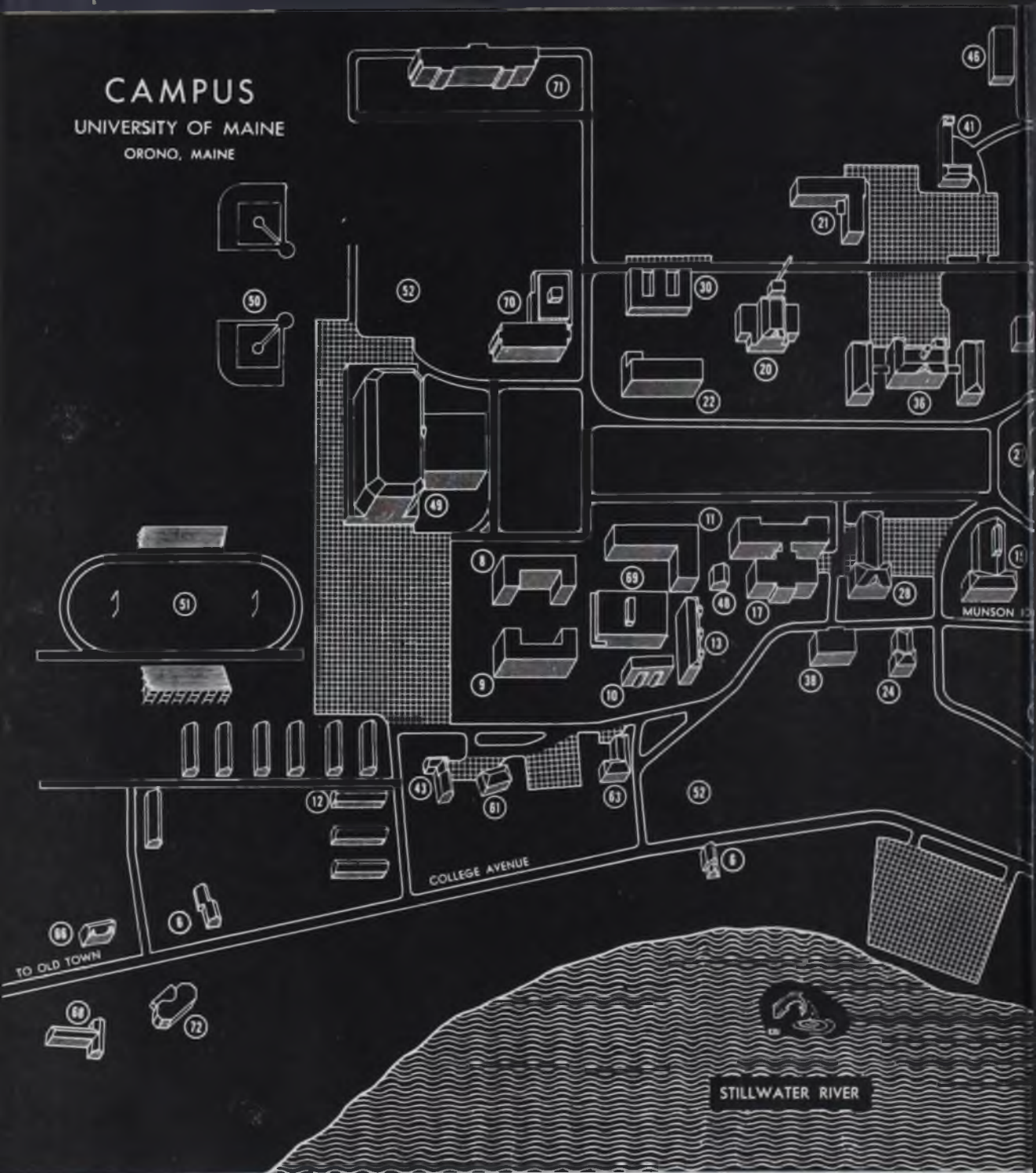
1959

# University of Maine Catalog 1960

University of Maine

Airview of Campus

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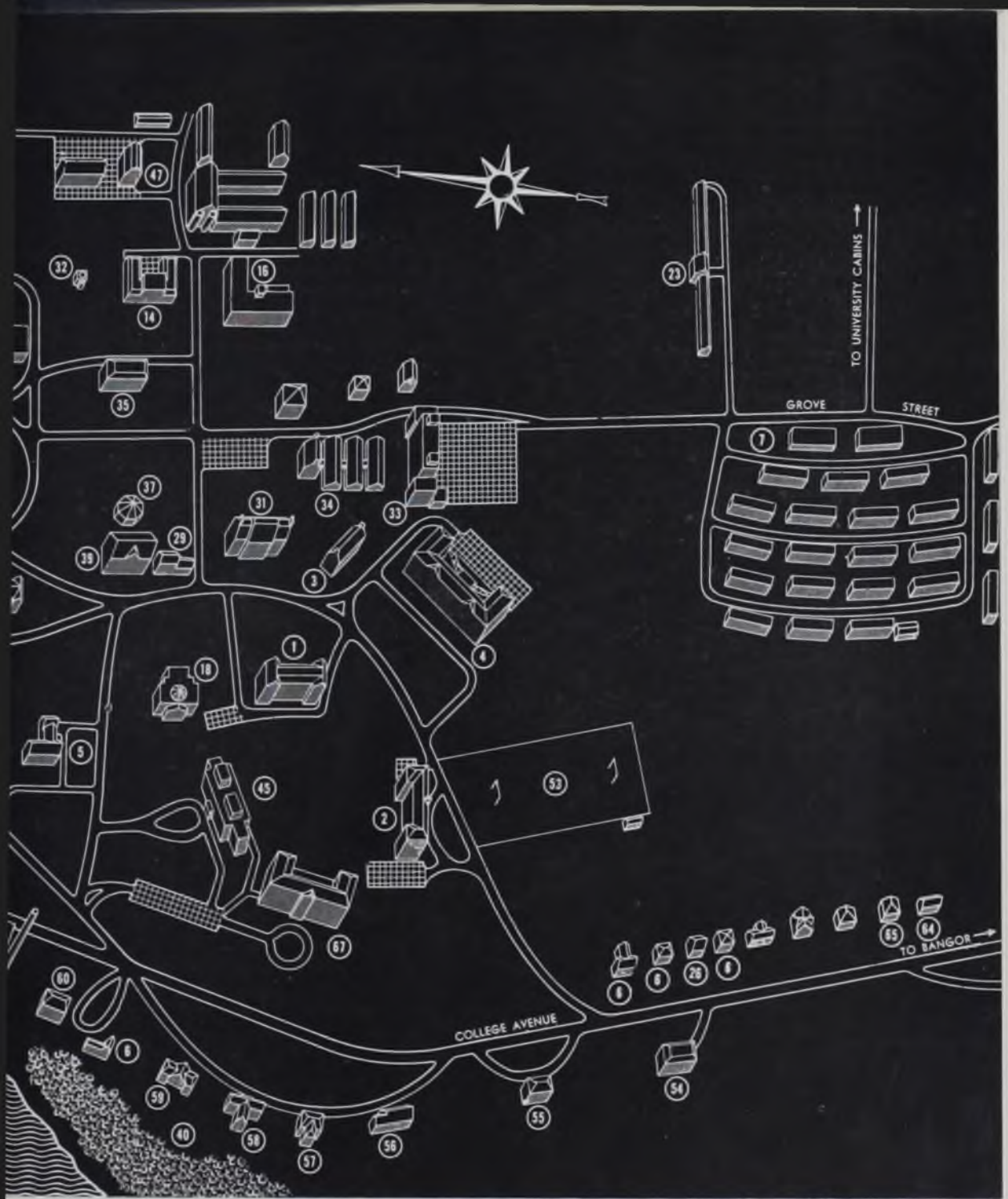


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# UNIVERSITY OF MAINE CATALOG • 1960




*University of Maine Bulletin*

**ORONO, MAINE**

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# CALENDAR FOR 1959-60

## Fall 1959

| | | |
|---|---|---|
| | | 1959 |
| Freshman Week, Opening | Thurs., 6:30 P.M. | Sept. 10 |
| Freshman Week Registration | Fri., 7:30-12:00 M. 1:00-4:30 P.M. | Sept. 11 |
| Registration of Upperclass, Former, Transfer and Graduate Students | Mon., 8:00-12:00 M. 1:00-4:30 P.M. Tues., 8:00-12:00 M. | Sept. 14 Sept. 15 |
| Final Examinations in Correspondence courses due | Tuesday | Sept. 15 |
| Classes begin | Wed., 8:00 A.M. (Shortened periods—Opening Convocation) | Sept. 16 |
| Freshman reports due | Friday | Oct. 16 |
| Registration of Two-Year Agriculture Students | Mon., 9:00 A.M. | Oct. 19 |
| Midsemester reports due (covering the first half semester to Nov. 7) | Tues., on or before 4:50 P.M. | Nov. 10 |
| Thanksgiving recess begins | Wed., 11:50 A.M. | Nov. 25 |
| Classes resumed | Mon., 8:00 A.M. | Nov. 30 |
| Christmas recess begins | Wed., 11:50 A.M. | Dec. 16 |
| | | 1960 |
| Classes resumed | Mon., 8:00 A.M. | Jan. 4 |
| Classes end (Fall Semester) | Sat., 11:50 A.M. | Jan. 16 |
| Final Examinations begin | Mon., 8:00 A.M. | Jan. 18 |
| Registration of Freshman and Upperclass Students | Mon.-Sat. | Jan. 18-23 |
| Final Examinations end | Tuesday | Jan. 26 |
| Registration of Former and Transfer Students | Sat., 8:00-11:00 A.M. | Jan. 30 |

## Spring 1960

| | | |
|---|---|---|
| Classes begin | Mon., 8:00 A.M. | Feb. 1 |
| Written Comprehensive Examinations—Arts and Sciences | Saturday | Mar. 5 |
| Spring recess begins | Fri., 11:50 A.M. | Mar. 25 |
| Farm and Home Week | Mon.-Thurs. Mar. 28-Mar. 31 | |
| Midsemester reports due (covering the first half semester to March 25) | Tues., on or before 4:50 P.M. | Mar. 29 |
| Classes resumed | Mon., 8:00 A.M. | Apr. 4 |
| Oral Comprehensive Examinations—Arts and Sciences | Saturday | Apr. 16 |
| Graduation Exercises, Two-Year Course in Agriculture | Saturday | Apr. 30 |
| Maine Day | Wednesday | May 4 |
| Master's Theses due | Monday | May 16 |
| Classes end | Sat., 11:50 A.M. | May 21 |
| Final Examinations begin | Mon., 8:00 A.M. | May 23 |
| Final Examinations end | Wednesday | June 1 |
| Class Day | Friday | June 3 |
| Alumni Day | Saturday | June 4 |
| Baccalaureate Exercises | To be announced | |
| Commencement Exercises | Sunday | June 5 |

## Summer Camp

| | | |
|---|---|---|
| Forestry Junior Camp begins | Monday | June 6 |
| Forestry Junior Camp ends | Saturday | Aug. 6 |
| ROTC Junior Camp begins | Saturday | June 18 |
| ROTC Junior Camp ends | Friday | July 29 |
| Forestry Freshman Camp begins | Monday | Aug. 29 |
| Forestry Freshman Camp ends | Saturday | Sept. 10 |

## Summer Session

| | | |
|---|---|---|
| Summer Session Registration | Mon., 8:00-12:00 M. 1:30-4:30 P.M. | July 11 |
| Classes begin | Tues., 7:45 A.M | July 12 |
| Classes end | Friday | Aug. 19 |
| Commencement Exercises | Fri., 8:15 P.M. | Aug. 19 |
























# CALENDAR FOR 1960-61 (Tentative)

## Fall 1960

| | | 1960 |
|---|---|---|
| Freshman Week, Opening | Thurs., 6:30 P.M. | Sept. 15 |
| Freshman Week Registration | Fri., 7:30-12:00 M. | |
| | 1:00-4:30 P.M. | Sept. 16 |
| Registration of Upperclass, | Mon., 8:00-12:00 M. | |
| Former, Transfer and | 1:00-4:30 P.M. | Sept. 19 |
| Graduate Students | Tues., 8:00-12:00 M. | Sept. 20 |
| Final Examinations in | | |
| Correspondence courses due | Tuesday | Sept. 20 |
| Classes begin | Wed., 8:00 A.M. | Sept. 21 |
| Freshman reports due | Friday | Oct. 21 |
| Registration of Two-Year | | |
| Agriculture Students | Mon., 9:00 A.M. | Oct. 24 |
| Midsemester reports due | | |
| (covering the first half | Tues., on or before | |
| semester to Nov. 8) | 4:50 P.M. | Nov. 15 |
| Thanksgiving recess begins | Wed., 11:50 A.M. | Nov. 23 |
| Classes resumed | Mon., 8:00 A.M. | Nov. 28 |
| Christmas recess begins | Fri., 11:50 A.M. | Dec. 16 |
| | | 1961 |
| Classes resumed | Tues., 8:00 A.M. | Jan. 3 |
| Classes end (Fall Semester) | Sat., 11:50 A.M. | Jan. 21 |
| Final Examinations begin | Mon., 8:00 A.M. | Jan. 23 |
| Registration of Freshman and | | |
| Upperclass Students | Mon.-Sat. | Jan. 23-28 |
| Final Examinations end | Tuesday | Jan. 31 |
| Registration of Former and | | |
| Transfer Students | Sat., 8:00-11:00 A.M. | Feb. 4 |

## Spring 1961

| | | |
|---|---|---|
| Classes begin | Mon., 8:00 A.M. | Feb. 6 |
| Written Comprehensive | | |
| Examinations—Arts and | | |
| Sciences | Saturday | Mar. 11 |
| Spring recess begins | Fri., 11:50 A.M. | Mar. 31 |
| Farm and Home Week | Mon.-Thurs. | Apr. 3-Apr. 6 |
| Midsemester reports due | | |
| (covering the first half | Tues., on or before | |
| semester to March 27) | 4:50 P.M. | Apr. 4 |
| Classes resumed | Mon., 8:00 A.M. | Apr. 10 |
| Oral Comprehensive | | |
| Examinations—Arts and | | |
| Sciences | Saturday | Apr. 22 |
| Maine Day | Wednesday | May 3 |
| Graduation Exercises, Two-Year | | |
| Course in Agriculture | Saturday | May 6 |
| Master's Theses due | Mon. | May 22 |
| Classes end | Sat., 11:50 A.M. | May 27 |
| Final Examinations begin | Mon., 8:00 A.M. | May 29 |
| Final Examinations end | Wednesday | June 7 |
| Class Day | Friday | June 9 |
| Alumni Day | Saturday | June 10 |
| Baccalaureate Exercises | To be announced | |
| Commencement Exercises | Sunday | June 11 |

## Summer Camp

| | | |
|---|---|---|
| Forestry Junior Camp begins | Monday | June 12 |
| Forestry Junior Camp ends | Saturday | Aug. 12 |
| ROTC Junior Camp begins | Saturday | June 24 |
| ROTC Junior Camp ends | Friday | Aug. 4 |
| Forestry Freshman Camp | | |
| begins | Monday | Sept. 4 |
| Forestry Freshman Camp ends | Saturday | Sept. 16 |

## Summer Session

| | | |
|---|---|---|
| Summer Session Registration | Mon., 8:00-12:00 M. | |
| | 1:30-4:30 P.M. | July 10 |
| Classes begin | Tues.,7:45 A.M. | July 11 |
| Classes end | Friday | Aug. 18 |
| Commencement Exercises | Fri., 8:15 P.M. | Aug. 18 |

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MAINE TECHNOLOGY EXPERIMENT STATION. Weston Sumner Evans, Director, 110 Boardman Hall.
UNIVERSITY OF MAINE IN PORTLAND. William Lloyd Irvine, Dean, 23 Brighton Avenue, Portland.

* A complete list of personnel is given in the back of this catalog.

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AGRICULTURAL ECONOMICS AND FARM MANAGEMENT. Professor Charles Henry Merchant, 36 Winslow Hall.

AGRICULTURAL EDUCATION. Professor Wallace Henry Elliott, 24 Agricultural Engineering Building.

AGRICULTURAL ENGINEERING. Professor Byron L. Bondurant, 2 Agricultural Engineering Building.

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BACTERIOLOGY. Professor Frank Herbert Dalton, 26 Winslow Hall.

BIOCHEMISTRY. Professor Frederick Herbert Radke, 24 Winslow Hall.

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BUSINESS, ECONOMICS AND SOCIOLOGY. Professor Henry Austin Peck, 46 Stevens Hall, South.

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CHEMISTRY. Professor John William Beamesderfer, 261 Aubert Hall.

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ENTOMOLOGY. Professor Geddes Wilson Simpson, 306 Deering Hall.

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HORTICULTURE. Professor Franklin Paul Eggert, 211 Deering Hall.

JOURNALISM. Associate Professor Brooks Witham Hamilton, 2 Fernald Hall.

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MECHANICAL ENGINEERING. Professor Harry Dexter Watson, 209 Boardman Hall.

MILITARY SCIENCE AND TACTICS. Professor Lester Keith Olson, Armory.

MUSIC. Professor Lewis Hamilton Niven, Carnegie Hall.

NURSING. Professor Jean MacLean, Merrill Hall.

PHILOSOPHY. Professor Ronald Bartlett Levinson, 335 Stevens Hall.

PHYSICAL EDUCATION AND ATHLETICS Professor Rome Rankin, 20 Stevens Hall, South.

PHYSICS. Professor Clarence Edwin Bennett, 12 Wingate Hall.

POULTRY SCIENCE. Professor John Robert Smyth, Poultry Building.

PSYCHOLOGY. Professor Albert Douglas Glanville, 31 Stevens Hall, North.

SPEECH. Professor Wofford Gordon Gardner, 310 Stevens Hall.

ZOOLOGY. Professor Benjamin Robert Speicher, 24 Coburn Hall.

# CORRESPONDENCE

**Inquiries should be directed as indicated below:**

| | |
|---|---|
| General administrative matters | President, Lloyd H. Elliott |
| Scholarship records | Registrar, George H. Crosby |
| Admission to the freshman class and to advanced standing (Orono) | Director of Admissions, James A. Harmon |
| University of Maine in Portland | Director of Admissions, Alfred E. Clarke |
| Financial affairs of students | Treasurer, Harry W. Gordon |
| College of Agriculture | Dean of the College, Winthrop C. Libby |
| College of Arts and Sciences | Dean of the College, Joseph M. Murray |
| College of Education | Dean of the College, Mark R. Shibles |
| College of Technology | Dean of the College, Weston S. Evans |
| University of Maine in Portland | Dean William L. Irvine |
| Graduate study and scholarships available for graduate students | Dean of Graduate Study, Edward N. Brush |
| Summer Session for teachers and college students, and Extension and Correspondence Courses | Director, Mark R. Shibles |
| Senior and alumni placement | Placement Director, Philip J. Brockway |
| Student employment, scholarships, loans | Director of Student Aid, Robert C. Worrick |
| Dormitory rooms for women | Manager, Women's Housing, Miss Velma K. Oliver |
| Dormitory rooms for men, rooms in private homes, and apartments | Manager, Men's and Family Housing, Vernon C. Elsemore |

Upper: Stevens Hall provides accommodations for the larger part of the work of the College of Arts and Sciences and also the College of Education

Lower: The Memorial Union Building is the center for student activities

# General Information

# GENERAL INFORMATION

The University of Maine is a part of the public educational system of the State. It is located in Orono, an attractive town of 4,000 population, about half way between Kittery, the most southerly town in the State, and Fort Kent on the northern boundary.

The extensive campus of over two hundred acres is situated about a mile from the business section of Orono and borders the Stillwater River, a branch of the Penobscot. The University is approximately eight miles from Bangor, the third largest city of the State, on U. S. Route 2A.

**History.**—The University was established originally as the State College of Agriculture and the Mechanic Arts under the provisions of the Morrill Act, approved by President Lincoln in 1862. The next year the State of Maine accepted the conditions of the Act and in 1865 created a corporation to administer the affairs of the college. The original name was changed to the University of Maine in 1897.

The institution opened September 21, 1868, with twelve students and two faculty members; Dr. Merritt Caldwell Fernald was appointed acting president. By 1871 curricula had been arranged in Agriculture, Civil Engineering, Mechanical Engineering, and Elective. From these curricula there gradually developed the Colleges of Agriculture, Technology, and Arts and Sciences. Women have been admitted as students since 1872. The School of Education was established in 1930 and became the College of Education in 1958. The College of Law was extant from 1898 to 1920.

By an act of the Maine Legislature, the University of Maine in Portland was established in 1957.

Schools of Business Administration, Forestry, Home Economics, and Nursing were established in 1958.

The Maine Agricultural Experiment Station was established as a division of the University by act of the Legislature of 1887, as a result of the passage by Congress of the Hatch Act. It succeeded the Maine Fertilizer Control and Agricultural Experiment Station, which had been established in 1885.

Graduate instruction has been given by various departments for many years. The first master's degree was conferred in 1881. Since 1923 graduate work has been a separate division in charge of a dean.

Beginning in 1902, a Summer Session has usually been held annually consisting at first of five weeks, but now of six, with professional workshops in elementary and secondary education conducted during the last three weeks. This session is designed primarily for teachers and educational administrators and for college students who desire to make up work.

The institution has been served by the following presidents: The Rev. Charles Frederick Allen, Dr. Merritt Caldwell Fernald, Dr. Abram Winegardner Harris, Dr. George Emory Fellows, Dr. Robert Judson Aley, Dr. Clarence Cook Little, Dr. Harold Sherburne Boardman, and Dr. Arthur Andrew Hauck.

**Organization of the University.**—The University is controlled by a Board of Trustees. Eight members are appointed by the Governor of the State, with the advice and consent of the Council, for a term of seven years. Two members are appointed for three years by the Governor upon the nomination of the General Alumni Association. The Commissioner of Education is ex officio a member of the Board. The Board of Trustees has supreme authority in all matters pertaining to

the University, and all policies applying to the University as a whole must be approved by the Board. Administrative units of the University include the Colleges of Agriculture, Arts and Sciences, Education, and Technology; University of Maine in Portland; Graduate Study, Summer Session, Agricultural Extension Service, Maine Agrincultural Experiment Station, Maine Technology Experiment Station, and Department of Industrial Cooperation. Each division regulates those affairs which concern itself alone.

THE COLLEGE OF AGRICULTURE offers programs leading to the Bachelor of Science degree in the following fields: Agriculture, Agricultural Engineering (jointly with the College of Technology), Bacteriology, Biochemistry, Botany, Entomology, Forestry, Home Economics, and Wildlife Management. It also offers two-year courses in Pre-Veterinary, Pre-Dairy Manufacturing, and Pre-Food Processing, a two-year Course in Agriculture, Short Courses, and annually holds Farm and Home Week.

THE COLLEGE OF ARTS AND SCIENCES offers curricula in an approved field of concentration or in any of the following subjects: Business Administration, Business and Economics, Chemistry, English, Geology, Government (option in Public Management), History, Journalism, Mathematics, Medical Technology, Music, Nursing, Philosophy, Physics, Psychology, Romance Languages, Sociology, Speech, Theatre, and Zoology.

THE COLLEGE OF EDUCATION offers during the academic year and its Summer Session program professional training for prospective elementary and secondary school teachers, principals, guidance counselors, and school supervisors. The degree of Bachelor of Science in Education is given for those who have successfully completed the requirements for the degree.

Special curricula are offered in physical education, in commercial education, and in art education.

THE COLLEGE OF TECHNOLOGY offers curricula in Agricultural Engineering (jointly with the College of Agriculture), Chemical Engineering, Pulp and Paper Technology, Pulp and Paper Management, Chemistry, Civil Engineering, Electrical Engineering, Engineering Physics, and Mechanical Engineering.

THE UNIVERSITY OF MAINE IN PORTLAND offers basic programs in the Colleges of Agriculture, Arts and Sciences, Education, and Technology. Curricula covering work of the first two years are available in the Colleges of Arts and Sciences and Education. Transition to the Orono campus at the end of the first year is necessary for those students who wish to continue programs in the College of Agriculture, Technology, or in certain pre-professional programs.

THE FACULTY OF GRADUATE STUDY offers programs of study leading to the degrees of Master of Arts, Master of Science, Master of Education, and Doctor of Philosophy. At present the doctoral program is offered only in the fields of chemistry and American history. The professional degrees of Chemical Engineer, Civil Engineer, Electrical Engineer, Forest Engineer, and Mechanical Engineer are granted upon completion of the appropriate requirements.

THE SUMMER SESSION offers a wide variety of academic and educational courses on both the elementary and secondary level. College students by enrolling in selected subjects can accelerate graduation. For teachers and school administrators there are workshops in elementary and secondary education as well as numerous other courses and conferences especially designed for those engaged in the teaching profession.

THE AGRICULTURAL EXTENSION SERVICE is a cooperative educational agency

representing the University of Maine and the U. S. Department of Agriculture, operating in all counties in Maine. It provides educational and informational assistance in agriculture, home economics, and 4-H club work to individuals and families on farms and in the rural and urban homes of the state.

County Extension Associations are the sponsoring organizations of the Extension program. They function through local committees organized in nearly 500 Maine communities.

Extension Service personnel is made up of two groups, one serving at the county level and the other at the state level. The county staff, usually housed at the county seat, consists of the county (agricultural) agent, home demonstration agent, and 4-H club agent. The other group is the subject matter specialists located at the University of Maine, who work closely with the county staffs in serving the people of Maine.

THE MAINE AGRICULTURAL EXPERIMENT STATION maintains its offices and principal laboratories at Orono. Experimental farms include Highmoor Farm at Monmouth, Aroostook Farm at Presque Isle, Chapman Farm at Chapman, and Blueberry Hill Farm at Jonesboro.

THE MAINE TECHNOLOGY EXPERIMENT STATION, established in 1915, carries on practical research in engineering subjects, makes investigations for various state and municipal departments, and on request furnishes scientific information to industries. Research is conducted in the fields of geology and chemical, civil, electrical, and mechanical engineering. The Station maintains offices and laboratories in Boardman Hall, and is under the control of the Dean of the College of Technology and the heads of the departments of that college.

THE DEPARTMENT OF INDUSTRIAL COOPERATION co-ordinates the academic and research facilities of the University for the prosecution of basic and applied industrial research. The objective of the Department of Industrial Cooperation is to place the personnel and equipment of the University at the disposal of industry to the extent consistent with the policies and functions of the University. Investigations within the scope of the department take the form of contracted experimental and consulting work, fellowships or summer employment that utilize the University facilities. The department is located in Boardman Hall. It is administered by the Dean of the College of Technology.

**Buildings.**—The following are dormitories for women.

BALENTINE HALL (1914-1916) has accommodations for one hundred and seven students. It was named in honor of the late Elizabeth Abbott Balentine, secretary and registrar of the University, 1894-1913.

CHADBOURNE HALL (1948) has accommodations for one hundred and seventy-one women. It was named for Dr. Ava Harriet Charbourne, Professor Emerita of Education.

COLVIN HALL (1930) has accommodations for fifty-eight students. It was named in honor of the late Caroline Colvin, Professor Emerita of History and Government and the first dean of women at the University.

THE ELMS has accommodations for fifty-five students. It is a cooperative dormitory.

ESTABROOKE HALL (1940) has accommodations for eighty-six students, in each of its two sections. It was named in honor of the late Kate Clark Estabrooke, a former superintendent of the first women's dormitory, the Mount Vernon House.

STODDER HALL (1956) has accommodations for one hundred and seventy students. It was named in honor of the late Mrs. Anne E. Stodder, of Bangor, a benefactress of the University.

The following are dormitory and dining-hall facilities for men:

CORBETT HALL (1947) has accommodations for two hundred and twenty-eight students. It was named in honor of the late Lamert Seymour Corbett, formerly professor of Animal Industry and Dean of Men.

DUNN HALL (1947) has accommodations for two hundred and twenty-eight students and was named in honor of the late Charles John Dunn, formerly Chief Justice of the Supreme Judicial Court of Maine and Treasurer of the University from 1909 to 1923.

GANNETT HALL (1959) has accommodations for two hundred sixty-four students. It was named in honor of Registrar Emeritus James Adrian Gannett.

HANNIBAL HAMLIN HALL (1911) has accommodations for eighty-nine students. It was named for the Hon. Hannibal Hamlin, late of Hampden and Bangor, the first president of the Board of Trustees.

HART HALL (1955) has accommodations for two hundred and forty-eight students. It was named in honor of the late James Norris Hart of Orono, Dean Emeritus of the University and Professor Emeritus of Mathematics and Astronomy.

NORTH DORMITORIES (1946) have rooms for three hundred and seventy-five men. These temporary dormitories were provided by the Federal Public Housing Authority.

OAK HALL (1937) has accommodations for ninety-six students. This building, like the "Oak Hall" built in 1871, which it replaces, was named for the Hon. Lyndon Oak, late of Garland, a long time member and president of the Board of Trustees.

THE UNIVERSITY CABINS (1945) have accommodations for forty-two men students. These are cooperative units.

THE COMMONS (1958) is a central dining hall for men students. Fifteen hundred persons can be served here cafeteria style.

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The following are apartments for married students.

THE SOUTH APARTMENTS (1946) provide apartments for one hundred and ninety-six families. These facilities were acquired through the Federal Public Housing Authority.

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The following are used mainly for administration and instruction.

AGRICULTURAL ENGINEERING BUILDING (1938) houses the Agricultural Engineering Department and its laboratories for teaching and research.

ALUMNI HALL (1901) contains administrative offices, the gymnasium for women, and the Little Theatre. It received its name because of contributions made by alumni to supply a part of the funds for its erection.

ALUMNI MEMORIAL, consisting of an indoor Field, Armory, and Gymnasium, was erected as a memorial to the Maine men who died in the service of their country in the Spanish-American War and World War I and is the gift of alumni, students, faculty, and friends of the University. The Indoor Field (1926), one of the largest in the country, provides ample facilities for indoor track, winter baseball practice, and military drill. The Armory (1926) houses offices and classrooms of the military unit, including an indoor rifle range. The Gymnasium (1933) contains the offices of the Department of Physical Education and Athletics, equipment and rooms for handball, boxing, wrestling, and corrective exercise, shower and

locker rooms, and an auditorium with a seating capacity of approximately 3,000 used for basketball, lectures, student assemblies, banquets, and dances.

AUBERT HALL (1914) houses the Departments of Chemistry and Chemical Engineering, including the Pulp and Paper Division. It was named in honor of the late Alfred Bellamy Aubert, professor of chemistry from 1874 to 1909. A wing was added in 1940 to increase the facilities in Chemical Engineering and the Pulp and Paper Division. Two additional wings were added in 1958 to provide more facilities for Chemistry and Chemical Engineering including the Pulp and Paper Division.

BOARDMAN HALL (1949) houses the Department of Civil Engineering including Geology and Sanitary Engineering, Department of Mechanical Engineering, Technology Experiment Station laboratories, Department of Industrial Cooperation, and office of the Dean of the College of Technology. It was named in honor of President Emeritus Harold Sherburne Boardman.

CARNEGIE HALL (1948), the former library building erected in 1906 through the generosity of Andrew Carnegie, is now devoted to the Departments of Art and Music. It was named in honor of the original donor.

COBURN HALL (1888) houses the Department of Zoology. It was named for the late Hon. Abner Coburn, a former president of the Board of Trustees and benefactor of the University.

CROSBY LABORATORY (1928) contains the laboratories of the Department of Mechanical Engineering. It was named for the late Hon. Oliver Crosby, Class of '76, who bequeathed $100,000 for its construction.

DEERING HALL (1949) contains the Departments of Agronomy, Botany, Entomology, Forestry, and Horticulture, also part of the facilities for the Agricultural Experiment Station and the Agricultural Extension Service. It was named in honor of Dr. Arthur L. Deering, Dean Emeritus of Agriculture, who served the University from 1912-1957.

EAST ANNEX (1947) houses the Department of Engineering Drafting, Wildlife Conservation, Offices of Student Aid, Placement Bureau, and provides classrooms and offices for the several colleges. The building, formerly a unit of the Naval base at Sanford, was erected on the campus by the Bureau of Community Facilities of the Federal Works Agency.

FERNALD HALL (1870), the oldest building on the campus, contains offices and classrooms used by the Department of Journalism, editorial offices of *The Maine Campus*, and the University Store. It was named in honor of the late President Merritt Caldwell Fernald.

HITCHNER HALL (1959) contains offices, laboratories, and classrooms for the Departments of Animal Pathology, Bacteriology, Biochemistry, and Poultry Science for programs in instruction, research, and extension. It was named for Dr. E. Reeve Hitchner, Professor Emeritus of Bacteriology.

HOLMES HALL (1888) is used by the Maine Agricultural Experiment Station for its administrative offices, and Departments of Chemistry and Food Processing. It received its name from the late Dr. Ezekiel Holmes, writer, editor, and pioneer in Maine agriculture.

LIBRARY BUILDING (1941-47) was erected and furnished with the aid of a fund-raising campaign by alumni, faculty, students, and friends of the University. The completion in 1950 of the main reading room has increased the seating capacity of the library to 570, and made possible the utilization of the science and technology room for the purpose it was originally planned. In this building are

located the Louis Oakes Room, designed for exhibits and to serve the needs of small group meetings; the Joseph P. Bass Room, comfortably furnished for recreational reading; and reading rooms for education and for the use of reserved books.

LORD HALL (1904) is used by the Department of Electrical Engineering. The Soil Mechanics laboratory and office are located here. It was named for the late Hon. Henry Lord, a former president of the Board of Trustees.

MEMORIAL UNION (1953) is a memorial to the University of Maine men who died, and a tribute to all who served, in World War II. It is the gift of alumni, students, non-alumni faculty, and friends. This Union is the center of student activities and recreational programs on the campus. It has a Memorial Room, meeting rooms, lounges, offices, snack bar, and game room. Bowling alleys, a faculty lounge, and additional meeting rooms will be added as soon as funds become available.

MERRILL HALL (1931) is used for work in Home Economics. It was named for the late Dr. Leon S. Merrill, dean of the College of Agriculture from 1911 to 1933.

PHYSICS BUILDING (1959) contains offices, classrooms, and laboratories for the Department of Physics.

ROGERS HALL (1928) houses the Department of Animal Science and contains laboratories for the manufacture of dairy products. It was named in honor of Dr. Lore A. Rogers, Class of '96, chief of research laboratories (retired), Bureau of Dairy Industry, U. S. Department of Agriculture.

STEVENS HALL (1924), with two wings constructed in 1933, supplies accommodations for the larger part of the work of the College of Arts and Sciences and also the College of Education. It was named in honor of the late Dr. James S. Stevens, for many years dean of the College of Arts and Sciences.

WINGATE HALL (1892) contains offices and classrooms, the office of the Director of Admissions, and the University Planetarium. It was named for the late Hon. William P. Wingate, a former president of the Board of Trustees.

WINSLOW HALL (1909) is used by the College of Agriculture and the Agricultural Extension Service. It was named for the Hon. Edward B. Winslow, late of Portland, a former president of the Board of Trustees.

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Other buildings include the Horticultural Greenhouses, Dairy Barns and Milk House, Poultry Buildings, Poultry Research Building, Stock Judging Pavilion, Mechanical Engineering Shops, Agricultural Engineering Shop Building, Observatory, Infirmary, University Press, Home Management House, the Central Heating Plant, the President's House, several residences occupied by faculty members, and various farm buildings.

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UNIVERSITY OF MAINE IN PORTLAND.—Please see section on University of Maine in Portland for list of the buildings at that campus.

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FRATERNITY HOUSES.—The following fraternities have houses on or near the campus: Beta Theta Pi, Delta Tau Delta, Kappa Sigma, Lambda Chi Alpha, Phi Kappa Sigma, Sigma Alpha Epsilon, Sigma Chi, Sigma Nu, Theta Chi, Phi Eta Kappa, Alpha Gamma Rho, Alpha Tau Omega, Phi Gamma Delta, Phi Mu Delta, Tau Epsilon Phi, Tau Kappa Epsilon, and Sigma Phi Epsilon.

**Residence and Dining Halls.**—The rooms in Balentine Hall, Estabrooke Hall, Chadbourne Hall, and Stodder Hall, accommodating one or two students

each, and those in Colvin Hall, accommodating two or four students each, are available to women students. The rooms in the Elms, the cooperative dormitory for women, accommodate two or three students each. Selection for this dormitory is based on financial need, cooperation and satisfactory scholarship.

Oak Hall, Hannibal Hamlin Hall, Corbett Hall, Dunn Hall, Gannett Hall, Hart Hall, North Dormitories, and the University Cabins are available to men students. In general, rooms in the north section of Hannibal Hamlin Hall, Oak Hall, Corbett Hall, Dunn Hall, Gannett Hall, Hart Hall and the North Dormitories will accommodate two students each; and those in the south section of Hannibal Hamlin Hall, four students each. The University Cabins will each accommodate four students. Men assigned to the dormitories are expected to reside within the dormitory system for the complete semester unless relations with the University are terminated or permission is granted by the Housing Office for a student to withdraw to live elsewhere. This permission is granted only in unusual circumstances. No refund of room and board charges will be made to a student leaving the dormitory system without prior permission from the Housing Office for such a move. Established dormitory regulations are to be observed at all times.

Students will furnish towels, pillows, bed linen, and blankets. Dormitory residents may have their bed linen and towels laundered each week without extra charge.

Ordinarily dormitories will be closed to students during scheduled recess periods.

Women students not living at home are required to live in one of the women's dormitories. In exceptional cases, the Dean of Women may approve other arrangements.

All men students who are members of the freshman class and who do not live at home are required to live in a University dormitory, except that the Dean of Men may authorize off-campus residence in exceptional cases.

Residents of dormitories are required to take their meals in specified dining halls. Special diets, whether temporary or continued, cannot be provided.

**Athletic Facilities.**—The University facilities for athletics and physical education include the Memorial Gymnasium, the Memorial Indoor Field House, the Women's Gymnasium, and numerous athletic fields.

The athletic fields for men include ten tennis courts, two baseball fields, a football stadium, football practice fields (one of which is illuminated for evening practice), a quarter-mile cinder track, a 220-yard straightaway, hammer and discus fields, fields for intramural sports, a two-mile-and-a-half cross country course, a four-mile cross country course, skiing facilities, and a skating rink.

A special athletic field for women consists of a regulation hockey field, archery range, two tennis courts, and a large practice area, artificially lighted for late afternoon activities. A field house containing a club room, a store room for athletic equipment, and a kitchenette is adjacent to the women's athletic field.

**University Farms and Livestock.**—The University farms consist of approximately 900 acres divided into four farms, one of which adjoins the campus, while the others are located in the Stillwater section of Old Town. These farm lands together with the campus make the University holdings in Orono and vicinity about 1,020 acres. Land under cultivation amounts to 367 acres divided as follows: 222 acres in farm crops, 13 in orchard, 117 in improved pastures, 12 in poultry ranges, and three in gardens.

Modern dairy and livestock barns house 150 head of registered dairy cattle representative of the leading breeds, 16 registered beef cattle, 13 swine, and 20 sheep. Poultry houses accommodate about 2,500 laying birds.

**University Forest.**—The University forest, totaling 1,746 acres, located in the Stillwater-Old Town area, is administered by the School of Forestry for student instruction, project demonstration, and research. An additional 20 acres of forest on University owned land is under systematic forest management, and two acres are operated as a forest nursery by the State Forestry Department. The Robert I. Ashman Forestry Camp is operated by the School of Forestry for summer instruction purposes on Indian Township, a tract of 17,000 acres near Princeton.

**The Library.**—The University Library attempts to serve the intellectual needs of students and faculty, and to stimulate the use of books both for research and recreational reading. The library contains about 292,000 books and pamphlets, and receives some 1,350 periodicals. It is a depository for both state and federal documents, and has a file of the maps of the Army Map Service. It extends these resources to other libraries through the interlibrary loan service, to visiting scholars, and to graduates of the University, whenever it can do so without interference with local needs.

**The University of Maine Art Collection.**—The University of Maine Art Collection, in Carnegie Hall, contains materials depicting the history of art through all ages. More than ten thousand photographs, color reproductions, and slides of art masterpieces are available to students and faculty for study and loan. Through generous gifts in recent years the collection has been augmented by numerous original sculptures, paintings, and graphic arts by outstanding American artists: Inness, Homer, Hassam, Marin, Hartley, Sprinchorn, Kienbusch, Wyeth, Pleissner, Kingman, Peirce, Hamabe, Langlais, and others. Many of these items are hung in public areas throughout the campus.

The University of Maine Program of Exhibitions.—Throughout the academic year, the Department of Art presents, each month, four different art exhibitions: two in Carnegie Hall, and one each in the Oakes Room, Library, and the Lobby of the Memorial Union Building. These exhibits, open without charge, display only original art, with special preference given to professional artists and craftsmen living or working in Maine. All inquiries about these exhibits should be addressed to Professor Vincent A. Hartgen, Head of the Department of Art.

**Scientific Collections.**—The following collections are located on the campus.

Botany.—The herbarium in Deering Hall includes several collections the most important of which is the one made by the late Rev. Joseph Blake and presented to the University by Mr. Jonathan G. Clark, of Bangor. The late Professor F. L. Harvey left to the herbarium the general collections accumulated during his connection with the University. Other important collections are Collins's Algae of the Maine Coast, Halsted's Lichens of New England, Halsted's Weeds, Ellis and Everhart's North American Fungi, Cook's Illustrative Fungi, Underwood's Hepaticae, Cummings and Seymour's North American Lichens, and Bartholomew's Fungi Columbiana.

The herbarium has been enriched recently by the personal collections of Mrs. Frank Hinckley, Helen Paine Scoullar, Charles Curtis, Henry Wilson Merrill, Maynard Quimby, Louise Coburn, Sue Gordon, and Ralph C. Bean. Numerous Centuries of Plantae Exsiccatae Grayanae are significant additions. Fifty thousand herbarium sheets are available.

Approximately three acres of land extending southward from the Heating

Plant and between the Forest Nursery and the Stillwater River were assigned to the Department of Botany for the establishment of a Botanical Plantation in the autumn of 1934. The first tree plantings were made in conjunction with Maine Day of 1935. At present, more than 300 species of trees and shrubs have been introduced. Many species of ferns and flowering plants have also been included.

ENTOMOLOGY.—A small area partly enclosed by trees of the Botanical Plantation and near the southern boundary of the Forest Nursery forms a site for a small University Apiary. This Apiary has approximately 10 colonies which are used for instruction in beekeeping. A small frame building nearby serves as a storage for beekeeping and entomology equipment.

The Edith M. Patch aphid collection, housed in Deering Hall, is one of the outstanding aphid collections in North America. It is a major portion of the insect collection maintained by the University for reference purposes in dealing with inquiries concerning insect pests sent in by the citizens of Maine.

GEOLOGY.—The geological collections of minerals, rocks, and fossils are housed in Boardman Hall. One case containing mineralogical specimens is located in the Agricultural Engineering Building.

ZOOLOGY.—These collections in Coburn Hall consist of a working collection of bird skins, a display of bird mounts, and a study collection of various other groups of both vertebrates and invertebrates. The Anson Allen collections of Invertebrates and of Maine Birds, presented by Mrs. Mattie Munson, and the Eckstorm Collection of birds, presented by Mrs. Fannie H. and Mrs. P. F. Eckstorm, form an important part of the whole.

**Planetarium.**—A Planetarium, operated under the supervision of the Department of Mathematics and Astronomy, is located on the second floor of Wingate Hall. Besides being used in connection with courses in astronomy, this Planetarium is also open to the public. Groups may visit the Planetarium and hear a lecture on astronomy by making advance arrangements through the Department of Mathematics and Astronomy.

**University Publications.**—The following are included in the various bulletins and reports regularly issued by the University.

UNIVERSITY OF MAINE BULLETIN is issued nineteen times a year to give information to students, faculty, alumni, and the general public.

UNIVERSITY OF MAINE STUDIES, SECOND SERIES, consists of a series of research studies by members of the faculty and graduate students, published under the direction of the Faculty of Graduate Study. A price list is available from the University Library. Orders and exchanges should be sent to the Library.

AGRICULTURAL EXPERIMENT STATION PUBLICATIONS include bulletins, miscellaneous publications, and mimeographed reports in which are contained the results of research studies; and Official Inspections which contain the results of inspection of feeding stuffs, fertilizers, agricultural seeds, fungicides and insecticides, and foods and drugs. A report of progress is issued quarterly as Maine Farm Research. A free copy of each publication is available upon request.

AGRICULTURAL EXTENSION SERVICE BULLETINS AND CIRCULARS are issued by the Agricultural Extension Service on a wide variety of subjects relating to agriculture, home economics, and boys' and girls' 4-H clubs. Any resident of Maine may secure a list of available bulletins and circulars upon request.

TECHNOLOGY EXPERIMENT STATION PUBLICATIONS consist of bulletins and papers giving the results of investigations and research, and are usually sent free of charge on request.

THE MAINE ALUMNUS, an illustrated magazine of campus and alumni news published monthly during the college year, is sent to former students of the University who subscribe through payment of alumni dues.

Student publications are described in a section of this catalog called "Student Activities."

**The Coe Research Fund.**—The Trustees of the University have set aside the sum of $100,000 to form a permanent fund, the income to be used by the faculty for carrying on various kinds of research work. Applications for grants from this fund should be addressed to the Secretary, Coe Research Fund Committee.

**Placement Bureau.**—A University Placement Bureau was established in 1935 in cooperation with the General Alumni Association. Its services are available to graduating students and alumni of the University seeking employment in non teaching fields.

Purposes of the placement bureau are: (1) to counsel and assist students and alumni seeking employment; (2) to refer suitable employment opportunities to registered students and alumni; (3) to cooperate with employers in developing more effective employment for University men and women and in locating new fields of opportunity. No charge to students, first-year graduates, or employers is made; a nominal fee to cover clerical costs is charged older alumni who are placed by the bureau except for alumni registering on discharge from military service. The bureau also offers assistance to students in securing employment during the summer vacation.

**The Placement Bureau for Teachers.**—This Bureau undertakes to assist properly qualified graduates and former students in securing positions. Guidance is given to prospective candidates in compiling credentials essential to secure teaching positions. Service is rendered to teachers now employed in maintaining continuous professional records of achievement facilitating advanced placement. Officials who are seeking teachers are asked to correspond with the Bureau located in the office of the College of Education, 22 Stevens Hall, South. No fee is charged for this service to students.

**Office of Student Aid.**—The Office of Student Aid receives applications for student aid including part-time employment, scholarships, and University loans. Detailed information on student aid will be found on pages 36 and 40.

**Health Service.**—A University Health Service is operated for the benefit of students. This Service comprises a clinic, a well-equipped 25-bed infirmary, and a nursing staff under the direction of a full-time doctor. All undergraduates pay the Health Service fee. The fee is optional for graduate students. Payment of the fee entitles a student to the clinic service and infirmary care. Medicines are furnished for infirmary cases without charge, but the dispensing of medicines in the clinic is limited.

The University Health Service cannot care for students suffering from chronic illness, those requiring surgical treatment, or those in need of the services of specialists. Such services must be arranged for outside the University. Students are free to consult with any physician of their choice but services from doctors not on the University staff must be at the expense of the student requesting such services.

Group accident and illness insurance (to cover more serious accidents and prolonged illnesses which are not included in the University Health Service fee) is also available. A statement of this optional insurance program is sent to each student during the summer.

First aid and emergency service only are available to University staff members.

**Office of Religious Affairs.**—Established in 1959, the Office of Religious Affairs consists of a Committee on Religious Affairs and a Director of Religious Affairs.

The Committee on Religious Affairs serves as the policy making group in the area of religion at the University of Maine. It oversees the activities of the Student Religious Association and functions as the official body through which the religious foundations are related to the administration of the University.

The Director of Religious Affairs, whose office is in the Grant Room of the Memorial Union, serves as adviser to the Student Religious Association and counselor to students. As administrator of the Office of Religious Affairs, he works toward coordination among the faith groups and between these groups and the University, and tries to underline the religious dimension of the University.

**Use of Laboratory Apparatus.**—Many laboratory courses involve instruction in and the use of various types of power equipment and laboratory apparatus. 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.

**Registration.**—Undergraduates will register in accordance with the following.

FRESHMEN.—All members of the incoming freshman class are required to attend the period known as Freshman Week. The dates are announced in the calendar in the front of the catalog. This period will be devoted to tests whereby the University authorities may obtain accurate information concerning the type and degree of mental qualifications of the new students, and to lectures and conferences by which the students may be more intelligently informed of the University and its customs.

About August 1 parents of each candidate admitted will receive from the Registrar's office a letter giving detailed instruction about arrangements for Freshman Week. Parents of candidates admitted after August 1 will receive the information at the time the candidate is admitted to the University.

UPPERCLASSMEN.—In the fall, upperclassmen will be required to register on the opening date or to present written evidence that they have been allowed by their dean to register late. Upperclassmen must communicate in advance with the dean of their college giving their reason for wishing to register late, and have received from him written permission to do so. In the event of an unusual circumstance wholly beyond the control of the student, and occurring just prior to the opening of the fall term, the student may present his case in person to the dean upon his arrival at the University.

**Degrees.**—The degree of Bachelor of Arts (B.A.) with specification of the major subject, is conferred upon all students who complete a curriculum in the College of Arts and Sciences.

The degree of Bachelor of Science (B.S.) in the curriculum pursued is conferred upon students who complete the prescribed work of four years in the Colleges of Agriculture or Technology.

The degree of Bachelor of Science in Education (B.S. in Ed.) is conferred upon students who complete the prescribed work in the College of Education.

*A minimum residence of one year is required for the attainment of any Bachelor's degree.* This regulation refers to the senior year.

No student will be recommended for a degree who, having been reported to the Committee on Student's Use of English of his college, shall have failed to satisfy the requirements of the committee.

The degree of Master of Arts (M.A.), Master of Science (M.S.), or Master of Education (M.Ed.) is granted for one year's graduate work completed with distinction.

The Doctor of Philosophy degree (Ph.D.) is offered in chemistry and American history.

DEGREES WITH DISTINCTION are conferred at Commencement for the following attainments in rank:

Seniors having an average grade of 3.50 or above will be graduated with highest distinction, 3.25 to 3.49 with high distinction, and 3.00 to 3.24 with distinction if they meet the criteria listed below.

The average grade is based on the work of the first three and one-half years, which must include three years of resident study at the University of Maine. Candidates must have completed seven-eighths of the required hours at the end of the fall semester of the senior year. Candidates must take their senior year at the University of Maine.

DEGREES WITH HONORS, WITH HIGH HONORS, OR WITH HIGHEST HONORS are awarded to seniors in the College of Arts and Sciences who successfully complete the Honors program.

**Grading System.**—Grades at the University are given in terms of letters. For this purpose the letters A, B, C, D, E, Abs., and Def. are used.

The meaning of these symbols is: A, high honors; B, honors; C, satisfactory, successful, and respectable meeting of the course objectives; D, low level passing work; E, failed; Abs., absent from examination; Def., deficient in some specific class activity. The term, Acceptable, is used in reporting on the completion of a Master's thesis or Paper. For purposes of comparison these letters carry the following arbitrary values: A=4, B=3, C=2, D=1, E=0.

Each college sets its own graduation requirements in terms of grades or grade points.

A candidate for a Bachelor's degree must, (a) receive passing grades in all courses required by his major department; (b) accumulate the number of degree hours specified by the College in which he is registered; (c) achieve an accumulative average of not less than 1.80.

The degree hours are the sum of the course credit hours of those courses which may be counted toward a degree, provided a passing grade has been received.

The accumulative average is the quotient of the grade points divided by the total hours, carried to two decimal places. The grade points are the product of the course credit hours and the numerical value of the letter grade: A=4, B=3, C=2, D=1, E=0. The total hours are the sum of the course credit hours from all courses.

GRADE REPORTS are sent to the parents of freshmen at the middle and end of each semester and to the parents of sophomores, juniors, and seniors and graduate students at the end of each semester. Grade reports for the Summer Session are sent to the parents of all students from the University who are attending the Session.

Parents are notified whenever a student is placed on, continued on, or re-

moved from probation. (This procedure is omitted in the case of veteran students who are of legal age.)

**Student Regulations.**—It is assumed that all students entering the University are willing to subscribe to the following: *A student is expected to show both within and outside the University, respect for order, morality, and the rights of others, and such sense of personal honor as is demanded of good citizens.*

*Freshmen are not permitted to have or operate motor vehicles at the University of Maine.* This regulation prohibits a freshman from keeping an automobile on the campus or in Orono or vicinity. Students are expected to observe the spirit as well as the letter of the regulation and the cooperation of parents is solicited in the operation of the rule. Exceptions may be made by the Dean of Men or the Dean of Women in cases of freshmen who commute daily from their homes.

Upperclass students are allowed to have and to operate motor vehicles on the campus, but all such vehicles must be registered in the Office of the Dean of Men or Dean of Women and bear an official University sticker. There is a registration fee of $1.00. In addition, evidence of automotive liability insurance must be shown.

*Each student is expected to be present at every college exercise for which he is registered.*

DISMISSAL.—Students may be dismissed from the University for unsatisfactory work (academic dismissal) or for misbehavior (disciplinary dismissal).

DRINKING.—The possession or use of intoxicating beverages is prohibited on the University of Maine campus and at all University functions whether held on or off the campus.

PHYSICAL EXAMINATIONS.—The University requires that all entering students, freshman, transfer, graduate, and special, have a physical examination, tuberculin skin test and also a chest X-ray if the latter seems indicated. Physical examinations and tuberculin tests as outlined above may also be required of readmission students.

Detailed information about the regulations affecting students is contained in a pamphlet entitled "Information for the Guidance of Students" obtainable at the office of the Registrar.

**Responsibility for Personal Property.**—*The University does not under any circumstances assume responsibility for loss of or damage to personal property through fire, theft, or other causes. Persons desiring protection against possible loss or damage should purchase appropriate insurance unless it is found that parents already have the desired coverage by means of a family policy.*

## STUDENT ACTIVITIES

**Cooperative Government.**—The organizations through which cooperative government is effected are the following.

THE GENERAL STUDENT SENATE seeks to promote the general welfare of the student body and the best interests of the University. It is composed of representatives of various student organizations and resident groups, plus the four officers who are elected by vote of the students. The Senate is responsible for appointing student members of committees, campus elections, events such as Maine Day and the Winter Carnival, and for consideration of any business properly brought before it.

THE ASSOCIATED WOMEN STUDENTS, composed of all regularly enrolled undergraduate women, is organized to promote the welfare of the women students, to

represent them in relation to the administration, and to administer self-governing regulations. They are represented on the General Student Senate and belong to the New England Association of Women's Student Government associations as well as to the National Intercollegiate Association of Women Students.

**Religious Activities.**—THE STUDENT RELIGIOUS ASSOCIATION, called "SRA," is the campus-wide religious organization promoting religiously motivated activities for the entire campus and for coordinating student activities among the four major religious groups serving the University community. The Association maintains a broad program including Religious Emphasis Week, Brotherhood Week, Religious Arts Festival, International Club, Book Mart, lectures and symposia, as well as a variety of campus and wider service projects. The SRA cabinet is responsible to the Committee on Religious Affairs of the University.

Four major religious groups provide chaplains and active programs for their members: Canterbury Club for Episcopal students, Hillel Foundation for Jewish students, Maine Christian Association for Protestant students, and the Newman Club for Roman Catholic students. Worship services for each group are held regularly on campus or at the nearby student centers.

The churches and synagogues of Orono, Old Town, and Bangor always welcome the attendance of University students.

**Scholastic Honor Societies.**—These groups recognize attainment and promise in the academic field by selecting for membership undergraduates whose accumulative point averages are not lower than 3.0 after completing five or more semesters of college work or 3.3 after completing less than five semesters. The date indicates when the chapter was established at the University.

PHI KAPPA PHI (1900).—All colleges and the School of Education.
TAU BETA PI (1911).—Engineering.
PHI BETA KAPPA (1923).—College of Arts and Sciences.
NEAI MATHETAI (1925).—Freshman women.
OMICRON NU (1931).—Home Economics.
KAPPA DELTA PI (1932).—College of Education.
SIGMA XI (1948).—Scientific research.

**Departmental Honor and Professional Honor Societies.**—These organizations elect undergraduates from those who have demonstrated superior scholarship in a particular departmental or professional field. Minimal scholastic membership requirements are lower than a 3.0 accumulative average.

ALPHA ZETA (1906).—Agriculture.
XI SIGMA PI (1917).—Forestry.
SIGMA PI SIGMA (1949).—Physics.

**Other Student Organizations.—**

a. Professional Societies.—Many departments or divisions of the University sponsor an organization to bring together students having a common interest. Such clubs follow.

STUDENT BRANCH OF THE AMERICAN SOCIETY OF AGRICULTURAL ENGINEERS.
STUDENT CHAPTER OF THE AMERICAN INSTITUTE OF CHEMICAL ENGINEERS.
STUDENT AFFILIATES OF THE AMERICAN CHEMICAL SOCIETY.
STUDENT BRANCH OF THE AMERICAN SOCIETY OF CIVIL ENGINEERS.
BRANCH OF THE AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS.

Branch of the Institute of Radio Engineers.
Branch of the American Home Economics Association.
Branch of the American Society of Mechanical Engineers.
Scabbard and Blade.—Military.
Student National Education Association.

b. Departmental clubs:

Agricultural Club.
Animal-Dairy Science Club.
College 4-H Club.
Forestry Club.
Future Farmers of America.
Home Economics Club.
Philosophy Club.
Physical Education Majors.
Press Club.—Journalism.
Rock and Hammer.—Geology.

The following organizations elect to membership students who have achieved distinction in the field represented:

Deutscher Verein.—German.
Mu Alpha Epsilon.—Music.
Pi Kappa Delta.—Speech.
Sigma Mu Sigma.—Psychology.

c. Additional Student Clubs and Associations:

All-Maine Women
Amateur Radio Club
Interfraternity Council
International Club
Intramural Athletic Association
Maine Outing Club
"M" Club
Memorial Union Activities Board
Men's Athletic Association
Men's Central Dormitory Council
Modern Dance Club
Ocummo
Off-Campus Women
Officials Club
Panhellenic Council
Public Management Club
Radio Guild
Sailing Club
Senior Skulls
Sophomore Eagles
Sophomore Owls
Square Dance Club
Tumbling Club
Women's Athletic Association

**Musical Organizations.**—The University Band, Glee Club, and Orchestra, which are all under the supervision of the Department of Music, provide opportunity for those with interest and ability to engage in group work. All three performing groups give on-campus and off-campus concerts, and also appear at assemblies and at other University functions. Credit is granted for participation in these organizations.

Vocal and instrumental ensembles are formed to give more advanced students additional opportunity for musical experience and training for which academic credit is also granted. These include ensembles for brass, strings, woodwinds, and the University Singers.

**Maine Masque Theatre.**—The Masque, under the administration and supervision of the Department of Speech, is the University Theatre.

The Theatre provides an opportunity for all undergraduate students to participate in stage and house managing, publicity, scenery, costumes, properties, acting, and make-up. It also provides the University community with stage entertainment, by presenting public performances both of classic and contemporary plays.

The Masque, designed to give the student experience in theatre organization, operates with an Executive Committee and an Executive Council chosen from

students who hold membership in the organization. Membership may be gained through participation in the Theatre's program.

**Maine Debating Council.**—The Council is made up of those undergraduate students, from the entire University, who are interested in debate and other forensic activities such as discussion, extemporaneous speaking, oral interpretation, and original oratory. Representatives are chosen to participate in both on-campus and off-campus speaking activities with colleges and universities of Canada and the United States. Conditions for membership are established by the Council which is under the administration and supervision of the Department of Speech.

**Maine Radio Guild.**—Membership in the Guild, a student organization under the administration and supervision of the Department of Speech, is open to all students who wish to participate in radio broadcasting activities on campus. The Guild operates the campus radio station WORO as a means of providing interested students actual experience in announcing, engineering, writing, production, sales, and station management. The programs of WORO are broadcast to the campus by means of a limited carrier system.

**Student Publications.**—The University's regular student publications are:

THE MAINE CAMPUS, a newspaper published weekly during the academic year.

THE PRISM, an illustrated annual sponsored by the junior class.

The Student Publication Committee, a joint faculty-student group, is the publishing board for all the the University's student publications.

**Social Fraternities and Sororities.**—The following fraternities and sororities have chapters at the University, the figures in parentheses giving the dates they were established.

