women students in the College of Arts and Sciences.

CORNELIUS A. JEUDEVINE Established by Allen E. Jeudevine as a memorial to his son to aid Vermont men in obtaining a liberal education.

CHARLES S. AND ETTA M. KEHOE For deserving students.

LADIES OF THE FACULTY For women students. Not more than fifty dollars is loaned to any one student.

SEALAND W. LANDON, '74 Established by Susan W. Landon in memory of her brother.

DR. JOSEPH E. LUMBARD Established in 1946 by the gift of Mr. J. Edward Lumbard, Jr., for students in the College of Medicine.

MEDICAL COLLEGE Established in 1933 by Medical College alumni for students in the College of Medicine.

CHARLES D. AND CARRIE D. ORDWAY Bequeathed by Charles D. Ordway in 1933, for Vermont students.

MARY MAUD PATRICK Established by Epsilon Sigma as a memorial to Mary Maud Patrick for students in elementary education.

PHI BETA KAPPA Available to members of the senior class; preference being shown to members of the society.

RIXFORD MANUFACTURING COMPANY For students from Highgate.

HENRY BIGELOW SHAW, '96 Established in 1938 by Mrs. Willard Pope in memory of her brother, Henry Bigelow Shaw of the Class of 1896, for young men who have been graduated from the University and who wish to study at Harvard University Law School.

MARY A. SHAW AND FANNY E. SHAW Established by Mrs. Willard Pope, daughter of Mary A. Shaw, for women students.

F. H. AND GRACE M. SHEPARDSON For deserving students, subject to such regulations as the Board of Trustees shall prescribe.

HORACE E. STEVENS, '70 Established in 1926 by his relatives for students in engineering.

EMILY AND THOMAS TELFER Established by Mrs. Thomas Telfer.

TERRILL-HOLBROOK For women students, preference being shown to those in Home Economics.

THE WOMEN'S STUDENT HEALTH COUNCIL FUND For women designated by the Dean of Women and the Chairman of the Department of Physical Education for Women, under special regulations as to interest and repayment.

SCHOLARSHIPS

LIZZIE P. ALLEN Founded in 1900 by Lizzie P. Allen, a descendant of Ira Allen, founder of the University.

THE ALUMNI MEMORIAL SCHOLARSHIPS Appropriated annually by the Executive Committee of the Alumni Council to provide scholarships for male students. These awards are made upon the recommendation of a committee of the Alumni Council designated for that purpose. Each scholarship is named in memory of an alumnus.

FRANKLIN BALDWIN Established in 1915 by bequest of Mr. Baldwin for students from Putney.

REV. LUCIUS E. BARNARD (1853) Established by bequest in 1903.

REUBEN CLARK BENTON (1854) Established by bequest for students from Waterford and Lunenburg, Vermont, or from Minneapolis, Minnesota.

ADA S. BLAIR Established by bequest in 1926.

ELIZABETH F. BRIGHAM Established by bequest in 1910; preference to be given to students from Brigham Academy.

MARCIA P. BROWNE Established by bequest for women students.

EMORY N. BURRITT Established by bequest for women students.

SARAH L. BURRITT Established by bequest for women students.

EZRA HOYT BYINGTON Founded in 1905 in memory of Mr. Byington by Mrs. Louisa J. Byington for students from Hinesburg, or students bearing the name of Byington, Boynton, Hoyt, or Wortman, or in some way related to these families.

MOSES D. CARBEE, '73 Established by a bequest from Mrs. May D. Carbee in memory of her husband; available for medical students.

DR. WALTER CARPENTER Established by bequest; preference to be given to sons of clergymen and physicians.

ELIZABETH CHAPMAN Established by bequest in 1950.

CLASS OF 1861 Endowed and made available in 1891.

CLASS OF 1881 Endowed in 1937 by William H. Rice.

JOHN H. CONVERSE, '61 Established in 1882.

LIZZIE S. CONVERSE Founded by bequest of Sarah Elizabeth Converse for students of classics.

CHARLES M. COX Income from this trust fund provides a scholarship of \$200 for a student in agriculture, preferably to one majoring in dairy or poultry husbandry, on the basis of need, character, and scholarship.

CRAFTSBURY Founded in 1900 for relatives of Mr. and Mrs. Nathan S. Hill, or residents of Craftsbury or Isle LaMotte.

PHILIP HENRY CREER Founded by Ex-Gov. Redfield Proctor for students from Proctor.

ESSO 4-H Awarded each year by the Esso Standard Oil Company of New Jersey to an incoming freshman in the College of Agriculture on the basis of need, character, and scholastic ability, plus at least three years of 4-H work. If satisfactory grades are maintained, one hundred dollars per year will be paid the recipient for the succeeding three years.

ROLLO J. FRANCISCO Established by bequest in 1951.

DR. EDWARD EVERET'T HAWES Established by bequest in 1946; available for medical students.

ALBERT T. HENDERSON Established in 1945 by a bequest from William J. Henderson in memory of his son.

FRANCIS WHELPLEY HICKOK, '71 Founded in 1902 by Mrs. Julia F. Hickok, widow of James W. Hickok, '37, in memory of their son.

DR. CHARLES H. HOOD Given by the Charles H. Hood Dairy Foundation, and awarded to upperclass students studying milk production.

LOUISA H. HOWARD Founded in 1882; available for men.

CHARLES A. HOYT '58 Established by bequest in 1904.

ISLE LAMOTTE Founded in 1884 by Nathan S. Hill; for students from Isle LaMotte or from Craftsbury.

SARAH B. JACOBS Founded in 1882; available for graduates of Brigham Academy only.

EDITH BLANCHE KIDDER Established by Joseph W. Kidder for students in the College of Medicine; preference to be given to legal residents of Barre.

ROBERT J. KIMBALL Founded in 1900 for students from Randolph. The Trustees of Randolph High School may make nominations for this scholarship.

CELINDA A. B. LILLEY Founded in 1880 for women students.

LYNDON INSTITUTE Endowed by George E. P. Smith, '97; awarded annually to a graduate of Lyndon Institute nominated by the faculty of that school.

CHARLES MUNSON MARSH Established by bequest in 1893 for students from Woodstock by Charles P. Marsh in memory of his son.

CHARLES P. MARSH Established by bequest in 1893; for men and women from Windsor County.

EDWIN WRIGHT MARSH, '72 Founded in 1883 by Charles P. Marsh, '39 in memory of his son; for students from the town of Weathersfield or from Windsor County.

MARGARET PATTERSON McDANIELS Established in 1941 by a bequest of George N. McDaniels in memory of his mother; preference to be given to applicants from the towns of Craftsbury and Greensboro.

DANIEL PITKIN MINER Established by bequest in 1943; for native-born students, not over twenty-five years of age.

MORETOWN AND MIDDLESEX Founded by the Rev. E. C. Bass, '59.

JUSTIN S. MORRILL Founded in 1900 by Senator Justin S. Morrill; for students from Strafford.

JOHN ORDRONAUX Founded in 1909; for students in the Academic and Medical Colleges.

PARKER Founded in 1880 by Rev. Charles C. Parker, D.D., '41, in memory of himself and his son, Charles Edmund Parker, '67.

ARTHUR W. AND LOUISE S. PERKINS Established in their memory in 1947 by their son and daughters. The income provides aid for students of high character and reasonably good scholarship who are graduates of a secondary school in Rutland. School authorities in Rutland are to be consulted regarding the qualifications of candidates who are not already enrolled in the University.

MINNIE A. PICKERING Established in 1938 by gift in memory of her daughter.

CHARLES W. RICH, '36 Founded in 1883 for students in the College of Arts and Sciences.

SEARS-ROEBUCK FOUNDATION Four of \$200 for men in agriculture and two of \$100 for women in home economics are awarded annually to incoming freshmen.

WILLIAM G. SHAW, '49 Originally founded in 1892 by bequest of one thousand dollars and recently increased by his daughter, Mrs. Willard Pope; available for men students.

CHARLES D. SIAS Established by bequest in 1943; available for men.

SAMUEL SIDNEY SMITH Founded in 1896 by bequest of Mrs. Elisa Smith in memory of her husband.