FRATERNITIES.—National: Beta Theta Pi (1879), Kappa Sigma (1886), Alpha Tau Omega (1891), Phi Kappa Sigma (1898), Phi Gamma Delta (1899), Sigma Alpha Epsilon (1901), Sigma Chi (1902), Theta Chi (1907), Delta Tau Delta (1908), Lambda Chi Alpha (1913), Sigma Nu (1913), Phi Mu Delta (1923), Alpha Gamma Rho (1924), Tau Epsilon Phi (1929), Sigma Phi Epsilon (1948), Tau Kappa Epsilon (1948). Local: Phi Eta Kappa (1906).

SORORITIES.—National: Alpha Omicron Pi (1908), Phi Mu (1912), Delta Delta Delta (1917), Pi Beta Phi (1920), Chi Omega (1921), Delta Zeta (1924), Alpha Chi Omega (1958).

Upper: A typical University scene
Lower: The University Library

# ADMISSION

All correspondence concerning undergraduate admission and financial aid should be addressed to the Director of Admissions, Wingate Hall, University of Maine, Orono, Maine. Maine students who desire to attend the University of Maine in Portland should write to the Director of Admissions, University of Maine in Portland, 23 Brighton Avenue, Portland, Maine.

## ADMISSION TO THE FRESHMAN CLASS

The University is interested in candidates whose character, scholastic achievement, aptitudes, interests, industry, and established study habits give definite promise of success in a senior college program. The University admits men and women, both residents of Maine and non-residents; it reserves the right to terminate admissions whenever the capacity of the University to care properly for the students has been reached. Graduates of approved high schools and academies may be admitted on the basis of their school records provided they have completed, with recommending grades, a course of study preparatory to the curriculum that they wish to follow at the University, and are fully recommended by their principal. All candidates are required to submit the College Entrance Examination Board Scholastic Aptitude Test (S.A.T.) scores in support of their applications. C.E.E.B. Achievement Tests, vocational interest tests, or other tests may be required by the Director of Admissions. Arrangements to take the C.E.E.B. (SAT) Tests may be made by writing to the College Entrance Examination Board, P.O. Box 592, Princeton, New Jersey for application forms and information. These tests will be given at various testing centers on December 5, 1959, January 9, February 6, March 12, May 21, and August 10, 1960. Applicants should plan to take the SAT (morning) Tests in December, 1959 or January, 1960. Arrangements should be made at least one month in advance of the testing date.

The candidate is required to submit a carefully answered questionnaire concerning favorite studies, school activities, community interests, hobbies, choice of college course, choice of a life work, and other matters bearing upon preparation for a college course. This information is required so that the University may better guide the student in selecting courses of study best suited to his individual abilities, aptitudes, and interests. The principal, teachers, and adult acquaintances of the applicant are asked to give confidential information regarding character, personality, school and community activities, and ability to pursue successfully a college course.

Candidates for admission to the freshman class should apply to the Director of Admissions for application forms. These forms should be completed and returned promptly, together with the application fee of $10 (this is a separate fee and non-refundable). It is advisable to file applications early in the senior year of high school. Candidates for the Freshman class are accepted for the opening of the academic year in September. The priority of the housing assignment is based primarily upon the date of formal acceptance by the Director of Admissions. *Certificates of admission issued prior to the completion of the current school year may be rescinded if the final report is unsatisfactory.*

## INFORMATION FOR VETERANS

The University maintains an Office of Veterans' Education in 206 Library for the assistance of former servicemen and children of deceased veterans. Any requests for information concerning veterans' educational privileges may be forwarded to this office.

Former students of the University as well as prospective students should submit their applications for admission to the University to the Director of Admissions. Applications for a Certificate of Eligibility should be made at a Regional V.A. Office.

## SPECIAL LIVING ARRANGEMENTS

Applications for residence in the Elms, women's co-operative dormitory, and the University Cabins for men, should be included with the application for admission. The necessary forms may be obtained from the Director of Admissions.

Unmarried freshman students shall live in one of the University housing units unless they can live at home. Exceptions to this rule are seldom considered by the University. Students requesting such exceptions must indicate this fact on the application card. In addition, the student must write a separate letter (to be sent along with the application) explaining in detail his housing plans and the reason for requesting an exception to the rule. Such requests will be carefully reviewed by the Dean of Women, or the Dean of Men.

## FINANCIAL AID AND SCHOLARSHIPS

Applications for financial aid and loans under the National Defense Education Loan Plan may be obtained from the Director of Admissions. Parents of all applicants for financial aid are required to file a *Parents Confidential Statement* with the College Entrance Examination Board Scholarship Service. Forms and information are available in each local high school. Requests for aid will be reviewed by the Committee after the applicant has been formally notified of acceptance by the Director of Admissions. Applications should be filed prior to March 1.

Part-time work opportunities, both on-campus and off-campus, are available for students. From applications filed each year, the Office of Student Aid refers students to suitable job openings as they are received. A satisfactory academic standing must be maintained during the working period. Freshman students, with the exception of a limited number of men assigned to cafeteria jobs, are not encouraged to undertake part-time jobs that require an excessive amount of time.

## REQUIREMENTS FOR ADMISSION

## COLLEGE OF AGRICULTURE

I. Agricultural Sciences, Agricultural Engineering*, Biological Sciences, School of Forestry:

| | |
|---|---|
| English | 4 units |
| Algebra | 2 units |
| Plane Geometry** | 1 unit |
| Science | 2 units (one of which must be chemistry or physics) |
| History or Social Science | 1 unit |
| Electives | 6 units |
| Total | 16 units |

* Effective with the class entering in 1961, the mathematics requirement for Agricultural Engineering will be increased to include ½ unit of plane trigonometry or its equivalent.

**Recommended but not required for Agricultural Sciences.

II. School of Home Economics:

| | |
|---|---|
| English | 4 units |
| Mathematics | 2 units (at least 1 yr. of algebra) |
| Science | 1 unit (Chemistry recommended) |
| History or Social Science | 1 unit |
| Electives | 8 units |
| Total | 16 units |

III. Two-Year Course in Agriculture:

Candidates for admission to the Two-Year Course must have graduated from high school. In exceptional cases, mature individuals who are not high school graduates may be admitted by special permission. Students who contemplate transfer to the regular four-year curriculum must satisfy entrance requirements for the College of Agriculture.

## COLLEGE OF ARTS AND SCIENCES

| | |
|---|---|
| English | 4 units |
| Foreign Language | 2 units in one language |
| Algebra* | 1 unit |
| Plane Geometry | 1 unit |
| History or Social Science | 1 unit |
| Electives† | 7 units |
| Total | 16 units |

* Two units of Algebra are required in the curricula for Chemistry, Geology, Mathematics, Physics, Public Management, the School of Business Administration, Pre-Medical, Zoology, and recommended for the Business Economics curriculum.

† Chemistry is recommended as an elective for Science, Medical Technology, Nursing, and similar curricula.

## COLEGE OF EDUCATION

**(Includes curriculum in Physical Education)**

| | |
|---|---|
| English | 4 units |
| Three units from one and two units from another of the following: | |
| Foreign Languages<br>Mathematics<br>Natural Sciences<br>Social Studies | 5 units |
| Electives | 7 units |
| Total | 16 units |

United States History, Natural Sciences, and two units of Mathematics are recommended.

### COLLEGE OF TECHNOLOGY†

| | | |
|---|---|---|
| English | 4 units | |
| Foreign Language | — — | (Two or more units in one language recommended but not required) |
| Algebra | 2 units | (Review algebra and trigonometry recommended in the senior year) |
| Plane Geometry | 1 unit | |
| Chemistry or Physics | 1 unit | |
| History or Social Science | 1 unit | |
| Electives | 7 units | |
| Total | 16 units | |

† Beginning in September of 1961, the equivalent of first and second year high school algebra, one year of plane geometry, and one-half year plane trigonometry will be required for admission to all engineering curricula. In addition to these course requirements, applicants must further qualify themselves by satisfactory performance on the Advanced Mathematics Achievement Test administered by the College Entrance Examination Board. This test will be in addition to the regular CEEB Scholastic Aptitude tests required of all applicants.

### ADMISSION OF SPECIAL AND SHORT COURSE STUDENTS

**Special Students.**—In exceptional cases, a mature person who presents satisfactory evidence of ability to benefit from work of a special college program may be admitted to the University as a special student. Such students are not candidates for degrees but will be registered in the College where the principal courses in their program are taught. Application forms may be obtained from the Director of Admissions.

### FORMER STUDENTS

Former students who desire to return to the University must file an early application for re-admission with the Director of Admissions. The applicant must arrange for official transcripts and catalogs to be forwarded to the Director of Admissions from all schools and colleges attended since leaving the University of Maine. Application forms may be obtained from the Director of Admissions.

### ADMISSION BY TRANSFER

A student desiring to transfer to the University of Maine from another college of recognized standing must file application with the Director of Admissions at least six weeks before the opening of the semester. This request must include a statement of the names and addresses of all high schools, preparatory schools, normal schools, junior colleges, colleges, and universities attended as well as information indicating the desired curriculum.

The applicant must arrange for official transcripts and catalogs to be forwarded from all previously attended normal schools, junior colleges, colleges, and universities to the Director of Admissions, University of Maine, Orono, Maine.

The evaluation of transcripts of academic work completed at institutions previously attended must be accepted as final at the time of admission.

## ADMISSION

### NEW ENGLAND REGIONAL COOPERATION

New England's six state universities are working together to increase the number and variety of educational opportunities for the young people of the region. Under this new cooperative program, qualified New England residents are given preferential admission at other state universities in certain specialized programs not available at their own state university. Students accepted in these programs are also granted the benefit of in-state or resident tuition and fees which are considerably lower than those usually charged out-of-state students. This plan makes available to the residents of the region a wider variety of programs at low cost—without additional funds being spent to duplicate specialized staff and expensive facilities in each state.

Each university has designated which of its programs are to be offered on a regional basis and maintains control over its own courses and programs. A few of these programs begin at the freshman level. Other regional programs begin at the sophomore, junior, senior, or graduate level; that is, at the level where the specialized courses are first introduced. In most cases, a student will attend his own state university until he reaches the level at which the specialized courses begin.

Among the special fields covered in this plan are: University of Connecticut—law, anthropology, art, art education, insurance, physical therapy, social work, and pharmacy; University of Maine—agricultural engineering, forestry, wildlife management and conservation, physical education for women, pulp and paper technology, pulp and paper management, and entomology; University of Massachusetts—dairy manufacturing, food technology, landscape architecture, public health, wildlife management and conservation, and industrial engineering; University of New Hampshire—art, art education, hotel administration, occupational therapy, and physical education for women; University of Rhode Island—marine biology, pharmacy, agricultural chemistry, biological laboratory technique, textile chemistry, and turf green management; University of Vermont—dairy manufacturing, medical technology, commercial education, secretarial science, nursing, and the classics, Latin and Greek.

Information and application forms may be obtained from the Director of Admissions.

# FINANCIAL INFORMATION

## STUDENT EXPENSES

The student expenses outlined in the following paragraphs are the anticipated charges for the academic year 1959-60. Changing costs may require an adjustment of these charges. An analysis of current charges indicates that some increases may be anticipated effective with the 1960-61 academic year.

### Tuition and Fees for the Academic Year*

| | Residents of Maine | Non-Residents of Maine |
|---|---|---|
| Regular Students | | |
| Tuition | $265.00 | $650.00 |
| Health Service Fee | 14.00 | 14.00 |
| Student Activities Fee | 29.00 | 29.00 |
| Student Union Fee | 10.00 | 10.00 |
| | $318.00 | $703.00 |
| Two-Year Agriculture Students | | |
| Tuition | $189.00 | $450.00 |
| Health Service | 14.00 | 14.00 |
| Student Activities | 15.00 | 15.00 |
| Student Union | 10.00 | 10.00 |
| | $228.00 | $489.00 |

### Estimate of Student Expenses

A partial list of necessary expenses for a SEMESTER is indicated below. It includes only items which are fairly uniform for all students.

| Rates for One Semester | Residents of Maine | Non-Residents of Maine |
|---|---|---|
| Tuition and Fees | $159.50* | $352.00* |
| Board and Room (University Dormitories) | 325.00 | 325.00 |
| | $484.50 | $677.00 |

* Concert series fee of $1.00 is charged in fall semester only; spring semester charge is $1.00 less.

Textbooks, personal laboratory equipment, etc., are not furnished by the University and are estimated to cost from $90.00 to $150.00 per semester.

Students in Chemistry and Chemical Engineering courses are required to pay for all apparatus broken or lost and for certain non-returnable supplies. Breakage cards at $3.00 each are obtainable at the Treasurer's Office. Unused portions will be refunded at the end of the semester on obtaining clearance at the Chemistry storeroom.

The activities of each of the four undergraduate classes are supported from dues paid by individual members. These dues, which range from $5.00 to $9.00 per year, are incorporated as part of the Spring Semester term bill.

* Please see Catalog section on University of Maine in Portland for charges at that campus.

## FINANCIAL INFORMATION

The University has arranged to provide a student health and accident insurance plan on an optional basis for a premium of $12.00 for 12 months following fall registration. If the insurance is requested, this item is added to the Fall Semester term bill.

**Payment of Bills.**—All University bills including those for board and room in University buildings are due and payable on or before registration day for each semester. An academic year consists of two semesters, Fall and Spring.

The following table shows the fixed charges for the Fall Semester for freshmen:

| | Residents of Maine | Non-Residents of Maine |
|---|---|---|
| Tuition and Fees | $159.50 | $352.00 |
| Room and Board (University Dormitories)* | 325.00 | 325.00 |
| Freshman Orientation Period | 7.00 | 7.00 |
| | $491.50† | $684.00† |

* See Statement under Room and Board.

† Add $20.00 for Military Deposit required of male students.

For freshmen who do not room and board in University dormitories, the charge for residents of Maine is $163.00, and the charge for non-residents of Maine is $355.50.

For students who are residents of the State of Maine in the Two-Year Course in Agriculture, the semester charge is $114.50. For non-resident students, the semester charge is $245.00.

For students classified as "special," and registered for less than a normal program the rate will be $14.00 ($28.00 for non-residents) per semester hour up to and including nine semester hours. Health Service and Student Activities Fees are optional and are in addition to these rates. Full tuition and fees will be charged for more than nine semester hours.

### Miscellaneous

A fee of $10.00 is charged a student who registers after the prescribed day of registration.

A towel fee of $1.50 per semester is charged all students registered for Physical Education.

The prescribed gymnasium uniform for women costs approximately $23.00. Information regarding the uniform and where it may be purchased will be sent with your admission certificate.

The tuition fees for work taken by Correspondence or Extension are at the rate of $14.00 per credit hour.

The fees for students registered in Applied Courses in Music are indicated in the catalog section on Music.

**Room and Board.**—Due to the difficulty of estimating the cost of food, fuel, and services, it is impossible to guarantee the exact cost of room and board. The charge for room and board in the permanent dormitories for the fall semester, 1959, is $325.00. The charge for room and board in the Temporary Housing Units—North Dormitories—for the fall semester, 1959, is $300.00.

In the Cooperative dormitory for women, the charge for room and board is based upon student effort in management and operation, and is at less than regular rates.

All University dormitories are closed to students during scheduled recess periods.

### Deposits

A deposit of $25.00 is due when the applicant is notified of acceptance by the Director of Admissions. If housing is required, an additional $25.00 is due. These deposits will be applied toward the student's account when he registers.

If a freshman, transfer, or readmission applicant notifies the Director of Admissions of withdrawal prior to JULY 1, the deposits will be refunded. **The deposits are forfeited in case of withdrawal after July 1. (For Two-Year Agriculture students, the date is October 1.)**

All men taking basic military training are required to make a deposit of $20.00. This deposit is returned at the end of the year, less charges for lost or misused equipment.

Locks for gymnasium lockers may be secured from the physical education department and must be returned at the end of the spring semester or the student must make definite arrangements with the physical education office. The required deposit for locks is $2.50.

### Refunds

Students whose relations with the University are terminated for any reason before a semester is completed will have refunded to them prepaid tuition, fees and room charges as follows:

80% during the first two weeks
60% during the third week
40% during the fourth week
20% during the fifth week
No refunds of tuition, fees, and room charges after the fifth week.

Board charges will be refunded on the basis of the number of full weeks remaining in the semester.

### Summer Forestry Camp

The charges for Summer Forestry Camp (Princeton, Maine) described in the catalog section on Forestry are:

| | Resident | Non-Resident |
|---|---|---|
| Tuition | $126.00 | $252.00 |

Room and Board and the Course Fee for FY19s are assessed in addition to the above charges.

### Rules Governing Residence

A student is classified as a resident or a non-resident for tuition purposes at the time he is admitted to the University. The decision to be made by the Treas-

urer, is based upon information furnished by the student, and all available relevant evidence. The tuition status as determined at the time of initial enrollment will, except in very unusual circumstances, prevail as long as the student remains in attendance, regardless of any change that may subsequently occur in domicile, voting residence, or marital status. The University reserves the right to make the final decision as to resident status for tuition purposes.

### Communications

Communications with reference to financial affairs of students should be addressed to the Treasurer of the University of Maine.

## STUDENT AID

The student aid program is designed to help students with financial problems who have shown themselves able and willing to help themselves, who have done creditable academic work, who are of good character, and who can be expected to be a credit to themselves and their University.

The Student Aid Program is administered through the Office of Student Aid, and includes the following activities: 1) part-time employment; 2) student loans; 3) scholarships; 4) special living arrangements (University Cabins and The Elms).

**Part-Time Work.**—Work opportunities, both on-campus and off-campus, are available for students. From applications filed each year, the Office of Student Aid refers students to suitable job openings as they are received. The actual acceptance of the student for employment is the responsibility of the employer, and the performance of the student in respect to efficiency, promptness, and general attitude will determine his or her continuance on the job. It is required, also, that a satisfactory academic standing be maintained during the working period. Students on academic probation will not be approved for employment. Freshman students, with the exception of a limited number of men assigned to cafeteria jobs, are not encouraged to undertake regular part-time jobs, at least during their first semester.

**Student Loans.**—Assistance from University Loan Funds is available to members of the Junior and Senior classes.

The record of the applicant in conduct, character, and academic scholarship is considered in granting loans. Evidence of financial need is essential.

Provision is also made for temporary loans, regardless of class, not to exceed $50 in amount to meet unexpected emergencies. Such loans can be granted on short notice.

Applications for loans should be made with the Secretary of the University Loan Committee, located in the Office of Student Aid. The Secretary will supply information on loan limits, interest rates, and terms of repayment.

**National Defense Education Act Loan Program.**—The University participates in the Loan Program established under the National Defense Education Act of 1958. Loans may be granted to students in the undergraduate or graduate programs in amounts up to $1000 per year. In the case of superior students, special consideration may be given to applicants who have expressed a desire to teach in elementary or secondary schools, or to applicants whose background indicates a superior capacity or preparation in science, mathematics, engineering, or a modern foreign language. Complete information concerning the program is available in the Office of Student Aid.

## LOAN FUNDS

***The American Institute of Electrical Engineers Loan Fund,*** now amounting to $360, was established by the University of Maine Branch in 1918 for the purpose of assisting needy students majoring in electrical engineering.

***The Androscoggin County Alumni Loan Fund,*** now amounting to $5,593, is available to State of Maine students with first preference given to those who are residents of Androscoggin County. Loans are made by and through the usual methods in use at the University.

***The Bangor Business and Professional Women's Loan Fund,*** now amounting to $1,787, was established for needy and deserving women students, preferably from Bangor and vicinity, who have been in attendance at least one year and who have maintained an average grade of "C" or better. Loans shall not exceed $250 per student.

***The William E. Barrows Loan Fund*** of $1,000 was established in 1958 by William E. Barrows of the Class of 1902, head of the department of Electrical Engineering from 1912 to 1945. The fund is used to assist needy students in Electrical Engineering in good academic standing. Loans are limited to one-third the value of the fund for each individual and will be authorized by a committee made up of the head of the Department of Electrical Engineering and two ranking professors. Loans authorized by this committee shall then come under the jurisdiction of the University Loan Committee.

***The Boston Alumnae Fund,*** now amounting to $1,576, is available for women of high scholastic standing who have completed at least two years of college work. Loans shall in no case exceed $200.

***The Carleton Orchard Fund*** originated in the gift to the State of Maine by James A. Gregory of one interest-bearing first mortgage bond for $1,000, the interest on which was to be used for the promotion of scientific orcharding in Maine. At first administered by the Maine Department of Agriculture, the income from this bond was transferred in 1925 to the College of Agriculture of the University "for the assistance of needy students who shall be residents of the State of Maine, majoring in horticulture at the said college of agriculture."

***The Gordon L. Chapman Loan Fund*** of $619 was established in 1956 by friends of the late Gordon L. Chapman, Class of 1939, formerly a member of the University of Maine faculty. It is to be loaned to worthy students under such conditions as may be established by the University.

***The Class of 1907 Loan Fund,*** amounting to $2,568, was established as a 50th reunion gift in 1957. Loans are to be made to needy and worthy students under such conditions as may be established by the University.

***The Class of 1914 Loan Fund,*** now amounting to $1,478, is available for loans to needy upperclass students.

***The Class of 1926 Loan Fund for Seniors,*** now amounting to $1,473, is loaned to seniors of good scholastic standing during the last semester of their senior year. Amount loaned is $50 per person, exceptional cases to be allowed $100.

***The Class of 1931 Loan Fund,*** now amounting to $2,005, is to be used for loans to students of good character, satisfactory academic standing, who are in need of financial assistance.

***The Class of 1933 Loan Fund,*** amounting to $2,615, was established as a 25th reunion gift in 1958. Loans are to be made to deserving students under University loan policies. Preference is to be given to sons and daughters or grandsons and granddaughters of the Class of 1933.

## LOAN FUNDS

***The Class of 1941 Memorial Fund***, now amounting to $1,411, is to be used for students who have shown themselves able and willing to help themselves, who have done creditable work and who are of good character.

***The Cumberland County Alumni Association Student Loan Fund***, now amounting to $1,981, was established by the Cumberland County Alumni Association to assist needy seniors whose scholarship presumes graduation with their class, preference to be given to students from Cumberland County. Loans are made by and through the usual methods in use at the University.

***The Charles D. Darling, Jr. Memorial Fund***, established in 1959 by his parents, now amounts to $928.50. Loans are to be made to deserving students by and through the usual methods in use at the University.

***The George P. Davenport Student Loan Fund*** of $1,500 was established in 1959 by the Trustees Under the Will of George P. Davenport. Loans are to be made to deserving students, preferably graduates of Morse High School, Bath, Maine. The notes are to be written with interest at not less than three per cent per annum. Interest collected on the notes is to be added to the principal amount of the fund.

***The Delta Chi Alpha Loan Fund***, now amounting to $1,081, is loaned to male members of the senior class whose average college grade has been "C" or better.

***The Delta Delta Delta Loan Fund*** of $1,098 was established in 1954 by joint contributions from Alpha Kappa Chapter of Delta Delta Delta and the Bangor Alliance of Delta Delta Delta. This fund, both principal and income, shall be used for making loans to women students at the University of Maine who need and merit financial assistance. The loans shall be in such amounts and made under such terms as the University may determine.

***The Drummond Fund*** of $1,146 was established in memory of Frank Hayden Drummond, of Bangor, by his widow and children. It is loaned to needy students of good character who have attained an average of "C" or better.

***The Esther Eayres Chapter, Daughters of American Revolution Loan Fund***, now amounting to $408, is a gift of the Orono Chapter of the D.A.R. and is to be loaned to women students who are juniors or seniors.

***The Maine State Florists Association Loan Fund*** of $590 was established in 1950. Loans are available to juniors and seniors in ornamental horticulture.

***The General Loan Fund***, now amounting to $6,668, was donated by friends, students, and faculty of the University. The first donation was made in May, 1930, and has been increased at various periods since that time.

***The Henry Fairfield Hamilton Loan Fund***, now amounting to $5,220, was established in December, 1955 by Mrs. H. F. Hamilton of Winter Park, Florida, in memory of her husband, Henry Fairfield Hamilton, of the Class of 1876. Loans are made to needy and worthy students of the three upper classes, under such terms as the Board of Trustees may determine.

***The Kappa Psi Loan Fund***, now amounting to $397, was donated in the spring of 1933, to be used for the benefit of women students.

***The Kittredge Fund***, now amounting to $3,484, was established by Nehemiah Kittredge, of Bangor. It is in the control of the President and the Treasurer of the University, by whom it is loaned to needy students in the three upper classes. Individual loans are limited to $50.

***The Philip W. Lown Loan Fund***, amounting to $8,704, was established in 1954, by Mr. Philip W. Lown of the Class of 1918. Loans are made to needy

and worthy students of the three upper classes under such terms as the Board of Trustees may determine.

***The Maine Alumni Association of Boston Loan Fund,*** now amounting to $1,022, was established in 1940 and aims to be helpful particularly to male students whose homes are in Massachusetts, though any male student at the University is eligible for a loan. Loans are made on the basis of need, character, scholastic standing, personality, and leadership in extracurricular activities.

***The Maine Alumni Teachers Association Loan Fund*** was established in 1945 by a contribution of $1,278 from the Maine Alumni Teachers Association. Loans are made to students in any department of the University who from the nature of their courses are training to become teachers. Satisfactory academic record, good character, and conduct shall be the basis for making the loans. While this fund is intended primarily for seniors, it may be used to assist juniors. Loans are made by and through the usual methods in use at the University.

***The Maine Campus Fund,*** now amounting to $1,091, is loaned to juniors and seniors whose conduct and scholarship are satisfactory; preference to be given, first, to journalism major students, second, to students in the College of Arts and Sciences, and third, to any other student in the University. Loans otherwise to be made to needy students under such conditions as may be established by the University Administration.

***The Charles H. Payson Loan Fund,*** now amounting to $9,029, was given by the late Mrs. Charles H. Payson, of Portland, Maine, in memory of her husband. It is to be loaned to needy students under such conditions as may be established by the University Administration.

***The Pulp and Paper Foundation Loan Fund,*** amounting to $3,552, was established in 1951 by the University of Maine Pulp and Paper Foundation and is available to students who plan to enter the pulp and paper industry.

***The Mary S. Snow Memorial Loan Fund*** consisting of $1,121 from the Mary S. Snow Memorial Fund (see Endowed Scholarships) is used for granting loans to home economics students of such character and scholarship as give promise that the education thus made possible will be of genuine value to the students and to society. The control of this fund is by the Director of the School of Home Economics, the Dean of the College of Agriculture, and the President of the University.

***The Bertha Joy Thompson Loan Fund*** of $10,643 was bequeathed, in trust, to the University of Maine by the late Mrs. Bertha Joy Thompson, of Ellsworth, Maine. The net income from the fund, now amounting to $9,990, is to be loaned to worthy, deserving, and needy students of the University of Maine under such terms and conditions as the Board of Trustees may determine.

***The Ernest A. Turner Loan Fund,*** amounting to $5,225, was established in 1952 by Ernest A. Turner of Plattsburg, New York. Loans are to be made to needy and worthy students under such terms as the Board of Trustees may determine.

***The Diong Diek Uong Loan Fund,*** established in 1956 by a gift of $1,037 to the University of Maine Pulp and Paper Foundation from Diong Diek Uong, Class of 1926, is used as a scholarship loan fund for foreign students of the following national origin: China, Korea, Japan and the Philippines. The fund is administered by the University of Maine Pulp and Paper Foundation Scholarship Committee. The maximum limit of the loan to one person is $500 per year.

***The Women's Loan Fund,*** now amounting to $8,000, was established by the

American Association of University Women, University of Maine Branch, in 1925. It provides for loans to undergraduate women of the University who have successfully completed one or more years of university work, and have been found by the University to be thoroughly satisfactory in regard to character, scholarship, and general ability, and to be in genuine need. Loans to one student shall not exceed $300 a year.

## SCHOLARSHIPS

The Scholarship Program is administered by the University Scholarship Committee through the Office of Student Aid, and financial assistance is granted to approved applicants on the basis of demonstrated financial need.

The University has scholarship funds available for both upper-class students and entering freshmen.

For upper-class awards applications must be filed at the Office of Student Aid each year. A stated application period—usually December and January—is announced for applications to be filed for the next academic year.

Scholarships will be approved by the University Scholarship Committee only for those students who have an academic average of 2.0 (C) or better. The amount of each award will be determined by the Committee after evaluation of the application and parent's financial statement, and will very rarely exceed the amount of one year's tuition. In the event that a student, already approved for a scholarship, subsequently qualifies for a larger award, the Committee reserves the right to withdraw the smaller award in order to assist a greater number of persons.

**Freshman Scholarships.**—The Scholarship Committee considers written applications filed during the winter and spring preceding entrance. All freshman applications are obtained from and returned to the Director of Admissions. No application will be considered by the Committee until the applicant has been officially admitted to the University. Selection of recipients is based on the school record of the applicant, references from school and personal sources, community and school activities, and evidences of financial need as determined from the application and parent's financial statement. The amount of each award varies according to the need of the applicant and the availability of funds. Generally awards are made in amounts equal to half or full tuition.

**Experimental Scholarship Program.**—The University has established an Experimental Scholarship Program to assist qualified and needy students from the sixteen Maine counties. The scholarships will be awarded to incoming freshmen, and will carry maximum amounts up to $1000. The first of these awards will be made for the 1960-61 college year.

The program is financed by a group of businessmen. Its purpose is to bring the opportunity for higher education within the reach of those students who have the academic potential to profit from such experience and who could not otherwise attend the University for financial reasons.

Selection of students for the awards will be based upon the results of College Entrance Board examinations, personal recommendations from high school principals and guidance officers, and the students' scholastic records.

Detailed information and application forms may be obtained from the Director of Admissions.

NOTE: All University scholarship awards are made on a one-year basis and a new application must be filed each year at the Student Aid Office. Awards are

payable as tuition credit at the time of registration for each semester. It is not necessary to apply for a specific scholarship by name, but it is permissible to do so, especially when specialized terms of award restrict the scholarship to a limited number of individuals.

### Trustee Undergraduate Tuition Scholarships

***The Merritt Caldwell Fernald Scholarship,*** a tuition credit of $265 established by the Trustees and named in honor of the first acting president of the University, is awarded to the student in the junior class, who, at the end of two and one-half years of study at the University, has attained the highest rank in his class.

***The James Stacy Stevens Scholarship,*** a tuition credit of $265, established by the Trustees and named in honor of the first Dean of the College of Arts and Sciences, is awarded to the highest ranking student, resident of Maine, in the junior class in that college, the winner of the Fernald Scholarship being excepted.

***The Harold Sherburne Boardman Scholarship,*** a tuition credit of $265, in Technology, in honor of the first Dean of the College of Technology and the President of the University from 1926 to 1934, is awarded on the same terms as the foregoing.

***The Leon Stephen Merrill Scholarship,*** a tuition credit of $265, in Agriculture, in honor of the Dean of the College of Agriculture from 1911 to 1933, is awarded as are the foregoing.

***The Charles Davidson Scholarship,*** a tuition credit of $265, in the College of Education, in honor of the first professor of education in the University, is awarded as are the foregoing.

***The John Homer Huddilston Scholarship,*** a tuition credit of $265, in the College of Arts and Sciences in honor of the late Dr. John Homer Huddilston, Professor Emeritus of Ancient Civilization, who served the University as teacher of Classics, Art, and Ancient Civilization from 1899 to 1942. The scholarship is awarded on the same terms as the University Scholarships.

***The Rising Lake Morrow Scholarship,*** a tuition credit of $265, in the College of Arts and Sciences, in memory of Doctor Morrow who was a member of the Department of History and Government from 1934 to 1944 and Acting Dean from 1942 to 1944, is awarded on the same terms as the University Scholarships.

***The Maine Teacher Colleges and Normal School Scholarships,*** three of a tuition credit of $265 each, are awarded on a competitive basis to Maine teacher college and normal school students who, after two years of training for elementary teaching, desire to transfer to preparation at the University for secondary school teaching. Only those are eligible whose teacher college or normal school record places them in the highest decile of their class, whose principal recommends them as having personal qualities which indicate probable success in high school teaching and who enter the College of Education as juniors, *for two years* of preparation for that field.

***The University Scholarships,*** thirteen, of a tuition credit of $265 each, established by the Trustees in 1935, are awarded annually to students of high scholastic standing and intellectual promise whose general record is also satisfactory and who are in need of financial assistance. Preference is given to students residing in the State of Maine.

***The French Contest Scholarship,*** a tuition credit of $200, established by the Trustees in 1952, is awarded annually to a first, second, or third place winner in the Maine Secondary School Contest for Excellence in French, sponsored by

the Maine Chapter of the American Association of Teachers of French. ($100 is available each semester.)

***The Science Scholarship***, a tuition credit of $200, established by the Trustees in 1955, is awarded annually by the Scholarship Committee to a Maine secondary school graduate named as a winner in the Maine Science Talent Search, a contest sponsored each spring by the University and the Maine Chapter of the Sigma Xi, the Honorary Society of research scientists. Only students who have competed in the national Science Talent Search conducted by Science Clubs of America for the Westinghouse Science Scholarships are eligible to compete in the state contest.

***The State Science Fair Scholarship***, a tuition credit of $100, established by the Trustees in 1955, is awarded to a first place winner in the State Science Fair sponsored by the State Principals Association.

### Endowed Scholarships

***The Appreciation Scholarship Fund*** was established in 1941 by R. H. West, of the Class of 1938. Further contributions have been made by others and the fund now amounts to $1,657. Awards are made from income to needy and deserving students in the College of Agriculture by a committee appointed by the Dean.

***The Robert I. Ashman Fund*** of approximately $3,010 was established in 1957 by the friends and students of Professor Emeritus Robert I. Ashman, a member of the University of Maine Faculty from 1930 to 1957. Income from this fund, not to exceed $100, shall be awarded annually to the outstanding senior in the School of Forestry as selected by the Forestry faculty and approved by the Dean of the College of Agriculture. The basis of award is excellent character, high moral standards, and devotion to the profession of forestry as exemplified by Professor Ashman. The recipient shall be selected at the start of his senior year, and shall be known (throughout his final year) as the *Robert I. Ashman Award Student*. The award shall be paid by the Treasurer of the University upon completion of all requirements for graduation by the student.

The disposition of all income beyond the amount of the award shall be at the judgment of the Forestry faculty, subject to the approval of the Dean of the College of Agriculture and the President of the University and may be used for loans, additions to the principal or other approved necessary disbursements to maintain the fund.

***The Bancroft and Martin Scholarship Fund*** of $25,253 was established in 1957 by the Bancroft and Martin Rolling Mills Company of South Portland, Maine. The income only from this fund is to be used. The minimum objective shall be to provide a full tuition scholarship for a junior and a senior majoring in Civil Engineering at the University of Maine who are residents of Maine. If in any year the income exceeds the minimum requirements, one-half of the excess shall be added to the principal fund and one-half used for further objectives, each to be accomplished fully in the order below stated before the next is undertaken: (1) to provide full tuition to a member of the sophomore class majoring in Civil Engineering who is a resident of Maine; (2) to provide payment of laboratory and other required fees for the three students hereinbefore mentioned; (3) to provide necessary books and equipment for these students; (4) to provide the above benefits to one additional Maine resident member of each class majoring in Civil Engineering, beginning with the senior; (5) to provide similar benefits to children of employees of Bancroft and Martin Rolling Mills Company or its successor, regardless of course or year of study.

The students to receive the benefits as stated above shall be selected by the University Scholarship Committee.

***The Harold H. Beverage Award Fund*** of $3,300 was established in 1959 by friends and associates of Dr. Harold H. Beverage of the Class of 1915. The income from this fund is to be awarded in cash annually by the University Scholarship Committee, upon recommendation of the Electrical Engineering Faculty, to a student, undergraduate or graduate, who has excelled in communications studies at the University of Maine.

***The William E. Bowler Scholarship Fund*** of $1,000 was established in 1955 by Marie Z. Bowler in memory of her husband, William E. Bowler, a graduate of the University in the Class of 1915. The income from this fund is to be awarded annually to a deserving student enrolled in the College of Technology at the University of Maine.

***The Geraldine Brewster Scholarship Endowment Fund*** was established in 1957 through a bequest of $4,287.50 by Miss Geraldine Brewster of Downingtown, Pennsylvania, a former resident of Owls Head, Maine. The income from this fund is used for the assistance of students whose character, ability, promise and financial need make them worthy of scholarship aid.

***The Class of 1905 Scholarship.*** the income from a fund of $1,079, donated by members of the Class of 1905, is awarded to a man of the freshman class pursuing a regular curriculum, whose deportment is satisfactory, and who attains the highest rank in the mid-year examinations.

***The Class of 1943 Student Aid Fund.*** the income of a gift of $1,000 made by the Class at the time of their graduation, is to be used by the President of the University at his discretion, with eventual preference to be given to students who are sons and daughters of the Class of 1943.

***The Class of 1954 Scholarship.*** the income from a fund of $2,000, donated by members of the Class of 1954, is awarded annually to a senior student of good character who is in need of financial assistance during his last semester. In case of no award the income shall be added to the principal.

***The Class of 1957 Scholarship.*** the income from a gift of $2,000 made by the members of the Class at the time of their graduation, is to be awarded in accordance with the following provisions: (1) The income is not to revert back to principal if not used in a given year. (2) The recipients of these scholarship awards are to be either male or female students. (3) The awards may be given to students entering the University as freshmen or to those enrolled. (4) The awards are not to exceed two semesters but may be renewed on recommendation of the scholarship committee of the class of 1957 and approval of the University Scholarship Committee. (5) The awards may in no case exceed the amount of tuition and fees. (6) Awards shall be made on a basis of need, promise of academic success, and capacity and promise of leadership and success. (7) Preference shall be given to sons and daughters of members of the Class of 1957.

***The Donald P. Corbett Fund*** had its beginning in 1956 when Donald P. Corbett of Winslow, Maine, a graduate of the College of Agriculture in the class of 1934, made an initial contribution of $1,000, and now amounts to $3,000. The intent is to add to this fund from time to time.

The income from this fund is to be used for scholarships or for loans to students in the College of Agriculture. The awards shall be on the basis of character, need, and satisfactory scholarship, in the order given and under such other conditions as prescribed. A committee shall be appointed annually by

the Dean of the College of Agriculture to recommend the amounts, nature of the award and select the recipients.

***The Oliver Crosby Scholarship Fund*** of $10,000 was established in 1954 by Mrs. Ernest Trowbridge Paine of Prospect Harbor, Maine, and Schenectady, New York, in memory of her father, Oliver Crosby, B.S. in Mechanical Engineering, Class of 1876. The income of the fund provides a scholarship for a deserving student in Mechanical Engineering, preferably a student whose home is in the State of Maine.

***The Mabel and Mary Daveis Fund*** of $5,000 was established in 1955 by the Trustees of the Mabel and Mary Daveis Charitable Fund. The income of this fund is to be used for scholarships to needy and deserving students.

***The Arthur Lowell Deering Fund*** of $3,000 was established in 1955 by a gift of $2,000 to the University from Dean Arthur L. Deering, Class of 1912, and Mrs. Deering. The income from this fund (and such amounts as may subsequently be added to it) is to be used: (1) for scholarships, or (2) for loans to assist students in the College of Agriculture. Students are to be selected on the basis of character, financial need, and satisfactory scholastic attainment. A committee shall be appointed annually by the Dean of the College of Agriculture to recommend the amounts and nature of the awards.

***The Charles Alexius Dickinson Scholarship Fund*** of $2,122 was established in 1950 by Sigma Mu Sigma, honorary psychology society, in honor of Dr. Charles Alexius Dickinson, Professor of Psychology from 1926 to 1950. This fund includes a gift of $1,100 from Dr. Louise Bates Ames, '30. The income is awarded annually by Sigma Mu Sigma to a member of the current sophomore or junior class who has completed at least a semester and a half of the course in General Psychology on the basis of proficiency, interest, and general promise in the field of Psychology. Nominations are made to the president of the society by the instructors in the course during the spring semester, and the scholarship becomes available upon the student's return to the University the following semester.

***The Joseph Rider Farrington Scholarship.*** the income from a fund of $1,078, a gift of Arthur M., Edward H., Oliver C., Horace P. and Wallace R. Farrington, all graduates of the University of Maine and sons of Mr. and Mrs. Joseph Rider Farrington, is awarded annually in honor of their parents, in the following order of preference: (a) Any direct descendant of Joseph Rider and Ellen Holyoke Farrington, or anyone whom three of such descendants may select; (b) Any student bearing the surname of Farrington or Holyoke; (c) A high-ranking student in the College of Agriculture of good character and personality who, in the judgment of the Faculty Committee on Scholarships, is most deserving of the award.

***The Edward Files Scholarship Fund*** was established in 1948 through a bequest of $5,000 by the late Esther Files of Salem, Massachusetts. The income of this fund is to be used to provide scholarships for worthy students.

***The Deacon Ephraim Flint Scholarship Fund*** is provided from a fund established in 1880 by descendants of Deacon Ephraim Flint of Baldwin, Maine. The Trustees of the Fund have allotted $11,377 to the University of Maine as the principal of a scholarship fund, the income from which is to be used by the University Scholarship Committee for the financial assistance of students at the University of Maine who are descendants of the late Deacon Ephraim Flint of Baldwin, Maine.

If in any college year no qualified descendant has applied, the University

Scholarship Committee may award the income from the Fund, in accordance with its general policies, in the following order of preference: (A) to native residents of Baldwin, Maine; (B) to native residents of Dover-Foxcroft, Maine, who are graduates of Foxcroft Academy.

In any year that the Scholarship Committee does not make an award, income for that year will accrue to the principal of the Fund.

***The Fort Kent Future Farmers Scholarship Fund*** of $2,000 was established in 1948 by the Fort Kent Chapter of Future Farmers of America. The income from this fund is awarded annually to a male student majoring in agriculture who is a graduate of Fort Kent High School, on the basis of character, financial need, and qualities of leadership. The Dean of the College of Agriculture, the Head of the Department of Agricultural Education, and one other selected by them shall constitute the committee on award.

***The Ella Somerville Foster Scholarship*** was established in 1946 through a bequest of $1,000 by the late Ella Somerville Foster. The income of this fund is to be devoted to assisting a deserving Canadian or Newfoundland student.

***The Salomie and Eulalia Gardner Fund*** was established in 1953 through a bequest of $6,141 by Randall D. Gardner of Belmont, Massachusetts, in memory of his mother Salomie Gardner and his sister Eulalia. The income of this fund is to be used to aid students attending the University of Maine from the town of Pembroke, Washington County, Maine. If such students are not found the income may be applied to the aid of needy students from said Washington County.

***The Fred H. and Alice V. Gould Scholarship Fund*** of $1,000 was established in 1957 by a bequest of Gladys M. Gould, Class of 1922. The income is to be used for a worthy student in Home Economics. The Committee on awards shall be the Director of the School of Home Economics and the Dean of the College of Agriculture.

***The Henry L. Griffin Scholarship Fund*** was established in 1950 through a bequest of $6,500 by the late Lucy F. Griffin in memory of her late husband, Henry L. Griffin of Bangor, Maine. The income of this fund is to be used annually for the benefit of a graduate of Bangor High School during his or her first year at the University and who, in the opinion of the President and Board of Trustees, on the basis of character and scholarship, is the most deserving to receive such benefit.

***The Eugene Hale Scholarship Fund*** of $1,542 was established by Mrs. Eugene Hale and her two sons, Frederick Hale and Chandler Hale, in honor of the late United States Senator, Eugene Hale. The income is utilized in awarding one scholarship yearly to a boy or girl entering the College of Agriculture who is or has been a 4-H club member. The award is to be based on his or her record as a 4-H club member, on scholarship, character, and qualities of leadership. The award will be made by a committee appointed by the Dean of the College of Agriculture.

***The Philip R. Hathorne Scholarship*** was established in 1936 through a bequest of $5,000 by the late David Ernest Hathorne, of Woolwich, Maine, and an additional gift of $2,000 by Mrs. Carrie E. Hathorne, as a memorial to their son, Philip R. Hathorne, of the Class of 1923. The income is used to help needy students in the Civil Engineering curriculum, preference to be given to natives of Maine.

***The Helen B. Hemingway Memorial Fund*** of $169,165 was established in 1950 through the Edward D. and Helen B. Hemingway Trust. The income of

this fund is to be used for granting scholarships at the University of Maine to worthy and needy students under such regulations as may apply to the award of scholarships.

***The Lillie C. Hemphill Scholarship Fund*** was established in 1949 through a bequest of $4,000 by the late Mrs. Lillie C. Hemphill of Houlton and Portland, Maine. The income of this fund is to be used for the assistance of students whose character, ability, promise, and financial need make them worthy of scholarship aid.

***The Benjamin Higer Memorial Scholarship Fund*** of $12,375 was established in 1953 by the friends and associates of the late Benjamin Higer of Belfast, Maine. The income from this fund to a maximum of the normal tuition and fee charges is to be awarded to a freshman from Waldo County, Maine, who is entering the College of Agriculture to study poultry science. In the absence of suitable candidate from Waldo County, the award shall be made to an entering freshman from any section of Maine who enrolls in the College of Agriculture intending to study poultry science. The basis for the award is scholarship, character, leadership potentialities, and need. If the income from the fund exceeds the amount needed for the freshman scholarship, the balance is to be awarded to junior students majoring in poultry who meet the above qualifications. The committee on award consists of the Dean of the College of Agriculture, the Head of the Department of Poultry Science, and one other selected by these two preferably from the Maine poultry industry.

***The Frederick W. and Marianne Hill Scholarships.*** Part of the income of the Frederick W. and Marianne Hill Fund bequeathed to the University by the late Frederick W. Hill of Bangor, in 1922, is available for scholarship aid. Recipients are chosen by the University Scholarship Committee.

***The David Dunlap Holmes Scholarship Fund*** of $5,000 was established in 1958 by Mrs. Emily B. Holmes of Topsham, Maine, mother of David Dunlap Holmes of the Class of 1946. The income of this fund is to be awarded annually to a needy and worthy student in the Department of Electrical Engineering. In any year that an award is not made, the income will be added to the principal of the Fund.

***The Hovey Memorial Scholarships***, made available by a fund of $6,800 established in 1932 by the Stone and Webster Corporation and its employees in honor of the late Francis J. Hovey, are awarded to students in the College of Technology, on the basis of scholastic attainment, character, and general promise. A scholastic standing of at least 3.00 must be attained to be eligible, and must be maintained during tenure. Award is made by the Dean and the heads of the departments in the College, subject to the approval of the President, with preference given to students residing in the State of Maine.

***The Will R. Howard Scholarship Fund***, amounting to $1,847, was established in 1954 through the bequest of Will R. Howard of the Class of 1882. The income is to be used for deserving students whose homes are in Belfast, and who are in need of financial assistance.

***The Carrol C. Jones Scholarship***, the net income from a fund of $1,073 bequeathed by Minnie E. Jones, of Solon, Maine, in memory of her son, Carrol C. Jones, of the Class of 1914, is awarded annually to the student who makes the greatest improvement in his or her college work during the freshman year.

***The Kidder Scholarship***, $30, endowed in 1890 by Dr. Frank E. Kidder, of Denver, Colorado, a graduate of the University in the Class of 1879, is awarded

by the Committee on Scholarships, with the approval of the President, to a student whose rank excels in his junior year.

***The Charles E. Knowlton Fund*** of $177,656 was established in 1957 through a bequest by the late Charles E. Knowlton of Belfast, Maine. The income is to be used to assist boys and girls born in Maine who are attending the University of Maine and who are in need of assistance in obtaining an education, preference to be given to boys and girls born in Belfast.

***The Limestone Future Farmers Scholarship Fund*** of $4,200 was established in 1947 by the Limestone Chapter of Future Farmers of America. The income from this fund is awarded annually to a male student majoring in agriculture who is a graduate of Limestone High School, on the basis of character, financial need, and qualities of leadership. The Dean of the College of Agriculture, the Head of the Department of Agricultural Education, and one other selected by them shall constitute the committee on awards.

***The Maine Extension Association Scholarship Fund***, the income from a fund of $3,593, is awarded annually to a junior or senior student, resident of Maine, in the College of Agriculture, on a basis of character, scholarship, financial need, and qualities of leadership. The Dean of the College of Agriculture, the Secretary of the Maine Extension Association, and the Accountant of the University constitute the committee on award.

**The Thomas G. Mangan Scholarship Fund** of $4,200 was established in 1959 by friends and associates of Thomas G. Mangan. The income from the fund shall be awarded annually by the University Scholarship Committee to one or more freshman students who are graduates of Jay or Livermore Falls High Schools (alternating between graduates of these schools insofar as this is possible) and who have satisfactorily completed the first semester and who need and merit financial aid, with preference to be given to students who are majoring in engineering or science. If there are no freshmen who qualify for the awards, the awards may be made on the basis of need and merit to upperclassmen who are graduates of Jay or Livermore Falls High Schools. In case no award is made in any year, the income shall be added to the principal of the fund.

***The Philip I. Milliken Fund*** of $1,000 was established in 1957 by Philip I. Milliken, who served for many years as treasurer of Portland Junior College. The income of the fund is to be used for scholarship awards as the Committee on Scholarships shall determine.

***The Calvin H. Nealley Scholarships*** were established in 1942 through a gift of $5,000 by Calvin H. Nealley, of the Class of 1892. The net income of the fund is to be used for scholarships for needy men students of the University whose homes are in Maine; whose character, industry, and promise make them worthy of assistance in obtaining their education.

***The Gilbert Crosby Paine Scholarship***, amounting to about $475 a year, was established by Ernest T. and Louise Crosby Paine of Prospect Harbor in memory of their son, Lieutenant (j.g.) Gilbert Crosby Paine, who was cited by the Navy and awarded the Silver Star (posthumous) for conspicuous gallantry when the U. S. Destroyer Callaghan was sunk by a Japanese suicide plane off Okinawa, July 29, 1945. This scholarship is awarded annually to a male student of high scholastic attainment and otherwise deserving, preference being given to students from Hancock County, Maine. Failing such candidates, other male students whose homes are in Maine will be considered for the award.

***The Edward E. Palmer Scholarship Fund*** of approximately $3,000 was

established in 1956 by a gift of fifty shares of General Electric common stock from Edward E. Palmer of Braintree, Massachusetts, Class of 1899. The income is to be awarded annually to a student enrolled in the College of Technology.

***The Perley Burnham Palmer Scholarship Fund*** of $1,500 was established in 1946 by Mrs. Perley B. Palmer in memory of her late husband. The income from this fund is to be used for a scholarship to be awarded annually to a needy and deserving student in the College of Technology.

***The William Emery Parker Scholarship,*** the income from a fund of $1,200 donated by the late Hosea B. Buck, of the Class of 1893, in memory of William Emery Parker, of the Class of 1912, is awarded annually to that male student of the sophomore or junior class who, in addition to being above the average rank scholastically, shows most clearly those qualities of manliness, honesty, and constructive effort which characterized the college career of the alumnus in whose memory the scholarship is given.

***The William N. Patten Scholarship Fund*** of $20,000 was established in 1952 by William N. Patten, Class of 1891, of Salem, Massachusetts. The income of the fund is to be expended annually if there is occasion therefor, in the discretion of the Trustees of said University, as a scholarship for the benefit of residents of Cherryfield, Maine, who shall have graduated with satisfactory rank at Cherryfield Academy, in the manner best calculated to aid such pupils. Applicants for scholarship benefits shall be of good moral character and be recommended by the Academy Principal and the Scholarship Committee of the University of Maine. If in any year there is no eligible Cherryfield student as above described, said income may be applied in the discretion of the Trustees of said University to aid any worthy student who is a resident of Washington County, Maine.

***The Charles H. Payson Scholarships*** were established in 1935 through a gift of $20,000 made by the late Mrs. Charles H. Payson, of Portland, Maine, in memory of her husband. The principal of the fund was increased by $26,000 through a contribution received from Mrs. Payson in 1945. These scholarships are awarded to students in the University whose homes are in Maine and whose high character, qualities of leadership, creditable academic record, and financial need make them worthy of scholarship aid, or to entering students of outstanding merit who without financial assistance could not attend the University.

***The Ralph H. Pearson Fund*** was established in 1951 through a bequest of $1,000 by the late Richard D. Pearson, of Guilford, Maine, in memory of his brother Ralph H. Pearson. The income of this fund is to be used to provide a scholarship for a worthy student, preference to be given to a resident of the State of Maine.

***The Stanley Plummer Scholarship,*** the income from $1,036, the bequest of Colonel Stanley Plummer, of Dexter, Maine, is used for the assistance of a needy and deserving student selected by the University Committee on Scholarships. Students born in Dexter, Maine, shall have preference.

***The Portland Junior College Fund*** of $2,581 was established in 1957. This fund was created by using the surplus of anonymous gifts which had been made to Portland Junior College before it became the University of Maine in Portland. The income of this fund shall be used for scholarship awards to be made to needy and deserving students of good character and satisfactory academic record.

***The Frank P. Preti Scholarship Fund*** of $5,000 was established in 1949 by Frank P. Preti, Class of 1917, of Portland, Maine. The income is to be used for a scholarship to be awarded annually by the University Scholarship Committee

to a male student on the basis of need, promise of academic success, physical ability, and capacity and promise of leadership and future success.

***The Henri Raffy Memorial Fund*** was established in 1956 by a gift of $5,200 to the University from Mrs. Katherine Foote Raffy in memory of her husband, Henri Raffy. The income from this fund is to be used: (1) for scholarships, or (2) for loans to assist students in the School of Forestry. Students are to be selected on the basis of character, financial need and satisfactory scholastic attainment. Awards are to be made by the University Scholarship Committee.

***The Leroy C. Smith Scholarship Fund*** of $66,234.65, named in memory of Leroy C. Smith, a graduate of the University, Class of 1904, was established in 1957 through a bequest by his widow, the late Reba Morehouse Smith of Tangerine, Florida. The income from this fund is used for scholarship awards to entering or upperclass students whose character and satisfactory academic records make them worthy of the benefits of the University and of financial aid.

***The Mary S. Snow Memorial Fund,*** now amounting to $8,934, was established by students and friends of Mary S. Snow, one-time superintendent of schools in Bangor, Maine, and later a leader in home economics education, as a tribute to her memory. From the total of the fund, approximately $7,841 is set up as a scholarship fund, with one or more annual scholarships being awarded from the income to earnest and deserving students in home economics. The committee on awards consists of the Director of the School of Home Economics, the Dean of the College of Agriculture and the President of the University.

***The Anne E. Stodder Scholarship Fund*** was established in 1943 through a bequest of $50,000 by the late Mrs. Anne E. Stodder, of Bangor, Maine. The net income of the fund is to be used for the assistance of needy and deserving students in obtaining their education under such University regulations as may apply to the award of scholarships.

***The Bertha Joy Thompson Scholarship Fund*** was established in 1935 through a bequest of $15,000 by the late Mrs. Bertha Joy Thompson of Ellsworth, Maine. The income of this fund is awarded to students whose qualities of character, scholarship, initiative, and need make them worthy of financial assistance.

***The James E. Totman Fund*** of $50,160 was established in 1952 by James E. Totman of Baltimore, Maryland, a graduate of the College of Agriculture in the class of 1916. The income from this fund is to be used for: (1) scholarship assistance to superior men and women students in the College of Agriculture and to freshmen entering the College of Agriculture, (2) financial aid in sponsoring agricultural research by graduate assistants under the supervision of the Agricultural Experiment Station, and (3) loan assistance to outstanding men and women who are seniors in the College of Agriculture and who are in need of additional funds to complete their college program.

A committee shall be appointed annually by the Dean of Agriculture to recommend the amounts and nature of the awards.

***The Nathan Pratt Towne Scholarship Fund*** of $15,947 was established in 1949 through a bequest by the late Mrs. Eugene Towne Vail of Philadelphia, Pennsylvania, in memory of her father, the late Nathan Pratt Towne of Augusta, Maine. The income of this fund is to be used for a scholarship in mechanical engineering; "Wherever possible preference is to be given to a boy (1) from Augusta, Maine; (2) from the State of Maine."

***The University Store Company Scholarship Fund*** of $15,200 was established in 1949 by the University Store Company. The income of this fund is to

be used annually for three scholarships to be awarded to a senior, a junior, and a sophomore on the basis of character, scholarship, service, financial need, qualities of leadership and personality. A student shall not be eligible for a second University Store Company Scholarship award.

***The Mary Maxfield Valentine Memorial Scholarship*** was established in 1953 by William A. Valentine, Class of 1891, in memory of his wife, Mary Maxfield Valentine. The income from the fund of $500 is to be used for an annual award to a worthy woman student in the junior or senior class.

***The Sergeant Walter McClymonds Wales Scholarship Fund*** of $25,000 was established at the request of the late Sergeant Walter McClymonds Wales, of the First Infantry Division, A.U.S., before he left for service overseas in 1942, because of his love for and interest in Northport, Maine. The annual income from the Fund is used for scholarship aid for students whose character and promise make them worthy of financial assistance in obtaining their education. Preference shall always be given to prospective or enrolled students from Northport, Maine, but if, in any year, available income from the Fund is not needed for Northport students, it may be used to assist worthy students whose homes are in other Maine communities. Especially meritorious young men and women from Northport who have completed their undergraduate education at the University of Maine may be given grants in aid from the income of the Fund for graduate or professional study at the University or at other institutions. Awards shall be made by the University committee responsible for the granting of scholarships and aid, subject to the approval of the President of the University.

***The Donald S. Walker Scholarship Fund*** of $15,700 was established by the late Donald S. Walker of Liberty, Maine, and New York City in 1953. The income of this fund is to be used annually, in the discretion of the Trustees of the University, to provide scholarship aid for one or more worthy students who are residents of Liberty, Appleton, Montville, Palermo or Searsmont, Maine, with preference to be given residents of Liberty.

***The Mott F. Wilson Scholarship Fund*** was established in 1946 through a bequest of $4,300 by the late Mott F. Wilson of Bangor, Maine. The net annual income is to be awarded to a deserving male student of the University whose home is located in Maine, and whose character, industry, and promise make him worthy of financial assistance.

***The Gerald E. Wing Scholarship Fund*** of $1,500 was established in 1957 by friends and associates of the late Gerald E. Wing, Class of 1926, an executive in the Scott Paper Company. The income from this fund is awarded annually to a deserving and promising freshman in the School of Forestry for use during his sophomore year in the School of Forestry. The award is made by the University Scholarship Committee.

***The Charles F. Woodman Fund***, amounting to $17,419, was established in 1939 through a bequest by the late Charles F. Woodman, of Auburn, Maine. The net income is to be used annually under the direction of the President and Trustees of the University for the assistance of deserving and needy students, "especially poor boys who are desirous and willing to work and earn an education."

### Annual Scholarships

***The Elizabeth Abbott Balentine Scholarship***, $75, the gift of the Gamma Chapter of Alpha Omicron Pi, is awarded by the Committee on Scholarships to a

woman student, on recommendation of the Chapter with the approval of the President, on a basis of scholarship and individual need.

***The Bates and Rogers Foundation Scholarships*** were established in 1957. One scholarship shall become effective for the academic year starting in 1957, one for 1958, and one for 1959. Each scholarship shall be for a three-year period and shall provide $400 for the sophomore year, $400 for the junior year, and $500 for the senior year, each yearly amount to be disbursed in equal installments following term registration.

Awards shall be made to students enrolled in the Department of Civil Engineering possessing the following qualifications: (a) initiative; (b) good character; (c) willingness to assume responsibilities outside the classroom; (d) be in the upper third of his class and (e) deserving of scholarship aid.

The University Scholarship Committee shall weigh these factors about equally and shall have discretion within reasonable limits.

***The William Bingham, 2nd, Scholarships***, established in 1956 by an annual grant of $1,000 from the "Betterment Fund" created by the will of William Bingham, 2nd, of Bethel, Oxford County, Maine. Awards are to be made by the University Scholarship Committee after consultation with the Headmaster of Gould Academy in the Town of Bethel, preference to be given to acceptable candidates (in the following order) from the town of Bethel, from other towns in Oxford County, or from elsewhere in the State of Maine.

***The Ciba Company, Inc., Scholarship*** of $500 is awarded annually to a junior engaged in the study of paper processing, to be chosen by the University, who shall be not only financially deserving but also a person of promise in his field, whose character and integrity justify assistance in the furtherance of his career.

***The Frederick W. Conlogue Scholarship Fund***, a grant of $2,000 made to the University of Maine each year beginning in 1950-51 by Frederick W. Conlogue, Class of 1910, of Boulder Creek, California, is used for scholarship aid to worthy and needy students who are residents of the State of Maine and who have lived in Maine for at least three-fourths of their lives.

***The Charles M. Cox Trust Fund Scholarship*** of $300 is awarded to a student or students in the College of Agriculture on the basis of need, character, and scholarship ability. Preferably the scholarships will be awarded to undergraduate majors in dairy science or poultry science. The recipients will be selected by the University Scholarship Committee.