SOLDIERS' Founded in 1913 by a group of Civil War veterans for students who are descendants of soldiers in the Civil War.

SOPHIA STOW Endowed in 1937 by bequest of George L. Stow, '73, in memory ot his mother; for students of classical languages.

DR. DANIEL WASHBURN Founded in 1853 for young men; preference to be given to those studying for the ministry.

JOHN AND MARY WATERMAN Endowed in 1923 by Charles W. Waterman, '85, in memory of his father and mother; for residents of Waitsfield or Denver, Colorado.

WESTFORD Founded in 1882 by Luke P. Poland; available first to students from the town of Westford.

HATTIE LAURA WETHERBY WESTON Established by bequest in 1936.

JOHN A. S. WHITE Established by bequest; for students from Washington County or from Vermont.

JAMES B. WILBUR The University of Vermont Trust Fund, amounting to over one million dollars, was established by James B. Wilbur as an endowment for scholarships for Vermont students who are in need of assistance to undertake college work and who have earned entrance or college records that indicate extraordinary scholastic ability.

CLAYTON J. WRIGHT Established by bequest; available first for students from the town of Williston.

PRIZES

THE AIR FORCE ASSOCIATION AWARD, a silver medal, is awarded to the advanced class cadet who has the highest over-all average in the Air Force ROTC.

THE AMERICAN LEGION MEDAL, presented by Burlington Post No. 2, is awarded annually to the Air ROTC cadet who has demonstrated the most outstanding qualities of character and leadership.

THE AMERICAN LEGION TROPHY, a silver shield, presented by Burlington Post, No. 2, is annually awarded to the ROTC company which is the most proficient in attendance, neatness, set-up and drill.

THE ARNOLD AIR SOCIETY AWARD, a silver medal, is awarded annually by the honorary society of the Air Force ROTC, named in honor of General H. H. Arnold, to the most proficient cadet of the freshman class.

THE ATHLETIC COUNCIL MANAGERIAL PRIZE of twenty-five dollars is awarded annually to that senior sports manager who has shown the greatest proficiency.

THE BENEDICT ESSAY PRIZE was established by Robert Dewey Benedict of the Class of 1848, to be awarded annually to the member of the senior class who presents the best essay on the subject of international arbitration.

THE BENNETT ESSAY PRIZE, endowed by Philo Sherman Bennett, provides an annual prize for the best essay discussing the principles of free government. BORDEN AGRICULTURAL PRIZE is awarded annually to that eligible student in the College of Agriculture who on entering his senior year has the highest average grade of all eligible students in all preceding college work. Students who have included in their courses of study two or more dairy subjects are eligible for the award.

THE B'NAI B'RITH PRIZE of \$25 is given annually by the Joseph Frank Lodge of Burlington to that student who has done most to encourage interfaith cooperation and activities.

THE BURPEE AWARD IN HORTICULTURE, an annual award of \$100 donated by the W. Atlee Burpee Company, is made on the basis of scholarship, practical experience, and interest in flower and vegetable growing.

THE BUTLER DEBATING PRIZES were endowed by Edward Page Butler, '70, for the promotion of extemporaneous debate. From the income of this fund of \$1200 three prizes may be awarded annually to the three women students who have shown the greatest ability in debate.

THE CARBEE MEDICAL PRIZE was established by Mrs. May D. Carbee in memory of her husband, Moses Dyer Carbee, M.D., 1873. The income from the fund is given annually to the student in the College of Medicine who shows the greatest proficiency in the subject of obstetrics.

THE CONVERSE PRIZES IN COMMERCE AND ECONOMICS were established by John Heman Converse, '61, by gift of a fund of \$1000, the income from which may be used in whole or in part for prizes.

THE CRAIG TROPHY, donated by Major M. E. Craig in honor of the 1936-37 Rifle Team, has each year engraved upon it the name of the man making the highest cumulative score throughout the year in the principal matches in which the rifle team competes.

THE EMERSON PRIZE IN HISTORY, offered annually in memory of Samuel Franklin Emerson, Professor of History for forty-two years, is awarded to an undergraduate for the best original essay on any topic chosen from any field of history.

THE GERMAN LITERARY PRIZE is awarded annually by the Goethe Lodge of Burlington for general excellence in German.