**The George P. Davenport Scholarship Fund** of $1,500 was established in 1959 by the Trustees Under the Will of George P. Davenport. Awards from this fund are to be made by the University Scholarship Committee to needy and deserving students, preferably graduates of Morse High School, Bath, Maine.

***The Delta Delta Delta Scholarship*** is awarded to any woman student whose qualities of character, scholarship, and leadership make her worthy of financial assistance.

***The Eastern Association of University of Maine Women Scholarship*** of $100, the gift of the Eastern Association of University of Maine Women, is awarded to a needy and deserving student.

***The General Motors Scholarship*** is awarded annually to a freshman upon the recommendation of the University Scholarship Committee and with the approval of the General Motors Corporation Committee. The amount of the

scholarship may range from $200 up to an amount sufficient to cover all regular college expenses.

***The Harry Goldman Scholarships,*** two of $350 each, contributed by H. Goldman and Sons of Philadelphia in memory of the late Harry Goldman. The scholarships are awarded annually by the scholarship committee of the University of Maine Pulp and Paper Foundation to students of the three upper classes who plan to enter the pulp and paper industry. Preference is given to qualified applicants who are relatives of employees or who are recommended by the West Virginia Pulp and Paper Company and the Union Bag and Paper Corporation.

***The Stanley D. Gray Scholarship Fund.*** The University receives from the Trustee u/w of the late Stanley D. Gray, the annual income from a trust fund established under the will of the late Mr. Gray. Scholarship awards are made under the following terms: "The entire income shall be used each year in such way as most effectively to aid in securing a liberal education to such students, male or female, whose father or mother was a Gray descended from one of the name who settled in what is now Hancock Co., Maine, prior to the year eighteen hundred, as may be decided upon as most worthy of aid. Any superintendent of schools of any town in said County of Hancock may recommend students for such aid."

***The Great Atlantic and Pacific Tea Company Scholarship,*** three scholarships of $100 each, are available to students in Home Economics on the basis of character, financial need, promise of leadership, and scholarship, with special consideration to needs of entering students. Four scholarships of $100 each are available to juniors and seniors majoring in Agricultural Economics and Farm Management, on the basis of character, scholarship, qualities of leadership and interest in distribution and marketing. Awards are made by a committee comprising the Dean of the College of Agriculture, the head of the department concerned, and one or more members appointed by the Dean.

***The Martin Hagopian Scholarship,*** established in 1950 by the Undergraduate "M" Club, is awarded annually to a male student on recommendation of the Scholarship Committee of the Club by the University Scholarship Committee. The award may not exceed the amount of tuition and fees and is granted on the basis of need, promise of academic success, physical ability, and capacity and promise of leadership and success.

***The Homelite Forestry Scholarship*** of $500, contributed annually by the Homelite Corporation of Port Chester, New York, is awarded to junior or senior students enrolled in the School of Forestry. Recipients are selected by a committee of the faculty of the School of Forestry on the basis of promise, competency and need.

***The Charles H. Hood Dairy Foundation Scholarship,*** six, of $250 each, are available to men and women four-year students of the College of Agriculture whose intention is to promote farming as a life opportunity, and five of $100, are available to second year students of the Two-Year Course in Agriculture whose ultimate objective is employment on or operation of a commercial dairy farm. They are awarded by a committee comprising the Dean of the College of Agriculture, the head of the Department of Animal Science, and the Treasurer of the University. The four-year scholarships are distributed as follows: Two sophomore and two junior scholarships are granted to students whose scholastic standing for the previous year places them in the upper half of their class; and two senior scholarships are granted to students whose scholastic standing for the previous

year places them in the upper third of the class. The junior and senior scholarships are further restricted to students specializing in some phase of dairy industry promotion.

***The Maine Farmer and Homemaker Scholarship*** of $100, established in 1953, is awarded annually to a member of the senior class in the College of Agriculture for use during the student's final undergraduate semester. The recipient shall have demonstrated high qualities of character, leadership, and scholarship. The committee on award shall consist of the Dean of the College of Agriculture, the Secretary of the Maine Extension Association, and one other selected by them.

***The Maine Hoo-Hoo Club Scholarship*** of $200, established in 1954, is awarded annually to a male resident of Maine who is entering his senior year in Forestry, on the basis of need, scholarship, and intent to make a career of forestry or the lumber industry. The selection is made by the University Scholarship Committee in consultation with the director of the School of Forestry.

***The Maine Managers' Scholarship,*** of $100, established in 1957 by the Town and City Managers' Association of Maine, is awarded annually to a Public Management student in Arts or Technology on the basis of scholarship, financial need, character, and sincere interest in the profession of manager. The award is made by a committee of the Maine Town and City Managers' Association.

***The Maine Poultry Improvement Association Scholarship*** of $200, established in 1953, is awarded annually to one or more juniors or seniors majoring in poultry science. The award is to be made on the basis of high moral character, scholastic achievement, quality of leadership, and financial need. The committee on award consists of the Dean of the College of Agriculture, the Head of the Department of Poultry Science, and one other appointed by the Dean.

***The Monsanto Chemical Company Scholarship*** of $500 is awarded on consideration of demonstrated ability, personality and need, to an outstanding junior in the department of Chemical Engineering or Chemistry. The recipient is selected by a committee of the faculty of the College of Technology.

***The National Plant Food Institute Scholarship*** of $200, established in 1951, is available to an outstanding junior or senior student majoring in the Department of Agronomy, who is in the upper quarter of his class in the College of Agriculture and shows promise of advancing or promoting knowledge of the principles of sound soil fertility maintenance. The award is to be made annually in the fall semester by a committee consisting of the Dean of the College of Agriculture, the Head of the Agronomy Department, and one other member appointed by the Dean.

***The Ober Award,*** a scholarship contributed by the Scott Paper Company of Chester, Pennsylvania, and named in honor of John Larcom Ober, '13, provides stipends of $1,000 in the fourth and fifth years of the Five-Year Pulp and Paper Program, and is awarded to an outstanding student, selected on consideration of leadership, personality, and ability. The selection is made in the spring semester of the junior year. The award includes an offer of summer employment with the Scott Paper Company.

***The Barbara Bosworth Scholarship of Phi Mu.*** $100, established in 1951 by the Pi Chapter of Phi Mu Fraternity, is awarded annually to a woman student of the sophomore or junior class on the basis of satisfactory scholastic record, financial need, and qualities of leadership, on the recommendation of the Chapter.

***The Pi Beta Phi Scholarship,*** $75, is awarded annually by the University Committee on Scholarships to a deserving undergraduate woman student.

## SCHOLARSHIPS

***The Pulp and Paper Foundation Scholarships*** are available in two categories from the University of Maine Pulp and Paper Foundation:

(a) Tuition scholarships to qualified junior and senior students, in the Forestry curriculum and all curricula in the College of Technology, who plan to enter the pulp and paper industry, or allied companies, following graduation. Applications should be made through the Office of the Dean of the College of Technology.

(b) Grants of $1,200 each to qualified students enrolled in the fifth year of the Pulp and Paper Management options offered in the College of Technology. Applications should be made through the Office of the Dean of the College of Technology.

***The Ralston Purina Scholarship*** of $500, contributed annually by the Ralston Purina Company of St. Louis, Missouri, is awarded to a senior in agriculture. The recipient is selected by a committee of the faculty of the College of Agriculture on the basis of promise and financial need.

***The Retail Lumber Dealers Association of Maine Scholarship***, $100, established in 1956 by that Association is awarded annually to a senior majoring in Forestry at the discretion of the faculty of the School of Forestry.

***The Rice and Miller Company Scholarship Fund*** was established in 1958 by the Company with an initial gift of $500. The University Scholarship Committee shall make an award annually to a student (or students) who needs and merits financial assistance. First consideration shall be given to sons and daughters of persons who are employed by Rice and Miller Company at the time the application is filed.

***The Sears-Roebuck Agricultural Foundation Scholarships***, seven, of $200 each, established in 1940, are available to Maine farm boys entering as freshmen in the four-year course in agriculture. The award is made by a committee comprising the Dean of the College of Agriculture and such others as he may designate. The awards are to be based on character, scholarship, qualities of leadership, and financial need. An additional scholarship of $250 is to be awarded to that sophomore who as one of the winners of the Freshman Scholarships achieves the most satisfactory record and is considered to be the most deserving from the standpoint of financial need and otherwise by the committee on awards.

Two scholarships of $200 each, established in 1951, are available to girls entering Home Economics as freshmen. These awards, available to natives of Maine, are made on the basis of high school and community activities, scholarship, character, and financial need. The selection is made by a committee consisting of the Dean of the College of Agriculture, Director of the School of Home Economics, and one other appointed by the Dean.

***The Senior Skull Scholarship*** of $100 is awarded annually to a male student in the second semester of his sophomore year, to be used by him during his junior year. The recipient of the award is chosen by the University Scholarship Committee on the basis of qualities of leadership, campus citizenship, creditable scholastic attainment, or a 2.00 minimum accumulative point average, and financial need.

***The Robert W. Tomlinson Scholarship*** was established in 1952 by Mr. and Mrs. Reuben Tomlinson of Salem, Massachusetts, in memory of their son, Lieutenant Robert W. Tomlinson, Class of 1946, who gave his life in the service of his country in World War II. $100 is awarded annually to a student of good character who has made a satisfactory academic record and who needs and merits financial assistance.

***The Joel J. and Annie H. Walker Scholarships*** were established by the late Donald S. Walker and his sister the late Madge H. Walker in honor of their parents. The University will receive annually from a trust fund, beginning in 1959, approximately $17,000 which is to be administered by the University Scholarship Committee for scholarships for graduate and undergraduate students who have been residents of the Townships of Liberty, Appleton, Montville, Palermo, Searsmont, and Washington in the State of Maine. In order to be eligible, an applicant must have been a resident of one of these towns for at least three years immediately preceding the receipt of the award. Selection of recipients by the Committee is based upon ability, character, financial need, and academic standing.

***The Stanley M. Wallace Scholarship***, established in 1956 by the Intramural Athletic Association of the University of Maine, is awarded annually by the University Scholarship Committee to an entering male student on the basis of a good academic record, need, qualities of leadership, and physical ability, with the understanding that the Intramural Athletic Association may select the recipients of this award from names recommended by the University Scholarship Committee. The amount of the award may range from $100 as a minimum to the cost of tuition and fees as a maximum.

***A Western Electric Company Scholarship***, amounting to from $400 to $800, is awarded annually to an undergraduate student in the College of Technology. The selection is made by the University Scholarship Committee upon the basis of need and ability in a field of study related to the Company's operations.

***The Westinghouse Achievement Scholarship*** of $500, established by the Westinghouse Educational Foundation in 1954, is awarded to a junior in electrical engineering, mechanical engineering or engineering physics on the basis of achievement in his academic work and demonstrated qualities of leadership. The recipient is selected by a committee of the faculty of the College of Technology.

***The York County Poultry Improvement Association Scholarship*** of $100, established in 1958, is awarded annually to a boy or girl, preferably from York County, who is majoring in Poultry Husbandry or intends to major in Poultry Husbandry. In the absence of a satisfactory candidate from York County, the award may be made to a deserving student from another county who is studying or intends to study Poultry Husbandry. The basis of the award shall be need, scholarship, and potential for making a contribution to the poultry industry. The selection is made by the University Scholarship Committee in consultation with the head of the department of Poultry Husbandry.

### Alumni Scholarships

***The Eastern Pennsylvania Alumni Association Scholarship***, $50, established in 1935, is awarded annually to some needy and deserving student, with preference given to the vicinity of Philadelphia.

***The Northern Connecticut Alumni Association Scholarship***, $50, established in 1935, is awarded annually to a needy and deserving student, with preference given to students from Northern Connecticut.

***The North Shore (Massachusetts) University of Maine Alumni Association Scholarship***, $100, established in 1956, is awarded to a student of good character, promise of academic success, and in need of financial assistance, with preference being given to the Massachusetts North Shore Area.

***The Portland Alumnae Association Scholarship***, $100, established in 1938, is awarded annually to a deserving upperclass woman whose home is in Cumber-

land County. The award is made upon the basis of need of financial assistance, satisfactory record and conduct, and evidence of qualities of leadership and of scholastic attainment.

***The Western Pennsylvania Alumni Association Scholarship,*** $50, established in 1905, is awarded annually to a member of the junior class in the College of Technology whose ability and need justify the award. The selection is made by the President of the University and the Dean and Professors of the College of Technology.

***The Worcester County, Massachusetts, Alumni Association Scholarship,*** $50, established in 1935, is awarded annually to a worthy student from Worcester County, preferably an entering freshman.

## UNIVERSITY OF MAINE FOUNDATION FUNDS

***The Anonymous Scholarship Fund*** of $4,700 was established in 1952 by a loyal alumnus of the University, the income to be awarded to a male student at the University or to an entering freshman on a basis of need, promise of academic success, physical ability, and capacity and promise of leadership.

***The Maria S. Appleton Fund*** was established in 1939 through a bequest of $5,000 by the late Maria S. Appleton, of Bangor, Maine, to the University of Maine Foundation. The income of this fund is to be used for scholarships to be awarded annually to deserving and needy students.

***The Hosea B. Buck Memorial Scholarships,*** the income from a fund of $3,900 raised through the University of Maine Foundation, of which Mr. Buck was a charter member, were established in 1938 by friends and alumni of the University, in memory of Hosea B. Buck, of the Class of 1893. One or more scholarships are awarded annually to students whose high character, qualities of leadership, creditable academic record, and financial need make them worthy of scholarship aid.

***The Ava H. Chadbourne Fund*** was established in 1954 by a gift of $5,000 to the University of Maine Foundation by Professor Emerita Ava H. Chadbourne, Class of 1915. The income from this fund, up to the amount of the room rent, is awarded annually to a woman student residing in Chadbourne Hall who is a native born and life long resident of the State of Maine. Preference is to be given to applicants in the following order: (1) a member of the Chadbourne family (the Maine residence requirement does not apply to applicants in this category), (2) a graduate of Mattawamkeag High School, (3) a graduate of Lee Academy, and (4) a student who lives near Mattawamkeag. When there is more than one applicant, the members of the University Scholarship Committee will apply their own criteria of scholarship and need as the basis for the award.

***The James W. Clarkson Fund*** was established in 1958 by an initial, unrestricted gift of $1,500 by Robert N. Haskell, Class of 1925, to the University of Maine Foundation. By vote of the Directors of the Foundation, the income of this fund is to be awarded annually to a needy and deserving student, with first consideration to be given to a student who is majoring in Wildlife Management.

***The Class of 1909 Scholarship,*** the income from a fund of $6,026 presented to the University of Maine Foundation by the members of the Class of 1909, is used for scholarship awards to worthy students in need of financial aid.

***The Class of 1910 Scholarship,*** the income from a fund of $1,600 given without restrictions to the University of Maine Foundation in 1946, is awarded an-

nually to a student of good character and ability who needs and merits financial aid.

***The Class of 1911 Scholarship,*** the income from a fund of $10,025 donated to the University of Maine Foundation, is awarded annually to an upperclass student of good character and satisfactory conduct and rank, who possesses qualities of leadership and who needs and merits financial aid. Special consideration is given to sons and daughters of members of the Class.

***The Class of 1915 Student Aid Fund,*** the income from a fund of $5,750 given in trust to the University of Maine Foundation, is to be used by the President of the University at his discretion for assisting needy students in such manner and amounts as he deems expedient.

***The Class of 1916 Scholarship,*** the income from a fund of $1,775 donated to the University of Maine Foundation in 1941, is awarded annually to a student of good character who needs and merits financial aid.

***The Class of 1917 Scholarship,*** the income from a fund of $6,041 presented to the University of Maine Foundation in 1942, is awarded annually to an upperclass student of good character and satisfactory rank, who possesses qualities of leadership and who needs and merits financial aid. Special consideration is given to sons and daughters of members of the Class of 1917.

***The Class of 1919 Fund,*** the income from a gift of $1,150 presented to the University of Maine Foundation in 1944, is to be used for a scholarship to be awarded annually to a student of good character who needs and merits financial aid.

***The Class of 1920 Scholarship,*** the income from a fund of $5,693 donated to the University of Maine Foundation in 1945, is awarded annually on a basis of need, promise of academic success, physical ability and capacity and promise of leadership and success.

***The Class of 1921 Scholarship,*** the income from $2,000, established with the University of Maine Foundation in 1946, is awarded without restrictions for scholarship purposes.

***The Class of 1923 Scholarship,*** the income from $420 donated to the University of Maine Foundation in 1953, is to be awarded to a student of good character, satisfactory scholastic record, and who needs financial aid.

***The Class of 1924 Scholarship,*** the income from a fund of $2,055 presented to the University of Maine Foundation by the members of the Class of 1924, is awarded annually to a deserving student, with particular consideration to be given to character, general ability, and financial need.

***The Class of 1925 Scholarship,*** the income from a fund of about $1,535 presented to the University of Maine Foundation in 1955, is awarded annually on such basis as the University may determine.

***The Class of 1927 Scholarship,*** the income of $1,710 presented to the University of Maine Foundation in 1953, is to be awarded annually to a worthy student attending the University.

***The Class of 1928 Fund*** was established in 1953 by the gift of $1,928 to the University of Maine Foundation by the members of that class. The income from this fund is awarded annually to a student of good character who has made a satisfactory academic record at the University and who needs and merits financial assistance.

***The Class of 1930 Fund,*** established in 1955 by an unrestricted gift of $1,930 with the suggestion that the income be used to assist deserving students.

## SCHOLARSHIPS

***The Class of 1953 Grant-in-Aid Fund,*** established in 1953 by a gift of $1,450 to the University of Maine Foundation by members of that class, the income and/or principal in the amount of $50, to be given each year to a senior man or woman, who shows pressing financial need and is fulfilling the requirements for graduation.

***The Class of 1958 Scholarship,*** the income from a fund of $1,500 donated to the University of Maine in 1958, is awarded annually to an upperclass student who needs and merits financial aid. Special consideration is given to sons and daughters of members of the class.

***The Eugene Danforth Scholarship Fund*** was established in 1957 through a bequest of $10,739 to the University of Maine Foundation by Agnes H. Danforth of Bangor. The income is to be awarded to deserving students who are legal residents of Maine and who are majoring in forestry, forest products, pulp and paper, or other courses related to the scientific and industrial development of the wood products industries.

***The Robert W. DeWolfe Fund*** of $81,599 was established in 1957 through a bequest to the University of Maine Foundation by Robert W. DeWolfe, Class of 1907, of Portland, the income to be used for loans to University students under such conditions as may be established by the University Loan Committee with first consideration to be given to students residing in Cumberland County.

***The Emma Jane Eaton Scholarships*** were established in 1946 through a bequest of $10,000 to the University of Maine Foundation by the late Emma Jane Eaton of Calais, Maine. In accordance with the provisions of the will, these scholarships are awarded to students in the University who are graduates of Calais High School or who are natives of Washington County, and whose character, academic record, qualities of leadership and need make them worthy of financial aid. These scholarships may be awarded to entering students who have made an outstanding secondary school record and who need and merit financial aid.

***The James Adrian Gannett Scholarship,*** the income from a fund of $2,623 presented to the University of Maine Foundation by members of the Class of 1908 in honor of their classmate, is awarded annually to a worthy student who needs financial support.

***The Charles E. Gilbert Scholarship*** of $200, established in 1953 through a bequest to the University of Maine Foundation by Charles E. Gilbert, Class of 1894, available for the fall semester in each year in such amount and upon such terms and conditions and for such worthy and needy student or students as the Maine Beta Upsilon Chapter of Alpha Tau Omega may determine. The award is made in accordance with University scholarship policies, and is administered by the University Scholarship Committee.

***The Lucy F. Griffin Fund*** was established in 1950 through a bequest of $10,000 to the University of Maine Foundation by the late Jane B. Pickering, of Bangor, in memory of her sister. The income of this fund is to be used, with the approval of the University Committee on Scholarships and the President of the University, for the benefit of needy students who have successfully passed their examinations during the Freshman year and indicate by their general standing in the institution an earnest desire to acquire an education.

***The Robert C. Hamlet Prize,*** established in 1935, through a bequest to the University of Maine Foundation in accordance with the will of Mr. Hamlet, a graduate of the University in the Class of 1925, the income from a fund of $1,300, is awarded annually to that student in the University who shall have written the

best original one-act play during the year. The judges are the Dean of the College of Arts and Sciences, the head of the Department of English, and the president of the Maine Masque.

***The George O. Hamlin Scholarship Fund*** of $1,500 was established in 1937 by George Otis Hamlin, Class of 1900. The income from this fund is awarded annually on a basis of satisfactory academic record and conduct, qualities of leadership and financial need to a student who is a resident of Lincoln County.

***The James Norris Hart Scholarships,*** the income from a fund of $7,469 raised through the University of Maine Foundation in 1937 by alumni, faculty, and friends, in honor of the late Dean Emeritus James Norris Hart, are awarded annually to entering students, or upperclassmen who have made satisfactory scholastic records, who have been leaders in extracurricular activities, and who merit and need financial aid.

***The Arthur A. Hauck Fund*** was established in 1944 by a fund of $10,658 raised by alumni and friends on the occasion of Doctor Hauck's tenth anniversary as president of the University of Maine. This fund is held in trust by the University of Maine Foundation and the income may be used by the President for any University need.

***The President Hauck Scholarship Fund*** was established in 1949 by a gift of $2,800 to the University of Maine Foundation from the classes of 1949, 1950, 1951, and 1952. The income from this fund is to be used by the President of the University for assisting needy students in such manner and amounts as he deems expedient.

***The Thelma Louise Kellogg Fund*** was established in 1949 through a bequest of $25,094 by the late Thelma Louise Kellogg, Class of 1918, to the University of Maine Foundation. The income of this fund is to be used for scholarships to be awarded to students whose academic record and conduct are satisfactory and who need and merit financial aid.

***The Benjamin C. Kent Fund*** of $6,068 was established in 1951 by gifts of alumni and friends of the University of Maine Foundation as a scholarship fund in memory of the late Benjamin C. Kent, Class of 1912, and for many years a member of the University faculty. The income from this fund is to be awarded annually to male students, either entering freshmen or upperclassmen, on a basis of need, promise of academic success, character, physical ability, capacity and promise of leadership and success.

***The Harriet S. Kilby Scholarship*** of $100, established with the University of Maine Foundation in 1954, is to be awarded annually to a student in home economics whose academic record is satisfactory and who needs and is worthy of financial aid.

***The Harland A. Ladd Scholarship Fund*** was established in 1955 by a gift of $2,800 to the University of Maine Foundation in memory of Harland A. Ladd of the Class of 1925. The income is to be awarded to students who are training to become teachers and who are residents of Maine.

***The Harold P. Marsh Scholarship Fund*** was established in 1958 through a bequest of $100,000 to the University of Maine Foundation by the late Harold P. Marsh, Class of 1909, the income to be used for scholarship awards for the benefit of deserving and needy students at the University under such terms as the officers of the Foundation may determine.

***The Frank P. Morison Fund*** was established in 1952 through a bequest of $5,000 to the University of Maine Foundation by the late Frank P. Morison. The

income from this fund is to be used for one or more scholarships awarded on a basis of good character, satisfactory academic record and financial need.

***The Greater New York Alumni Association Scholarship***, now amounting to $4,654, was established in 1955 by an initial gift of $2,000 to the University of Maine Foundation. The income is to be awarded to any student, entering or enrolled, on a basis of general all-round qualifications with special consideration to be given to leadership. First preference shall be given to students who reside in the Greater New York area.

***The Penobscot County Alumni Association Scholarship***, $50, was established in 1920 and endowed by creating a gift of a fund of $1,250 to the University of Maine Foundation in 1940. This scholarship is awarded by the President of the University, the Executive Director of the General Alumni Association and the University Committee on Scholarships, to a male student whose home is in Penobscot County, who is found to be needy and deserving, and whose scholarship and conduct are satisfactory.

***The John Reed '89 Scholarship Fund*** was established in 1958 through a bequest of $33,999.37 to the University of Maine Foundation by the late Elisabeth H. Reed in memory of her husband, the income to be awarded annually to some worthy student or students enrolled in the College of Technology, the scholarships to be known as the John Reed '89 Scholarships.

***The Rhode Island Alumni Association Scholarship***, $50, established in 1935 and endowed in 1945 by a gift of $1,500 to the University of Maine Foundation, is awarded to a male student from Rhode Island or that portion of Massachusetts included in that Association, whose personal and scholastic record is satisfactory and who has been prominent in extracurricular activities.

***The Senior Alumni Scholarship Fund***, now amounting to $6,714, was established in 1947 by the University of Maine Senior Alumni as a gift to the University of Maine Foundation. Three scholarships of $150 each are awarded annually to worthy students selected by the President of the University and the University Scholarship Committee.

***The Anna Strickland Fund*** was established in 1951 through a bequest of approximately $14,700 by the late Mary R. Strickland, of Bangor, Maine, to the University of Maine Foundation in memory of her daughter who taught music at the Northern Conservatory and the University. The income from this fund is to be used for scholarships to be awarded annually to needy and deserving students, with special consideration to be given to those majoring in music.

***The William Jordan Sweetser Fund*** was established in 1958 through a bequest of $1,000 by Elizabeth N. Sweetser to the University of Maine Foundation in memory of her husband, William Jordan Sweetser, who was for many years professor and head of the department of mechanical engineering at the University of Maine, the income to be used for a scholarship to be awarded to a student enrolled in mechanical engineering.

***The Chestina Blaisdell Urann Fund*** was established in 1947 through a gift of $10,000 to the University of Maine Foundation by Marcus L. Urann of the Class of 1897 in memory of his mother. The net income of this fund is to be used for scholarships to be awarded to students of superior ability, high ideals, and excellent character who need and merit financial assistance in obtaining their education at the University.

***The Alburney E. Webber, Jr. Scholarship*** was established by a gift of $1,000 to the University of Maine Foundation in 1956 from the estate of Alburney

E. Webber in memory of his son who was a member of the Class of 1933 at the University. The income from this fund is to be awarded annually to a needy and deserving student of good character and satisfactory academic record.

***The Ralph Whittier Fund*** of $5,000 was established in 1950, through a bequest of the late Ralph Whittier, Class of 1902, to the University of Maine Foundation. The income from this fund is to be used for scholarships for needy and deserving students, chosen on the basis of good character and satisfactory academic record.

## PRIZES

### Endowed Prizes

***The Prize of the Class of 1873,*** the income from $1,220, the gift of Russell W. Eaton, of Brunswick, Maine, a member of the Class of 1873, is awarded annually to that student pursuing the basic course in mechanical drawing who shows the greatest improvement. It is expected that candidates for this prize shall have had no training in mechanical drawing previous to entering the University.

***The Milton Ellis Prize,*** the income from a fund of $1,075 contributed by friends of the late Dr. Milton Ellis, is to be awarded annually to that senior English major who ranks highest in the comprehensive examinations.

***The Claude Dewing Graton Prize,*** the income from a fund of $1,760, donated by Mr. Graton, of the Class of 1900, is awarded annually to a regularly enrolled undergraduate student who shall have written the best essay on some current constitutional question, in accordance with rules announced by the Professor of the course in The American Constitution.

***The Henry L. Griffin Prize in English Composition,*** the income from a fund of $250, established in honor of the late Rev. Henry L. Griffin, of Bangor, Maine, is awarded by the Department of English for excellence in the freshman course in composition. The chief basis of the award is a competition in writing held during the month of April.

***The Maine Hardwood Association Award,*** the income from a fund of $1,766, established in 1939, is awarded annually to the senior student in the School of Forestry who shall have achieved the highest rating in the courses in wood utilization and technology and the basic sciences leading to this field. The Director of the School of Forestry will appoint a committee and act as chairman of that committee to determine the specifications on which the rating is based, and to select the recipient.

***The John M. Oak Scholarship Prizes,*** the income from a fund of $1,630, established in 1935 by the estate of Mr. Oak, a graduate of the Class of 1873 and a Trustee of the University from 1908 to 1915, for the advancement of the art of public speaking in the University, are awarded annually to those upperclass students who deliver the best speeches of the persuasive type in a contest held for that purpose, open to men and women, except that no student who has already won the first prize shall be eligible to compete.

### Annual Prizes

***The Alpha Omicron Pi Alumnae Prize,*** $10, given by the Bangor Alumnae Chapter, is awarded annually to the woman student showing the greatest improvement in her work during her freshman year. The record at the Registrar's office,

showing the comparison of grades of the fall semester with those of the spring semester, shall furnish the basis of award.

***The Chi Omega Prize***, $25, is offered annually by the Chi Omega Sorority in accordance with its national policy, to the highest ranking woman of the junior or senior class who is majoring in sociology, business, psychology or political science, with special consideration given to a student whose interest lies in the field of political science. General deportment and interest in further study in one of these fields may be considered in making the award.

***The Dorothy Stone Clark Memorial Prize***, $25, the gift of Chi Omega Sorority, is awarded annually to the highest ranking sophomore majoring in Home Economics. The prize will be given to the girl who has the highest accumulative average for two semesters of the freshman year and the fall semester of the sophomore year.

***The Delta Zeta Prize in English***, $10, given by the Bangor Alumnae Club of Detla Zeta, is awarded to the freshman woman who does the best work in the first semester of Freshman English, especially in her writing.

***The Freshman Algebra Prizes***, $25, $15, and $10, were established in 1953 by Thomas Buck of the Class of 1901. These are awarded to the three freshmen who rank highest in an examination in algebra given by the department of Mathematics early in the second semester.

***The Helen A. Lengyel Award***, established in 1951 by the Women's Athletic Association in honor of Professor Emerita Helen A. Lengyel, Head of the Women's Division, Department of Physical Education from 1924 to 1949, is awarded each year to a woman student on the basis of high moral character, scholastic achievement, financial need, and high standing in the Association. The Committee of Award includes the members of the senior class on the Women's Athletic Council, the Faculty Adviser, and the Head of the Women's Division, Department of Physical Education.

***The A. D. T. Libby Fishery Award***, $100, will be awarded annually to the University of Maine student submitting an article which, in the opinion of the Committee of Award, does the most to stimulate further research in the marine and/or the fresh water fishery resources of Maine. The Committee of Award shall be appointed by the President of the University.

***The Maine Association of Engineers Honor Award***, $100 in cash, together with a Certificate of Award, is presented to a member of the senior class in the College of Technology, who shall be unanimously selected by the Committee of Award on the basis of high moral character, scholastic achievement, and qualities of leadership throughout his college career. The Committee of Award shall be composed of the Chairman of the University Committee on Scholarships, the Dean of the College of Technology, and the President of the Maine Association of Engineers, or such other members of the Association as he may designate. All senior students in the College of Technology, whether graduating in February or June, who are enrolled in a course leading to a degree in Chemical, Civil, Electrical, or Mechanical Engineering, and who are residents of the State of Maine, shall be eligible for consideration by the Committee of Award.

***The Carl Whitcomb Meinecke Award***, $25, the gift of Mrs. Carl W. Meinecke in memory of her late husband, is presented to a junior or senior majoring in the Department of Civil Engineering. The award is made on the basis of character, scholarship, and promise by the Dean of the College of Technology and the head of the Department of Civil Engineering.

***The Mu Alpha Epsilon Scholarships***, two or more, established in 1946, are awarded annually to deserving students who by audition qualify for a scholarship of one year's tuition in Applied Music, voice or instrumental. Musicianship, talent, future use and need are considered is making the awards.

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***The Panhellenic Scholarship Award.*** Each spring the Panhellenic Council recognizes the achievement of the sorority which has the highest scholastic average for the preceding two semesters. The award consists of a certificate of recognition plus the custodianship of the Panhellenic Scholarship Silver Plate for a year.

***The Sigma Chi Foundation Scholarship Cup***, donated in 1947 by Mr. Raymond Fogler of the Class of 1915 through the Sigma Chi Foundation, is awarded semi-annually to the fraternity whose active members attain the highest standing in scholarship for the preceding semester. The cup will become the permanent property of the fraternity to which it is awarded the greatest number of times during a fifteen-year period. If two or more fraternities win the cup the same number of times, the cup shall be awarded to the tying fraternity having the highest cumulative scholastic standing for the entire fifteen-year period.

***The Interfraternity Singing Contest Cup***, presented by the Ohio Alumni Association, is awarded annually to the fraternity winning the interfraternity singing contest. It becomes the permanent property of the fraternity winning three times.

***The Charles Rice Cup***, presented in 1921 by the Kappa Sigma Fraternity in honor of Charles Anthony Rice, of the Class of 1917, who was killed in service, is held for one year by the team winning the Intramural Track Championship.

***The Intramural Plaques*** are presented each year by the Intramural Athletic Association to the fraternities making the best showing in each major intramural sport, and an all-point plaque is given to that fraternity which makes the best performance in all the sports.

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***The Washington Alumni Association Watch*** is presented annually by the Alumni Association of Washington, D. C., to the male member of the graduating class who, in the opinion of the students and the University administration, has done the most for the University during his course. This award is made as the result of a secret ballot by the students, passed upon by the President and the Administrative Committee.

***The Portland Alumnae Memorial Watch*** is presented annually by the Portland Club of University of Maine Women to the woman member of the graduating class who, in the opinion of the students and the University administration, has done the most for the University during her course. This award is made as a result of a secret ballot by the students, passed upon by the President and the Administrative Committee.

Upper: Alumni Memorial Field House and Gymnasium
Lower: Chadbourne Hall, a dormitory for women

# College of Agriculture

WINTHROP C. LIBBY, DEAN

# COLLEGE OF AGRICULTURE

The College of Agriculture is composed of the School of Forestry, the School of Home Economics, and the departments of Agricultural Economics and Farm Management, Agricultural Education, Agricultural Engineering, Agronomy, Animal Industry, Animal Pathology, Bacteriology, Biochemistry, Botany and Plant Pathology, Entomology, Horticulture, and Poultry.

While considerable variation in program requirements exists among units of the College, all have as common objectives: proficiency in a professional, subject-matter field and broad, liberal training for effective citizenship.

The College offers programs leading to the Bachelor of Science degree in the following fields:

1. **Agricultural Sciences**
2. **Agricultural Engineering**
3. **Biological Sciences**
4. **Forestry and Wildlife Management**
5. **Home Economics**

In addition to the above, special programs in Dairy Manufacturing, and Food Processing are offered as part of the New England Board of Higher Education plan for regional cooperation. This agreement permits students to complete two-year preparatory programs at the University of Maine and transfer to the University of Vermont for a final two-year training in Dairy Manufacturing or to the University of Massachusetts for a final two-year training in Food Processing.

A two-year Pre-veterinary curriculum is provided for those who wish to qualify for entrance into a regular college of veterinary medicine.

The **two-year course in agriculture** offers a non-degree, vocational type training to young men and women interested in farming or related sub-professional employment.

## DEPARTMENTS OF INSTRUCTION

*Courses numbered 1-99 are for undergraduates; courses numbered 200 and above are primarily for graduates. If a student, on approval of the graduate faculty, takes a course numbered under 100 for graduate credit he shall register for the course by adding 100 to the catalog number.*

*One number is used for a course which is given both fall and spring.*

*When a dash is used between the two numbers (e.g., 1-2), both semesters must be taken to obtain credit; when a semicolon is used (e.g., 1;2), the first semester may be taken by itself, but the second cannot be taken unless the first is taken previously; when a period is used (e.g., 1.2), either semester may be taken for credit.*

*Courses offered in 1959-60 and alternate years are indicated by the sign (†) placed before the number of the course; courses offered in 1960-61 and alternate years are indicated by the sign (‡) placed before the number of the course.*

# AGRICULTURAL SCIENCES

Students completing requirements in the agricultural science curricula are awarded the degree, Bachelor of Science in Agriculture.

Requirements for this degree, effective with the freshman class entering in the fall of 1958 and thereafter, include satisfactory completion of at least 132 degree hours exclusive of basic military training at an accumulative grade point average of not less than 1.80. These degree hours must be completed as part of an organized program of courses arrived at in consultation with a faculty adviser. The adviser will be selected at the end of the freshman year from one of the following specialty fields: Agricultural Economics and Farm Management, Agricultural Education, Agronomy, Animal/Dairy Science, Dairy Plant Management, Horticulture, and Poultry Science. The adviser will assist in the selection of courses to meet the interests of the individual as well as to prepare him adequately in the specialty field.

The programs will permit considerable flexibility and will be based on the student's educational objectives. Highly technical programs may be arranged to prepare for advanced study or the student may register for a more general program which will provide professional preparation for employment in agricultural production and utilization. An agricultural business course pattern is also available. It is possible through the proper selection of courses to earn a State teaching certificate which will enable the individual to teach one or more of the following high school subject areas: 1)General Agriculture, 2) Vocational Agriculture, 3) High-School Science.

All programs leading to the degree of Bachelor of Science in Agriculture must fulfill the following minimum requirements:

| | | Degree Hours Required |
|---|---|---|
| (1) | *Orientation* | 0 |
| (2) | *Basic Sciences*—Courses selected from the following fields: Bacteriology, Biochemistry, Botany, Zoology, Chemistry, Entomology and Physics, with not over twelve hours from any one field. | 25 |
| (3) | *Communications*—Freshman Composition, Technical Composition, and Speech. | 10 |
| (4) | *Agricultural Sciences*—At least three hours must be taken from each of three different departmental fields other than the one of major interest. | 56 |
| (5) | *Humanities and Social Sciences*—Not less than two hours from each of the following groups:<br>a. Literature, Philosophy, and Fine Arts<br>b. Economics, Sociology, and Psychology<br>c. History and Government | 10 |
| (6) | *Electives:* Any course in the University which the student is prepared to take and which will help provide a balanced program. | 31 |
| | Total | 132 |

## COLLEGE OF AGRICULTURE

At the time of registration, the freshman student will be assigned an adviser who will assist in planning his first year program. This freshman program shall include the following:

(1) *Basic Sciences:* Ch 1 and Ch 2, General Chemistry, for a total of eight hours. In addition, not less than four nor more than nine hours from the following: (a) Bt 1, Botany—(Cr 4), (b) Zo 1, Zoology—(Cr 4), (c) Ps 6, Essentials of Physics—(Cr 5).

(2) *English:* Eh 1 and Eh 2, Freshman Composition, for a total of six hours.

(3) *Mathematics:* All entering freshmen are required to take a proficiency examination in Mathematics. Those not meeting minimum standards are required to take Ms 7, Basic Mathematics (Cr 3).

(4) *Agricultural Sciences:* Minimum of six and a maximum of twelve hours from the following: An 5, Dairy Science (Cr 3), Ph 1, Poultry Husbandry (Cr 3), An 6, General Dairying (Cr 3), AE 30, Farm Machinery (Cr 3), Ag 2, Soils (Cr 3), Fm 48, Agricultural Economics (Cr 3), and Ht 2, Horticulture (Cr 3).

(5) *Military Science and Physical Education:* All freshman men must take both basic military science and physical education unless exempt for physical or other reasons. All freshman women must take physical education unless exempt.

(6) *Orientation:* All freshmen must take Agr 1, Orientation, during the fall semester.

## AGRICULTURAL ECONOMICS AND FARM MANAGEMENT

PROFESSORS MERCHANT, METZGER, PERRY, PULLEN; ASSOCIATE PROFESSORS PLOCH, SAUNDERS; ASSISTANT PROFESSOR TUTHILL

***47. Agricultural Accounting.***—Basic principles of accounting applied to important types of agriculture and to various kinds of forestry operations. One laboratory each for agricultural and forestry students. *Rec* 2, *Lab* 2, *Cr* 3.
MR. METZGER, MR. PULLEN

***48. Agricultural Economics.***—Principles of economics as applied to agriculture. Consideration is given to the development of commercial agriculture, price-making forces, production factors, policy, foreign trade, taxation, credit, marketing, and farm management. *Rec* 3, *Cr* 3. MR. TUTHILL

***70. Agricultural Finance.***—A study of the need for and sources of credit for farmers and the management of owned and borrowed funds with special reference to Maine agriculture. Consideration is given to credit instruments and agricultural credit institutions and their operations. *Rec* 3, *Cr* 3. MR. PULLEN

***74 (174). Farm Management.***—Managing the farm business, decisions as to size of business, production rates, combination of enterprises, labor efficiency, use of machinery; and organization and management of specific farms. *Rec* 3, *Lab* 2, *Cr* 4. MR. PULLEN

***75 (175). Agricultural Statistics.***—Practical problems in statistical measurements such as averages, trends, seasonal variations, cycles, index numbers, linear and nonlinear correlations, and errors. *Rec* 2, *Lab* 2, *Cr* 3. MR. MERCHANT

***76. Agricultural Marketing.***—Economic principles of marketing agricultural products, with special reference to products produced in the northeast.

Student selects laboratory on apples, potatoes, dairy products, or poultry and eggs. *Rec* 3, *Lab* 2, *Cr* 4.

MR. PERRY, MR. MERCHANT, MR. METZGER AND MR. SAUNDERS

***79 (179). Farmers' Cooperatives.***—Appreciation and understanding of the cooperative method of business organization with factors of success and failure. Special attention given to organization, taxation, financing, management, membership, and public relations. *Rec* 3, *Cr* 3. MR. PULLEN

***83. Retail Food Distribution and Merchandising.***—Trends in food consumption; processing, market structure, organization and retail food distribution; consumer services, buying habits, motivations, advertising and merchandising of food through retail outlets. *Rec* 2, *Lab* 2, *Cr* 3.

***87 (187). Agricultural Prices.***—Economic factors underlying price structure of agricultural commodities; supply and demand in perfect and imperfect competition, government price programs; causes and effects of inflation and deflation; price fluctuations and forcasting of farm prices. *Rec* 3, *Cr* 3. MR. TUTHILL

***93 (193). 94 (194). Seminar.***—Discussion of current economic problems. *Lec* 1, *Cr* 1. STAFF

***96 (196). Agricultural Public Policy.***—State, national, and international problems affecting farmers' economic and political life. Special consideration given to surpluses, price support programs, conservation measures, credit agencies, social security, and the development of an agricultural program. *Rec* 3, *Cr* 3.

MR. MERCHANT

***99. Thesis.***—A report on a subject in agricultural economics, farm management, agricultural marketing, agricultural finance, land utilization, farm taxation, agricultural prices, or rural sociology. Prerequisite, permission to register. *Cr, Ar.* STAFF

***202. Advanced Agricultural Statistics.***—Partial and multiple correlation, linear and curvilinear relationships, measures of significant differences, analysis of variance. Graduate students. *Rec* 2, *Lab* 2, *Cr* 3. MR. MERCHANT

***203. Advanced Farm Management.***—Special emphasis on decision making in the organization and operation of farms. Use of various systems of budget analysis; determination of costs of production under various economic conditions. Graduate students. *Rec* 3, *Cr* 3. MR. PULLEN

***204. Advanced Agricultural Marketing.***—Advanced work in the marketing of potatoes, apples, poultry, eggs, and dairy products. Graduate students. *Rec* 3, *Cr* 3. MR. METZGER

***299. Graduate Thesis.***—*Cr, Ar.* STAFF

### Rural Sociology

***24. Rural Sociology.***—Study and analysis of rural-urban population trends and relationships, rural communities, and rural social institutions. Course same as Sy 24. *Rec* 3, *Cr* 3. MR. PLOCH

***29. The Individual and the Community.***—Analysis of group processes, program planning, and leadership in small towns and communities. Training in and application of, social research methods. Course same as Sy 29. Prerequisite, Fm/Sy 24 or Sy 26 or permission of instructor. *Rec* 3, *Cr* 3. MR. PLOCH

***30. Rural Community Analysis.***—Intensive analysis of the problems of smaller communities. Case studies and student analysis of real community situations. Course same as Sy 30. Prerequisite, Fm/Sy 29 or permission of instructor. *Rec* 2, *Lab* 2, *Cr* 3. MR. PLOCH

# AGRICULTURAL EDUCATION

PROFESSOR ELLIOTT

Effective with the Class of 1962, all courses in Agricultural Education will be scheduled during the student's senior year. Near the end of the freshman year, students desiring to certify to teach Vocational Agriculture will, in consultation with their adviser, plan a program to include fifteen hours in Agricultural Education and thirteen hours in Agricultural Engineering. All academic work must be completed by the end of the fall semester of the senior year, other than courses specified for majors or minors in Agricultural Education during the spring semester. One half of the spring semester will be devoted to directed teaching in secondary schools.

The following courses apply only to Classes of 1960 and 1961.

***4. Special Methods in Teaching Agriculture.***—Planning and organizing local programs; methods and techniques of teaching vocational agriculture; conducting young farmer programs, and the Future Farmers of America. Prerequisite, Course 2. *Rec* 3, *Cr* 3. MR. ELLIOTT

***6. Supervised Farm Practice.***—Objectives, importance, selection, planning, keeping records, evaluation, supervision, and on-farm instruction. Prerequisite, Course 4. *Rec* 2, *Cr* 2. MR. ELLIOTT

***8. Methods of Teaching Farm Shop.***—General aims and purposes of farm mechanics; providing shops and equipment; organization of course content; shop management and instruction. Prerequisite, Course 4. *Rec* 2, *Cr* 2. MR. ELLIOTT

***9. Directed Teaching.***—Introduction to teaching including observation and participation in the classroom and shop; supervised farm practice, administration, and extracurricular activities. Prerequisite, Course 4. *Cr* 6. MR. ELLIOTT

# AGRONOMY

PROFESSORS STRUCHTEMEYER, GAUSMAN; ASSOCIATE PROFESSORS BROWN, MURPHY, TREVETT; ASSISTANT PROFESSORS BLACKMON, HUTCHINSON

## Soils

***2. Soils.***—Origin, types, physical and chemical properties of soils. *Rec* 3, *Cr* 3. MR. STRUCHTEMEYER

***3. Forest Soils.***—Origin, types, physical and chemical properties of soils as related to forests. *Rec* 2, *Lab* 2, *Cr* 3. MR. STRUCHTEMEYER

***5. Soils Laboratory.***—Physical and chemical properties of soils. Special emphasis on standard soils laboratory techniques. Primarily for majors in Agronomy but open to all students. Prerequisite, Course 2. *Lab* 4, *Cr* 2. MR. MURPHY

***8. Soil Management and Conservation.***—Improvement and maintenance of soil fertility through use of various fertilizers, cropping and soil conservation practices. Prerequisite, Course 2 or 3. *Rec* 3, *Cr* 3. MR. HUTCHINSON

‡***54 (154). Chemistry of Soils and Fertilizers.***—Chemical properties of soils and fertilizers with principles and methods of analysis. Offered in alternate years. Prerequisite, Courses 2 and 5, or permission of instructor. *Rec* 2, *Lab* 3, *Cr* 3.

†***56 (156). Soil Physics.***—Physical properties of the soil. Offered in alter-

nate years. Prerequisite, Courses 2, 5, and Physics 3, or permission of instructor. *Rec* 2, *Lab* 3, *Cr* 3. MR. GAUSMAN

‡***57 (157). Soil Development and Classification.***—Genesis, morphology, classification and mapping of soils. Prerequisite, Courses 2, 5, and Geology 1. *Rec* 2, *Lab* 3, *Cr* 3.

### Crops

***20. Forage and Grain Crops.***—Field crop culture, particularly forage and grain varieties, seed, fertilization, tillage, pest control, harvesting and marketing. *Rec* 2, *Lab* 2, *Cr* 3. MR. BLACKMON

‡***21. Potato Production.***—Varieties, seed selection, preparation of land, planting, fertilization, spraying, harvesting, and storing. *Rec* 2, *Lab* 2, *Cr* 3.

‡***22. Sweet Corn, Peas, and Beans.***—The production of sweet corn, peas and beans for processing. *Rec* 2, *Lab* 2, *Cr* 3.

***64 (164). Hay and Pasture Management.***—Production and preservation of hay, silage, and pasture crops. Varieties and seeding mixtures; use of lime, manures, fertilizers; cutting and grazing. Methods of storage and preservation. *Rec* 3, *Cr* 3. MR. BROWN

***66 (166). Crop Breeding.***—Plant introduction, hybridization, selection and inheritance studies. Methods, objectives, and results in developing new varieties of field crops. Prerequisite, Botany 45. *Rec* 3, *Cr* 3. MR. BLACKMON

***69 (169). Principles of Weed Control.***—Characteristics and control of weeds of the Northeast. Prerequisite, Course 20 and Botany 1. *Rec* 2, *Lab* 2, *Cr* 3. MR. TREVETT

### General Courses

***70 (170). Experimental Design.***—Principles of research in the biological sciences, conduct of agronomic and related experiments, and statistical interpretation of data. *Rec* 3, *Lab* 2, *Cr* 4. MR. GAUSMAN

***81, 82 (181, 182). Seminar.***—Recent literature, problems and experiments pertaining to soils and crops. *Rec* 1, *Cr* 1. STAFF

***83, 84 (183, 184). Special Problems in Agronomy.***—*Cr, Ar.* STAFF

***203. Radioisotopes in Biological Research.***—Principles for radioisotope research, health physics, tracer techniques. Protective clothing required. Admittance by permission of instructor. *Rec* 2, *Lab* 3, *Cr* 3. MR. GAUSMAN

***299. Graduate Thesis.***—*Cr, Ar.* STAFF

## ANIMAL SCIENCE

PROFESSORS POULTON, DICKEY; ASSOCIATE PROFESSORS BRUGMAN, LEONARD, RAMSDELL; ASSISTANT PROFESSOR ANDERSON

***5. Dairy Science.***—The dairy cattle breeds; the selection, care, and management of dairy cattle; providing feed and housing for the successful dairy herd. *Rec* 3, *Cr* 3. MR. POULTON

***6. General Dairying.***—Milk composition, properties, production, pasteurization, homogenization, and separation. Testing dairy products for fat (Babcock method), acidity, total solids, and common adulterations. *Rec* 2, *Lab* 2, *Cr* 3. MR. RAMSDELL

***19. Livestock Feeding.***—The general principles of livestock feeding; livestock feeds and their values for the different classes of stock. *Rec* 3, *Cr* 3.
MR. ANDERSON

***25. Market Milk.***—A survey of the market milk industry. Emphasis placed on sanitary control, transportation, pasteurization, homogenization, and manufacture of special milks. *Rec* 3, *Lab* 3, *Cr* 4. MR. RAMSDELL

***26. Dairy Products.***—Selection and evaluation of milk, butter, cheese, and ice cream. Emphasis on flavor defects and origin. *Rec* 1, Lab 2, *Cr* 2.
MR. RAMSDELL

***32. Dairy Cattle Selection.***—A detailed study of the selection of dairy cattle based on type conformation with emphasis on the relation of type to longevity and milk production. *Lab* 4, *Cr* 2. MR. POULTON

***46. Dairy Cattle Management.***—Care, and management of the dairy herd. The laboratory is devoted to practical problems and record keeping in dairy cattle management. *Rec* 2, *Lab* 2, *Cr* 3. MR. LEONARD

***48. Livestock Management.***—The selection, breeding, feeding, care, and management of beef cattle, sheep, and swine. *Rec* 3, *Lab* 2, *Cr* 4. MR. BRUGMAN

***53 (153). 54 (154). Problems in Dairy Plant Management.***
MR. POULTON, MR. RAMSDELL

***55 (155). Animal Nutrition.***—Principles of nutrition, and the application of nutritional theories to practical feeding problems. *Rec* 3, *Cr* 3. MR. DICKEY

***56 (156). Advanced Animal Nutrition.***—A study of the nutrient requirements of all classes of livestock. The nutritive value and characteristics of livestock feeds are studied as well as methods of formulating balanced nutrient intakes. Prerequisite, course An 55. *Rec* 2, *Lab* 2, *Cr* 3. MR. DICKEY

***57 (157). 58 (158). Problems in the Animal Sciences.***—Special study of research problems within the animal science field. *Cr, Ar.*
MR. POULTON, MR. DICKEY, MR. BRUGMAN, MR. LEONARD, MR. ANDERSON

***60 (160). Animal Breeding.***—The physiology of reproduction; the principles and theories of breeding as applied in the livestock industry; and the study of pedigrees and records in the herd books. *Rec* 2, *Lab* 3, *Cr* 3. MR. DICKEY

***61. Dairy Quality Control.***—Approved methods of testing dairy products, chemical, physical, and bacteriological, used for control purposes in the dairy industry and the practical application of such new tests as they are introduced. *Lab* 4, *Cr* 2. MR. RAMSDELL

***63 (163). 64 (164). Seminar.***—Preparation and presentation of papers dealing with topics in the animal and dairy fields. *Rec* 1, *Cr* 1.
MR. POULTON AND STAFF

***65. Meat Technology.***—The handling and preparation of livestock for market. Farm and packing house methods of slaughter of animals, and cutting and curing of meats. *Rec* 1, *Lab* 4, *Cr* 3. MR. BRUGMAN

***68. Ice Cream Manufacture.***—Selection of ingredients, mix formulation, and freezing processes. *Rec* 2, *Lab* 4, *Cr* 4. MR. RAMSDELL

***70 (170). Physiology of Milk Secretion.***—A detailed study of the development and function of the mammary gland. The biochemistry and physiology of milk secretion and udder evacuation. Prerequisite, Zo 1, Bc 2 or equivalent. *Rec* 3, *Cr* 3. MR. ANDERSON

***72 (172). Endocrinology.***—A detailed study of the animal endocrine system and functional relationships of each of the endocrine glands to growth, reproduction, and lactation. Prerequisite, Zo 1, Bc 2 or equivalent. *Rec* 3, *Cr* 3.
MR. POULTON

***299. Graduate Thesis.***—*Cr, Ar.*
Mr. Poulton, Mr. Dickey, Mr. Brugman, Mr. Ramsdell

## ANIMAL PATHOLOGY

Professors Witter, Chute; Assistant Professor Payne

***35. Anatomy of Domestic Animals.***—Comparative anatomy of domestic mammals and birds, emphasizing histological features and those parts of the body involved in meat cutting, judging livestock, and in common diseases. *Rec* 2, *Lab* 2, *Cr* 3. Mr. Witter, Mr. Chute, Mr. Payne

***36 (136). Physiology of Domestic Animals.***—Special emphasis is placed on comparative features, especially of the circulatory, respiratory, digestive, and urogenital systems of domestic animals and birds. *Rec* 3, *Cr* 3. Mr. Payne

***37 (137). Animal Hygiene.***—Principles of hygiene, sanitation, and immunology applied to the prevention and control of the common diseases of domestic animals. Special attention is given to the fundamentals of disease processes. *Rec* 3, *Cr* 3. Mr. Witter

***40 (140). Poultry Diseases.***—Principles of hygiene and sanitation applied to the prevention and control of the diseases of poultry, including a detailed consideration of the pathological processes involved in the common diseases. *Rec* 3, *Cr* 3. Mr. Chute

***44 (144). Disease and Parasite Control (in Wildlife).***—Known infectious and parasitic diseases of game and fur-bearing animals, emphasizing preventive and control measures and practice in autopsy techniques. *Rec* 2, *Lab* 2, *Cr* 3. Mr. Witter

***51 (151). 52 (152). Problems in Animal Pathology.***—*Cr, Ar.*
Mr. Witter, Mr. Chute, Mr. Payne

## GENERAL AGRICULTURE

Dean Libby

### For Freshmen in All Agricultural Curricula

***Agr. 1. Orientation.***—Designed to acquaint freshmen with the University and the professional agricultural fields. *Rec* 1, *Cr* 0. Mr. Libby

## HORTICULTURE

Professor Eggert; Associate Professor Clapp; Assistant Professors Hepler, Whitton

### General Courses

***2. Horticulture.***—The fundamental principles and practices in the production of fruits, vegetables and flowers, and relating to ornamental horticulture. *Rec* 3, *Cr* 3. Mr. Eggert

***61 (161). 62 (162). Seminar.***—A review of the history of horticulture, trade papers and magazines, sources of information, and recent advances in horticultural research. Prerequisite, Courses 23, 30, and 51. Required of junior, senior and graduate students majoring in horticulture. *Rec* 1, *Cr* 1. Staff

***63 (163). 64 (164). Problems in Horticulture.***—Open to juniors and sen-

iors who have demonstrated a capacity for individual effort, and to graduate students. Written consent of instructor must be obtained before registration. *Cr, Ar.* STAFF

***66 (166). Plant Propagation.***—The principles and methods involved in the propagation of herbaceous and woody plants by seeds, division, layering, cutting, budding, and grafting. Prerequisite, Botany 53 and at least one of the following: Courses 23, 30, 51, or Agronomy 21. *Rec* 2, *Lab* 2, *Cr* 3. MR. WHITTON

***299. Graduate Thesis.***—*Cr, Ar.* STAFF

### Pomology

***51. Pomology.***—Principles and practices in pomology as related to the basic sciences. The culture of all deciduous tree fruits with particular emphasis given to the apple. *Rec* 2, *Lab* 2, *Cr* 3. MR. EGGERT

***54 (154). Advanced Pomology.***—Further consideration of the principles and practices in pomology. A comprehensive survey of sources of information with special reference to application in commercial orchard management. Prerequisite, Course 51, Botany 53 and junior standing. *Rec* 2, *Lab* 2, *Cr* 3. MR. WHITTON

†***55. Systematic Pomology.***—A survey of species of fruits and nuts, emphasizing botanical status as well as horticultural classification, varieties, distribution and use. Prerequisite, Course 51 and junior standing. *Rec* 2, *Lab* 2, *Cr* 3. MR. WHITTON

†***57 (157). Fruit Storage.***—The harvesting, grading, packing, inspection, storage, and transportation of apples. The principles and practices of common, cold, and modified atmosphere storage. Prerequisite, Course 51 and Botany 53. *Rec* 2, *Lab* 2, *Cr* 3. MR. EGGERT

‡***59. Small Fruits.***—Varieties, cultural methods, and handling of blueberries, strawberries, raspberries, cranberries, grapes, and blackberries. Minor attention given to other bush-type, bramble, and dwarf fruits. Prerequisite, sophomore standing. *Rec* 3, *Cr* 3.

### Vegetables

***23. Vegetable Growing.***—The important vegetable crops, emphasizing their characteristics and culture with consideration given their adaptation to local soil and climatic conditions. *Rec* 2, *Lab* 2, *Cr* 3. MR. HEPLER

***24. Market Vegetable Production.***—Organization and management in market vegetable production and the horticultural techniques practiced in commercial production. Field trip. Prerequisite, Course 23, Botany 53, junior standing, or permission of the instructor. *Rec* 3, *Cr* 3. MR. HEPLER

***26 (126). Advanced Vegetable Crops.***—The development, physiology, and improvement of vegetable crops. Prerequisite, Course 23, Botany 45, Botany 53, and permission of instructor. *Rec* 2, *Lab* 2, *Cr* 3. MR. HEPLER

### Floriculture and Ornamental Horticulture

***30. Ornamental Horticulture.***—General practice in flower gardening and the care of woody plants. *Rec* 2, *Lab* 2, *Cr* 3. MR. CLAPP

***31; 32. Commercial Floriculture.***—The application of modern plant grow-

ing science to greenhouse practice and a brief study of greenhouse crops. Field trips. Prerequisite, Course 30. *Rec* 2, *Lab* 2, *Cr* 3. MR. CLAPP

‡***43. Trees and Shrubs.***—The identification and special characteristics of woody plants which make them important for landscape use; a detailed study of their culture. Prerequisite, junior or senior standing. *Rec* 2, *Lab* 2, *Cr* 3.