THE HOWARD PRIZES were provided by a bequest of \$1250 from Mrs. Hannah T. Howard, the income of which is awarded in prizes to students in the College of Arts and Sciences for excellence in the work of the freshman year.

THE ELWIN LEROY INGALLS PRIZE is provided from a fund established in 1934 to honor Elwin Leroy Ingalls, '96, who had then completed tweny years of continuous service as State 4-H Club Leader. It is awarded annually to a University student of outstanding merit as shown in character, 4-H Club record, and scholastic attainment in college.

THE JACOBSEN TROPHY was donated in 1951 by Colonel Earl H. Jacobsen, the first Professor of Air Science and Tactics assigned to the University. Upon it is engraved each year the name of the cadet in the Air Force ROTC making the highest cumulative smallbore rifle marksmanship score throughout the year.

THE A. ATWATER KENT PRIZE IN ELECTRICAL ENGINEERING is provided by the income of a fund of \$500 and is awarded annually to an outstanding senior in electrical engineering. The names of the winners are placed on a tablet which is located in the Waterman Building.

THE KIDDER MEDAL is provided by the income of a fund of \$400, established in memory of Dr. F. T. Kidder, '80, a trustee of the University. The specially engraved gold medal is awarded to the male student ranking first in character, leadership, and scholarship.

LAWRENCE DEBATING PRIZES were established by Edwin Winship Lawrence, '01. The first group of three prizes is established in memory of his brother, Robert Ashton Lawrence, '99, and is offered annually to students who exhibit the greatest proficiency in debate. A \$10,000 fund provides for these prizes.

The second group of prizes, established in memory of his brother, Robert Ashton Lawrence, '99, and his father, George Edwin Lawrence (Middlebury College, '67) is awarded to the three students participating in a joint debate between representatives of the University and Middlebury College who, in the opinion of the judges chosen, show the greatest proficiency in this debate.

THE EDMUND F. LITTLE CUP is provided by the income from a fund established by Arlington P. Little, '01. It is awarded annually for meritorious work in mechanic arts.

THE LOYAL LEGION MEDAL is presented annually by the Vermont Commandery of the Military Order of the Loyal Legion to the most proficient junior cadet of the Reserve Officers' Training Corps.

THE NU SIGMA NU AWARDS are given annually in the College of Medicine to the outstanding students in the freshman and junior classes.

THE PHELPS PRIZE IN CIVIL ENGINEERING, derived from a fund of \$900, was endowed in memory of Edward Haight Phelps, '72, by his father, Edward J. Phelps. The prize is awarded annually to an outstanding senior in civil engineering.

THE COLONEL WADSWORTH RAMSEY-SMITH TROPHY AND PRIZE, in the amount of ten dollars, are awarded annually to the outstanding senior cadet of the Reserve Officers Training Corps. The name of the senior is inscribed on the trophy, a saber, which is maintained by the Military Department. This award is presented by Mrs. Ramsey-Smith, in honor of her husband.

THE SEYMOUR HORTICULTURAL FUND of \$2500 was given by William W. Seymour in memory of his father, Henry E. Seymour, 1835. The income from the fund is used in part for a prize for that senior who has done the best work in original horticultural research.

THE KIRBY FLOWER SMITH LATIN PRIZE is derived from a \$3000 fund established by his wife as a memorial to Kirby Flower Smith, '84. An award is made annually to the student having the highest standing in second year college Latin.

THE HANNAH G. SOLOMON PRIZE is awarded by the Burlington Section of the National Council of Jewish Women to the senior woman who has exhibited in the highest degree the qualities of scholarship, leadership, and service.

THE SONS OF THE AMERICAN REVOLUTION MEDALS are presented annually by the Vermont Society, Sons of the American Revolution, one to the member of each class in the Reserve Officers Training Corps who is outstanding in character, conduct, leadership, and in theoretical and practical knowledge of the year's course.

THE SUNDERLAND MEMORIAL TROPHY is awarded annually to that senior man who has best exemplified those qualities of character, leadership, and persistence in overcoming obstacles, which were outstanding traits in the life of Russell O Sunderland, '38. Each recipient's name is engraved on the permanent trophy, and the Boulder Society makes a suitable personal award.