***46. Home Landscaping.***—Principles of landscape design with particular application to the home grounds. An all-day trip to Mt. Desert Island is required at the completion of the course. Prerequisite, Engineering Drawing 1. *Rec* 2, *Lab* 2, *Cr* 3. MR. CLAPP

## POULTRY SCIENCE

PROFESSORS SMYTH, GERRY; ASSISTANT PROFESSORS BERRY, HARRIS

***1. Poultry Husbandry.***—A general course in poultry production, incubation, brooding, housing, feeding, breeding and management. *Rec* 3, *Cr* 3. MR. SMYTH

***23. Poultry Judging.***—Selection and judging of poultry with special emphasis on production judging. Laboratory practice in judging both utility and exhibition poultry. Prerequisite, Course 1. *Rec* 1, *Lab* 2, *Cr* 2. MR. HARRIS

***25. Poultry Feeding.***—General principles of nutrition as applied to poultry; poultry feeds; calculating rations; feeding methods and cost of feeding. Prerequisite, Course 1 and Biochemistry 1. *Rec* 3, *Cr* 3. MR. GERRY

***28. Poultry Breeding.***—Principles of inheritance as applied to poultry; systems of breeding; and study of pedigrees and breeding results. Prerequisite, Course 1 and Botany 45. *Rec* 3, *Cr* 3. MR. BERRY

***32. Incubation and Brooding.***—Principles of incubation and brooding. Laboratory practice in incubation and brooding management. Prerequisite, Course 1. *Rec* 2, *Lab* 2, *Cr* 3. MR. HARRIS

***46. Poultry Farm Management.***—The business of poultry farming; cost of production and management practices. Prerequisite, Courses 1, 25, 28, and 32. *Rec* 3, *Cr* 3. MR. SMYTH

***51 (151). 52 (152). Problems in Poultry Science.***—*Cr, Ar.* MR. SMYTH, MR. GERRY, MR. BERRY

***53 (153). 54 (154). Seminar.***—A study of poultry organization and literature giving results of recent research work. Prerequisite, Courses 1, 25, 28, and 32. *Rec* 1, *Cr* 1. MR. SMYTH

***201. Population Genetics.***—The study of quantitative rather than qualitative characteristics; methods for determining their heritability, and for changing their level of performance in a population. Prerequisite, By 45 or Zo 63 and Ag 70 or Fm 75. *Rec* 3, *Cr* 3. MR. BERRY

***299. Graduate Thesis.***—*Cr, Ar.* MR. SMYTH

## SPECIAL PRE-PROFESSIONAL PROGRAMS IN DAIRY MANUFACTURING, FOOD PROCESSING, AND PRE-VETERINARY

A. Dairy Manufacturing

A cooperative agreement with the University of Vermont offers an opportunity for students to secure training in dairy manufacturing. The first two

years of a four-year course are offered at the University of Maine, the final two years are completed at the University of Vermont. Residents of Maine are admitted to the University of Vermont for the last two years of the course at the Vermont resident tuition rate. The first two years of this program at Maine are supervised by the department of Animal Industry.

B. Food Processing

A cooperative agreement with the University of Massachusetts offers an opportunity for students to secure training in the field of food processing. A basic two-year program may be completed at the University of Maine and a final two years of specialized training completed at the University of Massachusetts. Residents of Maine are admitted to the University of Massachusetts for the last two years of the course at the Massachusetts resident tuition rate. The preparatory program at Maine is supervised by the department of Bacteriology.

C. Pre-Veterinary

The University of Maine does not offer a degree in Veterinary Medicine. However, a special two-year Pre-veterinary curriculum is provided for those who wish to qualify for entrance into a regular college of veterinary medicine. This program is supervised by the department of Animal Pathology. Adjustments in the selection of courses can be made to fit special requirements of particular veterinary colleges. Pre-vet students who fail to qualify for veterinary college or who desire to change their course can transfer to degree curricula within the College.

### Two Year Pre-Veterinary Curriculum

### Freshman Year

FALL SEMESTER

| | | Subject | Hours Rec | Lab | Cr |
|---|---|---|---|---|---|
| Agr | 1 | Orientation | 1 | 0 | 0 |
| An | 5 | Dairy Husbandry | | | |
| | | or | 3 | 0 | 3 |
| Ph | 1 | Poultry Husbandry | | | |
| Ch | 1 | General Chemistry | 3 | 3 | 4 |
| Eh | 1 | Freshman Comp. | 3 | 0 | 3 |
| Mt | 1 | Military Science I | 2 | 1 | 1½ |
| My | 1 | Modern Society | | | |
| | | or | | | |
| | | Equivalent in Soc. Science | 3 | 0 | 3 |
| Pe | 1 | Phy. Education | 0 | 2 | 0 |
| Zo | 1 | Gen. Zoology | 2 | 4 | 4 |
| | | | | | 18½ |

SPRING SEMESTER

| | | Subject | Hours Rec | Lab | Cr |
|---|---|---|---|---|---|
| Bt | 1 | General Botany | 2 | 4 | 4 |
| Ch | 2 | Gen. Chemistry | 3 | 3 | 4 |
| Eh | 2 | Freshman Comp. | 3 | 0 | 3 |
| Mt | 2 | Military Science II | 2 | 1 | 1½ |
| My | 2 | Modern Society | | | |
| | | or | | | |
| | | Equivalent in Soc. Science | 3 | 0 | 3 |
| Pe | 2 | Phy. Education | 0 | 2 | 0 |
| | | Elective from Humanities (Hist., Music, Art, Lit., Phil.) | | | 3 |
| | | | | | 18½ |

### Sophomore Year

FALL SEMESTER

| Subject | | | Hours Rec | Lab | Cr |
|---|---|---|---|---|---|
| AnP | 35 | Anatomy of Domestic Animals | 2 | 2 | 3 |
| Bc | 1 | Organic Chemistry | 3 | 2 | 4 |
| Hy | 3 | U. S. History | 3 | 0 | 3 |
| Ms | 3 | College Algebra | 2 | 0 | 2 |
| Mt | 3 | Military Science III | 2 | 1 | 2 |
| Pe | 3 | Phy. Education | 0 | 2 | 0 |
| Ps | 1a | Gen. Physics | 2 | 4 | 4 |
| Sh | 1 | Public Speaking | 2 | 0 | 2 |
| | | | | | 20 |

SPRING SEMESTER

| Subject | | | Hours Rec | Lab | Cr |
|---|---|---|---|---|---|
| Bc | 2 | Biochemistry | 3 | 2 | 4 |
| Ch | 41 | Quant. Analysis | 2 | 3 | |
| | | or | | | 3 |
| | | Elective in Agri. | — | — | |
| Ms | 1 | Trigonometry | 2 | 0 | 2 |
| Mt | 4 | Military Science IV | 2 | 1 | 2 |
| Pe | 4 | Phy. Education | 0 | 2 | 0 |
| Ps | 2a | Gen. Physics | 2 | 4 | 4 |
| Sh | 9 | Parliamentary Procedure | 1 | 0 | 1 |
| | | Elective from Humanities (Hist., Art, Lit., Phil.) | | | 3 |
| | | | | | 19 |

## AGRICULTURAL ENGINEERING

PROFESSOR BONDURANT; ASSOCIATE PROFESSORS CARPENTER, HUNTINGTON, RHOADS, SWIFT; ASSISTANT PROFESSORS MILNE, ROWE

The curriculum is designed to give the student training in the fundamentals of engineering, basic agricultural subjects, and the application of this knowledge to agricultural problems. In general, agricultural engineering may be separated into five major phases of activity—agricultural processing, farm power and machinery, farm electrification, farm structures, and soil and water control.

This curriculum prepares students for many different types of positions which include: design, field testing or sales and service with industrial or agricultural equipment concerns, building material manufacturers, electric power companies, trade associations, and food processing plants; research and development work with government agencies; teaching, research, and extension work with colleges and experiment stations; advisory and managerial posts in connection with mechanized agricultural development here and abroad; field engineers on large farm enterprises; private business such as a consulting practice, equipment dealer, or farm operator.

This degree requires satisfactory completion of at least 143 degree hours exclusive of basic military training at an accumulative grade point average of not less than 1.80 in a course of study which conforms to the following curriculum:

### Freshman Year

| | | | Rec | Lab | Cr |
|---|---|---|---|---|---|
| AE | 79 | Seminar | 1 | 0 | 0 |
| Agr | 1 | Orientation | 1 | 0 | 0 |
| Ch | 1 | General Chemistry | 3 | 3 | 4 |
| Eg | 1 | Eng. Drawing | 0 | 4 | 2 |
| Eh | 1 | Freshman Comp. | 3 | 0 | 3 |
| Fm | 48 | Agri. Economics | 3 | 0 | 3 |
| Ms | 1 | Trigonometry | 2 | 0 | 2 |
| Ms | 3 | Algebra | 2 | 0 | 2 |
| Mt | 1 | Military Science I | 2 | 1 | 1½ |
| Pe | 1 | Phy. Education | 0 | 2 | 0 |
| | | | | | 17½ |

| | | | Rec | Lab | Cr |
|---|---|---|---|---|---|
| Ag | 2 | Soils | 3 | 0 | 3 |
| Ch | 2 | Gen. Chemistry | 3 | 3 | 4 |
| Eg | 3 | Eng. Drawing | 0 | 4 | 2 |
| Eh | 2 | Freshman Comp. | 3 | 0 | 3 |
| Ms | 12 | Anal. Geom. & Cal. | 4 | 0 | 4 |
| Mt | 2 | Military Science II | 2 | 1 | 1½ |
| Pe | 2 | Phy. Education | 0 | 2 | 0 |
| | | | | | 17½ |

## COLLEGE OF AGRICULTURE

### Sophomore Year

FALL SEMESTER

| | | Subject | Hours Rec | Lab | Cr |
|---|---|---|---|---|---|
| Ce | 5 | Surveying | 2 | 3 | 3 |
| Me | 21 | Eng. Mat. & Met'y | 3 | 0 | 3 |
| Ms | 27 | Calculus | 5 | 0 | 5 |
| Mt | 3 | Military Science III | 2 | 1 | 2 |
| Ps | 1 | General Physics | 4 | 2 | 5 |
| Sh | 1 | Public Speaking | 2 | 0 | 2 |
| | | | | | 20 |

SPRING SEMESTER

| | | Subject | Hours Rec | Lab | Cr |
|---|---|---|---|---|---|
| Bt | 1 | General Botany | 2 | 4 | 4 |
| Me | 50 | Applied Mechanics Statics | 3 | 0 | 3 |
| Ms | 28 | Calculus | 5 | 0 | 5 |
| Mt | 4 | Military Science IV | 2 | 1 | 2 |
| Ps | 2 | General Physics | 4 | 2 | 5 |
| | | | | | 19 |

### Junior Year

| | | | Rec | Lab | Cr |
|---|---|---|---|---|---|
| †Ce | 26 | Hydraulics | 3 | 3 | 4 |
| Ee | 7 | Elec. Circuits & Machines | 2½ | 1½ | 3 |
| Me | 23 | Kinematics | 3 | 3 | 4 |
| Me | 43 | Heat Engineering | 3 | 0 | 3 |
| Me | 51 | Strength of Mat. | 4 | 0 | 4 |
| | | *Elective | | | 1 |
| | | | | | 19 |

| | | | Rec | Lab | Cr |
|---|---|---|---|---|---|
| AE | 67 | Agr. Power | 3 | 3 | 4 |
| Ce | 52 | Struct. Anal. & Design | 3 | 0 | 3 |
| Ee | 8 | Elec. Cir. & Mach. | 2½ | 1½ | 3 |
| Eh | 5 | Tech. Composition | 2 | 0 | 2 |
| Me | 41 | Mech. Lab. | 0 | 3 | 1½ |
| Me | 52 | Applied Mechanics, Dynamics | 3 | 0 | 3 |
| | | *Elective | | | 2½ 3½ |
| | | | | | 19 |

### Senior Year

| | | | Rec | Lab | Cr |
|---|---|---|---|---|---|
| AE | 60 | Agr. Machinery | 3 | 3 | 4 |
| AE | 65 | Soil Water Eng'g. | 3 | 3 | 4 |
| AE | 80 | Seminar | 1 | 0 | 0 |
| AE | 83 | Spec. Problems in Agric. Eng. | | | 1 |
| | | *Elective | | | 10 |
| | | | | | 19 |

| | | | Rec | Lab | Cr |
|---|---|---|---|---|---|
| AE | 63 | Farm Structure Design | 2 | 3 | 3 |
| AE | 69 | Agr. Processing | 2 | 3 | 3 |
| AE | 84 | Spec. Prob. in Agric. Eng. | | | 1 |
| | | *Elective | | | 12 |
| | | | | | 19 |

* 18 hours of elective credit must be in humanity electives as specified for other engineering curricula except that 3 hours must be in FM/SY courses; sufficient additional elective credit must be in College of Agriculture subjects to make a total of 40 credits.

† Me 59 Fluid Mechanics may be substituted by special permission.

### Graduate Work in Agricultural Engineering

The degree of Master of Science is offered with options for specialization in soil and water engineering, farm structures, agricultural processing, power machinery, and rural electrification.

Several research assistantships are available each year. Incumbents devote half time to research work on approved projects of the Agricultural Experiment Station.

### Courses in Agricultural Engineering

***30. Farm Machinery.***—Study of the functional components of farm machinery; principles and techniques of operation and adjustment. Analysis of factors contributing to efficient management of equipment. *Rec* 2, *Lab* 2, *Cr* 3.

MR. HUNTINGTON

***33. Farm Structures.***—Planning, designing, and the construction of farm buildings; water, heating, ventilation, and sewage disposal facilities; selection and proper use of building materials. *Rec* 2, *Lab* 3, *Cr* 3. MR. CARPENTER

***35. Soil Water Control.***—Field surveying, planning, layout and construction of soil and water control structures such as farm ponds, drainage systems, irrigation systems and soil erosion control structures. *Rec* 2, *Lab* 3, *Cr* 3. MR. RHOADS

***36. Farm Power.***—Application of power to farm operations. The construction, operation, care and adjustment of internal combustion engines and related equipment. *Rec* 2, *Lab* 2, *Cr* 3. MR. ROWE, MR. RHOADS

***38. Rural Electrification.***—Electrical terms, wiring, lighting, use and care of electric motors. *Rec* 2, *Lab* 3, *Cr* 3. MR. MILNE

***41. School Shop.***—Wood-tool fitting, woodworking, painting, concrete work and general farm construction. *Rec* 1, *Lab* 3, *Cr* 2. MR. SWIFT

***42. School Shop.***—Welding, cold metal work, forging, soldering, pipe fitting and power transmission. *Rec* 1, *Lab* 3, *Cr* 2. MR. SWIFT

***60 (160*). Agricultural Machinery.***—Functional requirements, development, design features, capacity, power requirements, selection and use of machines used in crop production. Prerequisite, Physics 1 and 2, Mechanical Engineering 53. *Rec* 2, *Lab* 4, *Cr* 4. MR. HUNTINGTON

***63 (163*). Farm Structures Design.***—Functional planning and structural design of farm buildings; types of construction; use of materials and cost estimates. Prerequisite, Mechanical Engineering 53 and 54. *Rec* 2, *Lab* 3, *Cr* 3. MR. CARPENTER

***64 (164). Instrumentation and Controls.***—Theory and use of instruments for measuring and controlling such fcators as temperature, moisture content, and fluid flow. Use of strain gages. Prerequisite, Ps 2 and Ms 28 or permission of instructor. *Rec* 2, *Lab* 2, *Cr* 3. MR. MILNE

***65 (165*). Soil Water Engineering.***—Design of erosion control structures, small earth dams and farm reservoirs, drainage, and irrigation systems. Study of flood control and land clearing techniques. Prerequisite, Civil Engineering 5 and 26. *Rec* 3, *Lab* 3, *Cr* 4. MR. BONDURANT

***67 (167*). Agricultural Power.***—Principles, construction, application, testing and rating of I.C. engines, electric motors, and other power sources used in Agriculture. Mechanics of tractor power application. Prerequisite, Me 43. *Rec* 3, *Lab* 3, *Cr* 4. MR. ROWE

***69 (169*). Agricultural Process Engineering.***—Unit operations and their applications as related to agricultural processing and processing equipment. Prerequisite, Mechanical Engineering 43, Mechanical Engineering 59, or Civil Engineering 26. *Rec* 2, *Lab* 3, *Cr* 3. MR. RHOADS

***79. 80. Seminar.***—Recent literature, developments and problems in the field of Agricultural Engineering. *Rec* 1, *Cr* 1. STAFF

***83. 84. Special Problems in Agricultural Engineering.***—*Cr, Ar.* STAFF

***280. Graduate Seminar.***—*Rec* 1, *Cr* 1. STAFF

***283. 284. Problems in Agricultural Engineering.***—*Cr, Ar.* STAFF

***299. Graduate Thesis.***—*Cr, Ar.* STAFF

* Except for major students in Agricultural Engineering.

# BIOLOGICAL SCIENCES

The biological sciences are the basic sciences dealing with living things.

**Bacteriology** is the science that deals with microorganisms. Bacteriologists may be concerned with diseases of all kinds or with quality control in basic food, fiber, and related industries.

**Biochemistry** is the chemistry of living things. Biochemists are concerned with foods and nutrition, the utilization of food and fiber materials, the development of by-product uses for waste materials, the study of growth and growth stimulants, as well as the development and utilization of drugs, chemicals, and many other items.

**Botany** is the science of plant life. Professional botanists are concerned with problems such as diseases and growth of plants, control of weeds, and development of new varieties of plants for disease resistance, higher productivity, more desirable quality or other areas where plants are concerned.

**Entomology** is the science which deals with insects—their classification, structure, physiology, ecology, and nature with special emphasis on the chemical and biological control of harmful insects.

Bachelor of Science degrees are offered in each of the four areas mentioned. All require satisfactory completion of at least 132 degree hours exclusive of basic military training at an accumulative grade point average of not less than 1.80. Curricula for each of the degrees follow.

The freshman year program is common for all four specialized fields. At the end of the freshman year the student must decide on his major field.

### Freshman Year

**FALL SEMESTER**

| | | Subject | Hours Rec | Lab | Cr |
|---|---|---|---|---|---|
| Agr | 1 | Orientation | 1 | 0 | 0 |
| Ch | 1 | General Chemistry | 3 | 3 | 4 |
| Eh | 1 | Freshman Comp. | 3 | 0 | 3 |
| Ms | 1 | Trigonometry | 2 | 0 | 2 |
| Ms | 3 | College Algebra | 2 | 0 | 2 |
| Mt | 1 | Military Science I | 2 | 1 | 1½ |
| Pe | 1 | Phy. Education | 0 | 2 | 0 |
| Zo | 1 | Gen. Zoology | | | |
| | | or | 2 | 4 | 4 |
| Zo | 3 | Animal Biology | | | |
| | | Elective | | | 2 |
| | | | | | 18½ |

**SPRING SEMESTER**

| | | Subject | Hours Rec | Lab | Cr |
|---|---|---|---|---|---|
| Ch | 2 | Gen. Chemistry | 3 | 3 | 4 |
| Eh | 2 | Freshman Comp. | 3 | 0 | 3 |
| Ms | 12 | Anal. Geom. & Cal. | 4 | 0 | 4 |
| Mt | 2 | Military Science II | 2 | 1 | 1½ |
| Pe | 2 | Phy. Education | 0 | 2 | 0 |
| Bt | 1 | Gen. Botany | | | |
| | | or | 2 | 4 | 4 |
| Zo | 4 | Animal Biology | | | |
| | | Elective | | | 2 |
| | | | | | 18½ |

# BACTERIOLOGY

PROFESSOR DALTON, ASSOCIATE PROFESSOR BUCK, ASSISTANT PROFESSOR BAIN

## Curriculum Leading to a Bachelor of Science Degree in Bacteriology

**Freshman Year.** See page 80.

### Sophomore Year

| FALL SEMESTER | | | | | | SPRING SEMESTER | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Subject | | | Hours | | | Subject | | | Hours | | |
| | | | Rec | Lab | Cr | | | | Rec | Lab | Cr |
| By | 27 | Gen. Bacteriology | 3 | 4 | 5 | Ch | 40 | Quant. Analysis | 2 | 6 | 4 |
| Ch | 51 | Organic Chemistry | 3 | 4 | 5 | Ch | 52 | Organic Chemistry | 3 | 4 | 5 |
| Mt | 3 | Military Science III | 2 | 1 | 2 | Mt | 4 | Military Science IV | 2 | 1 | 2 |
| Sh | 1 | Public Speaking | 2 | 0 | 2 | | | Elective | | | 6 |
| | | Elective | | | 3 | | | | | | |
| | | | | | 17 | | | | | | 17 |

### Junior Year

| | | | Rec | Lab | Cr | | | | Rec | Lab | Cr |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Bc | 60 | Physiological Chem. | 3 | 3 | 4 | By | 52 | Pathogenic Bact. | 2 | 4 | 4 |
| By | 53 | Bacterial Physiology | 2 | 4 | 4 | By | 56 | Indust. Microbiology | 2 | 4 | 4 |
| Ps | 1a | Gen. Physics | 2 | 4 | 4 | Ps | 2a | Gen. Physics | 2 | 4 | 4 |
| | | Elective | | | 5 | | | Elective | | | 5 |
| | | | | | 17 | | | | | | 17 |

### Senior Year

| | | | Rec | Lab | Cr | | | | Rec | Lab | Cr |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Bc | 57 | Biological Colloids | 2 | 4 | 4 | Bc | 64 | Biochem. Lab. Methods | 0 | 6 | 3 |
| Bc | 71 | Food Microbiology | 2 | 4 | 4 | By | 76 | Virology | 2 | 4 | 4 |
| Eh | 5 | Tech. Composition | 2 | 0 | 2 | By | 82 | Immunology | 2 | 4 | 4 |
| | | Elective | | | 7 | By | 88 | Seminar in Bact. | | | 2 |
| | | | | | | | | Elective | | | 4 |
| | | | | | 17 | | | | | | 17 |

### Courses in Bacteriology

***21. Introduction to Bacteriology.***—The basic principles of bacteriology and their application to agriculture, industry, sanitation, public health and disease. A descriptive and demonstration course for non-technical students. *Rec* 3, *Cr* 3. MR. DALTON, MR. BAIN

***23. Bacteriology for Nurses (3 yr.).***—An elementary course in bacteriology, as it applies to nursing. Emphasis on sanitation, infection, and resistance, and bacteriology of infectious diseases. *Rec* 2, *Lab* 2, *Cr* 3. MR. BAIN

***27. General Bacteriology.***—Theoretical and laboratory study of the morphology, physiology, and classification of bacteria and other microorganisms, and their application to everyday processes. Prerequisite, Course Ch 51 or Bc 1 or taken in conjuction. *Rec* 3, *Lab* 4, *Cr* 5. MR. BUCK, MR. BAIN

***30. Fundamentals of Public Health.***—General consideration of the relationship between the health of the individual and environment. Prerequisite, Course 21 or 27. *Rec* 2, *Cr* 2. MR. BAIN

***52 (152). Pathogenic Bacteriology.***—The relationship and characteristics of microorganisms that cause disease in man and animals and the response of the latter to the invasion of the parasite. Prerequisite, Course 27. *Rec* 2, *Lab* 4, *Cr* 4.
MR. BUCK, MR. BAIN

***53 (153). Bacterial Physiology.***—A study of the properties and behaviors of bacteria with respect to their chemical and physical requirements for life and reproduction. Prerequisite, Course 27. *Rec* 2, *Lab* 4, *Cr* 4. MR. BUCK

***55 (155). Soil Microbiology.***—Theoretical and experimental consideration of the relationship of microorganisms and soil fertility. Prerequisite, Course 27. *Rec* 2 *Lab* 4, *Cr* 4. MR. HITCHNER

***56 (156). Industrial Microbiology.***—Theory and practice in microbial fermentations of foods and industrial materials. Biochemistry of bacterial fermentations. Prerequisite, Course 27. *Rec* 2, *Lab* 4, *Cr* 4. MR. DALTON

***71 (171). Food Microbiology.***—Relation of microorganisms to food production; role of bacteria in the preparation of food, methods of food preservation, and sanitation; control of food-borne diseases and intoxication. Prerequisite, Course 27. *Rec* 2, *Lab* 4, *Cr* 4. MR. DALTON

***76 (176). Virology.***—An introductory course in the study of viruses, emphasizing their nature, methods of cultivation, mode of transmission, and classification. Prerequisite, Course 52 or taken in conjunction. *Rec* 2, *Lab* 4, *Cr* 4.
MR. BUCK

***82 (182). Immunology.***—A study of immune responses of the host to infectious agents; emphasis is placed on serological techniques in measuring these responses. Prerequisite, Course 52. *Rec* 2, *Lab* 4, *Cr* 4. MR. HITCHNER

***88 (188). Seminar.***—Preparation and presentation of papers dealing with current researches and developments in the field of bacteriology. *Cr* 2. STAFF

***92 (192). Problems in Bacteriology.***—A laboratory and conference course for students desiring to pursue some particular line of bacteriological investigation. Open only to students who have necessary prerequisites or permission of instructor. *Cr, Ar.* STAFF

***299. Graduate Thesis.***—*Cr, Ar.* MR. DALTON, MR. BUCK

## BIOCHEMISTRY

PROFESSORS RADKE, PEDLOW; ASSISTANT PROFESSOR DEHAAS

**Curriculum leading to a Bachelor of Science Degree in Biochemistry**

**Freshman Year.** See page 80.

**Sophomore Year**

FALL SEMESTER

| Subject | | | Hours | | |
|---|---|---|---|---|---|
| | | | Rec | Lab | Cr |
| Ch | 31 | Micro-Qual. Anal. | 2 | 3 | 3 |
| Ch | 51 | Organic Chemistry | 3 | 4 | 5 |
| Ms | 27 | Calculus | 5 | 0 | 5 |
| Mt | 3 | Military Science III | 2 | 1 | 2 |
| | | Elective | | | 2 |
| | | | | | 17 |

SPRING SEMESTER

| Subject | | | Hours | | |
|---|---|---|---|---|---|
| | | | Rec | Lab | Cr |
| Ch | 40 | Quant. Anal. | 1 | 8 | 4 |
| Ch | 52 | Organic Chemistry | 3 | 4 | 5 |
| Mt | 4 | Military Science IV | 2 | 1 | 2 |
| Sh | 1 | Public Speaking | 2 | 0 | 2 |
| | | Elective | | | 4 |
| | | | | | 17 |

## Junior Year

| FALL SEMESTER | | | | | |
|---|---|---|---|---|---|
| Subject | | | Hours | | |
| | | | Rec | Lab | Cr |
| Bc | 60 | Physiol. Chem. | 3 | 3 | 4 |
| By | 27 | General Bacteriology | 3 | 4 | 5 |
| Ps | 1 | Gen. Physics | 4 | 2 | 5 |
| | | Elective | | | 3 |
| | | | | | 17 |

| SPRING SEMESTER | | | | | |
|---|---|---|---|---|---|
| Subject | | | Hours | | |
| | | | Rec | Lab | Cr |
| Bc | 64 | Biochem. Lab. Meth. | 0 | 6 | 3 |
| Eh | 5 | Tech. Composition | 2 | 0 | 2 |
| Ps | 2 | General Physics | 4 | 2 | 5 |
| | | Elective | | | 7 |
| | | | | | 17 |

## Senior Year

| | | | Rec | Lab | Cr |
|---|---|---|---|---|---|
| Bc | 57 | Biological Colloids | 2 | 4 | 4 |
| Bc | 91 | Biochem. Research | 0 | 6 | 3 |
| Bc | 71 | Seminar | 1 | 0 | 1 |
| | | Elective | | | 9 |
| | | | | | 17 |

| | | | Rec | Lab | Cr |
|---|---|---|---|---|---|
| Bc | 92 | Biochem. Research | 0 | 6 | 3 |
| Bc | 72 | Seminar | 1 | 0 | 1 |
| | | Elective | | | 13 |
| | | | | | 17 |

### Courses in Biochemistry

***1. Organic Chemistry.***—Hydrocarbons, alcohols, acids ketones, aldehydes, esters, amines, amides, etc. *Rec* 3, *Lab* 2, *Cr* 4. MR. RADKE

***2. Biochemistry.***—H-ion concentration; the properties, digestion, metabolism, and excretion of carbohydrates, fats and proteins; enzymes, vitamins, soil, fertilizers, pesticides. Prerequisite, Course 1. *Lec* 3, *Lab* 2, *Cr* 4. MR. RADKE

***4. Organic and Biochemistry.***—A terminal course. One-third organic and two-thirds animal biochemistry. May be taken without laboratory. *Rec* 3, *Lab* 2, *Cr* 3 or 4. MR. RADKE, MR. PEDLOW

***54 (154). Agricultural Analysis.***—Quantitative analysis of agricultural materials. Type of work will be adapted to the needs of the student. Prerequisite, Course 1 and 2. *Lab* 6, *Cr* 3. MR. DEHAAS

***57 (157). Biological Colloids.***—Colloidal chemistry with application in biological systems. Open to junior, senior, and graduate students. Prerequisite, Courses 1 and 2 or 9, and Physics 3 or equivalent. *Rec* 2, *Lab* 4, *Cr* 4. MR. PEDLOW

***60 (160). Advanced Physiological Chemistry.***—The physiological utilization of the carbohydrates, fats, and proteins and the role of enzymes, hormones, and vitamins. Prerequisite, Chemistry 51 and 52. *Rec* 3, *Lab* 3, *Cr* 4. MR. DEHAAS

***64 (164). Biochemical Laboratory Methods.***—Chromatography, electrophoresis, tracer techniques, manometry, and other procedures employed in biological research. Prerequisite, Course 60 or instructor's permission. *Lab* 6, *Cr* 3. MR. DEHAAS

***71 (171). 72 (172). Seminar.***—Preparation and presentation of papers dealing with current research in the field of biochemistry. *Cr* 1. STAFF

***91 (191). 92 (192). Biochemical Research.***—Problems in biological or agricultural chemistry. A comprehensive report is required. Seniors and graduate students only. *Cr, Ar.* STAFF

‡***220. The Biochemistry of Carbohydrates and Lipids.***—The chemistry and metabolism of carbohydrates and lipids as they characterize different biological forms. Prerequisite, Course 60. *Rec* 3, *Cr* 3.

‡*225. The Biochemistry of Proteins and of Enzyme Action.*—A comprehensive study of the structure and properties of proteins with special emphasis on their catalytic activity. Prerequisite, Course 60. *Rec* 3, *Cr* 3.

†*231. The Biochemistry of Vitamins and Hormones.*—The chemistry and biological activity of the regulators of living systems. Prerequisite, Course 60. *Rec* 3, *Cr* 3. MR. DEHAAS

†*236. Physical Chemistry of the Cell.*—A quantitative study of the processes of living systems. Prerequisite, Courses 57 and 60. *Rec* 3, *Cr* 3. MR. PEDLOW

*299. Graduate Thesis.*—*Cr, Ar.* MR. DEHAAS, MR. RADKE, MR. PEDLOW

## BOTANY AND PLANT PATHOLOGY

PROFESSORS CAMPANA, COOPER, HYLAND; ASSOCIATE PROFESSORS RICHARDS, ROSINSKI; ASSISTANT PROFESSORS MANZER, WOODWELL

### Curriculum leading to a Bachelor of Science Degree in Botany

**Freshman Year.** See page 80.

### Sophomore Year

| FALL SEMESTER | | | | | | SPRING SEMESTER | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Subject | | | Hours | | | Subject | | | Hours | | |
| | | | Rec | Lab | Cr | | | | Rec | Lab | Cr |
| Bt | 35 | Plant Anatomy | 2 | 3 | 3 | Bt | 54 | Taxonomy of Vasc. Plants | 2 | 4 | 4 |
| Bt | 45 | Genetics | 3 | 0 | 3 | Ag | 2 | Soils | 3 | 0 | 3 |
| Bc | 1 | Organic Chemistry | 3 | 2 | 4 | Ht | 2 | Horticulture | 3 | 0 | 3 |
| | | or | | | | Py | 2 | Gen. Psychology | 2 | 2 | 3 |
| Ch | 51 | Organic Chemistry | 3 | 4 | 5 | Mt | 4 | Military Science IV | 2 | 1 | 2 |
| En | 26 | Gen. Entomology | 4 | 0 | 4 | | | Elective | | | 2 |
| Mt | 3 | Military Science III | 2 | 1 | 2 | | | | | | |
| | | | | | 16 or 17 | | | | | | 17 |

### Junior Year

| | | | Rec | Lab | Cr | | | | Rec | Lab | Cr |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Bt | 33 | Dendrology (Hardwoods) | 2 | 4 | 4 | Bt | 30 | Ecology | 1 | 2 | 2 |
| Bt | 53 | Plant Physiology | 2 | 4 | 4 | Bt | 50 | Histological Tech. | 1 | 6 | 3 |
| By | 1 | Bacteriology | 0 | 6 | 3 | Bt | 56 | Plant Pathology | 2 | 4 | 4 |
| By | 3 | Bacteriology | 2 | 0 | 2 | Bc | 2 | Biochemistry | 3 | 2 | |
| Eh | 5 | Tech. Composition | 2 | 0 | 2 | | | or | | | 4 |
| | | Elective | | | 2 | Ch | 40 | Quant. Anal. | 2 | 6 | |
| | | | | | 17 | | | Elective | | | 4 |
| | | | | | | | | | | | 17 |

### Senior Year

| | | | Rec | Lab | Cr | | | | Rec | Lab | Cr |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Bt | 55 | Taxonomy (Wildlife) | 2 | 4 | 4 | Bt | 58 | Adv. Plant Phys. | 2 | 4 | 4 |
| Bt | 59 | Gen. Mycology | 2 | 4 | 4 | | | Elective | | | 13 |
| Py | 1 | Gen. Psychology | 2 | 2 | 3 | | | | | | |
| | | Elective | | | 7 | | | | | | |
| | | | | | 18 | | | | | | 17 |

### Courses in Botany

***1. General Botany.***—An introduction to structure and function of plant life with a brief survey of the plant kingdom. *Rec* 2, *Lab* 4, *Cr* 4. STAFF

***30. Plant Ecology.***—Concepts and principles of plant community study with a brief survey of the vegetation of North America. Laboratory and field exercises stress systematic observations for quantitative analysis. Open to juniors, seniors and graduates. Prerequisite, Course 1 and permission of instructor. *Rec* 2, *Lab* 1, *Cr* 3. MR. WOODWELL

***33. Dendrology (Hardwoods).***—Classroom and field work on identification and classification of trees and native shrubs of North America. Prerequisite, Course 1. *Rec* 2, *Lab* 4, *Cr* 4. MR. HYLAND

***34. Dendrology (Conifers).***—Continuation of Course 33. Botanical and commercial ranges of timber trees of North America. Prerequisite, Course 33. *Rec* 1, *Lab* 3, *Cr* 2. MR. HYLAND

***35. Plant Anatomy.***—Structure of woody and herbaceous plants. Prerequisite, Course 1. *Rec* 2, *Lab* 3, *Cr* 3. MR. HYLAND

***43. Plants of Maine.***—Identification of common Maine plants from the algae to the flowering plants. *Rec* 2, *Lab* 3, *Cr* 3. MR. RICHARDS

***45 (145). Genetics.***—Principles of genetics. Prerequisite, one year of biology. Open to juniors and seniors. *Rec* 3, *Cr* 3. MR. ROSINSKI

***46. Genetics Laboratory.***—Breeding of Drosophila. Study of biochemical genetics with Neurospora Sp. Supplementary reading. *Lab* 4, *Cr* 2. MR. ROSINSKI

***50 (150). Histological Technique.***—Methods and technique in the preparation of microscopic sections of plant material. *Rec* 1, *Lab* 6, *Cr* 3. MR. HYLAND

***53 (153). Plant Physiology.***—Classroom and laboratory work on the physiology of plants. Prerequisite, Course 1 and one year of chemistry. *Rec* 2, *Lab* 4, *Cr* 4. MR. COOPER

***53. Plant Physiology (Forestry).***—Classroom and laboratory work on the physiology of plants. Prerequisite, Course 1 and one year of chemistry. *Rec* 2, *Lab* 3, *Cr* 3. MR. COOPER

***54 (154). Taxonomy of Vascular Plants.***—Identification and classification of flowering plants. Prerequisite, Course 1. *Rec* 2, *Lab* 4, *Cr* 4. MR. RICHARDS

***55. Taxonomy (Wildlife).***—Plants important as food and cover with emphasis on aquatic and marsh plants. Prerequisite, Course 1. *Rec* 2, *Lab* 4, *Cr* 4. MR. RICHARDS

***56 (156). Plant Pathology.***—Principles of plant disease. Open to juniors and seniors. Prerequisite, Course 1. *Rec* 2, *Lab* 4, *Cr* 4. MR. CAMPANA

***56. Plant Pathology (Forestry).***—Principles of plant disease. Open to juniors and seniors. Prerequisite, Course 1. *Rec* 2, *Lab* 3, *Cr* 3. MR. CAMPANA

***58 (158). Advanced Plant Physiology.***—Further study of the photosynthetic process, respiration, water relations, mineral nutrition and growth correlations of plants. Prerequisite, Course 53. *Rec* 2, *Lab* 4, *Cr* 4. MR. COOPER

***59 (159). General Mycology.***—Comparative Morphology, classification and identification of fungi plus investigation of unusual hereditary and physiological characteristics. Prerequisite, Course 1. *Rec* 2, *Lab* 4, *Cr* 4. MR. ROSINSKI

***61. 62 (161, 162). Seminar.***—Literature reviews. Techniques, procedures and results in botanical research. *Rec* 1, *Cr* 1. STAFF

### Problems Courses

***47. 48. Problems in Botany.***—Open to juniors and seniors who have special interest and qualification in botany. The approval of the head of the department is required. *Cr, Ar.* STAFF

***201. Research Methods in Plant Science.***—Laboratory, greenhouse, and field technique involved in plant disease investigations. Prerequisite, Courses 53 or 56 and permission of instructor. *Cr* 2-4, Ar. STAFF

***207. 208. Problems in Botany.***—*Cr, Ar.* STAFF

***299. Graduate Thesis.***—*Cr, Ar.* STAFF

## ENTOMOLOGY

PROFESSORS SIMPSON, DIRKS; ASSISTANT PROFESSOR DIMOND

### Curriculum Leading to a Bachelor of Science Degree in Entomology

**Freshman Year.** See page 80.

### Sophomore Year

| FALL SEMESTER | | | Hours | | | SPRING SEMESTER | | | Hours | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Subject | | | Rec | Lab | Cr | Subject | | | Rec | Lab | Cr |
| Bc | 1 | Organic Chemistry | 3 | 2 | 4 | Bc | 2 | Biochemistry | 3 | 2 | |
| | | or | | | | | | or | | | 4 |
| Ch | 31 | Micro-Qual. Anal. | 2 | 3 | 3 | Ch | 40 | Quant. Anal. | 2 | 6 | |
| Bt | 1 | Gen. Botany | 2 | 4 | 4 | Bt | 54 | Taxonomy of Vasc. Plants | 2 | 4 | 4 |
| En | 26 | Gen. Entomology | 2 | 4 | 4 | En | 40 | El. Tax. of Insects | 2 | 4 | 4 |
| Mt | 3 | Military Science III | 2 | 1 | 2 | Mt | 4 | Military Science IV | 2 | 1 | 2 |
| Eh | 9 | Modern Lit. | 2 | 0 | 2 | | | Elective | | | 3 |
| | | Elective | | | 1 or 2 | | | | | | |
| | | | | | 17 | | | | | | 17 |

### Junior Year

| | | | Rec | Lab | Cr | | | | Rec | Lab | Cr |
|---|---|---|---|---|---|---|---|---|---|---|---|
| By | 27 | Bacteriology | 3 | 4 | 5 | Eh | 5 | Tech. Composition | 2 | 0 | 2 |
| En | 51 | Morph. of Insects | | | | Sh | 1 | Public Speaking | 2 | 0 | 2 |
| | | or | 2 | 4 | 4 | Zo | 58 | Parasitology | 2 | 4 | 4 |
| En | 53 | Adv. Taxon. of Insects | | | | | | Elective | | | 9 |
| Zo | 53 | Invertebrate Zoology | 2 | 4 | 4 | | | | | | |
| | | Elective | | | 4 | | | | | | |
| | | | | | 17 | | | | | | 17 |

### Senior Year

| | | | Rec | Lab | Cr | | | | Rec | Lab | Cr |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Bt | 45 | Genetics | 3 | 0 | 3 | Bt | 56 | Plant Pathology | 2 | 4 | 4 |
| En | 51 | Morph. of Insects | | | | En | 48 | Prob. in Entomology | 0 | 4 | 2 |
| | | or | 2 | 4 | 4 | | | Elective | | | 11 |
| En | 53 | Adv. Taxon. of Insects | | | | | | | | | |
| En | 49 | Economic Entom. | 2 | 2 | 3 | | | | | | |
| | | Elective | | | 7 | | | | | | |
| | | | | | 17 | | | | | | 17 |

### Courses in Entomology

***22. Forest Entomology.***—Principles of insect life with special reference to forest and shade trees. Structure, metamorphosis, classification, and methods of control. *Rec* 2, *Lab* 4, *Cr* 4. MR. DIRKS

***26. General Entomology.***—Fundamental principles of insect life and the relations of insects to plants, animals and man. A study of structure, metamorphosis and classification. *Rec* 2, *Lab* 4, *Cr* 4. MR. DIRKS, MR. DIMOND

†***30. Apiculture.***—Practical care of bees. *Rec* 1, *Lab* 2, *Cr* 2. MR. DIRKS

***40. Elementary Taxonomy of Insects.***—Study of insects with emphasis on classification of lower orders and the Coleoptera. Field trips, methods of collecting and identification. Prerequisite, Course 22 or 26. *Rec* 2, *Lab* 4, *Cr* 4. MR. DIMOND

***43 (143). Advanced Forest Entomology.***—Insects destructive to trees and to forest products. Prerequisite, Course 22. *Rec* 2, *Lab* 2, *Cr* 3. MR. DIRKS

‡***49 (149). Economic Entomology.***—Economically important insects of the orchard, garden and farm. Prerequisite, Course 26. *Rec* 2, *Lab* 2, *Cr* 3.

†***51 (151). Morphology of Insects.***—External and internal anatomy of insects. Laboratory includes gross dissections of internal organs of a representative insect. Prerequisite, Course 22, or 26. *Rec* 2, *Lab* 4, *Cr* 4. MR. DIMOND

‡***53 (153). Advanced Taxonomy of Insects.***—Study of wing venation; classification of the Diptera, Lepidoptera and Hymenoptera. Prerequisite, Course 22 or 26. *Rec* 2, *Lab* 4, *Cr* 4.

***61. 62. Seminar.***—A study of the literature and techniques of Entomology. *Rec* 1, *Cr* 1.

### Problems Courses

***47. 48. Problems in Entomology.***—Open to juniors and seniors who have special interests and qualifications in entomology. The approval of the head of the department is required. *Cr, Ar.* STAFF

***205. 206. Problems in Entomology.***—*Cr, Ar.* STAFF

***299. Graduate Thesis.***—*Cr, Ar.* MR. SIMPSON

A pleasant pause between classes

# THE SCHOOL OF FORESTRY

DIRECTOR NUTTING; PROFESSORS BAKER, MENDALL; ASSOCIATE PROFESSORS BEYER, COULTER, GRIFFIN, PLUMMER, QUICK*, RANDALL, YOUNG; ASSISTANT PROFESSOR SCHEMNITZ

Two curricula are offered in the School of Forestry: General Forestry and Wildlife Management. These two curricula have a common freshman year, with major specialization starting at the beginning of the sophomore year. The objectives of these two curricula are: (1) To train young men in the theories and techniques of forestry, qualifying them to become managers of forest land devoted to the production of timber crops, or to be trained in the management of fish and game; (2) To provide a sound scientific and professional base for those who wish to pursue graduate work for advanced degrees; (3) To provide a broad education for effective citizenship in today's world.

Graduation requirements in the School of Forestry are: (1) Passing grades in all required courses; (2) Successful completion of 146 degree hours, exclusive of basic military training; (3) An accumulative average of not less than 1.80.

## FORESTRY

The four-year undergraduate curriculum in Forestry is offered to students wishing to qualify for technical and administrative positions in the profession, or for admission to schools giving graduate work. The curriculum with its broad base of scientific and cultural subjects, in addition to those of a professional nature, gives the student a well-rounded education. Upon completion of the curriculum requirements the student is granted the degree of Bachelor of Science (in Forestry). Seniors and graduates are eligible for Civil Service examinations for positions in the United States Forest Service and in other Federal bureaus employing foresters. Graduates find employment with Federal and State agencies, with industry, with consulting forestry firms, and as self-employed consultants. Graduates of the School enter private employment and public employment in about equal numbers. Openings are available in minor jobs of a supervisory or skilled nature without professional education, but the man with professional forestry training will find the greatest career opportunities. Students who are interested in specialization in some branch of forestry, in college teaching, and in research are advised to pursue graduate work.

The University Forest is managed by the School. This tract of 1,700 acres lies within two miles of the campus and is used extensively for field laboratory work and for research. The School assists the Maine Forest Service in the management of Indian Township in eastern Maine. This tract of 17,000 acres is the location of Camp Robert I. Ashman where the summer camp courses required of all Forestry and Wildlife majors are given.,

Field experience is essential to foresters. Students are urged to obtain woods summer employment. All students must have two months experience in forestry field work, approved by the school Faculty, or take Fy 21, which should be taken during the sophomore year.

Two off-campus training periods are required of all Forestry students. (1) A field trip of one week's duration through many of the experimental forests of New England is required of all students at the end of the junior year. (2) Immediately

* On leave of absence 1959-60.

following the junior field trip and eight-weeks' camp at Princeton, Maine (Indian Township) is required.

A limited number of students are accepted for graduate work in the fields of Forest Management and Silviculture, such work leading to the degree of Master of Science in Forestry.

## WILDLIFE MANAGEMENT

The four-year curriculum in Wildlife Management offers a broad training in the natural sciences in which resource management is stressed. In addition, a general program of cultural courses provides an opportunity for a well-rounded education. Upon completion of the curriculum requirements the student is granted the degree of Bachelor of Science (in Wildlife Management). The curriculum of the freshman year is common to Wildlife and Forestry.

The curriculum qualifies students for technical and administrative positions in wildlife management, some phases of fisheries management, and forestry. Seniors and graduates are eligible for Civil Service examinations for positions with federal and state agencies that administer natural resources.

Field experience is essential to Wildlife Managers. Students are urged to obtain woods summer employment. All students must have two months' experience in forestry field work, approved by the School Faculty, or take Fy 21, which should be taken during the sophomore year.

Two off-campus training periods are required of all Wildlife students. (1) A one week's course in General Ecology at Camp Ashman, Princeton, Maine, is required at the end of the junior year. (2) Immediately following the ecology work, an eight-weeks' camp at Princeton in the Practice of Forestry is required.

Students who major in Wildlife Management are advised to pursue graduate work in preparation for employment with federal and state agencies. A graduate program in Wildlife is offered by the University and a number of graduate courses are available to qualified students.

**The Maine Cooperative Wildlife Research Unit** provides for a cooperative wildlife program jointly sponsored and financed by the University, The Maine Department of Inland Fisheries and Game, The U. S. Fish and Wildlife Service, and the Wildlife Management Institute. The Director of the School is the University representative on the Coordinating Committee. The purpose of the Unit is to sponsor the advancement, organization, and operation of wildlife research, education, extension, and demonstration programs. Graduate students in Wildlife Management are under the direct supervision of the Unit leader.

## CURRICULUM IN FORESTRY AND WILDLIFE MANAGEMENT

### Freshman Year

| FALL SEMESTER | | | | | | SPRING SEMESTER | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Subject | | | Hours | | | Subject | | | Hours | | |
| | | | Rec | Lab | Cr | | | | Rec | Lab | Cr |
| Ch | 1 | Gen. Chemistry | 3 | 3 | 4 | Bt | 1 | Gen. Botany or Zo 1 Gen. Zoology | 2 | 4 | 4 |
| Eh | 1 | Freshman Comp. | 3 | 0 | 3 | Ch | 2 | Gen. Chemistry | 3 | 3 | 4 |
| Fy | 1 | Elements of Forestry | 1 | 0 | 1 | Eh | 2 | Freshman Comp. | 3 | 0 | 3 |
| Fy | 3 | Orientation | 1 | 0 | ½ | Fy | 2 | Elements of Forestry | 2 | 0 | 2 |
| Eg | 1 | Engineering Drawing | 0 | 4 | 2 | Eg | 12 | Forestry Drawing | 0 | 4 | 2 |
| Ms | 3 | College Algebra | 2 | 0 | 2 | Ms | 1 | Trigonometry | 2 | 0 | 2 |
| Mt | 1 | Military Science I | 2 | 1 | 1½ | Mt | 2 | Military Science II | 2 | 1 | 1½ |
| Pe | 1 | Phy. Education | 0 | 2 | 0 | Pe | 2 | Phy. Education | 0 | 2 | 0 |
| Zo | 1 | Gen. Zoology or Bt 1 Gen. Botany | 2 | 4 | 4 | | | | | | |
| | | | | | 18 | | | | | | 18½ |

### CURRICULUM IN FORESTRY

### Sophomore Year

| | | | Rec | Lab | Cr | | | | Rec | Lab | Cr |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Be | 1 | Prin. of Economics | 3 | 0 | 3 | Be | 2 | Prin. of Economics | 3 | 0 | 3 |
| Bt | 33 | Dendrology (Hwds.) | 2 | 4 | 4 | Bt | 34 | Dendrology (Conifers) | 1 | 3 | 2 |
| Ce | 5 | Surveying | 2 | 3 | 3 | En | 22 | Forest Entomology | 2 | 4 | 4 |
| Fy | 11 | Forest Fire Control | 2 | 0 | 2 | Fy | 4 | Forest Mensuration | 1 | 3 | 2 |
| Fy | 21 | Woods Practice | — | — | 1 | Mt | 4 | Military Science IV | 2 | 1 | 2 |
| Gy | 1 | Prin. of Geology | 3 | 3 | 4 | Ps | 6 | Essentials of Physics | 3 | 4 | 5 |
| Mt | 3 | Military Science III | 2 | 1 | 2 | | | | | | |
| | | | | | 19 | | | | | | 18 |

### Junior Year

| | | | Rec | Lab | Cr | | | | Rec | Lab | Cr |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Ag | 3 | Soils (Forest) | 2 | 2 | 3 | Ce | 10 | Curves & Earthwork | 2 | 0 | 2 |
| Bt | 35 | Plant Anatomy | 2 | 3 | 3 | Eh | 5 | Tech. Composition or Sh 1 Public Speaking | 2 | 0 | 2 |
| Bt | 53 | Plant Physiology | 2 | 3 | 3 | Fy | 8 | Silviculture | 3 | 3 | 4 |
| Fy | 5 | Forest Mensuration | 2 | 3 | 3 | Fy | 8s | Spring Trip | — | — | 1 |
| Fy | 7 | Silvics | 2 | 3 | 3 | Fy | 10 | Forest Planting | 1 | 3 | 1 |
| Sh | 1 | Public Speaking or Eh 5 Tech. Composition | 2 | 0 | 2 | Fy | 16 | Wood Identification | 0 | 2 | 1 |
| | | | | | | Fy | 20 | Administration | 2 | 0 | 2 |
| | | | | | | | | Elective | | | 6 |
| | | | | | 17 | | | | | | 19 |

### Junior Forestry Camp

| Subject | | | Hours Cr. |
|---|---|---|---|
| Fy | 41s | Practice of Forestry | 8 |

## COLLEGE OF AGRICULTURE

### Senior Year

FALL SEMESTER

| | | Subject | Hours Rec | Lab | Cr |
|---|---|---|---|---|---|
| Fm | 47 | Accounting | 2 | 3 | 3 |
| Fy | 14 | Forest Products | 2 | 3 | 3 |
| Fy | 13 | Harvest. Forest Crops | 2 | 0 | 2 |
| Fy | 15 | Lumber Manufacture | 2 | 0 | 2 |
| Fy | 25 | Forest Management | 4 | 0 | 4 |
| | | Elective | | | 4 |
| | | | | | 18 |

SPRING SEMESTER

| | | Subject | Hours Rec | Lab | Cr |
|---|---|---|---|---|---|
| Bt | 56 | Plant Pathology (Fy.) | 2 | 3 | 3 |
| Fy | 12 | Wood Technology | 2 | 0 | 2 |
| Fy | 52 | Policy and Economics | 4 | 0 | 4 |
| Fy | 60 | Seminar | 1 | 0 | ½ |
| | | Elective | | | 8 |
| | | | | | 17½ |

## CURRICULUM IN WILDLIFE MANAGEMENT

### Sophomore Year

| | | | Rec | Lab | Cr |
|---|---|---|---|---|---|
| Bt | 33 | Dendrology (Hardwoods) | 2 | 4 | 4 |
| By | 3 | Bacteriology | 2 | 0 | 2 |
| Ce | 5 | Surveying | 2 | 3 | 3 |
| Fy | 11 | Forest Fire Control | 2 | 0 | 2 |
| Mt | 3 | Military Science III | 2 | 1 | 2 |
| Sh | 1 | Public Speaking | 2 | 0 | 2 |
| Zo | 39 | Mammalogy | 2 | 3 | 3 |
| Fy | 21 | Woods Practice | — | — | 1 |
| | | | | | 19 |

| | | | Rec | Lab | Cr |
|---|---|---|---|---|---|
| Bt | 34 | Dendrology (Conifers) | 1 | 3 | 2 |
| Bt | 54 | Taxon. of Vascular Plants | 2 | 4 | 4 |
| En | 26 | Gen. Entomology | 2 | 4 | 4 |
| Mt | 4 | Military Science IV | 2 | 1 | 2 |
| Zo | 32 | Ichthyology | 2 | 4 | 4 |
| | | Elective | | | 2 |
| | | | | | 18 |

### Junior Year

| | | | Rec | Lab | Cr |
|---|---|---|---|---|---|
| Ag | 3 | Soils (Forest) | 2 | 2 | 3 |
| Bt | 55 | Taxon. (Wildlife) | 2 | 4 | 4 |
| Fy | 5 | Forest Mensuration | 2 | 3 | 3 |
| Zo | 53 | Invertebrate Zoology | 2 | 4 | 4 |
| | | Elective | | | 4 |
| | | | | | 18 |

| | | | Rec | Lab | Cr |
|---|---|---|---|---|---|
| Eh | 5 | Tech. Composition | 2 | 0 | 2 |
| Fy | 8 | Silviculture | 3 | 3 | 4 |
| Fy | 10 | Forest Planting | 1 | 3 | 1 |
| Zo | 58 | Parasitology | 2 | 4 | 4 |
| Zo | 60 | Ornithology | 2 | 4 | 4 |
| | | Elective | | | 3 |
| Fy | 19s | Wildlife Ecology | — | — | 1 |
| | | | | | 19 |

### Junior Forestry Camp

| | Subject | Hours Cr. |
|---|---|---|
| Fy | 41s Practice of Forestry | 8 |

### Senior Year

| | | | Rec | Lab | Cr |
|---|---|---|---|---|---|
| Fy | 25 | Forest Management | 4 | 0 | 4 |
| Fy | 27 | Game Management | 2 | 3 | 3 |
| Zo | 71 | Fish Management | 2 | 4 | 4 |
| | | Elective | | | 7 |
| | | | | | 18 |

| | | | Rec | Lab | Cr |
|---|---|---|---|---|---|
| AnP | 44 | Disease and Paarsite Control (in Widllife) | 2 | 2 | 3 |
| Fy | 28 | Game Management | 2 | 3 | 3 |
| Fy | 52 | Policy and Economics | 4 | 0 | 4 |
| Fy | 60 | Seminar | 1 | 0 | ½ |
| | | Elective | | | 6 |
| | | | | | 16½ |

## COURSES IN THE SCHOOL OF FORESTRY

***1. Elements of Forestry.***—Importance of forestry in our national life. General methods of handling forest crops. Forest products. Required of Forestry freshmen. *Rec* 1, *Cr* 1. MR. BEYER, MR. SCHEMNITZ

***2. Elements of Forestry.***—A continuation of Course 1, required of Forestry freshmen. *Rec* 2, *Cr* 2. MR. BEYER, MR. SCHEMNITZ

***3. Orientation.***—A series of lectures for freshmen in Forestry designed to acquaint them with the University and with the fields open to Forestry and Wildlife graduates. *Rec* 1, *Cr* ½. THE STAFF AND GUEST SPEAKERS

***4. Forest Mensuration.***—Graphical presentation of forestry data. Elementary statistical background for sampling in forest measurements. Use of calculating machines. Prerequisite, Mathematics 9 and 10. *Rec* 1, *Lab* 3, *Cr* 2. MR. YOUNG

***5. Forest Mensuration.***—Determination of volume of standing and felled timber. Construction of log rules, volume tables, and yield tables. Determination of growth and yield. Prerequisite, surveying. *Rec* 2, *Lab* 3, *Cr* 3. MR. YOUNG

***6. Forest Photogrammetry.***—Construction of planimetric and topographic maps by photogrammetric methods. Determination of forest types and stand composition by interpretation and measurements of air photos. *Rec* 2, *Lab* 3, *Cr* 3. MR. YOUNG

***7. Silvics.***—Life factors determining the character and form of forest vegetation. The development of forest types. Silvical characteristics of stands. Prerequisite, Botany 33 and 34. *Rec* 2, *Lab* 3, *Cr* 3. MR. GRIFFIN

***8. Silviculture.***—Methods used to establish forests and to maintain them profitably until maturity. Harvesting of the final stand. Prerequisite, Course 7. *Rec* 3, *Lab* 3, *Cr* 4. MR. GRIFFIN

***8s. Silviculture Trip.***—One week is spent visiting public and private forests of the Northeast. Silvicultural problems and methods of managing important forest types of the region are studied. *Cr* 1. MR. GRIFFIN

†***9 (109). Regional Silviculture.***—Applied systems of silviculture and management considered in relation to commercially important timber species and types in the United States. Prerequisite, Course 8. *Rec* 2, *Cr* 2. MR. GRIFFIN

***10. Forest Planting.***—The planting, care, and selection of stock in nursery and field plantings. Seed collecting and processing. Mechanical planting and field techniques. *Rec* 1, *first one-half semester, Lab* 3, *last one-half semester, Cr* 1. MR. PLUMMER

***11. Forest Fire Control.***—Forest five behavior as influenced by fuels, weather, topography. Effects of fire. Methods of preventing and controlling fires. Use of fire in forest management. *Rec* 2, *Cr* 2. MR. RANDALL

***12. Wood Technology.***—The physical and mechanical properties of wood. The effect these properties have upon seasoning, machining, and use of wood. Prerequisite, Botany 33, 34, and 35. *Rec* 2, *Cr* 2. MR. BAKER

***13. Harvesting of Forest Crops.***—Harvesting methods in the various regions of the United States and Canada, with especial emphasis on the Northeast. Discussion of organization, costs, equipment, and trends. *Rec* 2, *Cr* 2. MR. PLUMMER

***14. Forest Products.***—Forest products other than logs and lumber. Pulpwood, veneers, shingles, cooperage, excelsior, spool stock, turpentine, etc. Methods of utilization, markets, and values. *Rec* 2, *Lab* 3, *Cr* 3. MR. BEYER

***15. Lumber Manufacture.***—Milling and marketing problems of the lumber industry in America. *Rec* 2, *Cr* 2. MR. BAKER

***16. Wood Identification.***—Identification and classification of the commercial woods of the United States based on simple lens inspection and gross characters. *Lab* 2, *Cr* 1. MR. BAKER

***17. Wood Preservation.***—Causes of deterioration of wood in service; preservatives, preparation of material; wood preserving processes. *Rec* 2, *one-half semester, Cr* 1. MR. BAKER

***18. Wood-Moisture Relations.***—Wood structure and characteristics that affect drying, shrinking, and swelling. Fundamentals of seasoning lumber. Prerequisite or parallel, Course 12. *Rec* 2, *Lab* 2, *Cr* 3. MR. BAKER

***19. Wildlife Ecology.***—Geographic and ecologic distribution of game birds and mammals. Ecologic principles of game management. *Rec* 2, *Cr* 2. MR. SCHEMNITZ

***19s. Wildlife Ecology.***—Field problems in forest-wildlife ecology. Recognition, measurement, analysis and interpretation of problems in forest-wildlife relationships. Forty-four hours at camp for one week. *Cr* 1. MR. SCHEMNITZ

***20. Forest Administration.***—Problems in the administration of national, state, and private forests. Defining and attaining objectives. The personal element in forestry. Methods of organizing, staffing, and equipping forestry enterprises. *Rec* 2, *Cr* 2. MR. RANDALL

***21. Elements of Woods Practice.***—The use and application of foresters' and woodsmen's tools. Required of all forestry students without two months of faculty-accepted woods experience. Held four hours Saturday mornings during first ten weeks of the fall semester. *Cr* 1. STAFF

***24. Range Management.***—History and economic importance of the range livestock industry. Utilization and management of the forage resource; relation to other land use. National and regional problems in grazing use; administration of public grazing lands. *Rec* 2, *Cr* 2. MR. RANDALL

***25 (125). Forest Management.***—The business management of forest properties for the continuous production of timber. Preparation of management plans. Financial problems and appraisals of values. *Rec* 4, *Cr* 4. MR. RANDALL

***27 (127). Game Management.***—The principles of game biology and a consideration of the principles of game management based on the biological characteristics of wildlife. Seniors. *Rec* 2, *Lab* 3, *Cr* 3. MR. ————

***28 (128). Game Management.***—The principles of game management. A consideration of the technical methods of wildlife investigations in relation to land management. Seniors. *Rec* 2, *Lab* 3, *Cr* 3. MR. SCHEMNITZ

***30. Wildlife Law Enforcement.***—The role of law enforcement in modern wildlife management. History and development of law and relationship to present policies. Description of organizations. Operations and duties of personnel. *Rec* 2, *Cr* 2. MR. SCHEMNITZ

***31. Woodlot Forestry.***—Principles of forestry as applied to farm woodlands. Methods of growing, measuring, and protecting timber stands. Marketing woodlot products. Open to agricultural students. *Rec* 2, *Lab* 3, *Cr* 3. MR. PLUMMER

‡***32 (132). Forest Influences.***—A consideration of the effects of forest or brush cover upon climate, soil water, stream flow, erosion, and soil productivity. Prerequisite, Course 7 and Agronomy 3. *Rec* 2, *Cr* 2.

***43. 44. Special Problems.***—Original investigation in advanced forestry

and wildlife work, the subject to be chosen after consultation with the staff. Open to high-ranking juniors and seniors. *Cr, Ar.* STAFF

***47 (147). Advanced Forest Mensuration.***—Regression analysis background for construction of volume and yield tables, time studies, and research. Prerequisite, Course 4. *Rec* 2, *Cr* 2. MR. YOUNG

***48. Natural Resources Management.***—The characteristics, status, utilization, and management of natural resources. The social aspects of resource management. Open to juniors and seniors in the University. *Rec* 2, *Cr* 2.
MR. QUICK AND MEMBERS OF THE UNIVERSITY STAFF

***52 (152). Policy and Economics.***—Character, extent, distribution, and ownership of forest resources of the world. Supply of and demand for forest products. Development of federal, state, and private forestry policy. Steps needed to bring about full productivity of forest resources. *Rec* 4, *Cr* 4. MR. RANDALL

***60. Seminar.***—Reviews of literature. Current problems in forestry and conservation. *Rec* 1, *Cr* ½. STAFF

***201. 202. Forest Mensuration Problems.***—*Cr, Ar.* MR. YOUNG

***203. 204. Forest Management Problems.***—*Cr, Ar.* MR. RANDALL

***205. 206. Game Management Problems.***—*Cr, Ar.*
MR. COULTER, MR. MENDALL, MR. SCHEMNITZ

***207. 208. Silviculture Problems.***—*Cr, Ar.* MR. GRIFFIN

***299. Graduate Thesis.***—*Cr, Ar.* MR. MENDALL, MR. RANDALL, MR. GRIFFIN

### Forestry Summer Camp

***41s. Practice of Forestry.***—Field practice in methods and problems involved in the management of a large forestry property. Timber estimating and mapping; preparation of a management plan. Visits to woods operations and utilization plants. Prerequisite, Course 5 and 21s. Forty-four hours a week for eight weeks, *Cr* 8. MR. RANDALL AND STAFF

# SCHOOL OF HOME ECONOMICS

PROFESSORS SWEETMAN, MILES; ASSOCIATE PROFESSORS BERRY, MACKELLAR, MARTIN, MONROE, MUSGRAVE, SNYDER; ASSISTANT PROFESSOR MINOT; MRS. GULBRANDSEN, MRS. WADLIN, MRS. DALTON

The unique aim of the School of Home Economics is to provide curricula which coordinate knowledge from all fields of learning that contribute to an understanding of human needs and how they may be met. This purpose necessarily emphasizes family living in all of its aspects—physical, social, and esthetic. About one-half of the student's time is spent on courses in humanities and sciences which are selected for their general educational value and which provide a foundation for the specialized subjects offered within the School.

Courses within the School consist of five subject matter groups: (1) Child Development and Family Relationships, (2) Clothing and Design, (3) Foods and Nutrition, (4) Home Economics Education, and (5) Home Management and Housing. All students majoring in the School complete a common basic curriculum which includes specified courses as follows:

| | |
|---|---|
| Communication (English and Public Speaking) | 8 hours |
| Social Sciences | 12 hours |
| Natural Sciences | 15 hours |
| Child Development and Family Relationships | 9 hours |
| Clothing and Design | 5 hours |
| Foods and Nutrition | 6 hours |
| Home Management and Housing | 10 hours |
| Specified Basic Requirements, total | 65 hours |

In addition, each student must elect at least 15 hours in science and humanities and complete an integrated sequence of 27 to 35 hours. 128 hours are required for graduation at an accumulative grade point average of 1.80. Professional sequences are available in Child Development and Family Relationships, Foods and Nutrition, Home Economics Education, Consumer Services, and Applied Design. Special sequences to fit an individual's interest may be developed.

## CURRICULA IN HOME ECONOMICS

The basic curriculum in Home Economics is organized to include courses which continue the student's general education and lay the foundation for advanced work in Home Economics. Each student is expected to add one of the sequences outlined in the following pages or an individualized sequence of at least 27 hours of integrated courses. At least 15 hours of science and humanities must be included in the sequence and electives.

## BASIC CURRICULUM IN HOME ECONOMICS

The following is required of all students majoring in the School of Home Economics:

## Freshman Year

| FALL SEMESTER | | | | | | SPRING SEMESTER | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Subject | | | Hours | | | Subject | | | Hours | | |
| | | | Rec | Lab | Cr | | | | Rec | Lab | Cr |
| Cd | 21 | Sel. of Cloth. & Tex. | 1 | 2 | 2 | *Bc | 4 | Organic Chemistry | 3 | 2 | 4 |
| Cf | 2 | Patterns Interper. Behav. | 2 | 2 | 3 | Cd | 31 | Design Apprec. | 2 | 2 | 3 |
| *Ch | 1 | General Chem. | 3 | 3 | 4 | Eh | 2 | Freshman Comp. | 3 | 0 | 3 |
| Eh | 1 | Freshman Comp. | 3 | 0 | 3 | Fn | 41 | Intro. to Foods and Nutrition | 3 | 0 | 3 |
| He | 1 | Intro. to Home Ec. | 1 | 0 | 1 | †My | 2 | Mod. Society | 3 | 0 | 3 |
| †My | 1 | Mod. Society | 3 | 0 | 3 | Pe | 2 | Phy. Education | 0 | 2 | 0 |
| Pe | 1 | Phy. Education | 0 | 2 | 0 | | | | | | |
| | | | | | 16 | | | | | | 16 |

* May be deferred to sophomore year if Zo 3 is taken in the fall and Zo 4 or Zo 8 in the spring.
† May be deferred, these or comparable courses to be taken later.

## Sophomore Year

| | | | Rec | Lab | Cr | | | | Rec | Lab | Cr |
|---|---|---|---|---|---|---|---|---|---|---|---|
| By | 21 | Intro. to Bact. | 3 | 0 | 3 | Cf | 3 | The Pre-School Child or | 2 | 2 | 3 |
| Fn | 42 | Family Food Mgt. | 1 | 4 | 3 | Cf | 4 | The Young School Child | 2 | 2 | 3 |
| Pe | 3 | Phy. Education | 0 | 2 | 0 | Pe | 4 | Phy. Education | 0 | 2 | 0 |
| Py | 1 | Gen. Psychology | 2 | 2 | 3 | Py | 2 | Gen. Psychology | 2 | 2 | 3 |
| Sh | 1 | Public Speaking or | 2 | 0 | 2 | Zo | 8 | Anatomy & Physiology | 3 | 2 | 4 |
| Sh | 31 | Voice and Diction | | | | | | | | | |
| | | Sequence & Elective | | | 5 | | | Sequence & Elective | | | 3 |
| | | | | | 16 | | | | | | 16 |

## Junior Year

| | | | Rec | Lab | Cr | | | | Rec | Lab | Cr |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hm | 91 | Housing | 2 | 2 | 3 | Hm | 81 | Home Management | 2 | 0 | 2 |
| | | Sequence & Elective | | | 13 | | | Sequence & Elective | | | 14 |
| | | | | | 16 | | | | | | 16 |

## Senior Year

| | | | Rec | Lab | Cr | | | | Rec | Lab | Cr |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Hm | 82 | Home Mgt. Residence | 0 | 9 | 3 | Cf | 11 | Family Relationships | 3 | 0 | 3 |
| | | Sequence & Elective | | | 13 | Hm | 85 | Family Economics | 2 | 0 | 2 |
| | | | | | | | | Sequence & Elective | | | 11 |
| | | | | | 16 | | | | | | 16 |

The semester a course is taken may vary.

**Home Economics Education.** 35 hours. This sequence provides two variations, one which meets the requirements of certification for teaching vocational or general home economics and one which prepares for work as a Home Demonstration or 4-H Club Agent.

Requirements for certification:

| | | | |
|---|---|---|---|
| Cd 22 | 3 | He 71 | 2 |
| Cd 23 or 24 | 2 | *He 72 | 3 |
| Cd 25 | 3 | *He 73, 74 | 6 |
| *Ed C1 | 2 | *He 75 | 3 |
| Fn 43 | 3 | He 76 (Recommended) | 2 |
| Fn 52 | 3 | *He 77 | 0-2 |
| Fn 53 | 2 | Hm 93 | 3 |
| | | Sy 57 (Recommended) | 3 |

**Variation for Extension Agents.** He 76 is required but courses from the following list may be substituted for the starred requirements for certification:

| | | | |
|---|---|---|---|
| Fm 24 | 3 | Sh 21 | 2 |
| Fm 29 | 3 | Sy 1, 2 | 6 |
| Fm 30 | 3 | Sy 13 | 3 |
| Fn 61 | 3 | Sy 57 | 3 |
| Sh 9 | 1 | Sy 59 | 2 |

**Child Development and Family Relationships.** 27 hours. This sequence is planned for students interested in work with children or families. Three variations prepare for nursery school teaching, teaching in the lower grades, and various types of social service work. A limited number of students in this sequence may arrange to spend one semester at the Merrill-Palmer School in Detroit, Michigan.

Courses taken by all students in the sequence:

| | |
|---|---|
| Cf 3 or Cf 4 (whichever was not chosen in the basic curriculum) | 3 |
| Fn 54 (Recommended) | 1-2 |
| Py 67 | 3 |
| *Sy 13 (or Sy 1, 2-6) | 3 |
| *Sy 59 | 2 |

*May be omitted by those completing requirements for Elementary Certification.

Nursery school or kindergarten teaching. It is recommended that students preparing for this profession spend one semester at the Eliot-Pearson School, an affiliate of Tufts University, in Massachusetts. Others may substitute Cf 9, 2 hours, and courses in Education and Sociology for a preprofessional sequence.

Elementary teaching. Appropriate courses in Education and certain subject matter concentrations are planned to meet requirements for elementary certification.

Social service work. Additional courses providing a minimum of 16-17 hours in psychology and sociology are required.

**Foods and Nutrition.** 28 hours. This sequence provides three variations, one that meets requirements for membership in the American Dietetics Association which should be taken by all who plan to be hospital dietitians and is recommended for all other prospective dietitians, a second which *may* be taken by those who wish to be school lunch or commercial food service managers and school or college dietitians, and a third which prepares for work as a nutritionist or laboratory research assistant in foods or nutrition.

Requirements for Hospital Dietitians.

| | | | |
|---|---|---|---|
| Bc 2 | 4 | Fn 55 | |
| Fn 43 | 3 | Fn 64 } at least | 1 |
| Fn 52 | 3 | Fn 69 } | |
| Fn 53 | 2 | Hm 93 | 3 |
| Fn 61 | 3 | Py 65 or He 72 | 3 |
| Fn 62 | 3 | Be 9, Py 51 or Be 61 (recommended) | 2-3 |
| Fn 63 | 3 | | |

Variation for other institutional dietitians and food service managers—

An equivalent number of additional hours in Be and Fn courses may be substituted for Bc 2 and Py 65.

Variation for nutritionists or research assistant in foods or nutrition—

Additional courses in chemistry, mathematics, and physics may be substituted for Fn courses numbered 61 and above and Py 65.

**Applied Design.** 29 hours. This sequence is planned for students interested in art applied to clothing and home decoration. Graduates who wish to work without further training usually enter the field of merchandising. Careers in fashion designing or interior decoration generally require post-graduate study.

| | | | |
|---|---|---|---|
| At 5, 6 | 6 | Cd 34 | 2 |
| Cd 22 | 3 | Cd 35 | 3 |
| Cd 23 or 24 | 2 | Hm 92 | 3 |
| Cd 32 | 2 | Hy | 6 |
| Cd 33 | 2 | (preferably Hy 5, 6) | |

Additional courses in At, Cd, Fr, Py or Sh are recommended.

**Consumer Services.** 27 hours. This sequence is planned for students interested in business careers in merchandising, advertising, demonstrating, or testing of clothing and home furnishings or foods and equipment. Journalism emphasis also available.

| Be 1, 2 Clothing and Home Furnishings Variations | | 6 Foods and Equipment Variation | |
|---|---|---|---|
| Cd 22 | 3 | Fn 43 | 3 |
| Hm 92 | 3 | Hm 93 | 3 |
| 15 hours from | | 15 hours from | |
| At | | Bc | |
| Be | | Be | |
| Cd | | Fn | |
| Ch | | He 71 | |
| He 71, 76 | | He 76 | |
| Jr | | Jr | |
| Ps 3, 31 | | Py 76 | |
| Py 76 | | Ps 3, 31, other | |
| Sh 21 | | Sh 21 | |

**Special Sequences.** 27 hours. For students who are interested in the general education and family life aspects of the home economics curriculum but are not attempting to qualify for any of the recognized home economics professions covered in other sequences, individualized sequences are available. These will consist either of selected advanced home economics courses and related sciences and arts, constituting a general home economics sequence, or of a concentration of non-home economics courses related to some central interest of the student.

## COURSES IN THE SCHOOL OF HOME ECONOMICS

### Child Development and Family Relationships. (Cf)

***2. Patterns of Interpersonal Behavior.***—Observations and study of interpersonal relations of young children are used as a basis for understanding human relations (and the "self"). Laboratory experience in the nursery school. *Rec* 2, *Lab* 2, *Cr* 3. For Freshmen. MISS MILES

***3. The Preschool Child.***—Development of children during the preschool years and factors affecting it with special emphasis on the role of the family. Laboratory experience in the nursery school. Prerequisite or parallel, Py 1. *Rec* 2, *Lab* 2, *Cr* 3. MISS MILES

***4. The Young School Child.***—A continuation of the developmental study of children of six through 12 years of age. Influencing factors, especially home and school, are given special consideration. Laboratory observations in nursery school and public schools. Prerequisite or parallel, Py 1. *Rec* 2, *Lab* 2, *Cr* 3. MISS MILES

***9 (109). Special Problems in Child Development.***—*Cr* 1-3. Prerequisite or parallel, a Cf course or Py 67. MISS MILES

***11 (111). Family Relationships.***—Introduction to the study of family living with emphasis on the importance of the family in creating and developing personality. Prerequisite, Cf 2, 3, or 4, or Py 2, or Sy 1 or 13. *Cr* 3. MR. CHANTINY

### Clothing and Design (Cd)

***21. Selection of Clothing and Textiles.***—Selection and care of textiles and clothing. Management of the clothing budget. *Rec* 2, *Lab* 2, *Cr* 3. MISS MINOT

***22. Principles of Clothing Construction.***—Professional standards of appearance in fitting commercial patterns and controlling fabric; direct garment production; evaluation of results. Prerequisite or parallel, Cd 21. *Rec* 1, *Lab* 4, *Cr* 3. MRS. BERRY

***23. Clothing Construction Problems.***—Survey of unfamiliar fabrics and processes; analysis and alteration of manufactured garments. Individual problems based on background and professional need. Prerequisite, Cd 22. *Lab* 4, *Cr* 2. MRS. BERRY

***24. Advanced Clothing Construction.***—Comparison of custom-made and ready-to-wear garments. Evaluation of standard and shortened procedures. Execution of complex garment construction as in suits and coats. Prerequisite, Cd 22 or permission of instructor. *Lab* 4, *Cr* 2. MRS. BERRY

***25. Clothing Patterns.***—Use of commercial patterns in fitting various figures and making the individual foundation pattern. Development of original garment design from the foundation pattern. Prerequisite, Cd 22. *Rec* 1, *Lab* 4, *Cr* 3. MRS. BERRY

‡***26. Economics of Fashion.***—Fashion, retailing, and standards of clothing. *Cr* 1. Not offered '59-'60.

†***27. Draping.***—Draping fabric to work out problems in color, design, and texture in formal and informal dresses. Prerequisite, Cd 22, 31. *Lab* 4, *Cr* 2. MRS. BERRY

***29. Special Problems in Clothing and Textiles.***—*Cr* 1 to 3. MRS. BERRY

***31. Design Appreciation.***—The application of the principles of design and color to clothing and home furnishings. *Rec* 2, *Lab* 2, *Cr* 3. MISS MUSGRAVE

***32. Creative Design.***—Composition in line, pattern, and color, using charcoal and tempera paint. *Lab* 4, *Cr* 2. MISS MUSGRAVE

‡***33. Applied Design.***—Application of design principles to such textile problems as block printing, batik, decorative needlework, and hand weaving. Prerequisite, Cd 31 or 32. *Lab* 4, *Cr* 2. Not offered '59-'60.

†***34. History of Costume.***—The development of costume of men and women from antiquity to the present. *Rec* 2, *Cr* 2. MISS MUSGRAVE

‡***35. Costume Design.***—Designing clothing in relation to coloring, personality, figure, and occasion. Prerequisite, Cd 32. *Rec* 1, *Lab* 4, *Cr* 3. Not offered '59-'60.

***38. Special Problems in Design.***—*Cr* 1-3. MISS MUSGRAVE

***39. Special Problems in History of Costume.***—*Cr* 1-3. MISS MUSGRAVE

### Foods and Nutrition (Fn)

***41. Introduction to Foods and Nutrition.***—Analysis of the criteria for making intelligent food choices. Nutritive quality, palatability, digestibility, sanitary quality, and economy of time and money. Application of these standards to the different food groups. *Rec* 3, *Cr* 3. MRS. MACKELLAR

***42. Family Food Management.***—Planning, preparation, and serving of meals which meet the standards established in Fn 41. Prerequisite or parallel, Fn 41. *Rec* 1, *Lab* 4, *Cr* 3. MRS. SNYDER

***43. Principles of Food Preparation.***—An experimental approach to the preparation of foods with emphasis on the scientific interpretation of results. Prerequisites, Fn 41 and 42 and Bc 4 or equivalent. *Rec* 1, *Lab* 4, *Cr* 3. MRS. SNYDER

***49 (149). Special Problems in Foods.***—*Cr* 1-3. STAFF

***51. Nutrition for Nurses.***—An elementary consideration of the principles of nutrition as applied to the feeding of normal individuals of all ages. *Rec* 2, *Lab* 2, *Cr* 3. MRS. SNYDER

***52 (152). Human Nutrition.***—Body metabolism and requirements for nutrients by normal individuals. Prerequisite, Bc 4, and Zo 8 or equivalent, *Rec* 3, *Cr* 3. MRS. SWEETMAN

***53. Nutrition Laboratory Problems.***—Application of the principles of nutrition to the preparation of dietaries for normal individuals of all ages. Prerequisite, Bc 4 or equivalent and Fn 41 or 52. *Lab* 4, *Cr* 2. MRS. SNYDER

***54. Nutrition of the Infant and Young Child.***—The relation of nutrition to growth and development and the importance of adapting feeding practices to the child's individuality and stage of maturation. Prerequisite, Bc 4 and Fn 41. *Rec* 1-2, *Cr* 1-2. MRS. SNYDER

†***55 (155). Nutrition in Abnormal Conditions.***—The principles involved in adjusting diets in such diseases or other abnormal conditions as are benefited by variations from normal diets. Prerequisite, Fn 52. *Rec* 2, *Cr* 2. MRS. MACKELLAR

***58 (158). Seminar in Foods and Nutrition.***—Methods of research and recent advances in the field. Prerequisite, Fn 52. Offered if demand is sufficient. *Rec* 1-2, *Cr* 1-2. MRS. MACKELLAR

***59 (159). Special Problems in Nutrition.***—*Cr* 1-3. STAFF

***61. Quantity Food Service.***—A general survey of different types of group feeding. Problems in menu planning, food buying, storage and preparation of

food, cost accounting, use of heavy duty equipment. Laboratory experience in Merrill Hall Tearoom. Prerequisite, Fn 43. *Rec* 1, *Lab* 6, *Cr* 3.

MRS. GULBRANSEN

***62. Institutional Food Management.***—Organization and management of quantity food services. Problems in personnel management, general business procedures, and merchandizing of food. Prerequisite, Fn 61. *Rec* 1, *Lab* 3-6, *Cr* 2-3.

MRS. GULBRANDSEN

***63. Food Service Administration.***—Observation and participation in managerial responsibilities in the Merrill Hall Tearoom. Prerequisite, Fn 62. *Rec* 1, *Lab* 3 to 6, *Cr* 2-3. MRS. GULBRANDSEN

***64. Food Cost Control.***—Methods of controlling food costs in quantity food services through standardization, use of records, management of personnel and purchasing practices for food and equipment. Prerequisite, Fn 62. *Rec* 1, *Lab* 2, *Cr* 2. MRS. GULBRANDSEN

***69. Special Problems in Food Service Management.***—*Cr* 1-3.

MRS. GULBRANDSEN

### Home Economics Education (He)

***1. Introduction to Home Economics.***—The scope and philosophy of college Home Economics and a survey of the professional fields open to its graduates. *Cr* 1. MRS. SWEETMAN

***70. Senior Seminar in Home Economics.***—History, philosophy, present organization, and future development of professional Home Economics. *Cr* 1.

STAFF

***71. Techniques in Teaching Home Economics.***—Selecting and using teaching aids. Demonstrations of specialized skills. Observation of high school classes. Prerequisite, Junior standing in Home Economics. *Rec* 1, *Lab* 2, *Cr* 2.

MISS MINOT

***72. Methods in Home Economics Education.***—Curriculum planning and classroom procedures in setting up goals and evaluating progress in junior and senior high schools. Prerequisite, He 71. *Rec* 2, *Lab* 2, *Cr* 3. MISS MINOT

***73, 74. Supervised Student Teaching.***—Observation, participation, and teaching in a selected junior or senior high school in the state, under the immediate direction of the local teacher with supervision from the State Department of Education. *Cr* 3 each course. STAFF, STATE DEPARTMENT OF EDUCATION

***75. Advanced Home Economics Education.***—Detailed development of selected units of work related to field teaching. Study of home experiences, selection and use of illustrative material, classroom management, and equipment. Prerequisite, He 72. *Cr* 3. STAFF, STATE DEPARTMENT OF EDUCATION

***76 (176). Adult Education in Home Economics.***—Need for and purposes of education to help homemakers adjust to changes in family living. Planning and organizing homemaking programs for adults. Using current means of instruction in various aspects of family living. *Rec* 2, *Cr* 2. MISS MINOT

***77. Home Experience.***—Preplanned and evaluated activity utilizing professional subject matter in a home environment. Minimum for certification 40 hours, *Cr* 0; 80 hours, *Cr* 1; 120 hours, *Cr* 2. STAFF

***79 (179). Special Problems in Home Economics Education.***—*Cr* 1-3.

MISS MINOT

### Home Management and Housing (Hm)

***81. Home Management.***—Analysis of the managerial process and its relationship to decision making. Emphasis is placed on the use of resources including time and energy to attain family goals. *Rec* 2. *Cr* 2. MISS MARTIN

***82. Home Management Residence.***—Planning and carrying out the activities of daily living in a group which includes an infant. Emphasis on managerial ability and the attitudes essential to satisfactory group living. Seniors, or juniors by permission. *Cr* 2 or 3. MISS MARTIN

***85. Family Economics.***—Management of family income and expenditures: budgeting, general buying practices, savings, and insurance. *Rec* 2, *Cr* 2. MRS. DALTON

***89. Special Problems in Home Management.***—*Cr* 1-3. MISS MARTIN

***91. Housing.***—Analysis of housing needs at successive phases of the family cycle. Meeting these needs within the limits of available resources. *Rec* 2, *Lab* 2, *Cr* 3. MISS MONROE

***92. House Furnishing.***—Choice and arrangement of furniture and related materials to satisfy aesthetic and functional requirements. Prerequisite, Cd 31, Hm 91, or permission. *Rec* 2, *Lab* 2, *Cr* 3. MISS MUSGRAVE

***93. Household Equipment.***—Elementary principles of physics applied to the selection, operation, and care of electrical and other types of household equipment. *Rec* 2, *Lab* 2, *Cr* 3. MISS MONROE

***99. Special Problems in Housing.***—*Cr* 1-3. MISS MONROE

***299. Graduate Thesis.***—Cr, Ar. STAFF

Honor society members greet new students

# TWO-YEAR COURSE IN AGRICULTURE

ASSISTANT TO THE DEAN—DAVID H. HUNTINGTON

The objective of this program is to provide vocational training that will prepare young men to be better, more efficient farmers or agriculture service agents.

A basic core curriculum is required of all students. These basic courses are designed to foster the development of citizenship and leadership characteristics, as well as to develop basic knowledge and skills that will assist the student in understanding and applying the specialized agricultural courses.

At the time of registration, students must select a field of specialization from one of the four subject matter fields:

1) Dairy Farming
2) Mechanized Farming
3) Potato Farming
4) Poultry Farming

A faculty adviser will be assigned and he will assist in the selection of courses to train the individual for his intended vocation and area of interest.

The semester period comprises twelve weeks of instruction. The fall semester commences late in October and the spring semester finishes early in May, enabling the students to engage in farm work from the beginning of the planting season to the close of harvesting.

A two-year graduation certificate will be awarded upon satisfactory completion of a two-year program which includes the basic curriculum, a minimum of 72 credit hours, and an accumulative average of not less than 1.80.

## TWO-YEAR COURSE IN AGRICULTURE

### Basic Curriculum—Required For All Students

### First Year

FALL SEMESTER

| | Subject | Hours Rec | Lab | Cr |
|---|---|---|---|---|
| 1 AE | Farm Shop | 0 | 4 | 2 |
| 13 AE | Agric. Arithmetic | 2 | 0 | 2 |
| 1 Agr | Orientation | 1 | 0 | 1 |
| 1 Eh | English Comp. | 3 | 0 | 3 |
| | | | | 8 |

SPRING SEMESTER

| | Subject | Hours Rec | Lab | Cr |
|---|---|---|---|---|
| 2 AE | Farm Shop | 0 | 4 | 2 |
| 1 Ag | General Soils | 2 | 2 | 3 |
| 2 Eh | Business English | 3 | 0 | 3 |
| *2 Gt | Local & State Gov't | — | — | — |
| | | | | 8 |

### Second Year

| | | Rec | Lab | Cr |
|---|---|---|---|---|
| 6 Ag | Weeds | 2 | 0 | 2 |
| 3 Fm | Farm Mgt. | 2 | 2 | 3 |
| 1 Sh | Public Speaking & Parl. Procedure | 3 | 0 | 3 |
| | | | | 8 |

| | | Rec | Lab | Cr |
|---|---|---|---|---|
| 4 Fm | Mktg. Farm Prods. | 3 | 0 | 3 |
| *2 Gt | Local & State Gov't | — | — | — |
| | | | | 3 |

* Offered in alternate years for both first and second year students.

## SPECIMEN MAJOR CURRICULA

### Dairy Farming

#### First Year

FALL SEMESTER

| | Subject | Hours Rec | Lab | Cr |
|---|---|---|---|---|
| | Basic Req'd Courses | | | 8 |
| 1 An | Dairy Cattle | 2 | 2 | 3 |
| 3 An | Dairy Cattle Selection | 1 | 2 | 2 |
| 5 An | Milk Comp. & Testing | 2 | 2 | 3 |
| | Elective | | | 2 |
| | | | | 18 |

SPRING SEMESTER

| | Subject | Hours Rec | Lab | Cr |
|---|---|---|---|---|
| | Basic Req'd Courses | | | 8 |
| 6 An | Livestock Feeding | 2 | 2 | 3 |
| 10 An | Milk Handling | 2 | 2 | 3 |
| | Elective | | | 4 |
| | | | | 18 |

#### Second Year

| | | Rec | Lab | Cr |
|---|---|---|---|---|
| | Basic Req'd Courses | | | 8 |
| 4 An | Animal Breeding | 2 | 3 | 3 |
| 5 AnP | Livestock Diseases | 3 | 0 | 3 |
| | Elective | | | 4 |
| | | | | 18 |

| | | Rec | Lab | Cr |
|---|---|---|---|---|
| | Basic Req'd Courses | | | 3 |
| 3 Ag | Forage Crops | 2 | 2 | 3 |
| 2 An | Beef, Sheep & Swine | 2 | 2 | 3 |
| | Elective | | | 9 |
| | | | | 18 |

### Mechanized Farming

#### First Year

| | | Rec | Lab | Cr |
|---|---|---|---|---|
| | Basic Req'd Courses | | | 8 |
| 8 AE | Farm Machinery | 2 | 2 | 3 |
| | Elective | | | 7 |
| | | | | 18 |

| | | Rec | Lab | Cr |
|---|---|---|---|---|
| | Basic Req'd Courses | | | 8 |
| 5 AE | Gas Engines & Tractors | 2 | 2 | 3 |
| 6 AE | Agric. Drawing | 0 | 4 | 2 |
| | Elective | | | 5 |
| | | | | 18 |

#### Second Year

| | | Rec | Lab | Cr |
|---|---|---|---|---|
| | Basic Req'd Courses | | | 8 |
| 7 AE | Applied Mechanics | 2 | 0 | 2 |
| 10 AE | Farm Electrification | 2 | 2 | 3 |
| 11 AE | Soil Water Mgt. | 2 | 2 | 3 |
| | Elective | | | 2 |
| | | | | 18 |

| | | Rec | Lab | Cr |
|---|---|---|---|---|
| | Basic Req'd Courses | | | 3 |
| 9 AE | Farm Buildings | 2 | 2 | 3 |
| 12 AE | Farm Utilities | 1 | 2 | 2 |
| 14 AE | Farm Equip't Sales & Service | 1 | 2 | 2 |
| | Elective | | | 8 |
| | | | | 18 |

## Potato Farming

### First Year

| FALL SEMESTER | | | | | SPRING SEMESTER | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Subject | Hours | | | | Subject | Hours | | |
| | | Rec | Lab | Cr | | | Rec | Lab | Cr |
| | Basic Req'd Courses | | | 8 | | Basic Req'd Courses | | | 8 |
| *2 Ag | Small Grains | — | — | — | 1 En | Farm Insects | 2 | 2 | 3 |
| *4 Ag | Potato Production | 2 | 2 | 3 | *5 Fm | Potato Marketing | 3 | 0 | 3 |
| *2 Bt | Potato Diseases | — | — | — | | Elective | | | 4 |
| | Elective | | | 7 | | | | | |
| | | | | 18 | | | | | 18 |

### Second Year

| | | Rec | Lab | Cr | | | Rec | Lab | Cr |
|---|---|---|---|---|---|---|---|---|---|
| | Basic Req'd Courses | | | 8 | | Basic Req'd Courses | | | 3 |
| 11 AE | Soil Water Mgt. | 2 | 2 | 3 | *5 Fm | Potato Marketing | 3 | 0 | 3 |
| *2 Ag | Small Grains | — | — | — | | Elective | | | 12 |
| *4 Ag | Potato Production | 2 | 2 | 3 | | | | | |
| 5 Ag | Fertilizers | 2 | 0 | 2 | | | | | |
| *2 Bt | Potato Diseases | — | — | — | | | | | |
| | Elective | | | 2 | | | | | |
| | | | | 18 | | | | | 18 |

## Poultry Farming

### First Year

| | | Rec | Lab | Cr | | | Rec | Lab | Cr |
|---|---|---|---|---|---|---|---|---|---|
| | Basic Req'd Courses | | | 8 | | Basic Req'd Courses | | | 8 |
| 1 Ph | Poultry Production | 3 | 0 | 3 | *8 AnP | Poultry Diseases | 3 | 0 | 3 |
| *6 Ph | Prac. Poultry Breeding | 2 | 0 | 2 | 2 Ph | Funds. of Inc. & Brooding | 2 | 2 | 3 |
| *7 Ph | Poultry Housing & Mgt. | — | — | — | *5 Ph | Prac. Poultry Feeding | 3 | 0 | 3 |
| | Elective | | | 5 | | Elective | | | 1 |
| | | | | 18 | | | | | 18 |

### Second Year

| | | Rec | Lab | Cr | | | Rec | Lab | Cr |
|---|---|---|---|---|---|---|---|---|---|
| | Basic Req'd Courses | | | 8 | | Basic Req'd Courses | | | 3 |
| 3 Ph | Poultry Selection | 1 | 2 | 2 | *8 AnP | Poultry Diseases | 3 | 0 | 3 |
| *6 Ph | Prac. Poultry Breeding | 2 | 0 | 2 | *5 Ph | Prac. Poultry Feeding | 3 | 0 | 3 |
| *7 Ph | Poultry Housing & Mgt. | — | — | — | | Elective | | | 9 |
| | Elective | | | 6 | | | | | |
| | | | | 18 | | | | | 18 |

* Offered in alternate years for both first and second year students.

# TWO-YEAR COURSE DESCRIPTIONS

## AGRICULTURAL ECONOMICS AND FARM MANAGEMENT

***2 Fm. Farm Economics.***—Changes in the size and location of commercial farms. Type of operation as owner, partnership, corporations, integration and cooperatives. Fields of government policy and programs: taxation, prices, and credit. *Rec* 3, *Cr* 3. MR. TUTHILL

***3 Fm. Farm Management.***—Managing the farm business for optimum returns; ways of getting started in farming; decisions as to size, production rates, labor and machinery, enterprise selection, and farm organization; application to specific farms. *Rec* 2, *Lab* 2, *Cr* 3. MR. PULLEN

***4 Fm. Marketing Farm Products.***—Economic principles involved in marketing agricultural products with special attention to those produced in New England. Time will be devoted to cooperative marketing. *Rec* 3, *Cr* 3. MR. SAUNDERS

†***5 Fm. Potato Marketing.***—Varieties, market grades, maintenance of quality, containers, storage, transportation, consumer preferences, wholesale and retail sales of potatoes. *Rec* 3, *Cr* 3. MR. PERRY

***6 Fm. Agricultural Business Analysis.***—Analysis and use of farm business records and economic reports. Preparation and interpretation of financial statements and income tax returns. Transfer of property and use of credit instruments. *Rec* 1, *Lab* 1, *Cr* 2. MR. TUTHILL

***7 Fm. Community Leadership.***—Working with groups, planning community programs. Problems and factors involved in obtaining group action. Current trends, programs and future developments affecting community organization and leadership. *Rec* 2, *Cr* 2. MR. PLOCH

## AGRICULTURAL ENGINERING

***1 AE. Farm Shop.***—Care and use of metal working tools, cold metal working, soldering, introduction to welding. *Lab* 4, *Cr* 2. MR. SWIFT

***2 AE. Farm Shop.***—Care, use, and sharpening of carpentry tools; painting and finishing; rope and belt work. *Lab* 4, *Cr* 2. MR. SWIFT

***3 AE. Farm Shop.***—Advanced welding practices and machinery repair Prerequisite, Course 1AE. *Lab* 4, *Cr* 2. MR. HUNTINGTON

***4 AE. Farm Shop.***—Electric wiring and installation of farm electric equipment; pipe fitting. *Lab* 4, *Cr* 2. STAFF

***5 AE. Gas Engines and Tractors.***—Adjustment, care, and repair of farm gas engines and tractors. *Rec* 2, *Lab* 2, *Cr* 3. MR. ROWE

***6 AE. Agricultural Drawing.***—Blueprint reading, preparing simple plans and bills of materials for structures commonly built on the farm. *Lab* 2, *Cr* 2. MR. SWIFT

***7 AE. Applied Mechanics.***—Fundamental principles of mechanics as applied to power transmission such as gears, belts, and pulleys. *Rec* 2, *Cr* 2. MR. ROWE

***8 AE. Farm Machinery.***—Selection, operation, care and repair of farm machinery. *Rec* 2, *Lab* 2, *Cr* 3. MR. CARPENTER, MR. ROWE

***9 AE. Farm Buildings.***—Planning farm buildings for most efficient use; remodeling existing farm structures; ventilation of farm buildings; selection and proper use of building materials on the farm. *Rec* 2, *Lab* 2, *Cr* 3. MR. CARPENTER

***10 AE. Farm Electrification.***—Selection, care, and use of electrical farm equipment. *Rec* 2, *Lab* 2, *Cr* 3. MR. MILNE

***11 AE. Soil Water Management.***—Soil conservation, farm drainage, and supplemental irrigation; elementary farm surveying. *Rec* 2, *Lab* 2, *Cr* 3. MR. RHOADS, MR. SWIFT

***12 AE. Farm Utilities.***—Selection, care and use of farm water and sewage disposal systems. *Rec* 1, *Lab* 2, *Cr* 2. MR. HUNTINGTON

***13 AE. Agricultural Arithmetic.***—Basic arithmetic, averages, index numbers and graphs as applied to agriculture. Computation of feed and fertilizer formulas. Problems involving mensuration and elementary mechanics. *Rec* 2, *Cr* 2. MR. BONDURANT

***14 AE. Farm Equipment Sales and Service.***—Training for the management of farm equipment dealerships. Includes advertising, sales promotion, parts management, service management, accounting, financing, and collecting. *Rec* 1, *Lab* 2, *Cr* 2. MR. ROWE

## AGRONOMY

***1 Ag. General Soils.***—Soil properties and their relation to crop production with special emphasis on management and land judging. *Rec* 2, *Lab* 2, *Cr* 3. MR. MURPHY

‡***2 Ag. Small Grains.***—Adaptation, culture, marketing, and identification of small grains commonly grown in Maine. *Rec* 2, *Cr* 2.

***3 Ag. Forage Crops.***—Management practices in the production of hay, silage, and pasture crops. *Rec* 2, *Lab* 2, *Cr* 3. MR. BROWN

†***4 Ag. Potato Production.***—Growth and management of potatoes under Maine conditions. *Rec* 2, *Lab* 2, *Cr* 3. MR. MURPHY

***5 Ag. Fertilizers.***—The common carriers of plant nutrients. Consideration will be given to methods and rates of application. *Rec* 2, *Cr* 2. MR. BLACKMON

***6 Ag. Weeds.***—Identification and control of weeds commonly found in Maine crops. *Rec* 2, *Cr* 2. MR. TREVETT

‡***8 Ag. Processing Crops.***—The growth and management of crops produced for processing in Maine; special emphasis is given to sweet corn, peas and beans. *Rec* 2, *Cr* 2.

## ANIMAL SCIENCE

***1 An. Dairy Cattle.***—Selection, care, and management of the dairy herd. The laboratory is devoted to practical problems in the selection, record keeping, and management of dairy cattle. *Rec* 2, *Lab* 2, *Cr* 3. MR. LEONARD

***2 An. Beef, Sheep and Swine.***—Breeds and types of beef cattle, sheep and swine; their care, feed, and management. *Rec* 2, *Lab* 2, *Cr* 3. MR. BRUGMAN

***3 An. Dairy Cattle Selection.***—A study of the relationship of conformation in dairy cattle to milk production. *Rec* 1, *Lab* 3, *Cr* 2. MR. POULTON

***4 An. Animal Breeding.***—Principles of selecting and systems of breeding farm animals. *Rec* 2, *Lab* 3, *Cr* 3. MR. DICKEY

***5 An. Milk Composition and Testing.***—Composition and properties of milk; cream separation; Babcock testing of milk and cream. *Rec* 2, *Lab* 2, *Cr* 3. MR. RAMSDELL

***6 An. Livestock Feeding.***—Principles for the practical feeding of farm

animals. Study of feeds, their values, and the feed requirements of farm animals. *Rec* 2, *Lab* 2, *Cr* 3. MR. ANDERSON

***8 An. Meat and Meat Products.***—Methods of handling and preparing livestock for market; farm and packing house methods of slaughter animals; cutting and curing meats. *Rec* 1, *Lab* 4, *Cr* 3. MR. BRUGMAN

***10 An. Milk Handling.***—Milk bacteria, sanitary production, and handling; bulk milk system. *Rec* 2, *Lab* 2, *Cr* 3. MR. RAMSDELL

## HORTICULTURE

***1 Ht. Basic Horticulture.***—A discussion of principles involved in transplanting, pruning, fertilization, and cultivation of horticultural crops. *Rec* 2, *Lab* 2, *Cr* 3. MR. WHITTON

‡***3 Ht. Home Grounds Improvement.***—Planning and planting the home grounds to make the home an interesting place in which to work and live. *Rec* 2, *Lab* 2, *Cr* 3.

‡***4 Ht. Fruit Growing.***—The cultural management of orchard and small fruits, including apples, blueberries, red raspberries, and strawberries. *Rec* 2, *Lab* 2, *Cr* 3.

†***5 Ht. Vegetable Growing.***—Cultural practices for the major vegetable crops of both the home garden and the market garden. *Rec* 2, *Lab* 2, *Cr* 3. MR. HEPLER

## POULTRY SCIENCE

***1 Ph. Poultry Production.***—The practical application of the principles of incubation, brooding, housing, feeding, breeding and management of poultry. *Rec* 3, *Cr* 3. MR. HARRIS

***2 Ph. Fundamentals of Incubation and Brooding.***—The production and care of hatching eggs; the principles of incubation and the operation of incubators; type of brooders and method of management of the growing stock. *Rec* 2, *Lab* 2, *Cr* 3. MR. HARRIS

***3 Ph. Poultry Selection.***—Selection of poultry both for production and exhibition. Laboratory practice in judging and selection of birds for breeders. *Rec* 1, *Lab* 2, *Cr* 2. MR. HARRIS

***4 Ph. Applied Poultry Management.***—Practical experience in caring for the poultry flock; operation of incubators and brooders and grading and packing eggs. *Six weeks either semester. Lab* 4, *Cr* 1. THE STAFF

†***5 Ph. Practical Poultry Feeding.***—The principles of nutrition as applied to poultry; poultry feeds; calculating rations; feeding methods and costs of feeding. *Rec* 3, *Cr* 3. MR. GERRY

†***6 Ph. Practical Poultry Breeding.***—The principles of inheritance and variations as applied to poultry. The practical application of these principles with a study of pedigrees and breeding programs. *Rec* 2, *Cr* 2. MR. HARRIS

‡***7 Ph. Poultry Housing and Management.***—The principles of poultry housing. Types of poultry houses, their use and construction. Types of poultry farming; cost of production and management practices. *Rec* 2, *Cr* 2.

## SERVICE COURSES IN THE COLLEGE OF AGRICULTURE

***1 Agr. Orientation.***—Planned to acquaint first-year students with the policies and regulations of the University and to suggest ways to derive maximum

benefit from training in the two-year agricultural program. *Rec* 1, *Cr* 1.
MR. HUNTINGTON

***5 AnP. Livestock Diseases.***—Anatomy, physiology, hygiene, and sanitation. The prevention and control of the common diseases of dairy cattle. *Rec* 3, *Cr* 3. MR. PAYNE

†***8 AnP. Poultry Diseases.***—Principles of hygiene and sanitation applied to the prevention and control of poultry diseases, with special emphasis on diseases most frequently found in New England. *Rec* 3, *Cr* 3. MR. PAYNE

‡***2 Bt. Potato Diseases.***—An objective course on diseases affecting production, marketing, and utilization of potatoes as food or seed stock. *Rec* 2, *Lab* 2, *Cr* 3.

***1 En. Farm Insects.***—Habits, life histories, and controls of the destructive insects common on farm crops and livestock. *Rec* 2, *Lab* 2, *Cr* 3.
MR. SIMPSON

***1 Fy. Farm Forestry.***—Establishment and care of farm woodlots. Tree identification. Methods of estimating volume of standing timber and measuring forest products. Measurement of forest land. *Rec* 2, *Lab* 3, *Cr* 3. MR. PLUMMER

## SERVICE COURSES IN THE COLLEGE OF ARTS AND SCIENCES

***1 Eh. English Composition.***—A review of grammar and the principles of effective expression for the purpose of direct application in written reports of practical value. *Rec* 3, *Cr* 3. MRS. HANKINS

***2 Eh. Business English.***—A continuation of 1 Eh with particular emphasis given to business correspondence. *Rec* 3, *Cr* 3. MRS. HANKINS

‡***2 Gt. State and Local Government.***—Selected topics on the structure and operation of state, county, and town government, with emphasis on Maine problems of particular interest and significance to Maine Agriculture. *Rec* 3, *Cr* 3.

***1 Sh. Public Speaking and Parliamentary Procedure.***—Introduction to public speaking—choice of subject, selection of material, arrangement and presentation. Consideration of the principles and rules by which a group transacts its business. *Rec* 3, *Cr* 3. MR. COOK

# College of Arts and Sciences

JOSEPH M. MURRAY, DEAN

# COLLEGE OF ARTS AND SCIENCES

The College of Arts and Sciences endeavors to furnish opportunities for students to acquire knowledge and skill in a variety of fields wherein a cultural emphasis is prominent.

For purposes of administration, the College is divided into thirteen departments. All students are required to take work in several of these departments, but, in general, the degree of specialization can vary widely to fit the needs of individuals. Thus some may desire to pursue studies in only a few of the major departments while others may prefer to take work of greater subject matter range. The College has prepared, for those who desire them, specific programs of study in many preprofessional and vocational fields (see the section on Specimen Curricula). Considerable flexibility is permitted the student within all these programs.

The College has as a major objective the desire to furnish its students with a general cultural background. Within the framework of this background the student will also find much that is of utilitarian value. The College seeks to train men and women in critical intelligence, broad and sympathic understanding of human needs, and determination of purpose.

Arts and Sciences students who are interested in taking subjects offered in one of the other colleges of the University may do so provided they have fulfilled the necessary prerequisites. In collaboration with the College of Education, this College offers specialized training to prospective teachers.

## GENERAL INFORMATION

**Admission.** The specific requirements for admission are given in full elsewhere in the catalog (see page 27). All deficiencies in entrance requirements must be made up before registering for the junior year. Students who transfer from other colleges with advanced standing must satisfy all admission requirements within a year.

**Transfer Credit.** No transfer credit will be allowed for courses taken at another institution in which grades below C have been received. Evaluation of courses taken at another institution for which transfer credit is asked rests with the Director of Admissions and the Dean.

**Graduation Requirements.** The work of the College of Arts and Sciences leads to the degree of Bachelor of Arts (B.A.). Men students not excused from taking Military Science are required to complete 135 semester credit hours; all other students are required to complete 128 hours.

In addition, each student must accumulate a total of "grade points" equal to 1.8 times the number of credit hours in which he receives grades. In computing grade points, each credit hour of A is multiplied by 4, B by 3, C by 2, D by 1, and E by 0.

Specific course requirements are listed in the section, "The First Two Years."

The passing of a comprehensive examination is a requirement for the degree in certain departments.

Satisfactory work in written English is required throughout the college course.

Students who transfer to this College from another college of the University will be required to do two full years' work in the College of Arts and Sciences and satisfy all specific requirements before receiving the Bachelor of Arts degree, with the exception that students from the College of Technology may transfer after the junior year and be graduated after one year's work as majors in the Departments

of Physics, Chemistry, or Mathematics; and students from the College of Agriculture may similarly transfer and be graduated as majors in the Department of Zoology.

**The First Two Years.** The first two years of the student's college course constitute a unified period during which he studies, for the most part, basic courses in varied fields. The objective of these years is twofold: first, to enable the student to acquire knowledge over an extended area, and second, to prepare him to undertake studies of a distinctly advanced nature in some major subject or field.

In order to meet these objectives, the College has established specific course requirements for the first two years. With the consent of the adviser and the dean, not more than two of these requirements may be postponed until the junior year by any student whose interests are best served by variation from the usual program. Also, the student may be able to satisfy certain of these requirements by passing qualifying tests. These tests are ordinarily given during Freshman Week, and permission of the department concerned must be obtained by the student before he attempts the test.

The course requirements follow:

I. ENGLISH and SPEECH. All freshmen are required to complete Eh 1; 2, Freshman Composition, and Sh 1, Public Speaking.

II. FOREIGN LANGUAGE. All students are required to complete Intermediate French, German, Italian, Russian, Spanish, Greek, or Latin, or to pass a qualifying test in one of these languages. Ordinarily the intermediate course may be taken in the freshman year by those students who continue a language taken for at least three years in high school. Students who begin a language in College would normally take the intermediate course in the sophomore year.

III. SOCIAL SCIENCE.

a. Freshman Year. Students who have not completed a basic one-year high-school course in American History are required to take United States History (Hy 3. 4). Students who have completed such a course in high school should select one of the following year-courses: Hy 3. 4, United States History, Hy 5; 6, History of Western Europe, or My 1; 2, Modern Society.

b. Sophomore Year. Students are to select one of the following year-courses: Be 1; 2, Principles of Economics, Gt 1; 2, American Government, Py 1; 2, General Psychology, or Sy 1; 2, Cultural Anthropology. For those students who have taken My 1; 2, Modern Society, during the freshman year, Hy 3. 4, United States History, and Hy 5; 6, History of Western Europe, also belong to this group.

IV. NATURAL SCIENCE AND MATHEMATICS. A minimum of two years of work in science is required of all students. One year of this work must be a basic year-course in laboratory science or mathematics, and work of the second year must be taken in a different subject-matter area. Two of the semester courses in descriptive science may be used to satisfy one year of this requirement.

a. Basic year courses:

As 15; 16, General Astronomy
Ch 1; 2, General Chemistry
Gy 1; 2, Principles of Geology
Ms 1, 3; 12, Trigonometry, Algebra, Analytical Geometry and Calculus
Ms 5; 6, Elements of College Mathematics
Ps 1; 2 or Ps 1a; 2a, General Physics

Zo 3; 4, Animal Biology
Zo 1, Bt 1, General Zoology and Botany

b. Semester courses in descriptive science:
As 9, Descriptive Astronomy
Gy 3, Descriptive Geology, Physical
Gy 4, Descriptive Geology, Historical
Ps 3, Descriptive Physics

V. HUMANITIES. Sophomore students are to select a year-course from the following: Hy 1. 2, Classical and Medieval Civilization, Pl 1. 2, Philosophy and Modern Life, Eh 15. 16, Masterpieces of English and American Literature, and Cl 1. 2, Greek and Latin Literature in Translation.

VI. Women students are to take Physical Education during both the freshman and sophomore years; also, they are to take Healthful Living in the first semester of the freshman year. Healthful Living and one year of Physical Education are required of transfer students who are admitted as sophomores.

VII. Men are required to take two years of Basic Military Science and Physical Education.

For those students taking Basic Military Science, the maximum registration is seventeen credit hours *exclusive* of this subject; for others, the maximum registration is seventeen hours. The minimum is fourteen hours. Normally not more than six hours may be taken in one subject in either semester of the sophomore year.

During the first two years, a student must show evidence of ability to pursue advanced courses successfully. Work of C grade or above will be interpreted as satisfactory. *Students with records consistently below this standard will be advised to withdraw from the University at the end of their sophomore year.*

Throughout the freshman and sophomore years, the student is under the general supervision of the Dean of the College. The Dean is assisted by faculty advisers whose purpose is to give each student individual guidance in selection of courses and give advice concerning problems of personal adjustment.

**The Last Two Years.** On the completion of 56 degree hours, the student, in conference with his adviser and with the approval of the Dean, selects his major subject. The department in which the major subject chiefly falls becomes for administrative purposes the student's major department, and the head of that department is his major instructor. The latter is responsible for the student before the faculty and must approve the student's registration.

The major curriculum is the nucleus of related courses selected by the student as representing his chief field of interest or major subject. Normally much of the work will fall in one department. The minimum number of credit hours which will be acceptable for a major is set by the department. The maximum number of hours which a student may count for degree credit from any one department is forty-eight. In general, it is assumed that upperclass students will take courses of an advanced nature.

Selected students may take advanced courses in Military Science and Tactics during their junior and senior years, for which a maximum of twelve credit hours may be received.

**Comprehensive Examinations.** Most departments of the College require comprehensive examinations of their senior major students. Certain departments also give basic or preparatory comprehensives in the spring semester of the junior year. The purpose of the comprehensive examination is to provide the student with an opportunity to demonstrate his knowledge of the salient features of his general

field of study. It aims to make clear the unity of the field as a whole. It is, therefore, designed in such a way as to develop perspective and to encourage organization of materials as well as accuracy and range of knowledge. The student is thus able to evaluate his ability in the field of his major interest and to make a smooth transition to his professional and graduate work.

**Honors Program.** These tutorial courses seek to encourage exceptional ability by affording exceptional opportunities for its exercise and to reward high achievement with appropriate recognition. The program aims especially at stimulating originality, intellectual curiosity, and resourcefulness, and demands a large measure of self-reliance. The student does his work under the supervision of a tutor, whom he meets in conference at regular intervals for informal discussion and advice. The formal recognition, the highest offered in the College of Arts and Sciences, is conferred following a successful completion of the Honors program, in the form of graduation Honors of three grades: Honors, High Honors, Highest Honors.

**Professional Certificates for Teachers.** Professional certification for secondary school teaching may be earned by students registered in the College of Arts and Sciences. Fifteen hours of basic work (Py 1; 2 and 65; Ed H1, C1 and M6) meets the professional subject requirements for the General Secondary Provisional Grade B Certificate, which must be renewed after two years. Twenty-one hours of basic work (Py 1; 2 and 65; Ed H1, C1, M6, C2, A21, A51) meets the professional subject requirements for the General Secondary Provisional Grade A Certificate, which represents full certification and is valid for five years. Practice teaching courses are available to students in the College of Arts and Sciences who desire additional professional preparation.

In addition to completing a major in one of the subjects commonly taught in secondary schools, candidates for a Certificate are expected to complete at least fifteen hours in a second subject field or twelve hours each in second and third subject fields.

Among the combinations of subject fields often expected of prospective teachers are mathematics and science, French and Latin, English and history, English and French, history and Latin, English and Latin, French and history, speech and English, and speech and history.

**Medical Technology.** This course has been developed in cooperation with the Eastern Maine General Hospital, Bangor, the Central Maine General Hospital, Lewiston, and the Maine Medical Center, Portland. Students electing the program spend three or more years at the University of Maine following which they undergo a period of twelve months in training at one of the above hospitals. Students receive the degree of Bachelor of Arts when they have satisfactorily completed the program (see page 118) and the certificate in Medical Technology when they have passed a special examination. The work at the University also meets the entrance requirements of schools of medical technology which are not affiliated with the University.

**Public Management Curricula.** These programs are designed to train men and women for governmental service in towns and cities.

**Bangor Theological Seminary.** Regularly enrolled students in the College of Arts and Sciences may register for courses at the Bangor Theological Seminary, not to exceed five credit hours per semester, without payment of additional fees. The College of Arts and Sciences extends a like privilege to students regularly enrolled at the Bangor Theological Seminary. Such registrations must have the approval of the academic dean of both institutions and the instructors involved.

Credit for courses so taken will be considered a part of the student's program at the institution where he is enrolled.

While enrolled at the Bangor Theological Seminary a student may, with the approval of his dean and the admissions officer of the University, also register as a Special Student in the College of Arts and Sciences on the established fee basis for such courses. Work so taken, if it does not substitute for or duplicate courses taken in the Seminary program, may be counted as advanced standing credit toward the degree in the event a student later registers for a degree program at the University.

**Summer Session.** Before students of the College of Arts and Sciences pursue Summer Session courses in any institution other than the University, they must secure the approval of the Dean in writing, if they expect degree credit for such work. A marked bulletin of the institution should be left at the Dean's Office with a note requesting such credit for the courses selected.

## SPECIMEN CURRICULA

Preprofessional, vocational, and departmental curricula are available and may be obtained from the Director of Admissions on request. These curricula will provide the student with a general idea of the character of preparation recommended. All possible latitude is allowed in order to permit development of the student's own interests and aptitudes. A few representative curricula follow:

## SPECIMEN CURRICULUM IN BUSINESS AND ECONOMICS

Be 1; 2, Principles of Economics, Be 9; 10, Elementary Accounting, and Eh 19, Expository Writing, are required of all majors. For the freshman year, My 1; 2, Modern Society and a year of basic mathematics are strongly recommended.

### Freshman Year

| | | |
|---|---|---|
| Eh | 1; 2 | Freshman Composition |
| Mt | 1. 2 | 1st Yr. Basic Military Science |
| My | 1; 2 | Modern Society |
| Pe | 1. 2 | Physical Education |
| Sh | 1 | Public Speaking |
| | | Foreign Language (to be continued in Sophomore year if not completed) |
| Ms 5; 6 or Ms 1, 3; 12 | | Mathematics |

### Sophomore Year

| | | |
|---|---|---|
| Be | 9; 10 | Elementary Accounting |
| Eh | 15. 16 | Masterpieces of Literature, or Pl 1. 2, Philosophy and Modern Life |
| Be | 1; 2 | Principles of Economics |
| Ms | 19 | Statistics, or Gy 21, Economic Geography, or Hy 19. 20, Economic History of the U. S. |
| Mt | 3. 4 | 2nd Yr. Basic Military Science |
| Pe | 3. 4 | Physical Education |
| | | Science or Mathematics |

### Junior and Senior Years

The student who majors in Business and Economics will establish, in cooperation with his major adviser, the program for the junior and senior year. Consult this catalog for courses available within the Department. Available, also, are many courses outside the Department. The following are recommended: Gt 1; 2, American Government, Gt 81; 82, Introduction to Law, Gt 83; 84, Constitutional Law, Gy 21, Economic Geography, Hy 19. 20, Economic History of the United States, Ms 17; 18, Mathematical Theory of Investment, Pl 35, Logic, and courses in the Fine Arts and English.

## SPECIMEN CURRICULUM FOR CHEMISTRY

### Freshman Year

| FALL SEMESTER | | | Hours | SPRING SEMESTER | | | Hours |
|---|---|---|---|---|---|---|---|
| Ch | 1 | General Chemistry | 4 | Ch | 2 | General Chemistry | 4 |
| Eh | 1 | Freshman Composition | 3 | Eh | 2 | Freshman Composition | 3 |
| Gm | 11 | Scientific German (Elem.) | 3 | Gm | 12 | Scientific German (Elem.) | 3 |
| Ms | 1 | Trigonometry | 2 | Ms | 12 | Anal. Geometry and Calculus | 4 |
| Ms | 3 | College Algebra | 2 | Mt | 2 | Military Science I | 1½ |
| Mt | 1 | Military Science I | 1½ | Pe | 2 | Physical Education | 0 |
| Pe | 1 | Physical Education | 0 | | | | |
| Sh | 1 | Public Speaking | 2 | | | | |
| | | | 17½ | | | | 15½ |

### Sophomore Year

| | | | Hours | | | | Hours |
|---|---|---|---|---|---|---|---|
| Ch | 31 | Semi-Micro Qualitative Anal. | 3 | Ch | 40 | Quantitative Analysis | 4 |
| Gm | 13 | Scientific German (Intermed.) | 3 | Gm | 14 | Scientific German | 3 |
| Ms | 27 | Calculus | 5 | Ms | 28 | Calculus | 5 |
| Mt | 3 | Military Science II | 2 | Mt | 4 | Military Science II | 2 |
| Pe | 3 | Physical Education | 0 | Pe | 4 | Physical Education | 0 |
| Ps | 1 | General Physics | 5 | Ps | 2 | General Physics | 5 |
| | | | 18 | | | | 19 |

### Junior Year

| | | | Hours | | | | Hours |
|---|---|---|---|---|---|---|---|
| Ch | 51 | Organic Chemistry | 5 | Ch | 52 | Organic Chemistry | 5 |
| Ch | 71 | Physical Chemistry | 5 | Ch | 72 | Physical Chemistry | 5 |
| | | Humanities | 3 | | | Humanities | 3 |
| | | Social Science | 3 | | | Social Science | 3 |
| | | | 16 | | | | 16 |

### Senior Year

| | | | Hours | | | | Hours |
|---|---|---|---|---|---|---|---|
| *Ch | 64 | Intermediate Quant. Analysis | 4 | *Ch | 90 | Inter. Organic Chemistry Lab. | 2 |
| Ch | 85 | Chemical Literature | 2 | *Ch | | Elective Adv. Lab. | 2 |
| *Ch | | Elective Adv. Lec. | 3 | | | Social Science | 3 |
| | | Social Science | 3 | | | Electives (Other than Chemistry) | 8-10 |
| | | Electives (Other than Chemistry) | 4-6 | | | | |
| | | | 16-18 | | | | 15-17 |

* For American Chemical Society Certification.