THE THOMAS TROPHY is awarded annually to that senior student in agriculture who most closely exemplifies the character of John M. Thomas.

THE VETERANS OF FOREIGN WARS MEDALS AND PLAQUES, presented by the Howard Plant Post 782, are awarded annually to the freshman cadet of the Army ROTC unit who demonstrates the highest proficiency in leadership, drill, and military science and to the cadet commander of the best Air ROTC drill squad. Their names are inscribed upon the plaques, which are maintained by the military departments.

THE GEORGE H. WALKER DAIRY PRIZE is derived from a fund of \$2000, donated by George H. Walker, one of the founders of the Walker-Gordon Milk Company. It is awarded annually to an outstanding senior in dairy studies.

THE WASSON ATHLETIC PRIZE is derived from an endowment of \$250, given by Mrs. Pearl Randall Wasson in memory of her husband, Dr. Watson L. Wasson, '01. The income provides a prize for the member of the senior class who has maintained the highest standard of academic scholarship and athletic attainment.

WIRTHMORE 4-H One hundred dollars is awarded annually to a freshman 4-H member who has done outstanding work in 4-H dairy or dairy feeding projects.

THE WOODBURY MEDICAL PRIZES are derived from a fund of \$1000 created by Mrs. Pauline S. Woodbury in memory of her husband, Dr. Urban A. Woodbury, '59. The first prize is awarded annually to the student who has shown the greatest proficiency in the clinical subjects in his senior year. The second prize is awarded to that member of the sophomore class who has received the highest standing of the class in all subjects of the freshman and sophomore years.

General Index

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ACADEMIC CALENDAR

SPRING	January	31	Monday	Second semester enrollment.*
SEMESTER	February	1	Tuesday	Second semester enrollment.
1955	February	2	Wednesday	Classes begin.
	February	18	Friday	Kake Walk holiday.
	February	19	Saturday	Kake Walk holiday.
	March	19	Saturday	Midterm reports due in deans' offices.
	March	26	Saturday	Spring recess begins 11 a.m.
	April	5	Tuesday	Classes resume.
	May	2	Monday	Founder's Day Convocation, 10 a.m.
	May	26	Thursday	Pre-examination day; no classes.
	May	27	Friday	Final examinations begin.
	May	30	Monday	Memorial Day holiday.
	June	12	Sunday	Commencement

1955 SUMMER SESSION: JULY 5-AUGUST 17

FALL	September	9	Friday	Preliminary Days Program begins.
SEMESTER	September	13	Tuesday	Enrollment for all new students.*
1955	September	14	Wednesday	Enrollment for all other students.*
	September	15	Thursday	Classes begin. Opening Convocation.
	November	5	Saturday	Midterm reports due in deans' offices.
	November	23	Wednesday	Thanksgiving recess begins at 11 a.m.
	November	28	Monday	Classes resume.
	December	17	Saturday	Christmas recess begins; no classes.
	Janua ry	3	Tuesday	Classes resume.
	January	16	Monday	Midyear examinations begin.
	January	26	Thursday	Intersemester recess begins.
				· · · · ·
SPRING	January	31	Tuesday	Second semester enrollment.*
SEMESTER	February	1	Wednesday	Second semester enrollment.
1956	February	2	Thursday	Classes begin.
	February	17	Friday	Kake Walk holiday.
	February	18	Saturday	Kake Walk holiday.
	March	17	Saturday	Midterm reports due in deans' offices.
	March	24	Saturday	Spring recess begins at 11 a.m.
	April	3	Tuesday	Classes resume.
	May	1	Tuesday	Founder's Day Convocation, 10 a.m.
	May	24	Thursday	Pre-examination day; no classes.
	May	25	Friday	Final examinations begin.
	May	30	Wednesday	Memorial Day holiday.
	June	10	Sunday	Commencement.

* Enrollment dates for medical students are announced in the College of Medicine Bulletin.

CALENDAR

1955

		JANUARY FEBRUARY									FEBRUARY MARCH									
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QUEEN CITY PRINTERS INC., BURLINGTON, VERMONT