## SPECIMEN CURRICULUM FOR FOREIGN SERVICE

### Leading to

### Degree of B.A. in History and Government (Foreign Service Option)

#### Freshman Year

| | | |
|---|---|---|
| Eh | 1; 2 | Freshman Composition |
| Fr | | French |
| Hy | 5; 6 | History of Western Europe |
| Ms | | Mathematics |
| Mt | 1. 2 | 1st Yr. Basic Military Science |
| Pe | 1. 2 | Physical Education |
| Sh | 1 | Public Speaking |
| Sh | 7 | Debate |

#### Sophomore Year

| | | |
|---|---|---|
| Be | 1; 2 | Principles of Economics |
| Fr | | French |
| Gt | 1; 2 | American Government |
| Hy | 3. 4 | U. S. History |
| Mt | 3. 4 | 2nd Yr. Basic Military Science |
| Pe | 3. 4 | Physical Education |
| | | Natural Science |

#### Junior Year

| | | |
|---|---|---|
| Be | 39; 40 | International Trade and Policy |
| Fr | | French |
| Gm or Sp | | German or Spanish |
| Gt | 35; 36 | Comparative Government |
| Gt | 51; 52 | Public Administration |
| Gt | 73. 74 | International Relations, or Hy 83; 84, The Far East |
| | | Humanities |

#### Senior Year

| | | |
|---|---|---|
| Fr | | French |
| Gm or Sp | | German or Spanish |
| Gt | 83; 84 | Constitutional Law |
| Hy | 53. 54 | Europe Since 1870 |
| Hy | 67. 68 | American Diplomatic History |
| Ms | 19 | Statistics |

## SPECIMEN CURRICULUM FOR MEDICAL TECHNOLOGY

### Freshman Year

| | | FALL SEMESTER | Hours | | | SPRING SEMESTER | Hours |
|---|---|---|---|---|---|---|---|
| Ch | 1 | General Chemistry | 4 | Ch | 2 | General Chemistry | 4 |
| Eh | 1 | Freshman Composition | 3 | Eh | 2 | Freshman Composition | 3 |
| Pe | 1 | Physical Education | 0 | Pe | 2 | Physical Education | 0 |
| Pe | 21 | Healthful Living | 2 | Sh | 1 | Public Speaking | 2 |
| Zo | 3 | Animal Biology | 4 | Zo | 4 | Animal Biology | 4 |
| | | Modern Language | 3-4 | | | Modern Language | 3-4 |
| | | | 16-17 | | | | 16-17 |

### Sophomore Year

| | | | Hours | | | | Hours |
|---|---|---|---|---|---|---|---|
| Pe | 3 | Physical Education | 0 | Ch | 40 | Quantitative Analysis | 4 |
| Py | 1 | General Psychology | 3 | Pe | 4 | Physical Education | 0 |
| Ps | 3 | Descriptive Physics | 3 | Py | 2 | General Psychology | 3 |
| Zo | 51 | Histology | 4 | Zo | 58 | Animal Parasitology | 4 |
| | | Social Science | 3 | | | Social Science | 3 |
| | | Modern Language or elective | 3 | | | Modern Language or elective | 3 |
| | | | 16 | | | | 17 |

### Junior Year

| | | | Hours | | | | Hours |
|---|---|---|---|---|---|---|---|
| By | 27 | General Bacteriology | 5 | By | 52 | Pathogenic Bacteriology | 4 |
| Ch | 51 | Organic Chemistry | 5 | Ch | 52 | Organic Chemistry | 5 |
| Eh | 15 | Masterpieces of Literature | 3 | Eh | 16 | Masterpieces of Literature | 3 |
| | | Elective | 3 | | | Elective | 3 |
| | | | 16 | | | | 15 |

### *Senior Year

Twelve months in either the Eastern Maine General Hospital, Bangor, Maine, or the Central Maine General Hospital, Lewiston, Maine, and the Maine Medical Center, Portland, Maine.

* Students desiring to spend their senior year at the University of Maine may do so by electing the proper advanced courses. Such students will be candidates for the B.A. degree but are not eligible for the certificate of M.T. until they complete their hospital training.

## SPECIMEN CURRICULUM IN PHYSICS

### Freshman Year

| FALL SEMESTER | | | Hours | SPRING SEMESTER | | | Hours |
|---|---|---|---|---|---|---|---|
| Ps | 1a | General Physics | 4 | Ps | 2a | General Physics | 4 |
| Ms | 1 | Trigonometry | 2 | Ms | 12 | Anal. Geom. and Calculus | 4 |
| Ms | 3 | College Algebra | 2 | Eh | 2 | Freshman Composition | 3 |
| Eh | 1 | Freshman Composition | 3 | Gm | 12 | Scientific German | 3 |
| Gm | 11 | Scientific German | 3 | | | Social Science | 3 |
| | | Social Science | 3 | Mt | 2 | Basic Military I | 1½ |
| Mt | 1 | Military Science I | 1½ | Pe | 2 | Physical Education | 0 |
| Pe | 1 | Physical Education | 0 | | | | |
| | | | 18½ | | | | 18½ |

### Sophomore Year

| | | | Hours | | | | Hours |
|---|---|---|---|---|---|---|---|
| Ps | 17 | Intermediate Physics | 4 | Ps | 18 | Intermediate Physics | 4 |
| Ms | 27 | Calculus | 5 | Ms | 28 | Calculus | 5 |
| Gm | 13 | Scientific German (Intermed.) | 3 | Gm | 14 | Scientific German (Intermed.) | 3 |
| | | Social Science | 3 | | | Social Science | 3 |
| Sh | 1 | Funds. of Public Speaking | 2 | Mt | 4 | Military Science II | 2 |
| Mt | 3 | Military Science II | 2 | Pe | 4 | Physical Education | 0 |
| Pe | 3 | Physical Education | 0 | | | | |
| | | | 19 | | | | 17 |

### Junior Year

| | | | Hours | | | | Hours |
|---|---|---|---|---|---|---|---|
| Ps | 53 | Electrical Measurements | 3 | Ps | 72 | Optics | 3 |
| Ps | 55 | Electricity and Magnetism | 2 | Ps | 76 | Physical Measurements | 2 |
| *Ms | 57 | Engineering Mathematics | 3 | *Ms | 58 | Engineering Mathematics | 3 |
| | | Humanities | 3 | | | Humanities | 3 |
| | | Elective | 3-6 | | | Elective | 3-6 |
| | | | 14-17 | | | | 14-17 |

* Students preparing for secondary school teaching may wish to substitute courses in Education for advanced mathematics.

### Senior Year

| | | | Hours | | | | Hours |
|---|---|---|---|---|---|---|---|
| Ps | 69 | Modern Physics | 3 | Ps | 62 | Heat and Thermodynamics | 3 |
| | | Elective | 11-14 | | | Elective | 11-14 |
| | | | 14-17 | | | | 14-17 |

## SPECIMEN CURRICULUM FOR PREMEDICAL STUDIES

### Freshman Year

| FALL SEMESTER | | | Hours | SPRING SEMESTER | | | Hours |
|---|---|---|---|---|---|---|---|
| Ch | 1 | General Chemistry | 4 | Ch | 2 | General Chemistry | 4 |
| Eh | 1 | Freshman Composition | 3 | Eh | 2 | Freshman Composition | 3 |
| *Gm | 1 | Elementary German | 4 | Gm | 2 | Elementary German | 4 |
| Mt | 1 | Military Science I | 1½ | Ms | 3 | College Algebra | 2 |
| Pe | 1 | Physical Education | 0 | Mt | 2 | Military Science I | 1½ |
| Sh | 1 | Public Speaking | 2 | Pe | 2 | Physical Education | 0 |
| Zo | 3 | Animal Biology | 4 | Zo | 4 | Animal Biology | 4 |
| | | | 18½ | | | | 18½ |

### Sophomore Year

| | | | Hours | | | | Hours |
|---|---|---|---|---|---|---|---|
| Ch | 51 | Organic Chemistry | 5 | Ch | 52 | Organic Chemistry | 5 |
| Gm | 3 | Intermediate German | 3 | Gm | 14 | Scientific German | 3 |
| Ms | 1 | Trigonometry | 2 | Mt | 4 | Military Science II | 2 |
| Mt | 3 | Military Science II | 2 | Pe | 4 | Physical Education | 0 |
| Pe | 3 | Physical Education | 0 | Py | 2 | General Psychology | 3 |
| Py | 1 | General Psychology | 3 | Zo | 36 | Vertebrate Embryology | 4 |
| Zo | 33 | Comparative Anatomy | 4 | | | | |
| | | | 19 | | | | 17 |

### Junior Year

| | | | Hours | | | | Hours |
|---|---|---|---|---|---|---|---|
| Zo | 63 | Principles of Genetics | 3 | Ch | 40 | Quantitative Analysis | 4 |
| Ps | 1a | General Physics | 4 | Ps | 2a | General Physics | 4 |
| | | Humanities | 3 | | | Humanities | 3 |
| | | Social Science | 3 | | | Social Science | 3 |
| | | Elective | 3-4 | | | Elective | 2-3 |
| | | | 16-17 | | | | 16-17 |

### Senior Year

| | | | Hours | | | | Hours |
|---|---|---|---|---|---|---|---|
| Zo | 77 | Animal Physiology | 4 | Zo | 78 | General Physiology | 4 |
| Zo | 95 | Zoology Seminar | 1 | Zo | 96 | Zoology Seminar | 1 |
| | | Electives | 11-12 | | | Electives | 11-12 |
| | | | 16-17 | | | | 16-17 |

* The equivalent of two years of collegiate modern foreign language, preferably German, is usually required for medical school admission. Candidates should be familiar with the specific requirements of several schools before planning their first-year program.

## CURRICULUM FOR PREDENTAL STUDIES

The predental curriculum consists of selected portions of the above premedical program.

## SPECIMEN CURRICULUM IN PUBLIC MANAGEMENT

### Leading to

### Degree of B.A. in Public Management (City and Town Manager Option)

#### Freshman Year

| | | |
|---|---|---|
| Eg | 1; 12 | Engineering Drawing and Forestry Drawing |
| Eh | 1; 2 | Freshman Composition |
| Hy | 3. 4 | United States History |
| Ms | 1, 3, 12, or Ms 5, 6 | Mathematics |
| Mt | 1; 2 | 1st Yr. Basic Military Science |
| Pe | 1. 2 | Physical Education |
| | | Foreign Language |

#### Sophomore Year

| | | |
|---|---|---|
| Ce | 1 and 3, or 5 | Surveying |
| Ce | 10 | Curves and Earthwork |
| Gt | 1; 2 | American Government |
| Mt | 3. 4 | 2nd Yr. Basic Military Science |
| Pe | 3. 4 | Physical Education |
| Sh | 1 | Public Speaking |
| | | Foreign Language |
| | | Natural Science (Chemistry recommended) |

#### Junior Year

| | | |
|---|---|---|
| Be | 1; 2 | Principles of Economics |
| Be | 9; 10 | Elementary Accounting |
| Ce | 29 | Highway Construction |
| Ce | 33 | Sanitary Engineering |
| Gt | 33 | Municipal Government |
| Gt | 34 | Municipal Administration |
| Gt | 40 | Community Planning |
| Sy | 13 | Social Problems |
| Sw | 4 | Social Welfare |
| | | Humanities |

#### Senior Year

| | | |
|---|---|---|
| Be | 55; 56 or 58 | Business Law |
| Be | 61 | Personnel Management |
| Gt | 7. 8 | Maine Government |
| Gt | 41 | Police and Fire Admin. |
| Gt | 42 | Public Works Admin. |
| Gt | 44 | Public Relations |
| Gt | 46 | Municipal Law |
| Gt | 51; 52 | Public Administration |
| Ms | 19 | Statistics |
| Sw | 66 | General Assistance |

Note: A summer intern program is required for the B.A. degree. See P. Mgt. 93, under History and Government.

## SPECIMEN CURRICULUM FOR SOCIAL SERVICE WORK

Sy 1; 2, Cultural Anthropology; Sy 13, Social Problems; Sy 96, History of Sociology; Py 1; 2, General Psychology; and Py 76, Social Psychology, are required of all Sociology majors.

#### Freshman Year

| | | |
|---|---|---|
| Eh | 1; 2 | Freshman Composition |
| My | 1; 2 | Modern Society |
| Pe | 1. 2 | Physical Education |
| Pe | 21 | Healthful Living (Women) |
| Sh | 1 | Public Speaking |
| Zo | 3; 4 | Animal Biology |
| | | Foreign Language (to be continueld in Sophomore year if not completed) |

#### Sophomore Year

| | | |
|---|---|---|
| Be | 1; 2 | Principles of Economics |
| Ms | 19 | Statistics |
| Pe | 3. 4 | Physical Education |
| Pl | 1. 2 | Philosophy and Modern Life, or elective in Humanities |
| Py | 1; 2 | General Psychology |
| Sy | 1; 2 | Cultural Anthropology |
| Sy | 13 | Social Problems |
| Sw | 4 | Social Welfare |
| | | Mathematics or Science |

### Junior and Senior Years

The curriculum of the Junior and Senior years will depend on whether the student wishes to prepare for graduate training or for positions not requiring graduate training, as well as on his special field of interest (e.g., case work, group work).

Sociology majors planning to attend a graduate school of social work should

choose the Sociology and Anthropology option with the addition of Sw 4, Social Welfare, and Py 71, Abnormal Psychology. Others planning to attend such a school should aim at a broad liberal education with some concentration in the social sciences (including Psychology) and the specific inclusion of Sw 4, Social Welfare. Some graduate schools specifically require Ms 19, Statistics.

Sociology majors who wish to prepare for a position upon graduation should choose the Social Work option. Recommended, in addition to the required courses, are Sw 52, Child Welfare; Sw 66, General Assistance; Pe 74, Organization and Administration of Recreational Activities; and Py 71, Abnormal Psychology, depending on the student's interests. Other students who wish to prepare for a social work position should elect Sw 4, Social Welfare, and Sw 57, Group Leadership, or Sw 71, Principles of Case Work, and as many other courses from the Social Work option as they can.

Note: Please see program in Child Development and Family Relationships on page 98.


A Maine professor shows the locations of early Maine settlements to two of his students

# COURSES OF INSTRUCTION

*Courses numbered 1-99 are for undergraduates; courses numbered 200 and above are primarily for graduates. Courses numbered below 100 which have been approved for graduate credit are indicated by a graduate designation, in parentheses, after the regular course number.*

*One number is used for a course which is given both fall and spring.*

*When a dash is used between the two numbers (e.g., 1-2), both semesters must be taken to obtain credit; when a semicolon is used (1; 2), the first semester may be taken by itself, but the second cannot be taken unless the first is taken previously; when a period is used (e.g.,1. 2), either semester may be taken for credit.*

*Courses offered in 1959-60 and alternate years are indicated by the sign (†) placed before the number of the course; courses offered in 1960-61 and alternate years are indicated by the sign (‡) placed before the number of the course.*

## ART

PROFESSOR HARTGEN; ASSISTANT PROFESSOR GREAVER

***1; 2. Free-Hand Drawing and Sketching.***—Fundamentals of drawing. Principles of persective, shades and shadows, and composition, through use of still life sets and plaster casts. Pencil, charcoal, graphite, and crayon. *Lab* 4, *Cr* 2.
MR. GREAVER

***3. 4. Principles of Art.***—The basic principles of art—its substance, nature, and classifications. An analysis of architectural, sculptural, and pictorial forms. Not a historic study, although masterpieces will be studied. *Rec* 2, *Cr* 2.
MR. HARTGEN

***5. 6. Art Appreciation and History.***—Techniques and trends in architecture, sculpture, and painting as related to the history of art from the earliest times to the present day. Emphasis on artists and schools. Lectures, text, slides, and prints. *Rec* 3, *Cr* 3. MR. HARTGEN

***7; 8. Crafts and Design.***—Fundamentals of design through crafts experience. Blockprinting, silk screening, clay modeling, plaster casting, papier mache, posters, wire sculpture. Two and three dimensional design problems. *Lab* 4, *Cr* 2. MR. GREAVER

***9; 10. Advanced Crafts and Design.***—Advanced work in design problems using crafts-experiences introduced in basic course. Two and three dimensional problems carried into layout, graphics, fabrics, etc. Prerequisite, At 1; 2 or At 7; 8. *Lab* 4, *Cr* 2. MR. GREAVER

***11; 12. Advanced Free-Hand Drawing and Sketching.***—Advanced studies in form, space, composition, and cast drawing. Field trips for outdoor sketching and painting. Development from charcoal to watercolor painting. Prerequisite, At 1; 2. *Lab* 4, *Cr* 2. MR. HARTGEN

***15; 16. Painting and Rendering.***—Studio studies and landscape painting with emphasis on composition, palette and techniques. Problems using pastel, sepia, watercolor, gouache, and oil. Prerequisite, At 11; 12. *Lab* 4, *Cr* 2.
MR. HARTGEN, MR. GREAVER

***19. Art in the Community.***—The place of art in social and professional life. Architecture, fashions, advertising, industrial design, city planning, and related subjects. *Rec* 2, *Cr* 2. MR. GREAVER

***20. American Painting.***—Survey of American painting, trends, and schools, with special emphasis on present-day activities. Lectures, text, study of slides and plates. *Rec* 2, *Cr* 2. MR. GREAVER

‡***23. 24. Contemporary Art Forms.***—An examination of all modern European and American trends in architecture, sculpture, painting, and the graphic arts. A comparison of the modern "isms." At 5 and 6 are recommended but not required. *Rec* 2, *Cr* 2. MR. HARTGEN, MR. GREAVER

†***25. 26. Renaissance Art.***—The architecture, sculpture, and painting of the Renaissance in Europe. First semester: the Renaissance in Italy; the second: Renaissance and Baroque variations in other European countries. At 5 and 6 recommended, but not required. *Rec* 2, *Cr* 2. MR. HARTGEN, MR. GREAVER

***69. The Teaching of Art.***—Current methods and materials for the teaching of art in the elementary grades. Theory and actual experience with various two and three dimensional art projects. *Lec and Lab* 3, *Cr* 3. MR. GREAVER

## SCHOOL OF BUSINESS ADMINISTRATION

PROFESSOR PECK, *Director*

The University of Maine offers curricula leading to the B.S. degree in Business Administraton with major programs in Marketing, Finance, Accounting, and Industrial Management. Students enter the School of Business Administration during their third or fourth year of study in the College of Arts and Sciences.

Admission to the School of Business Administration will be considered after completion of 56 degree hours in the University. In general, only those students presenting work in the first two years averaging C grade or above will be considered for admission.

During the first two years students will be required to complete the general requirements of the College of Arts and Sciences with the following modification:

1. Students will be required to complete one year of basic mathematics (either Ms 5; 6 or Ms 1, 3; 12) as part of the science requirement.
2. Students will be expected to complete a second year sequence in Mathematical Theory of Investment (Ms 17; 18) and Statistics (Ms 19).

When entering the College of Arts and Sciences, students planning to enter the School of Business Administration will be required to offer two units of high school algebra. Students planning to transfer to the School from other approved colleges must have completed an acceptable two-year course of academic studies aggregating the equivalent of 56 degree hours.

Upon completion of their requirements, candidates for the B.S. degree will have received basic instruction in the fields of economics, accounting, statistics, business law, finance, marketing, and industrial management in addition to their specific major requirements.

### I. General School Requirements:

All candidates for the B.S. degree in Business Administration must complete: Be 1; 2, Principles of Economics; Be 9; 10*, Elementary Accounting; Be 23; 24, Elements of Industrial Management; Be 49, Business Economics; Be 51, Business Finance; Be 55; 56, Business Law; Be 63; 64, Marketing; and Eh 19*, Expository Writing.

**II. Specific Major Requirements:**

Having completed the general School requirements, the student will choose one of the following major fields of emphasis:

**Accounting Major**—Be 41; 42, Intermediate Accounting; Be 43, Advanced Accounting; Be 46, Cost Accounting; Be 48, Auditing.

**Marketing Major**—Be 59; 60, Business Management and Policy; Be 65, Advertising; Be 66, Retailing; Be 67, Sales Management.

**Finance Major**—Be 32, Business Fluctuations; Be 50, Investments; Be 53; 54, Money and Banking; Be 57, Problems in Business Finance.

**Industrial Management Major**—Be 33, Labor Organization and Legislation; Be 34, Collective Bargaining; Be 59; 60, Business Management and Policy; Be 61, Personnel Management.

Course offerings in the School of Business Administration are listed with those offered by the Department of Business, Economics, and Sociology.

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* Not required for those students who will get their degrees in 1960.

## BUSINESS, ECONOMICS AND SOCIOLOGY

Professors Peck, Hawley, Stuart, and Weiler; Associate Professors Romanyshyn*, and Sezak; Assistant Professors Coupe, Lutfiyya, McKay, Raphaelson, Ruckstuhl, Siedlik, and Yu; Mr. Emerick; Mr. Horner, and Mr. Wojcik; Miss Wilson; Mr. Gilmour

Cooperating Member: Associate Professor Ploch

Students may major in Business and Economics or in Sociology.

None of the courses listed are available to freshmen. All courses in the Department are intended for juniors and seniors except that Be 1; 2, Be 9; 10, Sy 1; 2, Sy 13, Sy 24, and Sw 4 are available to sophomores as well as juniors and seniors.

Freshmen who plan to major in Business and Economics or Sociology should register for My 1; 2, Modern Society. It is also recommended that a year of basic mathematics be taken by potential Business and Economics majors.

With the aid of his adviser, a major may establish a program of courses in one of nine recognized fields: Accounting, Economics, Finance, Labor and Industrial Relations, Management, Marketing, Sociology, Pre-Professional Social Work, and Family Life and Child Development.

**Specific Major Requirements:**

I. B.A. in Business and Economics (minimum of 36 hours—maximum of 48 hours): Be 1; 2, Principles of Economics, Be 9; 10†, Elementary Accounting, and Eh 19†, Expository Writing.

Beginning with the class of 1961, students must choose 15 hours from the following list of courses: Be 32, Business Fluctuations; Be 33, Labor Organization and Legislation; Be 37, Comparative Economic Systems; Be 39; 40, International Trade; Be 53; 54, Money and Banking; Be 71, Public Finance; Be 73, Economic Analysis; Be 68‡, Social Control of Business; Be 74‡, Economic Policy.

The following courses offered by other departments are recommended and may be counted toward the major: Gy 21, Economic Geography; Hy 19. 20, Economic History of the United States; Ms 17; 18, Mathematical Theory of Investment; Ms 19, Statistics.

II. B.A. in Sociology: Sy 1; 2, Cultural Anthropology; Sy 13, Social Problems; Sy 96, History of Sociology; Py 1; 2, General Psychology; Py 76, Social Psychology and the requirements of one of the following two options.

The additional requirements for the Sociology and Anthropology option are: Sy 24 or Sy 26, Rural or Urban Sociology; Sy 29, The Individual and the Community; Ms 19, Statistics; Be 1; 2, Principles of Economics.

The additional requirements for the Social Work option are: Sy 59, Marriage; Sw 4, Social Welfare; Sw 57, Group Leadership; Sw 71, Principles of Case Work; one semester of Field Practice in Case or Group Work (Sw 73c, Sw 73g, Sw 74c, Sw 74g).

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* On leave of absence, Spring Semester, 1960.

† Not required for those students who will get their degrees in 1960.

‡ Not offered in 1959-1960.

For majors interested in the Family Life and Development program, Fn 41, Introduction to Foods and Nutrition; Cf 3, The Pre-School Child; Py 67, Psychology of Childhood; and Sy 59, Marriage, are also required.

A minimum of 24 hours is required for majors in Sociology, in addition to the required Psychology, Economics, and Statistics courses.

The maximum number of hours one may take within the Department is 48.

### Courses in Business and Economics and Business Administration

***1; 2. Principles of Economics.***—Analysis of the fundamental characteristic and institutions of modern economic society, including business and labor organization, national and international policies. *Cr* 3. STAFF

***1a. Principles of Economics.***—A mathematical presentation of essential elements of economic principles. Open to non-majors only. Prerequisite, Ms 1, 3; 12. *Cr* 3. MR. COUPE

***9; 10. Elementary Accounting.***—A survey course designed to familiarize the student with the functions of accounting in general and accounting statements in particular. *Cr* 3. MR. HORNER, MR. WOJCIK, MR. YU

***21 (121). General Insurance.***—Principles of insurance and the major types of insurance contracts. *Cr* 3. MR. STUART

***23; 24. Elements of Industrial Management.***—A comprehensive survey of all phases of the management of industrial and business enterprises. The influence of industrial relations is interspersed with the treatment of management's technical problems. Prerequisite, Be 1; 2. *Cr* 3. MR. COUPE

***32 (132). Business Fluctuations.***—An analysis of the basic forces that cause fluctuations in economic activity. The effects on employment, investment, and business firms are thoroughly treated. Stabilization proposals are examined and evaluated. Prerequisite, Be 1; 2. *Cr* 3. MR. PECK

***33 (133). Labor Organization and Legislation.***—The origins and structure of the labor movement are related to the development of labor legislation. Economic aspects of wages and employment receive consideration. Prerequisite, Be 1; 2. *Cr* 3. MR. RAPHAELSON

***34 (134). Collective Bargaining.***—The process, procedures and daily relationships involved in collective bargaining are examined by illustrative experiences drawn from American Industry. Prerequisite, Be 1; 2, 33. *Cr* 3. MR. RAPHAELSON

***36. American Labor Movement.***—Not given in 1959.

***37 (137). Comparative Economic Systems.***—The structures and operating principles of the major contemporary economic systems are examined and compared. Prerequisite, Be 1; 2. *Cr* 3. MR. PECK

***38 (138). The New England Economy.***—A brief treatment of the development of the New England economy is followed by analyses of resources, industries, and current problems. Not offered in 1960. *Cr* 3. MR. PECK

***39; 40 (139; 140). International Trade and Commercial Policy.***—The principles and practices of international trade and finance are thoroughly treated. Special emphasis is given to current trends in the international economy and to United States commercial policy. Prerequisite, Be 1; 2. *Cr* 3. MR. PECK

***41; 42 (141; 142). Intermediate Accounting.***—Principles in regard to the valuation and recording of working capital items and noncurrent items; capital stock and surplus; statement analysis. Prerequisite, Be 9; 10. *Lec* 2, *Lab* 2, *Cr* 3. MR. YU

***43 (143). Advanced Accounting.***—Special accounting problems including installment sales, consignments, agency and branch accounts, consolidations, and budgetary accounting. Prerequisite, Be 9; 10, 41; 42. *Cr* 3. MR. SIEDLIK

***44 (144). Federal Tax Reporting.***—Federal tax laws as they affect individuals, partnerships, corporations, and estates. An opportunity is given the student to become familiar with tax forms. Prerequisite, Be 9; 10. *Lec* 2, *Lab* 2, *Cr* 3. MR. SIEDLIK

***46 (146). Cost Accounting.***—The principles and methods of job order costing including a study of inventory control and pricing, labor costs, accumulation, analysis, and allocation of factory overhead; and an introduction to process and standard costing procedures. Prerequisite, Be 9; 10, 41. *Cr* 3. MR. SIEDLIK

***47. Business Data Processing.***—The application of electronic data processing equipment to accounting systems. Basic principles of operation and programming. Selected case problems. Prerequisite, Be 9; 10. *Cr* 3. MR. SIEDLIK

***48 (148). Auditing.***—The systematic verification of financial statements including a study of the responsibilities, liabilities and ethics of the independent public accountant. Prerequisite, Be 9; 10, 41. Not offered in 1960. *Cr* 3. MR. SIEDLIK

***49 (149). Business Economics.***—Applications of economic analysis to concrete business situations. Emphasis on developing the student's ability to apply economic analysis to the solution of problems faced by business management. Prerequisite, Be 1; 2. *Cr* 3. MR. PECK

***50 (150). Investments.***—Problems of personal finance and investment. Includes consideration of insurance, installment credit, mortgage financing, savings investment, and the use of bonds and stock in formulating a program of financial management. Prerequisite, Be 1; 2, 9; 10, 51. *Cr* 3. MR. HORNER

***51; 52 (151; 152). Business Finance.***—The first semester deals with the promotion, organization, and financing of the single proprietorship, partnership, and corporation. The second semester utilizes advanced cases and problems related to the theory and principles developed in the first semester. Prerequisite, Be 1; 2, 9. *Cr* 3. MR. HORNER

***53; 54 (153; 154). Money and Banking.***—The first semester includes a survey of the nature, characteristics, and functions of the monetary and banking system of the United States. The second semester deals with the money market, central banking problems, and related international aspects of banking policy. Prerequisite, Be 1; 2, 9; 10. *Cr* 3.

***55; 56 (155; 156). Business Law.***—The first semester is an analysis of the nature and significance of the judicial process particularly as developed through a study of contracts. The second semester is a study of negotiable instruments and sales. *Cr* 3. MR. SIEDLIK, MR. WOJCIK

***57 (157). Problems in Business Finance.***—Advanced cases and problems related to the theory and principles developed in Be 51; 52 with emphasis on corporate internal control and financing; various functions of financial institutions in the conduct of business. Prerequisite, Be 1; 2, 9; 10, 51. *Cr* 3. MR. HORNER

***58 (158). Business Law.***—A study of operation of contracts and agency. This course alternates with Be 56 and will be offered in 1960. Prerequisite, Be 55. *Cr* 3. MR. WOJCIK

***59; 60 (159; 160). Business Management and Policy.***—Administrative practice at the higher levels of business management through case analysis and discussion. The course attempts to coordinate the background of business majors in the formulation and administration of sound business policy. Prerequisite, Be 1; 2, 49, 51, 63; 64. Cr 3. MR. HAWLEY

***61 (161). Personnel Management.***—The selection, training, and management of personnel in private and public business. Designed for the student interested in administration, office management, or personnel work in education, business, engineering, public service, and other fields. *Cr* 3. MR. RAPHAELSON

***63; 64 (163; 164). Marketing.***—Problems of distribution for representative industrial and consumer goods, including merchandising policies, selection of distribution channels, price policies, and advertising and sales promotion methods. Prerequisite, Be 1; 2, 9; 10. Be 49 is a prerequisite for Be 64. Students may register for Be 49 and Be 63 at the same time. *Cr* 3. MR. HAWLEY

***65 (165). Advertising.***—The place of advertising in the marketing program. Business cases are analyzed to determine those situations in which advertising may be profitably employed to stimulate primary and selective demand for industrial and consumer goods and services. Prerequisite, Be 1; 2, 63; 64. *Cr* 3. MR. HAWLEY

***66. Retailing.***—A study of the retail distribution structure and of the problems involved in successful store operation under current conditions. Prerequisite, Be 63; 64. *Cr* 3. THE STAFF

***67. Sales Management.***—An analysis of the problems facing marketing management in formulating sales policy and in managing the sales organization. Prerequisite, Be 63; 64. *Cr* 3. THE STAFF

***68 (168). Social Control of Business.***—Not given in 1959-60. *Cr* 3.

***71 (171). Public Finance.***—The study of the background, administration and economic effects of national, State and local taxes, such as those on property, income, and sales. Analysis of government policies of spending, borrowing and taxing with emphasis on their effects upon national economic conditions. Prerequisite, Be 1; 2. *Cr* 3. MR. STUART

***73. Economic Analysis.***—Price, income, and employment theory as tools in the study of economics. Prerequisite, Be 1; 2. *Cr* 3. MR. STUART

***74 (174). Economic Policy.***—Current economic problems on national and international levels. Prerequisite, Be 73 or Be 75. *Cr* 3. STAFF

***75 (175). Managerial Economics.***—The application of economic analysis to the operation of a business. Demand and cost analysis, competitive and non-competitive pricing, and multi-line production and marketing problems are considered. Prerequisite, Be 1; 2 and Be 49. *Cr* 3. MR. PECK

***97, 98 (197, 198). Projects in Business and Economics.***—For the ad-

vanced senior major having a minimum of 24 hours in Business and Economics. Apply directly to Professor Peck prior to registration. *Cr* 2 or 3.

***299. Graduate Thesis.***—*Cr* 6.

### Courses in Sociology

***1; 2. Cultural Anthropology.***—The development of man as a biocultural phenomenon. Special emphasis on the nature of culture and on such human institutions as social organization, marriage, religion, economics, etc., among primitive people with some application of derived principles to civilized societies. *Cr* 3. MR. EMERICK

***13. Social Problems.***—A study of selected social problems; analysis of their interrelationships, and the degree to which they arise from common social conditions. Possible solutions are discussed in terms of major social trends. Not open to freshmen. *Cr* 2 *or* 3. MR. SEZAK

***24. Rural Sociology.***—Study and analysis of rural-urban population trends and relationships, rural communities, and rural social institutions. Course same as Fm 24. *Rec* 3, *Cr* 3. MR. PLOCH

***26 (126). Urban Sociology.***—A descriptive and analytical approach to the study of city life: emphasis is placed on environment, social organization, the ecological processes, population, areas, housing, and maladjustments. Juniors and Seniors. *Cr* 3. MR. SEZAK

***29. The Individual and the Community.***—Analysis of group processes, program planning and leadership in small towns and communities. Training in, and application of, social research methods. Course same as Fm 29. Prerequisite, Fm/Sy 24 or Sy 26 or permission of instructor. *Rec* 3, *Cr* 3. MR. PLOCH

***30. Rural Community Analysis.***—Intensive analysis of the problems of smaller communities. Case studies and student analysis of real community situations. Course same as Fm 30. Prerequisite, Fm/Sy 29 or permission of instructor. *Rec* 2, *Lab* 2, *Cr* 3. MR. PLOCH

***55 (155). Educational Sociology.***—Social interaction and culture as related to the school and education including school-community relationships, social groups, and patterns of social behavior. *Cr* 3. MR. SEZAK

***59 (159). Marriage.***—A study of the factors involved in success and failure in marriage. Research in the social, psychological, and biological sciences is applied to common personal problems of courtship, marriage, and parenthood. Juniors and seniors only. *Cr* 2. MR. ROMANYSHYN

***62 (162). Sociology of the Family.***—A sociological approach to the study of the family including the structure of social relationships, the modern American family as a social institution, the cultural background of the family, and the impact of social change. Prerequisite, Sy 1; 2, Sy 59, or permission of instructor. *Cr* 3. MR. SEZAK

***63 (163). Criminology.***—A comprehensive study of the crime problem, especially as it exists in the United States, theories and empirical studies of its causes, and the attempts to control it. Prerequisite, Sy 13 and Sy 1; 2 or Py 1; 2. *Cr* 3. MR. WEILER

***68 (168). Modern Social Organization.***—An examination of selected, crucial institutional arrangements in modern industrial societies: occupational patterns, bureaucracy, forms of social stratification, and mass media of communication. Prerequisite, Sy 1; 2. *Cr* 3. MR. WEILER

***82. Population.***—Not offered in 1959-60. *Cr* 3. MR. WEILER

***84 (184). Race and Culture Conflict.***—Analysis of causal factors in group conflict with emphasis on the problem of minority groups in culture contact situations. Prerequisite, Sy 1; 2, or permission of instructor. *Cr* 3. MR. EMERICK

***88 (188). Culture and Personality.***—A study of how culture influences the development of personality. The major emphasis is on the different ways in which primitive and modern societies socialize the child. Prerequisite, Sy 1; 2 or consent of the instructor. *Cr* 3. MR. EMERICK

***96 (196). History of Sociology.***—Trends and leading figures in the history of sociology. Survey of current approaches and established principles in the field. Required of senior majors; others, by consent of the instructor. Prerequisite, Sy 1; 2, 13, Py 76. Seniors only. *Cr* 3. MR. WEILER

***97, 98 (197, 198). Projects in Sociology.***—For the advanced senior major having a minimum of 15 hours in Sociology. Apply directly to Professor Peck prior to registration. *Cr* 2 or 3.

***299. Graduate Thesis.***—*Cr* 6.

### Courses in Social Work

***4. Social Welfare.***—Study and evaluation of agencies and their organized efforts to solve social problems. Discussion of aims, methods, and basic issues in social welfare designed to help the citizen to participate intelligently in modern community life. Prerequisite, Sy 13 or My 1. *Cr* 3. MR. WEILER

***52 (152). Child Welfare.***—The psycho-social development of children. The relationship of early experiences to adjustment problems of later life. The social resource and methods used in treatment. Prerequisite, Sw 4. *Cr* 3. MR. ROMANYSHYN

***57 (157). Group Leadership.***—The philosophy and methods of leadership of democratic groups with emphasis on the dynamic forces within the group. Application is made to clubs, schools, camps, social agencies, and adult organizations. Prerequisite, Py 1; 2 and My 1 or Sy 13. *Cr* 3. MISS WILSON

***66 (166). General Assistance.***—Objectives, structure, and administration of this residual form of public assistance. Principles of interviewing. Special attention is given to conditions in Maine and to the town manager's role in welfare. Prerequisite, Sw 4. *Cr* 2. MR. WEILER

***71 (171). Principles of Case Work.***—Case work techniques including interviewing, recording, referral, preparation of the social case study, evaluating and planning. Actual case histories are analyzed. Prerequisite, Sw 4. *Cr* 3. MR. ROMANYSHYN

***73c, 74c (173c, 174c). Field Practice in Case Work.***—Field observation and experience in an approved casework agency under supervision. Casework, public assistance, child welfare, probation and school social work agencies used for placements. Registrations limited to placement opportunities. *Apply directly to instructor for admission prior to registration.* Sw 71 required. *Cr* 2. MR. ROMANYSHYN

***73g, 74g (173g, 174g). Field Practice in Group Work.***—Field observation and experience under supervision in an approved group work agency. Registration limited to *placement* opportunities. *Apply directly to instructor for admission prior to registration.* Sw 57 required. *Cr* 2. MISS WILSON

## CHEMISTRY

PROFESSORS BEAMESDERFER AND DOUGLASS; ASSOCIATE PROFESSORS BOGAN, DUNLAP, MARTIN, OTTO, AND WOLFHAGEN; ASSISTANT PROFESSORS BRAUNSTEIN, AND PETTIT; MRS. HESS, MR. HESS, MR. HILL, MR. GEORGITIS, MR. SOTTERY, AND MR. YOUNG

The student majoring in Chemistry in the College of Arts and Sciences is able to complete all requirements for certification to the American Chemical Society Committee on Professional Training. Chemistry majors who intend to enter medicine or other related fields are permitted to take fewer chemistry courses in order to have a wider choice of electives.

The Chemistry curriculum and courses in the Department of Chemistry are described under the College of Technology.

## ENGLISH

PROFESSORS HANKINS, CROSBY, AND WENCE; ASSOCIATE PROFESSORS WHITNEY, REYNOLDS, FIFE, EDWARDS, AND TERRELL; ASSISTANT PROFESSORS MANLOVE, BEECHHOLD, AND KIRTLEY; *MR. ANDERSEN, MR. IVES, MR. HOLMES, MR. SPRAGUE, MR. LINDBERG, MR. ANDERSON, AND MR. ROSENFELD; MISS HARDWICK, MR. COOK; MRS. CHAPMAN, AND MR. GINGERICH

Students expecting to major in English should take Eh 3. 4, English Literature, in their sophomore year. For these students, Eh 3. 4 satisfies the humanities requirement. One semester of Second-Year Composition (Eh 7 or 8) and Eh 43, American Literature, are likewise required sometime in the college course. Whenever the student's program allows, Eh 7 or 8 may well be taken along with Eh 3, 4 in the sophomore year. Majors are expected to take during their college course between 36 and 48 hours in the Department, of which at least nine hours must be selected from the following courses: Eh 53, 57, 58, 59, 61, 64, 65, 66.

The departmental major examinations comprise: (a) an examination over the mechanics of composition in January of the junior year and (b) an examination over English and American literature in the final senior semester. Both tests are written. A passing grade in each examination is required for graduation.

The Department offers the Master of Arts degree in English, normally requiring 24 semester hours of course credits and the writing of a satisfactory thesis. Students are required to attend a graduate seminar, at which they will present papers prepared in connection with the material of their other courses. For those who need it, the Department will plan a combined curriculum in English and Education, allowing the student to secure the Master of Arts in English and his teaching certificate for high-school work; the time normally required is one academic year and two summer sessions.

### Courses in Composition and Rhetoric

***1; 2. Freshman Composition.***—Expository and narrative writing, with the reading of illustrative material. Required of all freshmen and prerequisite for all other English courses. *Cr* 3. MR. WHITNEY, Chairman

***5. Technical Composition.***—The principles and techniques of business

*On leave of absence, 1959-60.

correspondence and of technical reports and papers. Prerequisite, junior standing in Technology or Agriculture. *Cr* 2. MR. TERRELL, Chairman

***7, 8. Second-Year Composition.***—A course in writing for those who wish to develop skill either for their own pleasure or for professional uses. In the first semester the writing of formal and informal essays; in the second, descriptive and narrative writing. *Cr* 3. MR. WENCE

***19. Expository Writing.***—Primarily for student majors in Home Economics and in Business Administration. Training in clear expository writing of formal reports, business letters, and similar materials. Prerequisite, Junor standing. *Cr* 2. MR. BEECHHOLD

†***77, 78. Creative Writing.***—An advanced course for students of ability. Prerequisite, English 7 or 8 or permission of instructor. *Cr* 3. MR. WHITNEY

### Courses in Literature

***3, 4. English Literature.***—The chief authors of English literature in chronological order, with reading and class discussion of their work. From the beginning to 1700 in the fall semester; 1700 to the present in the spring. *Cr* 3. MISS FIFE, Chairman

***9. Modern Literature.***—A study of contemporary fiction. Readings from Crane, Dreiser, Wharton, Hemingway, Steinbeck, and others. *Primarily for students in Technology and Agriculture. Cr* 2. MR. MANLOVE, Chairman

***15, 16. Masterpieces of English and American Literature.***—An introduction to literary appreciation through the study of selected masterpieces from English and American literature. Not recommended for students who have had Eh 3, 4 or advanced courses in literature. *Cr* 3. MR. WENCE, Chairman

†***35, 36 (135, 136). Recent Drama.***—Outstanding dramatists and plays, mainly of the twentieth century. American drama is taken up in the first semester and European drama in the second. *Cr* 2. MR. WHITNEY

‡***39; 40 (139; 140). The English Bible.***—The English Bible studied as one of the chief masterpieces of English literature. Considerable attention is also paid to the background of Biblical literature. *Cr* 2. MR. REYNOLDS

‡***42. Recent Writers of Maine.***—A study of the Maine scene and Maine people as used by Sarah Orne Jewett, E. A. Robinson, Edna St. Vincent Millay, Mary Ellen Chase, Robert P. T. Coffin, Kenneth Roberts, E. B. White, and others. *Cr* 2. MISS FIFE

***43. American Literature.***—American literature in the eighteenth and nineteenth centuries, with emphasis on the principal writers. *Cr* 3. MR. EDWARDS

***45, 46 (145, 146). Twentieth-Century Literature.***—The novel and poetry from 1900 to the present. British writers are considered in the first semester, American in the second. *Cr* 3. MR. TERRELL, MR. WENCE

**In order to take courses in English Literature numbered above 50, students should have previously taken two of the following: Eh 3, 4, 9, 15, 16. With the approval of an English adviser, the student may substitute for these any two courses that fill the Humanities requirement.**

‡***53 (153). Chaucer.***—Selections from the *Canterbury Tales* and the Minor Poems, stressing the reading of Chaucer as poetry, his literary range and qualities, and his picture of his time. *Cr* 3. MISS CROSBY

†***55 (155). Poetry of the Romantic Movement.***—Wordsworth, Coleridge, Scott, Byron, Shelley, Keats, and their contemporaries, against the background of their time. *Cr* 3. MR. HANKINS

‡*56 (156). Victorian Poetry.*—Browning, Tennyson, Arnold, the pre-Raphaelites, and their contemporaries. *Cr* 3. MR. LINDBERG

*57. 58 (157. 158). Shakespeare.*—A study of Shakespeare's comedies, tragedies, and history plays. Comedies and history plays are stressed in the first semester, tragedies in the second. *Cr* 3. MR. HANKINS

‡*59 (159). Elizabethan Prose and Verse.*—Not including the drama. Poems, sonnet sequences, romances, pastorals, translations. The pageant of Elizabethan life and thought. Special attention to Spenser's *The Faerie Queene*. *Cr* 3. MR. HANKINS

‡*61. 62 (161. 162). British Drama.*—In the fall semester, Shakespeare's contemporaries, with some attention to the drama before and after Shakespeare. In the spring, a survey of British drama from the Restoration to 1900. *Cr* 3. MR. WHITNEY

†*64 (164). Milton.*—The poetry and prose of Milton with consideration of the literary and historical background of his time. *Cr* 3. MISS CROSBY

†*65 (165). The Age of Dryden and Pope.*—Restoration literature, and the evolution of Neo-classicism in the early eighteenth century. *Cr* 3. MR. MANLOVE

‡*66 (166). The Age of Johnson.*—The later eighteenth century. Johnson and his circle. The beginnings of Romanticism. *Cr* 3. MR. MANLOVE

†*69 (169). The American Novel.*—The chief American novelists of the nineteenth century and their work. *Cr* 3. MR. EDWARDS

*71 (171). Early American Literature.*—The development of American Literature from the beginnings to 1800. Offered on request. *Cr* 3.

‡*72 (172). The New England Renaissance.*—A study of the great authors of New England in mid-nineteenth century. Their works, their personalities, and their social background. *Cr* 3. MISS CROSBY

†*81 (181). The Earlier English Novel.*—The principal English novelists from the beginnings to Sir Walter Scott. *Cr* 3. MR. WENCE

‡*82 (182). The Later English Novel.*—The principal English novelists from Dickens to Hardy. *Cr*. 3. MR. WENCE

†*83 (183). Nineteenth Century Prose.*—Not including fiction. The major essayists from Lamb to Stevenson. Studies of content and literary style. *Cr* 3. MISS CROSBY

‡*92 (192). The Rise of Realism in America.*—A survey of literature from 1865 to 1914, including such authors as Mark Twain, Bret Harte, Howells, James, Henry Adams, Hamlin Garland, and Edith Wharton. *Cr* 3. MR. EDWARDS

*295. Graduate Seminar.*—Subjects and credit vary. Investigations, written and oral reports. The course may be repeated with different subjects: (a) Linguistics and semantics; (b) Literature of the English Renaissance; (c) 18th and 19th Century English Literature; (d) American Literature to 1900; (e) 20th Century Literature, British and American; (f) Folklore.

### Courses in Linguistics

‡*21. Principles of Grammar and Usage.*—A course designed for prospective teachers of English and for others interested in the basic theories of grammar and in current usage. For juniors and seniors. *Cr* 2. MR. WHITNEY

‡*49 (149). The Science of Language.*—Modern methods of linguistic studies: phonetics, diacritical marks, speech graphs; etymology and word-coinage; language symbols and the alphabet; semantics and problems of meaning. *Cr* 2. MR. REYNOLDS, MR. BEECHHOLD

***51; 52 (151; 152). Old English.***—Old English grammar and reading of easy prose and poetry. Reading of *Beowulf* in the second semester. Offered on request. *Cr* 3.

†***67 (167). History of the English Language.***—English words and their background; changes in meanings, forms, and sounds, with a brief review of modern grammar. Recommended for students preparing to teach English. *Cr* 2. MR. REYNOLDS

‡***68 (168). The American Language.***—Our present-day usage and vocabulary as developed from Colonial times. Regional speech types and the problem of standard English. American English as a world language. *Cr* 2. MR. REYNOLDS

### Courses in the Teaching of English

†***84 (184). The Teaching of English in the Secondary School.***—A discussion of principles and practices in the teaching of literature and composition, with exercises in theme-correction. *Cr* 3. MR. HOLMES

### Courses in Comparative Literature

***Cp 73. 74 (173. 174). Literary Criticism.***—From Plato to the present. Includes reading of selected classics, and practice in criticizing contemporary literature. Offered on request. *Cr* 3.

†***Cp 75. 76 (175. 176). European Literature.***—Continental European literature in translation from Homer through the Renaissance in the first semester and down to the present in the second. Recommended for majors in history or foreign languages, and for students preparing for library work. *Cr* 3. MISS FIFE

†***Cp 79 (179). Folk Narratives of the World.***—Folk tales and folk traditions of other lands; the influence of folklore upon epic, saga, romance, and other narrative forms. *Cr* 2. MR. KIRTLEY

‡***Cp 80 (180). American Folklore.***—Folk tales, folk songs, and folk traditions of the American people, including the American Indians. *Cr* 2. MR. KIRTLEY

‡***Cp 85. 86 (185. 186). Biography.***—The evolution of biographical writing, stressing the personalities in the great biographies and the times in which they lived. From Plutarch to Boswell in the first semester; from the eighteenth century to the present in the second semester. *Cr* 3. MR. WENCE

## FOREIGN LANGUAGES AND CLASSICS

PROFESSORS STARR*, MILES, AND PELLEGRINO; ASSOCIATE PROFESSORS GROSS, CASAVANT, MENGERS, AVILA*, AND SHERK; ASSISTANT PROFESSOR TRONERUD; MR. REID, AND MRS. RITTER; MRS. MARSHALL; MISS GUENTHERODT

The Department offers major work to candidates for the Bachelor of Arts degree in the following subject fields: French, German, Spanish, Romance Languages, Modern Languages, and Latin in accordance with the requirements listed below.

Students electing to major in **French, German,** or **Spanish** will be required to take a **minimum** of twenty-four hours in literature and civilization courses of the subject matter field in advance of the intermediate courses.

Students electing to major in **Romance Languages** will be required to

*On leave of absence, 1959-60.

take a **minimum** of twenty-four hours chosen from literature and civilization courses in French and Spanish beyond the intermediate level.

Students electing to major in **Modern Languages** will be required to take a **minimum** of twenty-four hours chosen from literature and civilization courses in one of the Romance Languages and German beyond the intermediate level.

Students electing to major in **Latin** will be required to take a **minimum** of eighteen hours of the subject matter field in advance of the intermediate course.

The passing of an oral comprehensive examination covering the language, literature, and civilization of the area represented by at least eighteen hours of advanced courses is a requirement for graduation for all students majoring in the Department.

Hy 5; 6, Hy 15. 16, Hy 79. 80 are also required for students whose main concentration is French or German, Spanish, or Latin respectively.

Fl 65. 65 is normally required of majors who plan to teach in secondary schools. This course may be elected in place of six hours of literature courses in advance of the intermediate level.

Courses recommended for students who do not major in the Department, but who plan to obtain certification for teaching French are: Fr 9. 10, Fr 57; 58, Fl 65. 66, and a minimum of two semesters of literature courses. For those who wish to obtain certification for teaching Spanish, the following courses are recommended: Sp 57; 58, Fl 65. 66 and a minimum of two semesters of literature courses. For those who wish to obtain certification for teaching Latin, the following course is recommended as a minimum: Lt 9. 10.

The Department also offers work leading to the Master of Arts degree in French, Spanish, Romance Languages, and German in terms of the general requirements for graduate work. A program of courses up to 24 hours which does not duplicate undergraduate work will normally be selected from courses numbered 51 or above in the French, German, and Spanish curricula listed below. Evidence of oral ability in the language undertaken will be required. The thesis will be an essential aspect of the work and will be evaluated at no less than one-fifth of the graduate program. The Summer Session catalog should be consulted for special aspects involved when the degree is sought through attendance at the Summer Sessions. See also Graduate Study Bulletin.

## FOREIGN LANGUAGES

***Fl 65 (165). The Teaching of Foreign Languages.***—Principles and use of audio-visual materials, tests and measurement as they apply to the teaching of foreign language. The total work of this course includes simultaneous enrollment in Ed C2 and Ed A21. For seniors seeking certification in foreign language teaching. *Cr* Ed C2, 2; Ed A21, 2; Fl 65, 1. MR. PELLEGRINO

***Fl 66 (166). The Teaching of Foreign Languages.***—Principles and practice of teaching foreign languages. Analysis of current trends and methods. Application of language-learning principles to classroom procedures. Theory and practice of language methodologies at different learning levels. For seniors seeking certification in foreign language teaching. *Cr* 3. MR. PELLEGRINO

***Fl 201-202. Linguistics.***—Comparative grammar, elements of phonology and morphology, introduction to linguistic science and semantics. Given upon sufficient demand. *Cr* 2.

## FRENCH

***1-2. Elementary French.***—Emphasis on development of listening comprehension, speaking, reading and writing skills. Laboratory practice. For students who have had no French or whose previous training does not qualify them for a more advanced course. *Cr* 4. THE STAFF

***3; 4. Intermediate French.***—Continuation of 1-2. Laboratory practice. For students who have completed French 1-2 or who are otherwise qualified to continue at this level. This course fulfills the language generalization requirement. *Cr* 3. THE STAFF

***9. 10. Readings in French Literature.***—For students who wish further practice in reading before beginning advanced literature courses. Discussion and analysis in French. *Cr* 3. THE STAFF

***51. 52 (151. 152). Nineteenth Century French Literature.***—Special emphasis on the novel and drama. Attention to political, social, and cultural backgrounds. Lectures, readings, analysis of important representative works. For students who have completed Fr 9. 10 or who are otherwise qualified. *Cr* 3. MR. STARR

†***53. 54 (153. 154). Contemporary French Literature.***—The works of leading twentieth century writers, with special attention to the novel and drama. *Cr* 3. MISS MENGERS

***57; 58 (157; 158). French Civilization.***—A study of French culture so designed as to increase the skills of aural comprehension, oral and written expression through readings, discussions, lectures, written and oral reports, and laboratory practice. Prerequisite, Fr 9. 10 or the equivalent. *Cr* 3. THE STAFF

***62 (162). French-Canadian Literature.***—Emphasis on the contemporary novel and its social, economic, and historical backgrounds. Special attention to cultural patterns, including those contributed to the United States. *Cr* 2. MISS AVILA

‡***63. 64 (163. 164). French Literature of the Seventeenth and Eighteenth Centuries.***—Lectures, reading of representative works of Corneille, Racine, Moliere, Voltaire, Rousseau and others, with reference to the social and political conditions, and philosophic ideas. *Cr* 3. MR. PELLEGRINO

***81. 82 (181. 182). Seminar.***—Serves as preparation for the oral comprehensive required of each major student and written finals are accepted in place of written comprehensives. Lectures, discussions, readings, and reports. *Cr* 2. MR. STARR

***299. Graduate Thesis.***—*Cr* 6.

## GERMAN

***1-2. Elementary German.***—Emphasis on development of listening comprehension, speaking, reading, and writing skills. Laboratory practice. For students who have had no German or whose previous training does not qualify them for a more advanced course. *Cr* 4. MISS GUENTHERODT, MR. MILES, MR. REID

***3; 4. Intermediate German.***—Continuation of 1-2. Laboratory practice. For students who have completed German 1-2 or the equivalent. Completion of this course fulfills the language generalization requirement. *Cr* 3. MR. MILES, MR. REID

***9. 10. Readings in German Literature.***—For students who wish further practice in reading before beginning more advanced literature courses. *Cr* 3. MR. MILES

***11; 12. Scientific German (Elementary).***—Beginning course in German for students in the Colleges of Agriculture and Technology and for students in the College of Arts and Sciences who intend to major in Chemistry or Physics. *Cr* 3. MR. MILES, MR. REID

***13. Scientific German (Intermediate).***—Continuation of Course 12, which is prerequisite. May be followed by Gm 14. *Cr* 3. MR. REID

***14. Scientific German.***—May replace Gm 4 for premedical, predental, zoology, and psychology major students. Completion of Courses 13 and 14, or 3 and 14 fulfills the language generalization requirement. *Cr* 3. MR. REID

†***51. 52 (151. 152). Early Modern German Literature, 1750-1850.***—Reading of plays, novels, short stories by Lessing, Goethe, Schiller, Kleist, Heine, and other authors representative of the period. Informal lectures on the current literary movements. *Cr* 3. MR. MILES

‡***53. 54 (153. 154). Late Modern German Literature, 1850 to the Present.***—Reading of plays, novels, and short stories by Hebbel, Hauptmann, Storm, Meyer, Keller, Mann, Hesse, and other authors representative of the recent period. Informal lectures on current literary movements. *Cr* 3. MR. REID

***57; 58 (157; 158). German Civilization.***—A study of German culture so designed as to increase the skills of aural comprehension, oral and written expression through readings, discussions, lectures, written and oral reports, and laboratory practice. Prerequisite, German 9. 10 or the equivalent. *Cr* 3. MR. MILES, MR. REID

***299. Graduate Thesis.***—*Cr* 6.

## RUSSIAN

***1-2. Elementary Russian.***—Emphasis on development of listening comprehension, speaking, reading and writing skills. Laboratory practice. For students who have attained language proficiency in another language as demonstrated by honor grades in intermediate language courses or high attainment on placement tests. *Cr* 4. MRS. RITTER

***3; 4. Intermediate Russian.***—Continuation of 1-2. Laboratory practice. This course fulfills the language generalization requirement. *Cr* 3. MRS. RITTER

## SPANISH

***1-2. Elementary Spanish.***—Emphasis on development of listening comprehension, speaking, reading and writing skills. Laboratory practice. For students who have had no Spanish or whose previous training does not qualify them for a more advanced course. *Cr* 4. THE STAFF

***3; 4. Intermediate Spanish.***—Continuation of 1-2. Laboratory practice. For students who have completed Spanish 1-2 or who are otherwise qualified to continue at this level. Completion of this course fulfills the language generalization requirement. *Cr* 3. THE STAFF

†***51 (151). Nineteenth Century Spanish Literature.***—Chief works of Romanticism, Regionalism and the Generation of 1898 in relation to the cultural and political backgrounds. *Cr* 3. MR. GROSS

†***54 (154). Contemporary Spanish Literature.***—A study of Tremendismo and other currently significant literary trends. *Cr* 3. MR. GROSS

***55 (155). Galdos and Benavente.***—The lives, times, and works of two of Spain's greatest and most representative authors: Benito Pérez Galdós, novelist, and Jacinto Benavente, playwright. Not given until 1961-62. *Cr* 3.

***56 (156). Latin-American Literature of Today.***—Recent literary works with attention to contemporary cultural life and thought. Not given until 1961-62. *Cr* 3.

***57; 58. Hispanic Civilization.***—A study of Hispanic culture so designed as to increase the skills of aural comprehension, oral and written expression through readings, discussions, lectures, written and oral reports, and laboratory practice. Prerequisite, Sp 3; 4 or the equivalent. *Cr* 3. MR. GROSS

‡***64 (164). The Renaissance and Golden Age.***—Reading of representative masterpieces of the period when Spain emerged from the Middle Ages, reached cultural and political unity and built its colonial empire. Not given until 1961-62. *Cr.* 3.

‡***65 (165). Cervantes.***—A study of the life and literary works of Cervantes, with special emphasis upon the reading and interpretation of *Don Quijote*. Lectures on the political, social and literary backgrounds of the period. *Cr* 3.

‡***73, 74 (173, 174). Modern Latin-American Literature.***—The literary scene since Independence: the Romantic upheaval, Gaucho literature, early modern novels. Modernism and subsequent poetry, later novels and short stories. *Cr* 3.

***299. Graduate Thesis.***—*Cr* 6.

## LATIN

***1-2. Elementary Latin.***—Fundamentals of the Latin language. For students who have had little or no previous instruction. *Cr* 4. MR. SHERK

***3; 4. Intermediate Latin.***—Selected reading from masters of Latin prose. For students who have had Latin 1-2 or at least two years of high-school Latin. Completion of this course fulfills the language generalization requirement. *Cr* 3. MR. SHERK

***9, 10. Readings in Latin Literature.***—Designed to give a wide acquaintance with the masterpieces of Latin prose and poetry. Selections will be read from Catullus, Livy, Horace, Vergil, Tacitus, Martial. *Cr* 3. MR. SHERK

†***51; 52 (151; 152). Roman Comedy.***—One play at least will be read from Plautus and Terence. *Cr* 3. MR. SHERK

‡***53 (153). The Augustan Poets.***—A study of the lives and works of the great poets at the end of the first century before Christ in relation to the cultural and political background of Augustan Rome. *Cr* 3. MR. SHERK

‡***82 (182). Survey of Latin Literature.***—A rapid survey from the Archaic Age to Medieval Latin. Lectures, discussions, reports, and assigned readings. *Cr* 3. MR. SHERK

## GREEK

***1-2. Elementary Greek.***—The fundamentals of the Greek language. For students who have had little or no previous instruction. Given at Bangor Theological Seminary. *Cr* 4. MR. SHERK

***3; 4. Intermediate Greek.***—Selections will be read from Xenophon and Thucydides. In the second semester one of the tragedies of Euripides will be studied. Given when there is sufficient demand. *Cr* 3. MR. SHERK

***9; 10. Greek Tragedy.***—One play at least will be read from Sophocles and Aeschylus. Given when there is sufficient demand. *Cr* 3. MR. SHERK

## CLASSICS

***1. 2. Greek and Latin Literature in English Translation.***—The first semester is devoted to Greek literature, the second to Latin. No knowledge of either language is necessary. This course satisfies the Humanities requirements of the College of Arts and Sciences. *Cr* 3. MR. SHERK

## GEOLOGY AND GEOGRAPHY

PROFESSOR TREFETHEN; ASSOCIATE PROFESSOR OSBERG; ASSISTANT PROFESSORS BORNS AND HOWD; MR. HAGAR; MRS. TREFETHEN

Geology is the branch of Natural Science which deals with rocks and minerals, their arrangement, occurrence, properties, and surface expression as modified by various agents, and with the history of the earth and its organic inhabitants. Geography is the science of surface differentiation. It is primarily concerned with the description and explanation of the natural and cultural features of the earth's surface. Geography is thus intermediate between the natural and social sciences.

A major course in geology is offered for students in the College of Arts and Sciences. The geology curriculum is designed to give the student a thorough understanding of the fundamentals of the science. Specialization within a particular branch of geology requires graduate work. In addition to the prescribed courses in geology, a geology major should include basic courses in both the physical and biological sciences, surveying, and drafting, and must maintain at least an average grade of "C" in geology and ancillary courses above the sophomore level. Field excursions are at the student's expense.

### Courses in Geology and Geography

***1. Principles of Geology, Physical.***—A study of earth materials and processes, vulcanism, mountain building, the work of seas, streams, ice and winds. Includes elementary map interpretation and identification of a few minerals and rocks. *Rec* 3, *Lab* 3, *field trip*, *Cr* 4.

***2. Principles of Geology, Historical.***—The history of the earth and its inhabitants with special reference to North America. Emphasis on principles and methods. Laboratory includes study of fossils and maps. Prerequisite, Gy 1. *Rec* 3, *Lab* 3, *one one-day field trip*, *Cr* 4.

***3. Descriptive Geology, Physical.***—A survey course presenting the landscape as a result of the geological agents. A summary view of the work of streams, glaciers, the seas, winds, and organisms. *Rec* 3, *Cr* 3.

***4. Descriptive Geology, Historical.***—A survey of earth history. Traces the coincident developments of life and environments up to the advent of man. *Rec* 3, *Cr* 3.

***5. Common Rocks and Minerals.***—A study of the identification, occurrence, and origin of common minerals and rocks. Prerequisite, Gy 1 or 16. *Rec* 2, *Lab once a week*, *Cr* 3.

***6. Advanced General Geology.***—An analysis of the geologic work of wind, ice, and water, including the interpretation of land forms. Prerequisite, Gy 1 or 17. *Rec* 2, *Lab* 3, *Cr* 3.

***16. Geology for Engineers.***—A study of geologic materials, including origin, identification, modes of occurrence, distribution and engineering characteristics. For students in technology and agriculture. *Rec* 2, *Lab* 3 for nine weeks, *Cr* 2½.

***17. Geology for Engineers.***—Study of the geological processes as related to civil engineering practice, foundations, excavation, surface and ground water problems, stream control, shore defense, etc. Includes reading and interpretation of geologic maps. Prerequisite, Gy 16. *Rec* 2, *Lab* 3 for nine weeks, *Cr* 2½.

***21. Introduction to Regional Geography.***—An elementary course in college geography covering the natural and cultural aspects of selected major geographic regions of the world. *Rec* 3, *Cr* 3.

***22. Economic Geography.***—The geographical aspects of world resources, production, and trade. *Rec* 3, *Cr* 3.

***24. Political Geography.***—See Gt 24 under History and Government.

***51. Structural Geology.***—A consideration and analysis of the principal geologic structures, their recognition, delineation, and methods of study. Problems and map interpretation. Prerequisite, Gy 6 or 17. *Rec* 3, *Cr* 3.

***52. Economic Geology.***—The formation, structure, and classification of economic mineral deposits. An analysis of a few of the more important mineral districts. Prerequisite, Gy 6 or 16. *Rec* 3, *Cr* 3.

***53. 54. Seminar.***—Written and oral reports with discussions on assigned topics in any special branch of Geology. *Rec* 2, *Cr* 2.

***55. 56. Thesis.***—The study of and report upon some original investigation. *Time to be arranged. Cr* 2.

***58. Field Geology.***—A consideration of the methods of field geology and an analysis of some of the problems encountered in the field. Use of the plane-table, Brunton compass, and other instruments. Prerequisite, Ce 5 (Surveying) and Gy 6. *Rec* 2, *Lab* 3, one week is spent in the field, *Cr* 3.

***59. Mineralogy.***—A study of the physical and chemical properties of minerals, including an introduction of crystallography. In the laboratory the student studies crystal models and identifies minerals. Prerequisite, Gy 6 or 16, or Ch 31. *Rec* 2, *Lab* 6, *Cr* 4.

***60. Mineralogy.***—A continuation of Gy 59 with emphasis on economic minerals. In the laboratory the student studies crystals and identifies minerals. Prerequisite, Gy 59. *Rec* 2, *Lab* 3, *Cr* 3.

***61. Optical Mineralogy.***—Elementary theory of the polarizing microscope and the optical properties of crystalline substances. Use of the polarizing microscope in the determination of non-opaque minerals. Prerequisite, Gy 59. *Rec* 2, *Lab* 6, *Cr* 4.

***62. Elements of Petrology.***—Introduction to the physico-chemical principles governing mineral associations in igneous, sedimentary, and metamorphic rocks. Application of petrographic techniques to the classification and interpretation of rocks. Prerequisite, Gy 61 and Ms 12. *Rec* 2, *Lab* 6, *Cr* 4.

***70. Glacial Geology.***—A study of the work of glaciers, with special reference to the Pleistocene continental ice sheets. Prerequisite, Gy 5 or 17. *Rec* 2, *Lab* 3, *Cr* 3.

***71. Photogeology.***—A study of the characteristics of aerial photographs, geological and geomorphic interpretation; construction of topographic, planimetric, and geologic maps from aerial photographs; application of air photos in field mapping. Prerequisite, Gy 6 and Gy 51. *Rec* 2, *Lab* 4, *Cr* 3.

***73. Paleontology.***—A study of selected common and geologically significant invertebrate fossils. Prerequisite, Gy 2. *Rec* 2, *Lab* 6, *Cr* 4.

***84. Advanced Engineering Geology.***—A study of selected geological topics and problems related to civil engineering practice. Prerequisite, Gy 17. *Rec* 2, *Cr* 2.

†*250. Advanced Structural Geology.*—Analysis and interpretation of geologic structures illustrated by studies of selected regions. Prerequisite, Gy 51. *Rec* 2, *Lab* 3, *Cr* 3.

*263. Topics in Petrology.*—A study of the physical and chemical basis of mineral associations. Application of micrometric analysis, universal stage and x-ray techniques in the solution of petrological problems. Course content may vary from year to year. *Rec* 2, *Lab* 3, *Cr* 3.

†*264. Sedimentology.*—A study of processes and results of sedimentation; field and laboratory investigation of sediments, their structures and properties. *Rec* 2, *Lab* 3, *Cr* 3.

†*272. Geomorphology.*—A study of the origin, development, and modifications of the earth's surficial features with field and laboratory analyses. *Rec* 2, *Lab* 3, *Cr* 3.

*283. Geological Exploration.*—A study of modern geological exploration, including the application of geophysical and geochemical techniques. Field and laboratory studies. *Rec* 2, *Lab* 3, *Cr* 3.

*299. Graduate Thesis.*

## HISTORY AND GOVERNMENT

PROFESSORS DOW, JEFFREY, STEWART, TRAFFORD, AND YORK; ASSOCIATE PROFESSORS BILLIAS, MAWHINNEY, NOLDE, PARKER, AND WOOD; ASSISTANT PROFESSORS SCHOENBERGER, AND THOMSON; DR. BASS, MR. DROPPERS, AND MR. HAKOLA; MR. DOWD; MR. KLUNDER; MR. HOLL, MR. SCONTRAS, MR. SLICK, AND MR. WEBB

Students may major in the following fields: (1) Government, (2) History, (3) History and Government, (4) Public Management.

***Specific Requirements for Majors:***

1. Government: Gt 1; 2; Hy 3. 4, 5; 6; Gt 83; 84 or 89. 90, and at least 18 hours in other government courses approved by adviser.

2. History: Gt 1; 2; Hy 3. 4, 5; 6, and at least 24 hours of history courses approved by adviser.

3. History and Government: Gt 1; 2; Hy 3. 4, 5; 6, and at least 24 hours of history and government courses, approved by adviser, with not less than 10 hours in each field.

4. Foreign Service: See specimen curriculum on page 118.

5. Public Management: See specimen curriculum on page 121.

Major students are required to pass a senior oral comprehensive examination as a departmental requirement for graduation.

The department offers M.A. degrees in the various fields listed for majors. Students will be admitted as candidates upon presentation of credentials indicating excellent undergraduate records with sufficient subject matter background.

A specimen curriculum for the M.A. in Public Management for graduates in Civil Engineering is found in the catalog section on Civil Engineering.

### Courses in Government and Public Management

#### In Government

*1; 2. American Government.*—An introduction to government, with emphasis on American principles and practices. Not open to freshmen. *Cr* 3.

MR. DOW, Chairman

***7. 8. Maine Government.***—Practical operation and current problems of state and local government in Maine. One lecture each week by an official, followed by a discussion period. Open to all students. *Cr* 1.

MR. DOW AND GUEST LECTURERS

***7a. 8a. Maine Government.***—Designed for prospective teachers and others who wish more material on Maine government than is given in Gt 7. 8. No person may receive credit for both Gt 7 and 7a nor for both Gt 8 and 8a. *Cr* 2.

MR. DOW

***24. Political Geography.***—The geographic and demographic factors that condition national and international politics. Emphasis will be placed on the relationships of the major nations to their areas and to the world, on examination of their strategic necessities, and on historical reviews of their resultant foreign policies. Listed also under Geology. Prerequisite, Sophomore standing. *Cr* 3.

MR. SCHOENBERGER

†***33. Municipal Government.***—The process of government in modern cities; types of city government; metropolitan areas; home rule; nominations and elections; relations with the Federal and state governments. Prerequisite, Gt 2 or My 1; 2. *Cr* 3.

MR. DOW

†***34. Municipal Administration.***—Special emphasis on the city plan; financial control and administration; line functions—fire, police, and recreation; civil service; and citizen interest. *Cr* 3.

MR. DOW

***35; 36. Comparative Government.***—An analysis of the major governmental systems of the modern world. Special attention will be given to constitutional structure, to political parties, and to the relation between governments and their social and economic backgrounds. Prerequisite, Gt 1; 2. *Cr* 2.

MR. THOMSON

***39. National and State Planning.***—Nature, development, objectives, types, effectuation, and general methods of planning; techniques—budgets, master plans, economic and sociological factors, physical planning; planning coordination; the case for and against planning. Prerequisite, Gt 1 or My 1; 2. *Cr* 2.

***40. Community Planning.***—The need and nature of community planning; legislative basis and administrative organization; zoning, master plans, land use, fiscal abilities, and services; practical formulation of city plans. Prerequisite, Gt 2, or 39. *Cr* 2.

MR. KLUNDER

‡***41 (141). Police and Fire Administration.***—Organization, powers, and duties of the police and fire departments, with special emphasis on the problems of the administrative head and his relations with other agencies of government. *Cr* 2.

MR. DOW

‡***42 (142). Public Works Administration.***—The management of highway departments, water works, and the like. Administrative problems of organization, personnel, finance, and relations with other governmental agencies. *Cr* 2.

MR. DOW

***44 (144). Public Relations.***—The problems of communication between governmental units and the public, with emphasis at the municipal level. *Cr* 2.

MR. DOW

‡***46 (146). Municipal Law.***—The law relating to liability, powers, and duties of municipal corporations. Special attention is given to Maine law. *Cr* 3.

MR. THOMSON

***51; 52 (151; 152). Public Administration.***—Present organization and current developments in federal, state, and local administration. Personnel, or-

ganization, fiscal administration, administrative law, administration and politics. Prerequisite, Gt 1; 2. *Cr* 3. MR. MAWHINNEY

***53 (153). Government Controls.***—The political and administrative problems of government control of the economy. The analysis will include the state as promoter of private enterprise, regulation, the social service state. Prerequisite, six hours of government or economics. *Cr* 3.

***54 (154). The Legislative Process.***—How Federal and state legislatures function in the U.S. The interaction of legislators, parties, constituents, lobbies, chief executives, department heads, and legislative staffs on the making, amending, or killing of legislation. Prerequisite, Gt 1. *Cr* 3. MR. MAWHINNEY

***55. Congressional Internship.***—A first-hand study of the national legislative process and the function of the legislator. The student will be assigned to the staff of a Congressman or Senator in Washington, D. C., from about February 1 to the end of July. Readings and reports are required in addition to the staff work. Open to Juniors on a competitive basis. Rules announced publicly each fall semester. *Cr* 6. MR. DOW

***56 (156). Political Parties.***—The development and present organization of the party system in the United States. The analysis will deal with the roles of pressure groups, the nominating process, the electorate, third parties, bosses and machines, and money in politics. Prerequisite, Gt 1. *Cr* 3. MR. MAWHINNEY

***58 (158). Public Opinion.***—Nature, analysis and measurement of public opinion and its effects on political processes. The roles of the press, radio, movies, social clubs, pollsters, national and international informational agencies in the formation of public opinion. Prerequisite, Gt 1. *Cr* 3. MR. WOOD

***73, 74 (173, 174). International Relations.***—A survey of the problems of international affairs arising out of nationalism, imperialism, race conflicts, etc. How these problems are approached through treaties, conferences, and such agencies as the United Nations. Prerequisite, six hours of history or government. *Cr* 3. MR. SCHOENERGER, MR. WOOD

†***81; 82 (181; 182). Introduction to Law.***—The role of law in the modern world, with special emphasis on the relationships between law and the other social studies; the development of the Anglo-American legal system. Prerequisite, Junior or Senior standing. *Cr* 3. MR. THOMSON

†***83; 84 (183; 184). Constitutional Law.***—The constitution as it develops through court decisions in such fields as commerce, protection of life, liberty, and property. Court procedure and the lives of famous judges. Prerequisite, Gt 1; 2. *Cr* 3. MR. MAWHINNEY

‡***87 (187). International Law.***—Historical treatment and analysis. Includes development of international law, recognition of states, nationality, law of treaties, responsibilities of states, and legal regulation of the use of force. *Cr* 3. MR. WOOD

‡***88 (188). International Organization.***—The forms, functions and development of international organization. Conferences, international administration and adjudication international federation, world government. United Nations and specialized agencies—organization and administrative procedures. *Cr* 3. MR. WOOD

†***89, 90 (189, 190). Political and Social Thought.***—A survey of political theories from ancient Greece to the French revolution. The basic approach is historical, and seeks to relate theories of politics to the environments in which they developed. Prerequisite, junior or senior standing. *Cr* 3. MR. THOMSON

‡***91(191). American Political Ideas.***—The development of political ideas in America from 1620 to the present. *Cr* 3. MR. THOMSON

‡*92 (192). Modern Political and Social Thought.*—From the French revolution to the present. Liberalism, utilitarianism, socialism, fascism, communism. *Cr* 3. MR. THOMSON

*97. 98 (197. 198). Seminar.*—Projects for qualified students. *Cr* 2 or 3.

*299. Graduate Thesis.*—*Cr* 6.

### In Public Management

*93. Internship.*—Selected students are assigned to towns and cities, usually during the summer. Each municipal intern works under the direction of a city or town manager, one-half his time being spent on a major project, the remainder in learning about the varied tasks of a manager. Required for the B.A. degree in Public Management. When approved, this course may be repeated for credit. *Cr* 3. MR. DOW

*203. Internship.*—For graduate students; similar to P. Mgt. 93. Required for the M.A. degree in Public Management. *Cr* 3. MR. DOW

### Courses in History

*1. 2. Classical and Medieval Civilization.*—The social and cultural development of the ancient Greeks and Romans is treated in the first semester. The second semester deals with the social and cultural development of Western Europe in the middle ages. Particular attention is given to the great achievements in literature, philosophy, religion, and art. *Cr* 3. MR. PARKER

*3. 4. United States History.*—From 1789 to recent years. The development of democracy, growth of the West, slavery and sectionalism, the Civil War, reconstruction, the making of modern America, industrialization, imperialism, and other topics. *Cr* 3. MR. YORK, Chairman

*5; 6. History of Western Europe.*—Europe and its civilization from the decline of the Roman empire to the present. The emphasis is upon the development of those political, economic, and social institutions which help to explain our present-day civilization. *Cr* 3. MISS STEWART, Chairman

*9. 10. History of Maine.*—A survey of Maine's social, economic, and political life, from primitive times to the present. After a brief study of Indian life preceding white settlement, the periods of colonial, provincial, and state history are covered. *Cr* 2. MR. YORK

**15. 16. Hispanic America.*—The Spanish and Portuguese colonial empires in America to their achievement of independence, and the national period of Hispanic America. Prerequisite, Hy 3. 4 or 5; 6. *Cr* 3. MR. JEFFREY

**17. 18. History of England.*—A general survey of the political, social, economic, constitutional and cultural aspects of England. Emphasis will be placed on such topics as trial by jury, the evolution of parliament, the Protestant revolt, the commercial and industrial revolutions, and the growth of democracy. Prerequisite, six hours of history. *Cr* 3. MR. TRAFFORD

**19. 20. Economic History of the United States.*—From the colonial period to the present with special attention to the problems raised by the economic evolution of the country. *Cr* 3. MR. HAKOLA

*21. 22. Current World Problems.*—A survey of contemporary national and international affairs based on area studies of the United States, the Soviet

* Graduate credit with the approval of the student's adviser.

Union, Europe, the Middle East, the Far East, and Southeast Asia. Open to all students. *Cr* 2. MR. SCHOENBERGER

***23. 24. History of Science.***—Development of the physical and biological sciences from pre-Greek civilizations to the twentieth century. Consideration will be given to the transmission of scientific thought from one civilization to another, and to the reciprocal relations between scientific thought and intellectual and social culture. Not open to Freshmen. *Cr* 3. MR. DROPPERS

†***51 (151). Era of the French Revolution.***—The historical development of Europe from the eve of the French revolution to the congress of Vienna, with special emphasis on the causes and the political, social, and economic aspects of the revolution, the career of Napoleon and the spread of revolutionary principles in Europe. Prerequisite, Hy 5; 6. *Cr* 3. MR. TRAFFORD

†***52 (152). Europe in the 19th Century.***—Europe from the congress of Vienna through the Franco-Prussian war. Consideration will be given such topics as liberalism and nationalism, reaction and revolutions, the unification of Italy and Germany, and contemporary cultural and intellectual movements. Prerequisite, Hy 5; 6. *Cr* 3. MR. TRAFFORD

‡***53. 54 (153. 154). Europe Since 1870.***—Expanding industrialism, imperialism, and their effect upon world politics; the background and causes of World War I; the Paris peace settlement and its resultant problems; the rise and character of communism, fascism, and nazism; and the background of World War II. Prerequisite, Hy 5; 6. *Cr* 3. MR. TRAFFORD

***55. 56 (155. 156). History of Russia.***—Russian history from earliest times to the present. The first semester will cover the rise of Russia to 1815; the second semester will treat of 19th century Russia, the collapse of the Tsardom, and the Soviet Union. Prerequisite, Hy 5; 6 or permission of instructor. *Cr* 3. MISS STEWART, MR. NOLDE

***57. 58 (157. 158). American Colonial History.***—The founding and the political, social, and economic development of the colonies. English colonial policy. The development of the colonies in the eighteenth century; the remote and immediate causes and the results of the revolution. Juniors and seniors. *Cr* 2. MR. BILLIAS

***59. 60 (159. 160). Twentieth Century America.***—The Spanish-American War, the progressive movement, the Wilson reforms, World War I, the depression of 1929, the New Deal, World War II, and subsequent events. Prerequisite, Hy 3. 4. *Cr* 2.

***62 (162). Maritime History of the United States.***—Ships and trade from colonial days to the present, including famous ships and ship builders, the evolution from wood to iron and steel ships, the effect of the civil war and world wars on our merchant marine. Permission of the instructor required. *Cr* 2. MR. BILLIAS

‡***63. 64 (163. 164). Canadian History.***—A survey of Canadian history from early French settlement to the present, with emphasis on political and economic evolution, and Canada's relations with the U. S. Prerequisite, Hy 3. 4 or 5; 6. *Cr* 2. MISS STEWART

***64a (164a). Canada in the Modern World.***—An introduction to present-day Canada, including a survey of its history, geography, government, economy, its development as a nation, and its relations with the United States. Prerequisite, Hy3. 4 or Hy 5; 6. Not open to students who have taken Hy 63 or Hy 64. *Cr* 3. MISS STEWART

***65 (165). Argentina, Brazil, and Chile.***—A history of the major coun-

tries of South America, from their independence in 1823 to the present. Prerequisite, Hy 15. 16 or permission. *Cr* 3. MR. JEFFREY

***66 (166). Mexico.***—A history of Mexico, from early times to the present. Prerequisite, Hy 15. 16 or permission. *Cr* 3. MR. JEFFREY

†***67. 68 (167. 168). American Diplomatic History.***—American diplomatic history from the revolution to the present with emphasis on the formation and application of America's major foreign policies. Prerequisite, Hy 3. 4. *Cr* 3. MR. YORK

***69. 70 (169. 170). Social History of the United States.***—American social and cultural development as illustrated in its thought, literature, fine arts, religion, and humanitarian reforms. Prerequisite, Hy 3. 4. *Cr* 3. MR. YORK

***71. 72 (171. 172). History of the West.***—This course concerns the story of the frontier region. It begins with the coming of the white man and ends with the disappearance of the frontier about 1900. Prerequisite, Hy 3. 4. *Cr* 2. MR. HAKOLA

‡***73. 74 (173. 174). Economic History of Europe.***—The economic history of western Europe in the medieval and modern periods. Emphasis on such topics as agriculture, feudalism, the rise of towns and guilds, mercantilism, capitalism, and industrialism. *Cr* 2 or 3. MR. DROPPERS

‡***75. 76 (175. 176). The Renaissance and Reformation.***—The political and economic forces and the social and cultural achievements of Europe in the period 1300-1650. The first semester will deal with the renaissance. The second semester will deal with the Protestant revolt, the Catholic reform, and the wars of religion. *Cr* 2. MR. PARKER

†***77. 78 (177. 178). The British Commonwealth.***—A survey of the modern British Commonwealth, considering the history, the contemporary position and problems of Canada, the West Indies, and British Africa in the first semester, and of the Commonwealth countries in Asia and the Pacific in the second. Prerequisite, Hy 5; 6 or 17. 18. *Cr* 3. MISS STEWART

†***79. 80 (179. 180). Ancient History.***—Political, social, and economic history of the civilizations of the ancient Mediterranean world. Egypt, the Near East, and Greece will be covered in the first semester; and Rome, in the second semester. *Cr* 2 or 3. MR. PARKER

‡***81; 82 (181; 182). Constitutional History of the United States.***—A study of the constitutional institutions in the United States with only incidental treatment of political and economic events except where they directly affect the background or growth of constitutionalism in the United States. Prerequisite, Hy 3. 4. *Cr* 3. MR. BASS

***83. 84 (183. 184). The Far East.***—The fall semester will be concerned with the problems of modern China; its historical tradition and the "impact of the West" upon its pre-modern social, economic, and political institutions. Japan and Korea are similarly treated during the spring semester. Prerequisite, six hours of history, or the consent of the instructor. *Cr* 3. MR. NOLDE

***85 (185). Latin America and the United States.***—United States participation in Latin American affairs from the recognition of independence and the Monroe Doctrine to the good neighbor policy and the present day. Prerequisite, six hours of history. *Cr* 2. MR. JFEEREY

***86 (186). Problems of Latin-America.***—Recent problems facing Latin American nations in relation to the world and in their internal development. Prerequisite, six hours of history. *Cr* 2. MR. JEFFREY

†***87 (187). Civil War and Reconstruction.***—The political, economic, social,

and diplomatic history of the civil war and reconstruction period. Prerequisite, Hy 3. *Cr* 2 or 3. MR. BILLIAS

***89 (189). U. S. Policy in the Far East.***—The role of the U. S. in the internal and international affairs of eastern Asia from the early 19th century to the present, with emphasis on China, Japan, and Korea. Prerequisite, six hours of history or government, or permission of the instructor. *Cr* 3. MR. NOLDE

***90 (190). Problems of Southeast Asia.***—A survey of countries recently emerged from colonialism, such as Indonesia and Malaya. Prerequisite, same as for Hy 89. *Cr* 3. MR. NOLDE

***91, 92 (191, 192). The Middle East.***—A history of the middle east in modern times, with special emphasis on the impact of the west in terms of political, economic, and cultural change. Prerequisite, six hours of history. *Cr* 2.

†***93. Revolution and Confederation.***—The causes of the American Revolution, the war with special attention to the "internal revolution," and the postwar period to 1789. Prerequisite, Hy 3, 4 or Hy 57, 58. *Cr* 3. MR. BILLIAS

†***95. Modern England.***—England since 1815, with emphasis on the gradual democratization of her government, the continuing industrial revolution, social and cultural change, the merging of Empire into Commonwealth, and her survival through two world wars. Prerequisite, Hy 5; 6 or Hy 17, 18. *Cr* 3. MISS STEWART

***97, 98 (197, 198). Seminar.***—Projects for qualified students. *Cr* 2 or 3.

***299. Graduate Thesis.***—*Cr* 6.

## HONORS PROGRAM

PROFESSORS LEVINSON (Chairman), GLANVILLE, HARTGEN, MILES AND WEILER; ASSOCIATE PROFESSORS FLYNN, REYNOLDS, AND SHERK; ASSISTANT PROFESSOR THOMSON

Honors courses prior to the junior year are designed to fulfill a double purpose: Through wide reading, chosen from the Honors Reading list, to provide a broad orientation over the field of the Arts and Sciences, and, secondly, to serve as preparation for the more specialized Honors work proper to the junior and senior years.

The courses for juniors and seniors are intended primarily to afford training in the investigation of restricted subjects (although a continuation of the general reading may, in some cases, serve as a substitute in the junior year). In the junior year the work is ordinarily done in the student's major field, but, with the approval of the committee, the student may elect to work in a related field. In the senior year, however, attention is concentrated upon a definitely limited problem falling within the major field; the final results are embodied in a thesis. (See Honors Program, page 115.)

All Honors courses are under tutorial direction. Application for admission to the program should be made through the student's adviser, in the course of the spring semester of the freshman year, not later than the first of May.

***46. Sophomore Honors.***—Optional for those entering the Honors Program. An individually arranged program of summer readings. *Cr* 1.

***47, 48. Sophomore Honors.***—*Cr* 3.

***51, 52. Junior Honors.***—*Cr* 3.

***53-54. Senior Honors***—*Cr* 3.

# JOURNALISM

ASSOCIATE PROFESSOR HAMILTON

The Department of Journalism has two functions: (1) to provide a major program recommending the degree of Bachelor of Arts in Journalism with a combination of preprofessional training and a liberal education for those interested in newspaper or allied careers, and (2) to provide courses for any students in the University who have an interest either in writing as an aid to their vocational interests or in the study of modern news communications as a part of society.

Prospective journalism majors in their first two years will fulfill the basic requirements of the College of Arts and Sciences. As major students in their junior and senior years, they will take a required sequence of 18 credit hours in these courses: Jr 31. 32; 93. 94; and 95. 96. A few specialized courses are elective.

Majors will round out their program, according to their interests and aptitudes, with studies expected to provide a broad base for their future professional life. Normally the social sciences figure heavily in their programs, but other academic interests are encouraged.

Laboratory facilities include a newsroom with typewriters, a copy desk, standard reference works, a photographic darkroom, and a journalism library. *The Maine Campus,* student weekly newspaper, is used as a practical laboratory. Students, also, have access to the University printing plant and the campus radio station, which has United Press teletype service daily.

Part-time work is available for a limited number on Maine newspapers and in the University publicity office.

## JOURNALISM

***22. Introduction to Journalism.***—A beginner's course in reporting and newspaper operation. Includes a visit to a newspaper plant. Open to all freshmen and sophomores. *Cr* 2. MR. HAMILTON

***25. History of the American Newspaper.***—A review of the newspaper's role in American history and the development of freedom of information. Open to all sophomores, juniors, and seniors. *Cr* 2. MR. HAMILTON

***26. The Newspaper and the Community.***—A study of modern news communications, their relation to society and the operation of a free press in America. Open to all sophomores, juniors, and seniors. *Cr* 2. MR. HAMILTON

***31. 32. News Writing.***—A course in writing and reporting procedures. For the student interested in communicative writing skill generally or as part of a vocational interest. Open to all juniors and seniors. *Cr* 3. MR. HAMILTON

***91. Staff Training.***—On-the-job training during the summer, between the junior and senior year. Under the direction of a local editor. *Cr* 3.

***93. 94. Advanced Reporting.***—Intensified training in news writing, with emphasis on the reporting of public affairs. For seniors who have had 31. 32. *Cr* 3. MR. HAMILTON

***95. 96. News Editing.***—An introduction to editorial desk work, with practical training in news selection, copy-editing, and headline-writing. For seniors who have had 31. 32. *Six hours of class work a week. Cr* 3. MR. HAMILTON

***97. Departmental and Feature Writing.***—A course giving practice in writing for various specialized departments of the newspaper. Given when there is sufficient demand. *Cr* 2.

***98. Newspaper Make-Up.***—A study of the principles of typography and pictorial composition and selection in their everyday newspaper applications. Given when there is sufficient demand. *Cr* 2.

## MATHEMATICS AND ASTRONOMY

PROFESSORS KIMBALL, JORDAN, LAMOREAU, AND EVES; ASSOCIATE PROFESSORS COMEGYS, AND WOOTTON; LECTURER SWINFORD; ASSISTANT PROFESSORS HAMM, AND TOOLE; MR. DODGE, MISS DUBOURDIEU, MRS. HART, MISS CROSSLAND, AND MRS. PERRY; MR. FINN, MR. FREY, MR. GUAY, MR. STEARNS, MISS WHITE, AND MR. DELUCIA

### ASTRONOMY

***9. Descriptive Astronomy.***—An elementary course. The textbook is supplemented by lectures, illustrated by lantern slides, and by work in the observatory and planetarium. *Cr* 3. MR. JORDAN

***11. Practical Astronomy.***—The conversion of time, the determination of terrestrial latitudes, and the establishment of meridian lines. Prerequisite, Mathematics 1 and 3. Not given every year. *Rec* 2, *Lab* 2, *Cr* 3. MR. JORDAN

***14. Navigation.***—The compass, piloting, dead reckoning, the sailings, celestial navigation. Prerequisite, Trigonometry. Not given every year. *Cr* 3. MR. JORDAN

***15; 16. General Astronomy.***—A more complete treatment of the subject than is possible in Course 9. Prerequisite, Mathematics 1 or 5; 6. Not given every year. *Cr* 3. MR. JORDAN

***59; 60. Practical Astronomy.***—The theory and use of the astronomical transit, zenith telescope, and equatorial; accurate determination of time and latitude. Prerequisite, Mathematics 1, 3, and 12, and Astronomy 9 or 15. Not given every year. *Cr* 3. MR. JORDAN

### MATHEMATICS

Students who major in mathematics are normally required to take Courses 1, 3, 12, 15, 16, 21, 22, 23, 97, 98, and an additional three credit hours in each of three of the four following areas: algebra, analysis, geometry, and mathematical statistics. A minimum of 39 hours in mathematics is required of all majors except that certain advanced courses in other sciences may be included subject to the approval of the Department.

The general requirements for the Master of Arts degree are given in the section on Graduate Study. Candidates for this degree in Mathematics are expected to have a substantial undergraduate training in this subject.

**Two years of high-school algebra are prerequisite for any of the following courses, with the exception of Courses 7 and 19, for which one year is required.**

Students taking Courses 1, 3, and 12 may not take Courses 5; 6 for credit. Students taking Course 27; 28 may not take Course 15; 16 for credit.

***1. Trigonometry.***—The trigonometric functions, their properties and applications to solving triangles. *Cr* 2.

***3. College Algebra.***—Basic topics in algebra necessary for further work in mathematics. *Cr* 2.

***5; 6. Elements of College Mathematics.***—A modern introduction to college mathematics for liberal arts students and prospective teachers. *Cr* 3.

***7. Basic Mathematics.***—Fundamental topics of algebra and geometry. Open only to students in the College of Agriculture, except by special permission of the Department. *Cr* 3.

***12. Analytic Geometry and Calculus.***—An introductory course. Prerequisite, Courses 1 and 3 or 5 and 6. *Cr* 4.

***15; 16. Elements of Calculus.***—A continuation of the analytic geometry and calculus of Ms 6. Prerequisite, Course 6 or 12. *Cr* 3.

***17; 18. Mathematical Theory of Investment.***—Interest, annuities, and their applications. *Cr* 2.

***19. Statistics.***—Elementary statistical concepts and techniques. *Cr* 3.

***21. Elements of Real Number Theory.***—The development of the real number system from a foundation in intuitive set theory. Designed principally for mathematics majors. *Cr* 2.

***22. Elements of Set Theory.***—An introduction to general set theory. Designed principally for mathematics majors. *Cr* 2.

***23. Advanced Algebra.***—An introduction to the theory of such topics as the real number system, determinants, matrices, and the theory of equations. Prerequisite, Course 16 or 28 or permission of the instructor. *Cr* 3.

***24. Advanced Analytic Geometry.***—A continuation of the geometry of Course 15 and Course 27. Prerequisite, Course 15 or 27. *Cr* 3.

***27; 28. Calculus.***—Formal differentiation and integration with applications. Prerequisite, Course 12 or consent of the Department. *Cr* 5.

***30. Probability.***—The elementary concepts of probability theory. Not given every year. Prerequisite, Course 16 or 28. *Cr* 2.

***31; 32. Mathematical Statistics.***—An introduction to fundamental statistical concepts and processes, and their mathematical bases. Prerequisite, Course 16 or 28. *Cr* 3.

***49. Mathematics for Teachers.***—A modern approach to selected topics in mathematics with methods of presentation to secondary school students. Prerequisite, Course 16 or 28, or consent of the Department. *Cr* 3.

***54 (154). Solid Analytic Geometry.***—Analytic geometry in three dimensions. Not given every year. Prerequisite, Course 16 or 28. *Cr* 3.

***55; 56 (155; 156). Differential Equations.***—An introduction to the theory and solution of ordinary and partial differential equations. Not given every year. Prerequisite, Course 16 or 28. *Cr* 3.

***57 (157). Engineering Mathematics (Differential Equations).***—Ordinary differential equations and applications. Prerequisite, Course 28. *Cr* 3.

***58 (158). Engineering Mathematics.***—Partial differential equations and selected other topics. Prerequisite, Course 57. *Cr* 3.

***59 (159). Vector Analysis.***—The algebra and calculus of vectors with an introduction to applications in Physics and Engineering. Prerequisite, Course 16 or 28. *Cr* 3.

***60 (160). Advanced Engineering Mathematics.***—Selected topics such as elementary functions of a complex variable, LaPlace transformation theory, determinants and matrices. Prerequisite, Course 55 or 57. *Cr* 3.

***61 (161). History of Mathematics.***—The development of elementary mathematics from ancient to modern times. Not given every year. Prerequisite, Course 12 or 15. *Cr* 3.

***64 (164). College Geometry.***—Modern Euclidean geometry, including

such topics as the nine-point circle, harmonic section, and inversion. Not given every year. *Cr* 3.

***65 (165). Theory of Numbers.***—Elementary properties of the integers. Not given every year. Prerequisite, Course 16 or 28. *Cr* 3.

***67; 68 (167; 168). Advanced Statistics.***—Statistical methods of research. Not given every year. Prerequisite, Course 31; 32 or Courses 19 and 28 with the consent of the Department. *Cr* 3.

***69 (169). Numerical Analysis.***—Numerical methods for solving problems of analysis. Not given every year. Prerequisite, Course 16 or 28. *Cr* 2.

***71; 72 (171; 172). Higher Algebra.***—An introduction to abstract algebra. Not given every year. Prerequisite, Course 16 or 28. *Cr* 3.

***73; 74 (173; 174). Advanced Calculus.***—Functions of real variables, infinite series, partial differentiation, multiple integration, line integrals, and other topics. Prerequisite, Course 16 or 28. *Cr* 3.

***75; 76 (175; 176). Higher Geometry.***—An introduction to various geometries, such as projective and non-Euclidean. Not given every year. Prerequisite, Course 16 or 28. *Cr* 3.

***77 (177). Topology.***—An introduction to topological concepts. Not given every year. Prerequisite, Course 16 or 28. *Cr* 3.

***91; 92 (191; 192). Differential Geometry.***—Applications of calculus to the study of space curves and surfaces. Not given every year. Prerequisite, Course 16 or 28. *Cr* 3.

***96 (196). Selected Topics in Mathematics.***—Advanced topics in mathematics not regularly covered in other courses. The content is not fixed but can be varied to suit current needs. The course may, with permission of the Department, be taken more than once. Prerequisite, consent of the Department. *Cr* 2 or 3.

***97; 98 (197; 198). Foundations of Mathematics.***—Fundamental concepts and methods of mathematics; viewpoints on the foundations of mathematics. Not given every year. *Cr* 3.

***279; 280. Functions of a Complex Variable.***—Not given every year. Prerequisite, Course 74 or consent of the Department. *Cr* 3.

***283; 284. Functions of a Real Variable.***—Not given every year. Prerequisite, Course 74 or consent of the Department. *Cr* 3.

## MODERN SOCIETY

ASSISTANT PROFESSORS MCKAY (Chairman), AND LUTFIYYA

Modern Society is a general education course designed both for those students who may major in the social sciences and also for those whose chief interest is in other curricula but who need this contribution to a well-rounded education.

The course has three primary objectives: To gain a basic knowledge of the organization and processes of contemporary society, to develop a method of critical analysis, and to arouse interest in the problems of our times.

Modern Society is open only to freshmen in the College of Arts and Sciences. In the School of Education and the other colleges the course is open to any student who has not had a minimum of two years of social science at the college level.

***1; 2. Modern Society.***—The course includes such topics as group ways and controls, public opinion, housing, race relations, crime, business and labor or-

ganization, problems and trends in agriculture, democracy and the American system of government, political parties and elections, international relations. *Cr* 3.

## MUSIC

PROFESSOR NIVEN; ASSOCIATE PROFESSOR SLEEPER; MR. GROTH; MR. SHAW

Music may be chosen as a major subject or as a broad elective. The Department offers a program that will develop a cultural asset in life or lead toward music teaching and directing.

In addition to the courses in aesthetics and theory, all Music Majors are required to demonstrate by examination their ability to play piano pieces of the difficulty of (a) a two-part invention of Bach, (b) a sonata of Haydn or Mozart, (c) a composition of the nineteenth century, and (d) a composition in the contemporary idiom.

### Courses in Theory and Aesthetics

***1; 2. Introduction to Music Literature.***—The development of music from the fourth century to the present day, with emphasis on the various historical movements in the other arts, together with a study of the great composers and their contrasting styles as exemplified by their most important compositions. *Cr* 2.
MR. GROTH, MR. NIVEN AND MR. SLEEPER

***1a. Basic Music Literature.***—Intelligent listening through presentation of the various forms and period of musical expression. For majors in Education. *Cr* 3. MR. SLEEPER

***3; 4. Fundamentals of Music I.***—Notation and terminology, scales and intervals, ear-training, elementary rhythmic and melodic dictation, sight-singing. For the layman as well as the student of music. *Cr* 2. MR. GROTH

***3a. Fundamentals of Music.***—Notation and terminology, scales and intervals, ear-training, elementary rhythmic and melodic dictation, sight-singing. For majors in Education. *Cr* 3. MR. GROTH

***5; 6. Elementary Harmony.***—Four part harmony in diatonic relationships, melody-writing, ear-training and dictation, analysis, and keyboard. Prerequisite, Mc 3; 4 or its equivalent. *Cr* 3. MR. GROTH

***7 (107). Teaching Music in the Elementary School.***—Music literature through direct participation in voice, piano, and simple instruments. For majors in Elementary Education. *Cr* 3. MR. NIVEN

***9. Elementary Conducting.***—Practice in conducting the various meters with special attention to the preparation, point, indication, and release of the beat. Elementary score-reading. *Cr* 1. MR. GROTH

***28. Advanced Conducting.***—Band technique and its specialized problems. Prerequisite, Mc 9. *Cr* 1. MR. SHAW

***29. Advanced Conducting.***—Orchestra technique and its specialized problems, score-reading, interpretation. Prerequisite, Mc 9. *Lec* 1, *Lab* 1, *Cr* 1.
MR. GROTH

***30. Advanced Conducting.***—Chorus technique and its specialized problems. Prerequisite, Mc 9. *Cr* 1. MR. NIVEN

†***33 (133). Music in the Baroque Era, 1600-1750.***—Its form and content with emphasis upon the works of Bach and Handel. Prerequisite, Mc 1; 2. *Cr* 2.
MR. SLEEPER

†***34 (134). Music in the Classical Period, 1750-1800.***—The changing style in form and content as evolved by Haydn, Mozart, and early Beethoven. Prerequisite, Mc 1; 2. *Cr* 2. MR. SLEEPER

‡***35 (135). Music in the Romantic Period, 1800-1900.***—The expansion of its form and content with representative works of the period from Beethoven through Debussy. Prerequisite, Mc 1; 2. *Cr* 2. MR. GROTH

‡***36 (136). Music in the Twentieth Century.***—Its trends and tendencies as exemplified by its leading composers—the American scene in particular. Prerequisite, Mc 1; 2. *Cr* 2. MR. NIVEN

†***41 (141). Form and Analysis.***—Analysis of the structural designs or forms of musical composition from the smallest to the largest. Prerequisite, Mc 5; 6 or its equivalent. *Cr* 2. MR. SLEEPER

***43; 44. Fundamentals of Music II.***—Continuation of Mc 3; 4. Advanced exercises in ear-training, dictation, intervals, and chord construction. Prerequisite, Mc 3; 4. Given when there is sufficient demand. *Cr* 2. MR. SLEEPER

***45; 46. Advanced Harmony.***—A continuation of Mc 5; 6 in chromatic relationships. Original compositions in the smaller forms. Analysis, writing, and keyboard. Prerequisite, Mc 5; 6. *Cr* 3. MR. SLEEPER

†***52. Modal Counterpoint.***—Contrapuntal techniques as practiced by composers of the sixteenth and seventeenth centuries. Written exercises and analysis. Prerequisite, Mc 3; 4 or its equivalent. *Cr* 2. MR. SLEEPER

***53; 54. Tonal Counterpoint.***—Contrapuntal techniques as practiced by composers of the eighteenth and nineteenth centuries. Written exercises and analysis. Prerequisite, Mc 5; 6. *Cr* 2. MR. SLEEPER

***55; 56. Canon and Fugue.***—Analysis of masterpieces in these forms, with particular concentration on the canons and fugues of Bach. Composition projects in these polyphonic types. Prerequisite, Mc 45; 46 and 53; 54 or its equivalent. Given when there is sufficient demand. *Cr* 2. MR. SLEEPER

***57; 58 (157; 158). Free Composition Seminar.***—Analysis of nationalistic and individual trends in composition and creative problems in the smaller forms. Prerequisite, a working knowledge of harmony and counterpoint and permission of the instructor. Given when there is sufficient demand. *Cr* 2. MR. SLEEPER

†***59; 60 (159; 160). Orchestration.***—Study of the ranges, tonal possibilities, technical limitations, and necessary transpositions for all orchestral and band instruments; scoring of short pieces in various styles for small and large orchestras and ensembles. Prerequisite, Mc 3; 4, 5; 6. *Cr* 2. MR. SLEEPER

### Courses in Ensemble Performance and Direction

***11. 12. Band.***—Rehearsal and performance of standard Band repertoire. Instrumentation of symphonic proportions is maintained. Audition required. *Lab* 2, *Cr* 1. MR. SHAW

***13. 14. Chorus.***—Rehearsal and performance of representative choral repertoire with a consideration of the composers' creative aims and styles. Audition required. *Lab* 3, *Cr* 1. MR. NIVEN

***15. 16. Orchestra.***—The rehearsal and performance of symphonic works. Audition required. *Lab* 2, Cr 1. MR. GROTH

***23. 24. Advanced Instrumental and Vocal Ensemble.***—A course in the study and performance of chamber music. Audition required. *Lab* 2, *Cr* 1. MR. GROTH, MR. NIVEN AND MR. SLEEPER

### Applied Courses

The University provides applied music instruction through an affiliation with the Northern Conservatory of Music in Bangor.

A maximum of eight hours of credit is allowed for applied music. Repetition of these courses is therefore permitted, with the requisite variation and progress in technical and literary material; but, generally, whatever number of hours is credited must be paralleled by at least an equal number of hours in music theory and aesthetics. The University provides, so far as possible, practice opportunity for students who desire to take applied courses without credit.

***21. 22. Private Lessons in Instruments and Voice.***—One hour lesson weekly, $60.00. *Cr* 2. One-half hour lesson weekly, $30.00. *Cr* 1.

Many students schedule one hour weekly lessons, even though working for one credit hour, in order to have the advantage of added instruction from the teacher. This is advisable if the student is able to meet the expense.

***25. 26. Instrument and Voice Foundation Studies.***—Tone production and technique through class instruction. Instruction is offered in voice, piano, and strings. Permission of the instructor required. Two class hours and three practice hours weekly. No additional fee charged. *Cr* 1. THE STAFF

The practice requirements are one hour daily for five days each week for one credit, and two hours daily for two credits. The semester is fifteen weeks for applied music study. Practice facilities are provided on the campus.

For the use of the University instruments and practice rooms, fees are charged as follows for a daily practice hour five days a week: Organ, $15.00; all other instruments, $5.00. The fee for additional practice hours is prorated.

## THE SCHOOL OF NURSING

PROFESSOR MACLEAN, Director

The four-year program of the School of Nursing combines liberal arts education and sound professional preparation. Upon completion of the course, students will receive the Bachelor of Science degree from the University and will be eligible to take State Board Examinations for licensure as Registered Nurses.

For details of the program, please write to the School of Nursing, 22 Merrill Hall.

## PHILOSOPHY

PROFESSORS LEVINSON AND VIRTUE

Philosophy is man's attempt at a total understanding of himself and his world. Gathering the accumulated light of human experience on all levels—historical, scientific, religious, moral, artistic—it seeks to discover the most general truths and principles, and to organize them into a pattern of enlightened and harmonious living.

The Department offers two general introductory courses: Pl 1. 2, Philosophy and Modern Life, and Pl 11. 12, History of Philosophy, and two other beginning courses of a more specialized nature, Pl 35, Logic, and Pl 36, Ethics. Juniors and seniors in high standing, whose needs are not met by other offerings, may apply for admission to Pl 65. 66, Topics in Philosophy.

***1. 2. Philosophy and Modern Life.***—Some of the basic problems, per-

sonal and cultural, confronting every thoughtful individual: What is the nature of man, and what sort of universe surrounds him? What are the ways of knowing oneself and the universe, and by what general principles should one live? *Cr* 3.
MR. VIRTUE

***11, 12 (111, 112). History of Philosophy.***—A genetic study of the philosophical ideas that have been most vital to the culture of the Western World from the ancient Greek and the medieval Christian up to the present conflict of ideals. *Cr* 3.
MR. LEVINSON

†***15. Our Religious Heritage.***—The Hebrew-Christian tradition as expressed in Judaism, Catholic and Protestant Christianity. *Cr* 2.
MR. VIRTUE

***16. The Philosophy of Religion.***—The meaning of religion in human experience: faith and reason; conceptions of God; the nature and destiny of man. *Cr* 2.
MR. VIRTUE

‡***17. Religions of the East.***—The development of religion from primitive, barbaric, and nationalistic beginnings; the religions of China, Southeast Asia, and India; Islam and the Near East. The scriptures, founders, modes of worship, and ethics of each of the major Eastern religions. *Cr* 2.
MR. VIRTUE

***33. Aesthetics.***—The general principles underlying aesthetic experience, brought to special focus in the field of literature. Attention will be paid to philosophical poetry. When not given, see Pl 65, 66. *Cr* 3.
MR. LEVINSON

***35 (135). Logic.***—A practical introduction to the principles of clear and straight thinking; the relations between language and meaning; the structure of logical reasoning in formal argument (the syllogism) and in science. *Cr* 3.
MR. VIRTUE

***36 (136). Ethics.***—A critical study of the basic principles of ethical judgment, as presented in the writings of the major ethicists of the western world. *Cr* 3.
MR. VIRTUE

***65, 66 (165, 166). Topics in Philosophy.***—Individual and small group study of the philosophic aspects of problems of special concern to the student. Groups likely to be maintained in such subjects as Aesthetics, Philosophy of Science, Philosophy in Literature, and special periods and types of philosophy. *Cr, Arr.*
MR. LEVINSON

Offered occasionally: **22. Readings in Philosophy; 40 (140). American Thought; 54. Man and the Social Order; 62. Recent Philosophy.**

## PHYSICS

PROFESSORS BENNETT, CROFUTT, AND BISCOE; ASSOCIATE PROFESSORS COFFIN, AND KRUEGER; ASSISTANT PROFESSORS TODD, WYLIE, THOMAS, AND CARR; MR. RILEY; MR. HARTT, MR. KEENE, MR. RICH, AND MR. RUTA

The Department offers major work leading to the degree of Bachelor of Arts in Physics in the College of Arts and Sciences, and also major work leading to the degree of Bachelor of Science in Engineering Physics in the College of Technology.

The following courses should be taken by all candidates for the B.A. degree: Ps 1; 2, (or 1a; 2a), 17. 18, 53, 55, 62, 69, 72, 76, along with Ms 1, 3, 12, 27; 28. Additional courses in Physics and Mathematics should be considered as electives, subject to departmental approval.

**Students who plan to major in Physics should register for Mathematics**

**and Physics in the freshman year. This usually means the postponement of one of the required freshman courses for Arts and Sciences students.**

Fundamental training, which is adequate for secondary school teaching, is provided by Ps 1; 2 (or 1a; 2a) and 17. 18, along with mathematics through the calculus.

The following courses of the more descriptive variety are open to all students and have no prerequisites: Ps 3, 10, 31.

***1; 2. General Physics.***—The fundamentals of mechanics, matter, sound, heat, electricity, magnetism, light, and modern physics. The course meets the needs of engineering and science students. *Lec* with *Dem* 2, *Rec* 2, *Lab* 2, *Cr* 5.

MR. BENNETT AND STAFF

***1a; 2a. General Physics.***—The fundamentals of mechanics, sound, heat, electricity, magnetism, light, and modern physics. Same lectures as Ps 1; 2 but modified laboratory program with less emphasis on computations and more emphasis on discussion and graphical methods. Meets the needs of predental and premedical students. *Lec* with *Dem* 2, *Lab* 4, *Cr* 4.

MR. BENNETT, MR. KRUEGER, MR. TODD, MR. CARR

***3. Descriptive Physics.***—For the non-science student. A treatment in non-mathematical language of the more important topics in physics. Designed to develop an appreciation for the concepts, vocabulary, and methods of the science rather than a false sense of mastery. *Lec* with *Dem* 3, *Cr* 3.

MR. BENNETT AND MR. TODD

***6. Essentials of Physics.***—A one-semester general physics course designed primarily for students from the College of Agriculture. A condensation of Ps 1; 2 accomplished by a careful selection of the topics treated. *Lec* with *Dem* 3, *Lab* with *Discussion* 4. *Cr* 5. MR. COFFIN AND OTHERS

***10. Meteorology.***—The earth's atmosphere, composition, and movements. Atmospheric conditions accompanying changes in weather, and weather predictions. Air-mass analysis. The course may be followed by Course 61. *Rec* 3, *Cr* 3.

MR. TODD

***17. 18. Intermediate Physics.***—A more mathematical treatment with the calculus of many of the topics in Course 1; 2 or 1a; 2a, either of which is a prerequisite. (With special permission, students may register for this course under the number Ps 17a. 18a without laboratory for *three credit hours.*) *Lec* 2, *Comp* 2, *Lab* 2, *Cr* 4. MR. COFFIN AND OTHERS

***31. Photography.***—Fundamental theories and techniques. For the scientist and the amateur. Characteristics and use of various types of cameras, lenses, exposure and exposure meters, emulsions, filters, artificial lighting and copying, contact and projection printing, dark-room practice. *Rec* 2, *Lab* 3, *Cr* 3. MR. TODD

***36. Introductory Modern Physics for Engineers.***—Selected topics in molecular, atomic, electronic, and nuclear physics, intended to meet the needs of the present day Electrical Engineering student. Courses Ps 1; 2 and Ms 12 are prerequisite. *Rec* 3, *Cr* 3. MR. BISCOE

**Course 17. 18 (or the equivalent) and the calculus are prerequisite for the following advanced courses.**

***53 (153). Electrical Measurements.***—A third year laboratory course covering theories and practices in the measurement of electrical and magnetic quantities. *Lab* 4, *Cr* 2. MR. CROFUTT

***55 (155). Electricity and Magnetism.***—An advanced treatment of the

fundamental aspect of electrostatics, magnetism, electromagnetic phenomena, direct and alternating currents. *Rec* 3, *Cr* 3. MR. BISCOE

***61 (161). Advanced Meteorology.***—A more theoretical treatment than Course 10, combined with which the meteorology requirement for government service is satisfied. Not given every year. *Rec* 3, *Cr* 3. MR. TODD

***62 (162). Heat and Thermodynamics.***—Theoretical thermodynamics as applied to the measurement of temperature, specific heat, thermal expansion, conduction, convection, radiation, change of state. *Rec* 3, *Cr* 3. MR. CARR

***66 (166). Electronic and Thermionic Phenomena.***—Thermionic and photoelectric emission, electron optics, and other electronic phenomena. Applications of theory to the design of vacuum tubes. *Rec* 3, *Cr* 3. MR. CROFUTT

***69 (169). Modern Physics.***—Atomic, nuclear, and molecular physics. Includes atomic structure, X-rays, quantum concepts and spectroscopy. *Rec* 3, *Cr* 3. MR. KRUEGER

***70 (170). Nuclear Physics.***—Basic concepts, radioactivity, nuclear reactions, radiation detectors, particle accelerators, nuclear fission, and cosmic radiation. Tracer techniques and health physics may be considered. A more specialized course than Ps 69. May be taken without the Ps 18 prerequisite by departmental permission. *Rec* 2, *Cr* 3 *if taken with laboratory, or Cr* 2 *if taken without laboratory*. MR. WYLIE

***72 (172). Optics.***—A practical study of geometric optics including applications to optical instruments. Some attention is also given to physical optics and optical phenomena generally. *Rec* 3, *Cr* 3. MR. BENNETT

***76 (176). Physical Measurements.***—A third year laboratory course in which experiments are selected from various branches of physics. *Lab* 4, *Cr* 2. MR. CROFUTT

***81. 82 (181. 182). Advanced Laboratory Physics.***—Selected advanced experiments and projects in the field of Physics, for senior students. Opporunity is given to develop original ideas and to construct apparatus. Departmental approval required. *Lab* 6, *Cr* 3. MR. CARR, MR. CROFUTT, MR. KRUEGER, MR. THOMAS

***84 (184). Advanced Nuclear Physics.***—Extension of course 70 which is prerequisite. Special emphasis on nuclear forces, two-, three-, and four-body problems, high energy reactions, nuclear spin and magnetism, and multipole radiations. *Rec* 2, *Cr* 2. MR. WYLIE

***91. 92 (191. 192). Mathematical Physics.***—An advanced theoretical course which deals with the mathematical aspects of physics. Mathematics is treated as a tool in the analysis of physical problems. Analytical mechanics is emphasized the first semester; topics are selected from the whole field of physics in the second semester. *Rec* 3, *Cr* 3. MR. THOMAS

***98a. 98b. Physics Seminar.***—Oral and written reports on approved topics. Primarily for seniors. *Sem* 1, *Cr* ½. MR. BENNETT

***99. Problems in Physics.***—An undergraduate thesis project ordinarily of an experimental nature. *Cr, Ar* (1-3). THE STAFF

***237. Statistical Mechanics.***—Macroscopic properties of matter derived from a statistical consideration of microscopic properties of elementary systems. Relationships to Thermodynamics and Kinetic Theory are examined. Not offered every year. Prerequisite, Ps 62 and Differential Equations. *Rec* 3, *Cr* 3.

†***257. Electrodynamics.***—Basic phenomena in static, stationary, quasistationary, and rapidly varying electromagnetic fields are considered from the view point of Maxwell's equations. Classical electron dynamics and certain aspects of the interaction between the electromagnetic field and matter are examined. Not

offered every year. Prerequisite, Ps 55 and Differential Equations. *Rec* 3, *Cr* 3. MR. CARR

†***265. Quantum Theory.***—The physical concepts and mathematical methods currently used in problems dealing with atomic and sub-atomic Physics. A limited number of applications of these methods to physical phenomena will be considered. Not offered every year. Prerequisite, Ps 69 and Ps 91 and Differential Equations. *Rec* 3, *Cr* 3. MR. THOMAS

***291. 292. Special Topics in Theoretical or Experimental Physics.***—Subjects which may be studied under this heading depend upon current interests of students and staff and will ordinarily be in areas for which no formal courses are offered. Given on demand. *Cr, Arr.* THE STAFF

***293. Physical Optics and Wave Theory.***—Propagation of waves in periodic and continuous structures. Fresnel and Fraunhofer diffraction, Interference and Scattering Mathematical techniques will be examined. Not given every year. Prerequisite, Ps 72 and Ms 58. *Rec* 3, *Cr* 3. MR. KRUEGER

‡***294. X-Rays and Structure of Matter.***—Elementary diffraction theory applied to structure determinations of solids, liquids and gases. Experimental techniques will be discussed. Not offered every year. *Rec* 3, *Cr* 3. MR. BISCOE

‡***296. Introduction to Solid State Physics.***—Structure of free atoms. Nature of interatomic forces in the formation of solids, liquids, and molecules. Preperties of semi-conductors, insulators and metals as explained by simple Brillouin-zone theory. Correlation of theoretical concepts with experimental evidence. Prerequisite, Courses 69, 91, and Ms 58. Not offered every year. *Rec* 3, *Cr* 3. MR. KRUEGER

***299. Graduate Thesis.***—*Cr, Ar.* THE STAFF

### GRADUATE WORK IN PHYSICS

The degree of Master of Science is offered in Physics. See section on Graduate Study for detailed requirements. Although undergraduates in Physics from the University of Maine are often encouraged to do their graduate work elsewhere to broaden their outlook, an opportunity is afforded to outstanding college graduates to supplement their background with courses of a fundamental nature. In each case a program of courses is developed around an original investigation, the results of which are embodied in a thesis. Research facilities are available in such fields as optics, electricity, molecular physics and electronics, with special reference to optical properties of gases at high pressure, X-ray studies of molecular structure, physical optics, solid state physics, micro wave techniques, and electronic circuits. Several graduate assistantships are available in this department.

## PSYCHOLOGY

PROFESSORS GLANVILLE, ANTONITIS, BRUSH, AND QUINSEY; ASSOCIATE PROFESSORS BARNES, KISH, AND NICHOLS; ASSISTANT PROFESSOR BARON; LECTURER KAPLAN; MRS. BARON

The instruction offered by the Department of Psychology is designed to acquaint the student with psychology as a biological science and as a social science. The Department provides the student with training in both the principles and the applications of psychology.

The minimum requirement for a major in the Department is 24 hours which must include Py 1; 2 and Py 93. 94. All majors are required to take a written

comprehensive examination in the senior year over the advanced major work. Passing grades in all parts of the examination and an average of C in the examination are required for graduation.

Majors in the Department may elect a program in Family Life and Child Development, which is also available to majors in Home Economics and in Sociology. The common core curriculum for this program includes Fn 41, Cf 3, Py 1; 2, Py 67, Sy 13 or Sw 4, and Sy 59. Majors in the Department electing this program will be expected to take other recommended courses in each of the three cooperating departments.

The Department offers a counseling service for students in the College of Arts and Sciences and for other students by special request.

Py 1; 2, General Psychology, is a prerequisite for all advanced courses in the Department.

***1; 2. General Psychology.***—Survey of psychology as the science of behavior. Lecture discussion of major areas such as personality, intelligence, emotion, learning, etc.; laboratory introduction to tests and methods. Not open to freshmen. *Rec* 2, *Lec* 2, *Cr* 3. THE STAFF

***3. Applied Psychology.***—Applications to industry, business, advertising, salesmanship, and other fields. Survey of psychological methods and tests in the selection and training of workers. An introductory course open only to Mechanical and Civil Engineering students. *Cr* 2. MR. BRUSH

***5. Applied Psychology for Nurses.***—An introductory course for three-year nurses. *Cr* 2. MR. GLANVILLE

**Unless other prerequisites are stated, Course 1; 2 or the equivalent is prerequisite for the following advanced courses.**

***51 (151). Business and Industrial Psychology.***—Applications of psychological principles, facts, and research methods to problems of trait and proficiency measurement, selection, efficiency, training, accidents, motivation, and adjustment in business and industry. *Cr* 2. MR. ANTONITIS

***53. 54. Child Study Laboratory.***—Observation and study of a group of pre-school children. Individual projects, supplemented by reading and class discussions. Opportunity to assist in guiding the children's activities. *Rec* 1, *Lab* 4, *Cr* 3. MR. NICHOLS, MRS. BARON

***65 (165). Educational Psychology.***—The underlying psychological principles useful to the teacher. Problems of growth, intelligence, personality, social life, sex hygiene, and attitudes. Principles of effective learning. *Cr* 3. MR. QUINSEY, MR. ANTONITIS

***67 (167). Psychology of Childhood.***—A systematic study of the child's behavior and psychological development. Emphasis upon principles underlying development, methods of child study, and practical implications. *Cr* 3. MR. NICHOLS

***68 (168). Psychology of Adolescence.***—Adolescent development in the physical, intellectual, emotional, and social spheres. Adolescent personality and problems of adjustment in relation to the family, the school, the community, and the world of work. Delinquency and abnormality in adolescents. *Cr* 2. MR. BARNES

***69; 70 (169; 170). Experimental Psychology.***—First semester, techniques and objective approach to problems; second semester, techniques applied to practical problems, planning and conducting an original investigation by the student, and quantitative and statistical treatment of psychological data. *Rec* 1, *Lab* 4, *Cr* 3. MR. GLANVILLE

***71 (171). Abnormal Psychology.***—The origin, development, and manifestations of the psychoneuroses and major psychoses with a view to better understanding of adjustment. Emphasis on the biological and social determinants of maladjusted behavior. Prerequisite, Course 1; 2 with grade of C of better. *Cr* 3.
MR. KAPLAN, MR. KISH

***72 (172). Mental Hygiene.***—A consideration of the fundamental factors in human adjustment with emphasis upon the prevention of inadequate adjustments and upon the processes by which maladjusted individuals may be restored to normal living. Family and educational situations will be emphasized. *Cr* 3.
MR. GLANVILLE, MR. KISH

***76 (176). Social Psychology.***—The psychological principles which enter into the social behavior of man. Representative topics include culture and personality, crowd behavior, prejudice, and propaganda. *Cr* 3. MR. QUINSEY

***77 (177). Psychology of Personality.***—Current approaches to the study of normal personality. The development of personality as related to biological, psychological, and social factors. Prerequisite, Course 1; 2 with a grade of C or better. *Cr* 3. MR. BRUSH

***79 (179). Psychology of Learning.***—Basic principles that underlie the discovery, fixation, and retention of new modes of human behavior. Conditioned response learning, serial learning, memory and forgetting, transfer of training, thinking and problem solving, insight and concept formation, individual differences in learning. *Cr* 3. MR. BARON

***80 (180). Theories of Learning.***—An examination of the most important current psychological theories concerning the nature of the learning process including the behavioristic positions (Guthrie, Skinner, the Hullian group, Estes), Gestalt positions (Lewin, Tolman), and dynamic psychology (psycho-analysis). Applications of the theories will be made. *Cr* 3. MR. BARNES

***81 (181). Individual Psychological Testing.***—Intensive training in the administration of individual mental tests, with emphasis on the Revised Stanford-Binet Scale. Historical background and current problems in the theory and practice of testing. Prerequisite, permission of instructor. *Rec* 2, *Lab* 4, *Cr* 4.
MR. BRUSH

***82 (182). Introduction to Clinical Psychology.***—Training in the use and interpretation of psychological tests and related methods as applied in a clinical setting. A study of the work of the clinical psychologist. Prerequisite, Course 81. *Rec* 2, *Lab* 4, *Cr* 4. MR. BRUSH

***83 (183). Comparative Psychology.***—Principles of animal behavior in relation to corresponding processes in humans. Maturation, motivation, learning, social behavior, and abnormal behavior are considered. *Cr* 3. MR. BARON

***84 (184). Aptitude Testing.***—The use and interpretation of psychological tests and related techniques in vocational guidance and vocational selection. Occupational description and classification. Applications in such fields as business, industry, education, and public agencies. *Rec* 2, *Lab* 2, *Cr* 3. MR. QUINSEY

***86 (186). Physiological Psychology.***—Physiological bases of behavior with emphasis upon the development and function of the nervous system and the sense organs; the relation between psychological processes and physiological activity. Prerequisite, Course 1; 2 and a basic course in Zoology. *Cr* 3.
MR. NICHOLS

***89 (189). Psychological Methodology.***—An intermediate level survey of the various methods and techniques employed by psychologists in the evaluation

of data and the verification of hypotheses. Prerequisite, Py 69; 70 and Ms 19 or Ms 31. *Cr* 3. MR. BARNES

***91. 92 (191. 192). Problems in Psychology.***—Primarily for graduate students and seniors with grade of B or better. Opportunity to select and attack particular psychological problems under guidance. Admission by consent of head of the Department. *Cr, Ar.* MR. GLANVILLE AND STAFF

***91A. 92A (191A. 192A). Problems in Experimental Psychology.***—Prerequisite, Py 69; 70 and consent of the head of the Department. *Cr, Ar.* THE STAFF

***91B. 92B (191B. 192B). Problems in Psychometrics.***—Prerequisite, Py 81 and consent of the head of the Department. *Cr, Ar.* MR. BRUSH, MR. GLANVILLE

***91C. 92C (191C. 192C). Problems in Aptitude Testing and Counseling.***—Prerequisite, Py 84 and consent of the head of the Department. *Cr, Ar.* MR. QUINSEY

***91D. 92D (191D. 192D). Problems in Psychological Theory.***—Prerequisite, twelve hours in psychology with grade of B or better and consent of the head of the Department. *Cr, Ar.* THE STAFF

***93. 94 (193. 194). Seminar in Psychology.***—An historical account of the development of psychology. First semester, the development of psychological concepts and points of view prior to Wundt; second semester, the major modern systems and schools of psychology. Required of all psychology majors; open to others by permission of instructor. *Cr* 2. MR. GLANVILLE

***201. 202. Proseminar in General Psychology.***—Scientific method and theory construction in psychology; motivation; learning, sensory, perceptual, and physiological processes; personality; psychodynamics, psycho-therapy, and thought processes; psychogenetics and comparative psychology. Required of all graduate psychology majors. *Cr* 3. THE STAFF

***295. 296. Graduate Seminar.***—Reports and discussions of special problems and of recent developments in psychology based on the literature or on the results of current research. Required of all psychology graduate students while in residence. *Cr* ½. THE STAFF

***299. Graduate Thesis.***—*Cr, Ar.* THE STAFF

## GRADUATE WORK IN PSYCHOLOGY

The Department offers work leading to the Master of Arts degree, the general requirements for which are listed under Graduate Study. Candidates will be expected to have taken fundamental courses in psychology at the undergraduate level. The Department recommends that prospective candidates for graduate work acquire as undergraduates a background in the physical, biological, and social sciences and in statistics. A reading knowledge of at least one foreign language is desirable. Applicants are required to take the Graduate Record examination.

Graduate students who have not previously had a laboratory course in experimental psychology will be required to take Py 69; 70 as an aid in acquiring techniques of psychological research needed in the preparation of the required thesis. All graduate students are required to take Py 201. 202, and must enroll for Py 295. 296 during their entire period of residence.

Candidates will be expected to take a general program of work in psychology, but those who wish may specialize to some extent in child, clinical or experi-

mental psychology or in vocational selection and guidance. This specialization may be accomplished largely through problems courses and in the research embodied in the thesis.

## SPEECH

PROFESSOR GARDNER; ASSOCIATE PROFESSOR BRICKER; ASSISTANT PROFESSORS GILLESPIE, BARUSHOK, AND COOK; MR. BECKWITH*, MRS. MOWER, MR. ANDERSON, AND MR. MACLAUCHLIN

The major studies leading to a degree in speech or a degree in theatre are designed to provide a broad background of training and to allow some degree of specialization within a particular area. Courses required of all majors are Sh 3, 11, 21, 31, 32, 41, and 98. In addition, all majors are required to complete satisfactorily a three-hour course in four out of the five areas of speech (public speaking, theatre, radio, speech correction, and oral interpretation), plus nine more elective hours in the department. A platform test of proficiency in speaking and oral reading must be passed satisfactorily during the junior year.

All prospective majors should select Py 1; 2, General Psychology, as a part of the social science requirement, and those particularly interested in speech correction should elect Zo 3; 4, Animal Biology, to satisfy partially the natural science and mathematics requirement. Majors are expected to take advantage of the laboratory opportunities offered by the Department through the Debating Council, Masque Theatre, and Radio Guild (WORO).

Advanced courses recommended for majors who plan to teach are Sh 7, 15, 62, 81, 92, and 97, in addition to required courses in education.

The Department offers work leading to the Master of Arts in Speech as outlined in the general requirements for graduate work. A program will be selected from courses numbered 51 and above. Students will be admitted as candidates upon presentation of credentials indicating excellent undergraduate records. The Summer Session Bulletin should be consulted for special courses offered during the summer.

### Courses in Public Speaking

The Maine Debating Council offers practical experience in debate, discussion, oratory, and extemporaneous speaking through competition with other colleges and universities. All undergraduate students in the University may participate in the activities of the Council.

***1. Fundamentals of Public Speaking.***—An analysis of the problems of the beginning speaker—choice of subject, selection and arrangement of material, audience analysis, and delivery. Classroom experience in the preparation and delivery of short speeches. *Cr* 2. THE STAFF

***3. Advanced Public Speaking.***—Principles and methods of the composition and delivery of the types of speeches common to business and professional life with emphasis on analysis, materials, structure, and style. Prerequisite, Course 1. *Cr* 2. THE STAFF

***5. Group Discussion.***—The principles, methods, and types of democratic group procedure in problem-solving. Emphasis on preparing for, participating in, and leading group discussions. Class participation in the discussion of current issues. *Cr* 3. MR. GARDNER

* On leave of absence 1959-60.

***7. Debate.***—The principles of argumentation and debate with attention to analysis, evidence, reasoning, construction of cases, and refutation. Participation in debates on current issues constitutes part of the course. *Cr* 3. MR. GARDNER

***9. Parliamentary Procedure.***—Consideration of the principles and rules by which a group transacts its business. Training in such functions as drawing up a constitution, the presentation and disposition of motions, and serving as presiding officer. *Cr* 1. MR. GARDNER

***51. 52. Varsity Debate.***—An intensive study of the national proposition with active participation in intercollegiate debates. Limited to varsity debaters. Prerequisite, permission of instructor. *Cr* 1. MR. GARDNER

***55 (155). American Public Address.***—Consideration of the leading American speakers from colonial times to the present. A critical analysis of the invention, structure, and style of selected speeches. Limited to juniors and seniors. Prerequisite, Course 1. *Cr* 3. MR. GARDNER

***56 (156). Persuasion.***—An advanced study of the problems involved in influencing an audience. Consideration of such factors as mental attitudes, attention, rationalization, adaptation, suggestion, and motivation. Limited to juniors and seniors. Prerequisite, Course 1. *Cr* 3. MR. GARDNER

### Courses in Theatre

The Maine Masque Theatre presents four major productions each year and serves as a practical training ground in theatre. All undergraduate students in the University are eligible to read for plays to be produced and may participate in the other areas of the Theatre.

***11. Theatre Today.***—An introduction to the contemporary American theatre and its place in society. Consideration is given to present conditions in the educational, community, and professional theatre; to dramatic theory, play construction, styles in drama, and criticism as these apply to play presentation. *Cr* 2. MR. BRICKER

***15. 16. Play Production.***—A foundation for advanced courses and for students wishing to direct high school plays or to participate in community theatre. Fall semester: theatre organization, the director's analysis of a play, make-up, and directing. Spring semester: fundamentals of stagecraft, scene designing, costuming, and lighting. *Cr* 3. MR. BRICKER

***17. Acting.***—A study of acting techniques. A practical approach to the problem of creating, rehearsing, and presenting a role. *Lab* 4, *Cr* 3. MR. BRICKER

†***62(162). Theatrical Backgrounds of the Drama.***—The literature, dramatic theory, and conventions of the theatre from Aeschylus to Arthur Miller. Limited to juniors and seniors. *Cr* 3. MR. BARUSHOK

†***63 (163). Scene Designing and Lighting.***—Principles of scene designing and lighting. Limited to juniors and seniors. Prerequisite, Course 16. *Cr* 2. MR. BRICKER

***65. Costume.***—A study of costume design for all the great periods of drama. Limited to juniors and seniors. Prerequisite, Course 16. *Cr* 2. MR. BRICKER

***67. Theatre Laboratory.***—Advanced work in one or more of the following divisions: **67a. Acting; 67b. Designing; 67c. Costuming; 67d. Lighting; 67e. Directing; 67f. Make-Up.** Students are not permitted to take more than six hours of work in this course. Limited to juniors and seniors. Prerequisite, permission of instructor. *Lab* 3, *Cr* 2. MR. BRICKER

‡*68 (168). Creative Theatre.*—Principles, methods, and techniques used in choosing plots, guiding dialogue and action, and producing drama, including the "child-made" play. Creative dramatics in the classroom, the church, summer camps, and on the playground. Limited to juniors and seniors. *Cr* 2.

MR. BRICKER

*70 (170). Stage Directing.*—The principles of stage direction in theory and practice, with emphasis on ethics and aesthetics. Limited to juniors and seniors. Prerequisite, Course 15. 16, and permission of instructor. *Cr* 3.

MR. BRICKER

### Courses in Radio and Television

The Maine Radio Guild, a departmental workshop organization open to all students in the University, provides practical radio experience over campus station WORO. Students have the opportunity to compete for staff positions and program assignments.

*21. Introduction to Radio and Television.*—Survey of the nature of the broadcasting media, history and influence, network and station organization, regulations, and types of programs. *Cr* 2. MR. MACLAUCHLIN

*22. Radio Speaking.*—The adaptation of the skills of speech to the microphone. Introductory laboratory experience in radio speech situations. *Rec* 1, *Lab* 2, *Cr* 2. MR. MACLAUCHLIN

*25. Radio Workshop.*—Radio experience in the broadcast activities of WORO in such areas as production, programming, writing, sales, traffic, and engineering. Prerequisite, Course 21, Course 22, and permission of instructor. *Cr* 1.

MR. MACLAUCHLIN

‡*71 (171). Writing for Broadcast.*—An analysis of the problems involved in writing for radio and television. The preparation of different forms of continuity copy and the creation of various types of programs. Limited to juniors and seniors. Prerequisite, Course 21, or permission of instructor. *Cr* 3.

MR. MACLAUCHLIN

†*72 (172). Broadcast Procedures.*—The techniques of broadcast production with particular emphasis upon the treatment of sound, music, and speech in the preparation of radio programs. Limited to juniors and seniors. Prerequisite, Course 21. *Rec* 2, *Lab* 2, *Cr* 3. MR. MACLAUCHLIN

†*73 (173). Broadcast Production.*—Problems of the director and production staff in the preparation for broadcast of various types of programs, including documentaries and dramas. Limited to juniors and seniors. Prerequisite, Course 72. *Rec* 2, *Lab* 2, *Cr* 3. MR. MACLAUCHLIN

‡*74 (174). Broadcast Programming.*—The problems in planning, preparing, and scheduling programs for radio and television—audience and market analysis, standards of evaluation, planning procedures, program ratings, and station policy. Limited to juniors and seniors. Prerequisite, Course 21. *Cr* 3.

MR. MACLAUCHLIN

‡*77 (177). Teaching by Radio and Television.*—Values and potentials of radio and television in education: program analysis and evaluation; in-school and out-of-school uses; and methods and techniques of producing the educational program. Limited to juniors and seniors. *Cr* 3. MR. MACLAUCHLIN

### Courses in Speech Correction

*0. Remedial Speech.*—An analysis of the student's personal speech problems followed by an intensive program of training designed to increase oral

effectiveness. Prerequisite, permission of instructor. *Cr* 0. MR. GILLESPIE

***31. Voice and Diction.***—Designed to establsh good speech habits through an understanding of and instruction in the development, care, and use of the speaking voice. *Cr* 2. MR. GILLESPIE, MRS. MOWER

***32. Introduction to Phonetics.***—A study of the sounds of the English language and the symbols of the International Phonetic Alphabet which represent them. Emphasis will be placed upon the auditory recognition and the phonetic transcription of the sounds as they occur in connected speech. *Cr* 1. MR. GILLESPIE

***81 (181). Introduction to Speech Correction.***—A survey of the symptoms and causes of voice and articulation defects with training in the recognition, diagnosis, and treatment of minor speech problems. Recommended for prospective teachers. Limited to juniors and seniors. *Cr* 3. MR. GILLESPIE

***82 (182). Speech Correction Methods.***—Further study of the causes of speech disorders with emphasis given to methods of therapy used at the classroom level. Supervised planning of actual therapy sessions will constitute a portion of the course. Prerequisite, Course 81. *Cr* 3. MR. GILLESPIE

***85, 86 (185, 186). Problems in Functional Speech Defects.***—Detailed study of a functional speech problem followed by the planning and administration of remedial speech procedures. Weekly remedial sessions, conferences with the instructor, and special library study. Prerequisite, Course 82. *Cr* 1. MR. GILLESPIE

### Courses in Oral Interpretation

***41. Fundamentals of Interpretation.***—An introduction to the art of interpretation in order to stimulate an understanding and responsiveness to literature and to develop the ability to convey to others, through oral reading, an appreciation of that literature. *Cr* 2. MR. BARUSHOK

***92 (192). Advanced Oral Interpretation.***—Consideration of the particular problems involved in the oral reading of each of the following: (1) prose, (2) poetry, and (3) drama. Limited to juniors and seniors. Prerequisite, Course 41. *Cr* 3. MR. BARUSHOK

### General Courses

***95, 96 (195, 196). Problems in Speech.***—For the advanced student desiring to study a particular problem of his own choice under the guidance of a member of the staff. Prerequisite, permission of the Head of the Department. *Cr* 2. THE STAFF

†***97 (197). Teaching of Speech.***—Problems, methods, and materials related to the teaching of speech in the secondary school. Particular attention to the extracurricular speech program. Limited to juniors and seniors. Prerequisite, permission of the instructor *Cr* 3. MR. GARDNER

***98 (198). Seminar in Speech.***—Oral and written reports by class members. Required of all senior majors. Prerequisite, permission of the instructor. *Cr* 2. MR. GARDNER

***299. Graduate Thesis.***—*Cr, Ar.*

## ZOOLOGY

PROFESSORS SPEICHER, MURRAY, EVERHART, AND MEYER; ASSOCIATE PROFESSORS BARDEN, AND FLYNN; ASSISTANT PROFESSORS MAJOR, AND SASS; DR. ZUSI; DR. K. G. SPEICHER; MR. CORBEIL, MR. NELSON, MR. SALVIO, MR. SIBO

Zoology, being the study of animal life, is important to an understanding of the relationship of man to his natural environment. It also serves as a basis for the study of mental and social behavior.

Students majoring in Zoology take between 38 and 48 hours in this field but may include in the total Bt 45. 46, Genetics; By 52, Pathogenic Bacteriology, and En 26, General Entomology. Organic Chemistry and General Physics are taken by all zoology majors.

The Department offers curricula which satisfy the admission requirements of graduate, medical, dental, and medical technology schools. Premedical students follow a program which includes a minimum of 48 hours of Chemistry and Biology combined, including certain specified courses.

Either Zoology 1 and Botany 1, or Zoology 3; 4, are prerequisite to all advanced courses in the Department.

***1. General Zoology.***—A basic one-semester course. Fundamental principles and a brief survey of the animal kingdom illustrated by laboratory studies on a few of the major types of animals with emphasis on the mammals. Repeated each semester. *Lec* 2, *Lab* 4, *Cr* 4. MR. BARDEN AND STAFF

***3; 4. Animal Biology.***—A basic two-semester course. The first semester emphasizes the lower forms of animals, and the second the general principles of life with particular reference to the human. *Lec* 2, *Lab* 4, *Cr* 4.
MR. SPEICHER, MR. MEYER, AND STAFF

***5. Anatomy and Physiology for Nurses.***—The general principles of animal life, emphasizing the structure and functions of the human body. Restricted to three-year student nurses. *Lec* 3, *Lab* 4, *Cr* 5. MR. SASS AND STAFF

***8. Anatomy and Physiology.***—The general principles of animal life, with emphasis on the structure and functions of the human body. *Lec* 2, *Rec* 1, *Lab* 2, *Cr* 4. MR. SASS AND STAFF

***8a. Anatomy and Physiology.***—Similar to Course 8, with additional time for laboratory. For students in the School of Nursing. *Lec* 2, *Rec* 1, *Lab* 4, *Cr* 5.
MR. SASS AND STAFF

***12. Organic Evolution.***—The biological development of higher forms of life from the simpler, the evidences which support this fact and the processes which bring it about. Open to all non-majors above freshman standing. Not given every year. *Lec* 2, *Cr* 2. MR. SPEICHER

***32 (132). Ichthyology.***—The characteristics of fishes, their life histories and economic importance, with emphasis on fresh-water species. Lectures, supplemented by laboratory study and dissection. *Lec* 2, *Lab* 4, *Cr* 4. MR. EVERHART

***33 (133). Comparative Anatomy.***—The structure, origin, and history of the vertebrate organ-systems. Prerequisite, Zoology 1 and Botany 1 or Zoology 3; 4. *Lec* 2, *Lab* 4, *Cr* 4. MR. FLYNN

***36 (136). Vertebrate Embryology.***—The development and formation of tissues, organs, and organ-systems in vertebrates. *Lec* 2, *Lab* 4, *Cr* 4. MR. FLYNN

†***37 (137). Comparative Embryology.***—A comprehensive approach to the early embryological phases of selected invertebrate and vertebrate forms, with emphasis on living development and embryological techniques. Prerequisite, two years of Zoology. Not offered in 1959-60. *Lec* 2, *Lab* 4, *Cr* 4.

***39 (139). Mammalogy.***—The characteristics of mammals, their life histories and economic importance. Lectures supplemented by laboratory study of skins and mounted specimens. *Lec* 2, *Lab* 3, *Cr* 3. MR. BARDEN

***51 (151). Histology.***—Microscopic anatomy of animal tissues and methods of preparing microscopic slides. *Lec* 2, *Lab* 4, *Cr* 4. MR. SPEICHER

***53 (153). Invertebrate Zoology.***—The morphology, physiology, life histories, phylogenetic relationship, and economic importance of invertebrates exclusive of insects. *Lec* 2, *Lab* 4, *Cr* 4. MR. MEYER

***58 (158). Animal Parasitology.***—The life histories, economic importance, methods of control, host autopsy and the preparation of parasites for study and identification. *Lec* 2, *Lab* 4, *Cr* 4. MR. MEYER

***60 (160). Ornithology.***—The characteristics of birds, their life histories and economic importance. Lectures, laboratory study of skins and mounted specimens, and field identifications. *Lec* 2, *Lab* 4, *Cr* 4. MR. BARDEN

***63 (163). Principles of Genetics.***—The nature of hereditary factors and the mechanisms which control their transmission. Prerequisite, Zoology 3; 4. *Lec* 3, *Cr* 3. MRS. SPEICHER

***71 (171). Fish Management.***—Modern methods of fish management including propagation and distribution, fisheries legislation, biological surveys, and environmental improvements. Prerequisite, Zoology 32 and Entomology 26. *Lec* 2, *Lab* 4, *Cr* 4. MR. EVERHART

***77 (177). Animal Physiology.***—Physiological processes in vertebrates with emphasis on the integration of organ systems. Prerequisite, Zo 33 and at least one year of chemistry. *Lec* 2, *Lab* 4, *Cr* 4. MR. MAJOR

***78 (178). General Physiology.***—The vital phenomena common to all organisms. Membrane properties are treated at length. Prerequisite, Zo 77 and Organic Chemistry. *Lec* 2, *Lab* 4, *Cr* 4. MR. MAJOR

***87. 88. Problems in Zoology.***—Open to juniors and seniors who have special interest and qualifications in some branch of zoology. Admission by permission of the instructor concerned. *Cr, Ar.* THE STAFF

***95. 96. Zoology Seminar.***—Oral reports and discussion by class members. The first semester is usually devoted to the study of general endocrinology; the second to approved zoological topics. Required of all senior majors. *Rec* 2, *Cr* 1. MR. FLYNN

## GRADUATE STUDY IN ZOOLOGY

The Department offers work leading to the degree of Master of Science, the general requirements for which are listed under Graduate Study. The program normally requires four semesters, of which at least two must be spent in residence.

A reading knowledge of French or German, preferably the latter, is a requirement for the advanced degree. In the major field, all courses numbered 200 or over are given primarily for graduate credit. All courses numbered 100 to 200 may likewise be taken for graduate credit, with the added requirement of an assigned problem in the subject. Students may be required to take, without graduate credit, certain undergraduate courses which they lack.

Specific fields of interest for thesis subjects include cytology, ecology, fishery biology, general physiology, genetics, invertebrate zoology, and parasitology.

### Graduate Courses in Zoology

†*237.* ***Experimental Embryology.***—Analysis of cell multiplication, organogenesis and growth in embryonic systems. Integration with regeneration, normal and abnormal tissue growth and autonomous single cell organisms. Prerequisite, Zoology 36, or permission of instructor. *Rec* 2, *Lab* 4, *Cr* 4.

†*252.* ***General Cytology.***—The problems of cell structure, cell division and the interrelation of cytology and genetics. Prerequisite, Zoology 51 and genetics, or permission of instructor. *Lec* 2, *Lab* 4, *Cr* 4. MR. SPEICHER

‡*255.* ***Faunistic Zoology.***—The collection, preservation, and identification of fresh-water and terrestrial invertebrates (exclusive of insects) and of lower vertebrates; habits and life histories of selected forms. Prerequisite, Zoology 53 or permission of instructor. *Lec* 2, *Lab* 4, *Cr* 4. MR. MEYER

‡*256.* ***Animal Ecology.***—The interrelationships between animals and their physical and biotic environment. Topics include essentials of existence, food, reproduction, populations, communities, migration, distribution, succession, rhythms, adaptations and applications. Prerequisite, Zoology 255 or permission of instructor. *Lec* 2, *Lab* 4, *Cr* 4. MR. BARDEN

†*280.* ***Comparative Physiology.***—The physiological variations found in the animal kingdom and an interpretation of these variations in terms of evolutionary significance, anatomical changes and ecological conditions. The laboratory stresses general procedures and individual problems. Prerequisite, Zoology 77 or permission of instructor. *Lec* 2, *Lab* 4, *Cr* 4. MR. MAJOR

### Graduate Problems

*258.* ***Problems in Parasitology.***—Prerequisite, Zoology 58. *Cr, Ar.* MR. MEYER

*260.* ***Problems in Ornithology.***—Prerequisite, Zoology 60. *Cr, Ar.* MR. BARDEN

*263.* ***Problems in Genetics.***—Prerequisite, Zoology 63 or Botany 45. *Cr, Ar.* MR. SPEICHER

*277.* ***Problems in Physiology.***—Prerequisite, Zoology 77. *Cr, Ar.* MR. MAJOR

*291. 292.* ***Problems in Zoology.***—*Cr, Ar.* THE STAFF

*299.* ***Graduate Thesis.***—*Cr* 6-10. THE STAFF

# College of Education

MARK R. SHIBLES, DEAN

# COLLEGE OF EDUCATION

The College of Education offers four-year programs designed for the preparation of elementary, junior and senior high school teachers; also teachers of physical education, athletics, health and recreation. Within the four-year undergraduate program a student may start his preparation for such positions as a specialist in reading, guidance counselor, principal, supervisor, and school administrator. These programs are usually completed during a period of graduate study.

Additional undergraduate programs leading to the bachelor's degree are available for students who are admitted to the College of Education with advanced standing from institutions which prepare students for teaching in such special areas as art, music, and business education.

The College of Education also provides instruction, on a service basis, in the professional subjects essential to the preparation for teaching, to undergraduate students from other divisions of the University and also for students registered with the Faculty of Graduate Study.

## GENERAL INFORMATION

The College of Education concerns itself only with those students who are planning for a career in the field of education. All of its undergraduate programs are designed so that each student will include a substantial amount of college work in the humanities, a concentration of academic work closely related to the area of special teaching interest, and basic professional work in education and psychology. No undergraduate student in the College of Education will be recommended for a degree until he has fulfilled these requirements.

### ADMISSION

Students are ordinarily admitted to the College of Education as first-year students in the four-year program. The specific admission requirements are given on page 27 of this catalog. Any deficiencies in these requirements must be made up during the student's first two years. A student admitted with advanced standing must satisfy all basic entrance requirements during his first year in the College of Education.

### DESCRIPTION OF THE FOUR-YEAR PROGRAM

The booklet, "A Four-Year Program in the College of Education," describing in detail the special requirements in general education, the courses needed for the development of various teaching fields, and the required work in professional education, has been prepared for students who desire to enter education.

A copy of this booklet may be obtained by writing to the Director of Admissions or the Dean of the College of Education.

### ADMISSION WITH ADVANCED STANDING

Students from other institutions who have already completed a portion of a teacher-education program or who desire to change their professional plans and enter education are invited to apply for admission by transfer. Each such case will be considered on its own merits. When such students are accepted, they will be given advanced standing in the College of Education for work already com-

pleted which meets the established standards of quality and the specific course requirements of the program to which they are seeking admission.

The procedure for admission to advanced standing varies slightly according to the type of institution involved. This is explained below:

A. **From the Various Colleges of the University of Maine**

Students in the College of Arts and Sciences, Agriculture, and Technology who desire to change their professional or vocational plans and enter education may be accepted for transfer to the College of Education. (This does not apply to students who expect to teach agriculture or home economics. The direction of their professional work remains in the College of Agriculture.) When students from other Colleges of the University are admitted to the College of Education, work previously completed will be accepted insofar as it applies to the proposed program in the College of Education, and meets the minimum standards of quality established by the University.

Students from any other college of the University of Maine who desire to consider such a transfer are invited to consult with the Dean of the College of Education. The actual transfer is initiated by the student through the office of the Director of Admissions.

B. **From Institutions other than the University of Maine**

1. **Maine Normal Schools and Teachers Colleges.**—Undergraduate students from Maine normal schools and teachers colleges will be considered for admission by transfer with advanced standing provided they are recommended by the institution involved.

Graduates of the three-year courses in the normal schools who have had teaching experience, provided they have the recommendation of the institution, may be admitted to senior standing, and may be graduated on the satisfactory completion of one year of work. This program is ordinarily restricted to elementary school teachers, supervisors, and administrators who plan to remain in the elementary school field.

Normal school and teachers college students who are interested in entering the College of Education should request application forms from the Director of Admissions of the University.

2. **All other Institutions.**—Students who desire to transfer from another institution to the University of Maine for the purpose of preparing to teach should apply for admission to the College of Education. Initial correspondence concerning such admission should be with the Director of Admissions. Applicants accepted by transfer with advanced standing to the College of Education will be responsible for fulfilling the same general requirements are those students coming as freshmen directly from secondary schools.

**Summer Session, Correspondence, and Extension Class Students.**—Students whose only work to date in the College of Education has been, and those whose first work in the College of Education will be, in the summer session, by class extension, at the various Extension centers, or by correspondence, are strongly urged to apply for admission to the University exactly as they would if they expected to enroll for resident work during the regular school year. This recommendation applies both to students who expect to work for a degree in the College of Education and also those who have not yet fully decided on the matter.

Among the advantages which come to a student by reason of being admitted to the University are: Immediate assignment of a major adviser to counsel on registration, requirements, etc.; and eligibility for guidance and counseling service. Students who expect their work to be in the summer session should apply prior to their first registration; students whose first work is to be by class extension should apply during their first extension course.

Application for admission should be made directly to the Director of Admissions, University of Maine. (See sections immediately above.)

**Business Education.**—An arrangement has been made with the State Department of Education whereby graduates of the teacher-education departments of approved commercial schools may receive appropriate credit toward the degree of Bachelor of Science in Education.

**Art Education.**—Students who complete an approved three-year curriculum in the Portland School of Fine and Applied Art may transfer to the University with full credit and complete a curriculum which leads to the degree of Bachelor of Science in Education.

## GUIDANCE SERVICE FOR STUDENTS

A guidance and testing service is provided for all students enrolled in the College of Education. This service is briefly described below.

**Testing.**—Students admitted to the College of Education will be expected to take a series of tests, either prior to or immediately after their first registration in a regular session. These tests will cover general scholastic ability and achievement in broad academic fields. In addition, tests, scales, and inventories in such areas as personality, interests and aptitudes, will be available for those students who desire this service.

The results of these tests will be made known to the individual student through his adviser. These test results will be used by the adviser as a basis for counseling.

**Counseling.**—Immediately upon admittance to the College of Education each student is assigned a staff member to act as his major adviser. The major adviser will assist the student in the selection of a field of concentration, advise with him on the selection of specific courses, check registration and graduation requirements and counsel with personal and vocational problems.

## GRADUATION REQUIREMENTS

The completion of the required work of the College of Education leads to the degree of Bachelor of Science in Education (B.S. in Ed.).

A total of 128 semester hours of college work, exclusive of credit for basic military training, is required for graduation. In addition, each student must accumulate a total number of "grade points" equal to 1.8 times the number of hours in which he receives grades. Grade points are computed by multiplying each hour of the letter grade by a factor as follows: A by 4, B by 3, C by 2, and D by 1.

Included in the 128 semester hours required for graduation are minimum prescriptions of 42 hours in general education, 18 to 25 hours in professional subjects and 47 to 50 hours in the field of concentration. *Work in the professional subject and in the field of concentration must be carried with an average grade of C or better.*

**General Education Subjects Required.**—Information concerning the specific courses required in general education is available from the Office of the Dean. The subjects and amounts are:

| | |
|---|---|
| English | 12 credit hours |
| Speech | 2 credit hours |
| Social Studies | 8-10 credit hours |
| Science | 6-8 credit hours |
| Fine Arts | 6-10 credit hours |
| General Psychology | 6 credit hours |
| Elective in the above areas to total | 42 credit hours |

**Field of Concentration.**—For students preparing to teach in the junior and senior high schools, the College of Education has replaced the traditional single subject major with a *field of concentration* in two or more academic subjects commonly taught in the secondary school. This field of concentration must include a minimum of 42 to 50 semester hours. The exact amount required depends upon the number and character of the subjects combined and the quality of work done.

For students preparing to teach in the elementary school, the field of concentration shall consist of a minimum of 24 semester hours in one academic subject.

Students who expect to qualify to teach in such specialized fields as business education, art, music, and physical education will use the work in the special areas as their field of concentration. All such students, however, are urged (and in some cases required) to complete sufficient work in some general area to qualify them for *general* as well as *special* certification.

**All work taken in subjects included in the field of concentration must be carried with an average grade of C or better in order to qualify for a degree from the College of Education.**

In addition to their regular subjects, teachers generally participate in the direction of student activities such as music, debating, dramatics, clubs, and games. Each student in the College of Education should develop some proficiency in at least one of these fields.

**Professional Subjects Required.**—The professional subjects required for a degree from the College of Education also meet the current state requirements for a teaching certificate. Students who desire to qualify for general teaching in the junior and senior high school only are required to complete 18 to 20 credit hours in professional education subjects plus courses in general and educational psychology. Students who desire to qualify for general teaching in the elementary school are required to complete 25 to 27 credit hours in professional education plus general and educational psychology.

The required professional subjects are designed to acquaint the student with the general aims of education and the techniques and principles of teaching. These courses are arranged so that they culminate in the course, *Observation and Supervised Student Teaching*. Two plans are provided for this student teaching experience. In one, the student spends one half of each day for one semester in regular college work and the other half-day as a student teacher in a local school; under the second plan, the student spends full days in regular college work for one half of the semester, and full days as a student teacher in the public schools for the other half semester.

The sequence of courses for each plan for student teaching is given below.

## COLLEGE OF EDUCATION

### GENERAL SECONDARY ONLY

Plan I—Observation and Student Teaching for half days for full semester

Plan II—Observation and Student Teaching for full days for half semester

### Freshman Year

FALL SEMESTER

| | | | |
|---|---|---|---|
| Ed | A 2 | Orientation | 0 |

### Sophomore Year

| Plan I | | | | Plan II | | | |
|---|---|---|---|---|---|---|---|
| FALL SEMESTER | | | | FALL SEMESTER | | | |
| Py | 1 | Gen. Psych. | 3 hrs. | Py | 1 | Gen. Psych. | 3 hrs. |
| SPRING SEMESTER | | | | SPRING SEMESTER | | | |
| Py | 2 | Gen. Psych. | 3 hrs. | Py | 2 | Gen. Psych. | 3 hrs. |
| Ed | H 1 | Intro. to Ed. | 2 hrs. | Ed | H 1 | Intro. to Ed. | 2 hrs. |

### Junior Year

| Plan I | | | | Plan II | | | |
|---|---|---|---|---|---|---|---|
| FALL SEMESTER | | | | FALL SEMESTER | | | |
| Py | 65 | Ed. Psych. | 3 hrs. | Py | 65 | Ed. Psych. | 3 hrs. |
| SPRING SEMESTER | | | | SPRING SEMESTER | | | |
| Ed | C 1 | Sec. Sch. Curr. | 2 hrs. | Ed | M 6 | Prin. of Teach. | 2 hrs. |
| Ed | M 6 | Prin. of Teach. | 2 hrs. | (Ed H 1 and Py 65 are both prerequisites to Ed M 6) | | | |
| (Ed H 1 and Py 65 are both prerequisites to Ed M 6) | | | | | | | |
| *Ed | | | 2 to 4 hrs. | | | | |

### Senior Year

| Plan I | | | | Plan II | | | |
|---|---|---|---|---|---|---|---|
| FALL SEMESTER | | | | FALL SEMESTER | | | |
| *Ed | | | 2 to 6 hrs. | Ed | C 1 | Sec. Sch. Curr. | 2 hrs. |
| | | | | Ed | M 91 | Full-day Stud. Teach. (Sec.) | 8 hrs. |
| | | | | Ed | C 2 | Aud. Vis. Aids | 2 hrs. |
| | | | | Ed | A 21 | Meas. in Sec. Sch. | 2 hrs. |
| | | | | Ed | A 51 | Prin. & Tech. Guid. | 2 hrs. |
| SPRING SEMESTER | | | | | | | |
| *Ed | | | 2 to 6 hrs. | | | | |

*The following courses are to be taken during these three semesters, as follows:

A. Any of the three semesters:

| | | | |
|---|---|---|---|
| Ed | C 2 | Aud. Vis. Aids | 2 hrs. |
| Ed | A 21 | Meas. in Sec. Sch. | 2 hrs. |

B. Either semester of senior year:

| | | | |
|---|---|---|---|
| Ed | M 93 | Half-day Stud. Teach. (Sec.) | 6 hrs. |
| Ed | A 51 | Prin. & Tech. Guid. | 2 hrs. |

## GENERAL ELEMENTARY

Plan I—Observation and Student Teaching for half days for full semester

Plan II—Observation and Student Teaching for full days for half semester

### Sophomore Year

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| FALL SEMESTER | | | | FALL SEMESTER | | | |
| Py | 1 | Gen. Psych. | 3 hrs. | Py | 1 | Gen. Psych. | 3 hrs. |
| SPRING SEMESTER | | | | SPRING SEMESTER | | | |
| Py | 2 | Gen. Psych. | 3 hrs. | Py | 2 | Gen. Psych. | 3 hrs. |
| Ed | H 1 | Intro. to Ed. | 2 hrs. | Ed | H 1 | Intro. to Ed. | 2 hrs. |

### Junior Year

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| FALL SEMESTER | | | | FALL SEMESTER | | | |
| Py | 65 | Ed. Psych. | 3 hrs. | Py | 65 | Ed. Psych. | 3 hrs. |
| Ed M | 13 | Teach. Reading | 3 hrs. | Ed M | 13 | Teach. Reading | 3 hrs. |
| SPRING SEMESTER | | | | SPRING SEMESTER | | | |
| Ed M | 14 | Teach. Arith. | 3 hrs. | Ed M | 14 | Teach. Arith. | 3 hrs. |
| | | | | Ed A | 11 | Measurement in the Elem. Sch. | 2 hrs. |

### Senior Year

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| FALL SEMESTER | | | | FALL SEMESTER | | | |
| *Ed M | 92 | Half-day Stud. Teach. (Ele.) | 6 hrs. | Ed M | 15 | Teach. Social Studies in the Elem. Sch. | 3 hrs. |
| Ed M | 15 | Teach. Social Studies in the Elem. Sch. | 3 hrs. | Ed M | 90 | Full-day Stud. Teach. (Ele.) | 8 hrs. |
| Ed M | 16 | Teaching Science in the Elem. Sch. | 3 hrs. | Ed M | 16 | Teaching Science in the Elem. Sch. | 3 hrs. |
| Ed M | 7 | Teaching Music in the Elem. Sch. | 3 hrs. | Ed M | 7 | Teaching Music in the Elem. Sch. | 3 hrs. |
| SPRING SEMESTER | | | | SPRING SEMESTER | | | |
| *Ed M | 92 | Half-day Stud. Teach. | 6 hrs. | Ed M | 18 | Teach. Lang. Arts | 3 hrs. |
| Ed M | 18 | Teach. Lang. Arts | 3 hrs. | | | | |

Ed M 92 to be taken in either but not both of the semesters indicated.

Normally these courses are taken in the years indicated; however, a student who did not start this sequence during his sophomore year may still be admitted to the College of Education. Such students, when admitted, must complete these courses in sequence. It may be necessary for such students to use more than the normal eight semesters to satisfy graduation requirements.

Students whose work before entering the College of Education has been at an institution other than the University of Maine, will be expected to complete the above requirements, or their equivalent.

## RESIDENCE REQUIREMENTS

A minimum of thirty semester hours of credit must be earned while in residence at the University to qualify a candidate for a degree. This requirement may be met by one academic year of residence, or by attendance in summer sessions.

For students who are enrolled in correspondence, extension and summer session courses, the thirty hours of residence credit may be obtained over an extended period of time and need not be continuous; however, such candidates must enroll for the last six hours of credit on the campus. Work taken at the Extension Centers is considered resident credit for undergraduate students in the College of Education. Off-campus students, before enrolling for a correspondence or extension course, should ascertain from the Dean of the College of Education the amount of such work which is allowed toward fulfilling the requirements for the degree. In all cases, this requirement of thirty hours of residence work must be met after the student has become a candidate for a degree in the College of Education.

Exceptions to these rules will not be permitted except by a vote of the faculty.

## EDUCATION COURSES IN THE SUMMER SESSION, BY EXTENSION, OR CORRESPONDENCE

Numerous education courses are offered during the Summer Session, and by correspondence and class extension. Detailed information regarding the Summer Session and General Extension Courses may be obtained by communicating with the Director, Mark R. Shibles, College of Education, Orono, Maine.

## BUREAU OF EDUCATIONAL RESEARCH AND SERVICE

,Organized as an integral part of the College of Education, the Bureau of Educational Research and Service is available to render specialized service in connection with testing programs, surveys, and counseling, both on campus and to the schools of the State. Information concerning these services, including appointments and fees, may be obtained from the Director.

In addition to being available for consultation on special problems, the Bureau maintains the regular services listed below.

**Testing Service on the University Campus.**—An International Business Machine Test scoring machine is available for campus use with either standardized or informal tests. Sample tests and catalogs of test publishers are available for study by members of the University faculty. Answer sheets, scoring keys, special pencils, and other materials, as well as information booklets on the construction of informal tests for machine scoring, are carried in stock.

Scoring and reporting the results of Freshman Week Tests are also carried on by the Bureau.

**Testing Service Off-Campus.**—The Bureau is available for consultation by school officials of the State in planning testing programs. Arrangements may be made for scoring tests used in such programs. Basic materials for use with the International Business Machine scoring machine can be rented from the Bureau.

## AUDIO-VISUAL SERVICE

The Audio-Visual Service, under the auspices of the College of Education, maintains a lending library of educational motion pictures, and renders assistance in their selection and use. These materials and services are available to the schools of the State, responsible civic groups, student organizations, and campus classes at the University.

A small rental or service fee is charged for these materials when they are sent off campus; no fee is charged for their educational use on the campus. In

addition, projection equipment, and a staff of student operators, are available for campus use. A projection room, accommodating 65 people, is provided in Stevens Hall, South, for use when suitable classroom space is unavailable.

In order to assist in the selection and use of audio-visual teaching aids, interested persons are invited to inspect these materials, and also the catalogs and descriptive publications of the various manufacturers. The Office will be glad to arrange previews of any of its material.

Details of this service are contained in a separate bulletin which is available on request. For this bulletin, or other information, address the Office of the Director of Audio-Visual Service, Stevens Hall, South.

## CERTIFICATES FOR TEACHERS

It should be clearly understood that the State Department of Education has sole authority to issue certificates for teaching. The Office of the Dean of the College of Education, however, is in a position to advise prospective teachers concerning certificates.

In order to provide for the many types of school positions, the State Department issues several types of certificates. Most types of certificates are issued in three grades—Provisional Grade B, Provisional Grade A, and Standard—depending upon the amount and type of work presented by the applicant. The graduation requirements of the College of Education are established so that all students who are graduated from the College will meet or exceed the requirements for the Provisional Grade A certificate of the particular type involved.

In addition to furnishing courses for its own students, the College of Education acts as a service agency to provide professional training for students from other teaching units of the University who wish to qualify for a teaching certificate. Such students are enrolled in the same classes with students from the College of Education and if they follow the same pattern will receive the same grade certificate. This pattern is given on pages 174-175. Occasionally, students from other units of the University desire to qualify initially for the Provisional Grade B certificate. The 15 hours of basic work (Py 1, 2 and 65; Ed H 1, Ed C 1 and Ed M 6 meet the professional subject requirements for the General Secondary Provisional Grade B certificate. Students who wish to meet the requirements for the General Elementary Provisional Grade B certificate are required to complete 12 additional hours in courses in elementary school methods and materials. These 12 hours are made up of:

| | | |
|---|---|---|
| Ed M 13 | Teaching of Reading | 3 credit hours |
| Ed M 14 | Teaching of Arithmetic | 3 credit hours |

and 6 hours from among other courses in elementary school methods and materials. Students who expect to apply for the general secondary certificate must fulfill the requirement of a *teaching field*. This teaching field requirement refers to subjects or areas commonly taught in secondary schools and may be met by either of the following patterns:

### Pattern A

(1) A minimum of *twenty-four* semester credit hours in a subject field, excepting Latin or Mathematics which are recognized upon the completion of *eighteen* semester credit hours, together with (2) a minimum of *fifteen* semester credit hours in a second subject field *or* a minimum of *twelve* semester credit hours

each in not less than two additional subject fields, excepting Latin or Mathematics which are recognized upon the completion of *eight* semester credit hours.

### Pattern B

A minimum of *forty* semester credit hours within an area of specialization (i.e., social studies, English, science and mathematics, the sciences) in which at least three common subject fields are represented.

Information concerning requirements for certificates to teach in special fields such as art, music, commercial and physical education that differ from the above, may be obtained upon inquiry at the office of the College of Education.

Students who expect to obtain the general elementary certificate must satisfactorily complete a minimum of twenty-four semester credit hours in a subject field.

## PLACEMENT BUREAU FOR TEACHERS

The Placement Bureau for Teachers, described on page 19, is administered by the College of Education. It is designed to assist prospective teachers in placement and to facilitate promotion of teachers in service. Information regarding this service may be obtained from Teacher Placement Bureau, Room 22, Stevens Hall, South.

Younger students improve their reading habits at a Summer Clinic

## COURSES OF INSTRUCTION

*Courses numbered 1-99 are for undergraduates; courses numbered 200 and above are primarily for graduates. Courses numbered below 100 which have been approved for graduate credit are indicated by a graduate designation, in parentheses, after the regular course number.*

For descriptions of courses in Psychology required in programs in Education see page 158.

PROFESSORS SHIBLES, CRAWFORD, FOSTER, RANKIN, SUPPLE, AND DAVIS; ASSOCIATE PROFESSORS BERGESON AND FREEMAN; ASSISTANT PROFESSORS CARPENTER, MACCAMPBELL, FINK, OLSON, SANFORD, BAILEY, PORTER-SHIRLEY AND REARDON; MR. FOBES AND MR. MYERS

### Appraisal—Pupil Adjustment and Personnel Practices (Ed A)

***1 (101). Statistical Methods in Education.***—Use of statistical techniques as guides and controls in the solution of problems in education. *Cr* 3. [Formerly numbered Ed 40] MR. CRAWFORD

***11 (111). Measurement in the Elementary School.***—Philosophy, principles, and techniques of measuring in the elementary school. Tests for use in such areas as basic abilities, readiness, diagnosis, and achievement will be studied. *Cr* 2. [Formerly numbered Ed 41C] MR. FINK

***21 (121). Measurement in the Secondary School.***—Principles and techniques of measuring in the secondary school; methods for measuring basic abilities, aptitude, and achievement; practice in the construction of teacher-made and the selection of standardized tests. *Cr* 2. [Formerly numbered Ed 41F] MR. FINK

***31 (131). Use of Standard Tests.***—Selection, administration, interpretation, and use of standardized tests in Grades 1 through 12. *Cr* 2. [Formerly numbered Ed 42] MR. CRAWFORD, MR. FINK

***51 (151). Principles and Techniques of Guidance.***—Philosophy, current concepts, underlying principles, and essential elements of a guidance program; organization and administration of guidance programs. *Cr* 2. [Formerly numbered Ed 45] MR. FREEMAN, MR. SANFORD

***52 (152). Group Guidance.***—Analysis of the meaning of group experience. Examination and evaluation of guidance techniques, materials, and programs with groups at all grade levels. *Cr* 3. [Formerly numbered Ed 45A] MR. FREEMAN

***53 (153). Occupational and Educational Information.***—Sources and nature of occupational and educational information; collection, evaluation, and use of informational materials with individuals and groups. *Cr* 3. [Formerly numbered Ed 46] MR. FREEMAN, MR. SANFORD

***54 (154). Organization and Administration of Pupil Personnel Services.***—Scope and general character of pupil personnel services; the duties of the director, organization and administration of the program and the interrelationship and functioning of various aspects of the service. *Cr* 2. [Formerly numbered Ed 47] MR. SANFORD

***55 (155). Principles and Techniques of Counseling.***—The functions of the guidance counselor in educational-vocational-personal counseling; methods of gathering data and interviewing. *Cr* 3. [Formerly numbered Ed 48] MR. FREEMAN

### Curriculum and Instructional Materials (Ed C)

***1. Secondary School Curriculum.***—Development and present status of the curriculum of the American secondary school. Prerequisite, Ed H 1 or equivalent course. *Cr* 2. [Formerly numbered Ed 5]

MR. DAVIS, MR. MYERS, MR. FOSTER

***2 (102). Audio-Visual Instructional Materials.***—Production, selection, utilization, evaluation, and administration of audio-visual instructional materials; operation of selected types of equipment; assistance on specialized problems and projects. *Rec* 1, *Lab* 2, *Cr* 2. [Formerly numbered Ed 16]

MR. BERGESON, MR. REARDON

***11 (111). Planning the Elementary School Curriculum.***—Aims and philosophy of elementary education; present status of the curriculum; factors affecting curriculum changes, curriculum development and modern child psychology. *Cr* 3. [Formerly numbered Ed 20C] MR. MACCAMPBELL

***21 (121). Planning the Secondary School Curriculum.***—Plans of curriculum reorganization designed to bring the curriculum into harmony with needs of modern life. Prerequisite, Ed C 1 or equivalent course, or a year of teaching experience. *Cr* 3. [Formerly numbered Ed 25F] MR. FOSTER

### Graduate-Level Courses (Ed G)

***201. Seminar in Reading.***—Discussions and individual reports on problems related to better reading programs. Prerequisite, Ed M 13, Teaching Reading in the Elementary School, or Ed M 50, Newer Practices in Reading, or equivalent course. *Cr* 2. [Formerly numbered Ed 212A] MR. OLSON

***202. Seminar in Arithmetic.***—Study and reports on special problems in arithmetic instruction. Prerequisite, Ed M 51, Newer Practices in Arithmetic, or equivalent course. *Cr* 2. [Formerly numbered Ed 212B]

***203. Seminar in Social Studies (Elementary).***—Problems in the development of the curriculum, materials, resources, and methods of social studies in elementary schools. Prerequisite, Ed M 15, Teaching Social Studies in the Elementary School, or equivalent course. *Cr* 2. [Formerly numbered Ed 212C]

MR. FOSTER, MR. SUPPLE

***204. Seminar in Science (Elementary).***—Problems in curriculum, materials, resources, and methods of science in the elementary school. Prerequisite, Ed M 16, Teaching Science in the Elementary School, or equivalent course. *Cr* 2. [Formerly numbered Ed 212D] MR. DAVIS

***207. Seminar in Language Arts.***—Discussions and experiences designed to improve the practices and the background in Language Arts. Prerequisite, Ed M 18, Teaching Language Arts in the Elementary School. *Cr* 2. [Formerly numbered Ed 212G] MR. MACCAMPBELL

***215. Seminar in Methods of Teaching.***—Study and reports on specific problems in the area of teaching. Prerequisite, a basic course in methods or a year of teaching experience. *Cr* 2. [Formerly numbered Ed 215]

MR. BERGESON, MR. DAVIS, MR. MACCAMPBELL

***216. Seminar in Audio-Visual Aids.***—Special problems or projects in the field of audio-visual aids to instruction selected to meet the needs of the individual student. Prerequisite, Ed C 2, Audio-Visual Instructional Materials, or equivalent course. *Cr* 2. [Formerly numbered Ed 216] MR. BERGESON

***221. Seminar in Social Studies (Secondary).***—Problems in curriculum, materials, resources and methods in social studies in the secondary school. Pre-

requisite, Ed M 41, Teaching Social Studies in the Secondary School, or equivalent course. *Cr* 2. [Formerly numbered Ed 219C] MR. FOSTER, MR. SUPPLE

***222. Seminar in Science (Secondary).***—Problems in curriculum, materials, resources, and methods in science in the secondary school. Prerequisite, Ed M 42, Teaching Science in the Secondary School, or equivalent course. *Cr* 2. [Formerly numbered Ed 219D] MR. DAVIS

***231. Seminar in Elementary School Curriculum.***—Study and reports on specific problems in the field of curriculum construction and curriculum reorganization. Prerequisite, a basic course in the curriculum field or a year of teaching experience. *Cr* 2. [Formerly numbered Ed 220] MR. DAVIS, MR. MACCAMPBELL

***232. Seminar in Secondary School Curriculum.***—Study and reports on specific problems in the fields of curriculum construction and curriculum reorganization. Prerequisite, a basic course in the curriculum field or a year of teaching experience. *Cr* 2. [Formerly numbered Ed 220] MR. DAVIS

***241. Seminar in Supervision.***—Problems related to the improvement of instruction. In general, the problems studied will be determined by the needs of the class. Prerequisite, Ed L 1, Supervision of Instruction, or equivalent course, or administrative or supervisory school experience. *Cr* 2. [Formerly numbered Ed 230] MR. CARPENTER

***242. Seminar in School Administration.***—Problems related to the operation and control of the school. Prerequisite, Ed L 2, School Organization and Administration, or equivalent course, or administrative or supervisory school experience. *Cr* 2. [Formerly numbered Ed 250] MR. PORTER-SHIRLEY

***251. Seminar in Measurement and Evaluation.***—The use of measurement and evaluation in problems of improvement of instruction, pupil counseling and guidance, and research in education. Prerequisite, Ed A 11 Measurement in the Elementary School, or equivalent course. *Cr* 2. [Formerly numbered Ed 241] MR. CRAWFORD, MR. FINK

***261. Seminar in Guidance.***—Study of current problems in guidance and the development of individual projects in guidance activities. Prerequisite, Ed A 51, Principles and Techniques of Guidance, or equivalent course. *Cr* 2. [Formerly numbered Ed 245] MR. FREEMAN

***291. Graduate Apprenticeship.***—Apprenticeship training available in such areas as administration, supervision and guidance. A minimum of thirty clock hours of work is required for each hour of credit. *Cr* 2-6. [Formerly numbered Ed 208] MR. PORTER-SHIRLEY, MR. FREEMAN, MR. SANFORD

***299. The Thesis.***—Required of candidates for the Master of Arts or Master of Science degree. *Cr* 6. *Time arranged.* [Formerly numbered Ed 299] MR. CRAWFORD, MR. MACCAMPBELL

### History and Philosophy (Ed H)

***1. Introduction to Education.***—General aims and purposes of education in our society; the development of the American school system; organization, support, and control of education in the United States; education as a profession. *Cr* 2. [Formerly numbered Ed 4] MR. SUPPLE, MR. BAILEY

***51 (151). Education for Intercultural Understanding.***—Forces of international, racial, and religious conflict in contemporary community life; ways in which schools teach understanding of and adjustment to such cultural conflicts. *Cr* 3. [Formerly numbered Ed 82D] MR. FOSTER

### School Leadership (Ed L)

***1 (101). Supervision of Instruction.***—Nature and scope of democratic supervision; improvement of the teaching-learning situation; observational and evaluation techniques. *Cr* 3. [Formerly numbered Ed 30] MR. MACCAMPBELL

***2. (102). School Organization and Administration.***—Scope and general character of the American public school system; its organization and pattern of general control; selected problems in areas such as personnel policies, finance, reports, and public relations. *Cr* 3. [Formerly numbered Ed 50] MR. BAILEY

***11 (111). The Elementary School Principalship.***—Organization and administration of the elementary school with special emphasis upon the duties of the elementary school principal. *Cr* 3. [Formerly numbered Ed 51C] MR. MACCAMPBELL

***21 (121). The Secondary School Principalship.***—Organization and administration of the secondary school with special emphasis upon the duties of the secondary school principal. *Cr* 3. [Formerly numbered Ed 51F] MR. MACCAMPBELL

***31 (131). School Law.***—A study of the legal bases of public education in the State of Maine. *Cr* 2. [Formerly numbered Ed 56D] MR. BAILEY

### Methods (Ed M)

***6. Principles of Teaching.***—Methods and techniques of teaching; principles and routine of classroom management; discipline; planning for instruction. Prerequisite, Ed H 1, and Py 65, or equivalent courses. *Cr* 2. [Formerly numbered Ed 6] MR. MACCAMPBELL, MR. PORTER-SHIRLEY

***13. Teaching Reading in the Elementary School.***—General background for teaching reading in the elementary school; reading readiness, phonetics, seatwork, study skills, recreational reading, and testing. An introductory course. *Cr* 3. [Formerly numbered Ed 12A] MR. OLSON

***14 (114). Teaching Arithmetic in the Elementary School.***—The arithmetic curriculum in the elementary school; methods and techniques in teaching arithmetic; the arithmetic readiness program; instructional and evaluation material. An introductory course. *Cr* 3. [Formerly numbered Ed 12B]

***15 (115). Teaching Social Studies in the Elementary School.***—Methods and materials for social studies in the elementary school; ways of relating the work of the social studies class to the understanding of practical problems of the community. *Cr* 3. [Formerly numbered Ed 12C] MR. SUPPLE

***16 (116). Teaching Science in the Elementary School.***—Materials, methods, devices, and activities appropriate to the program of science in the elementary school. *Cr* 3. [Formerly numbered Ed 12D] MR. DAVIS

***17 (117). Teaching Literature in the Elementary School.***—Methods of teaching, selection and organization of the materials for literature in the elementary school. Special emphasis will be given to the problem of providing for individual needs. *Cr* 3. [Formerly numbered Ed 12F] MR. MACCAMPBELL

***18 (118). Teaching Language Arts in the Elementary School.***—Current methods and materials in teaching handwriting, spelling, oral and written composition; analysis and correction of basic difficulties; fusion of the language arts with other school subjects. *Cr* 3. [Formerly numbered Ed 12G] MR. MACCAMPBELL

***40 (140). Teaching Reading in the Secondary School.***—Appraisal of

reading achievement and needs; teaching reading and study skills in the content areas; survey of diagnostic and remedial programs in reading in the junior-senior high school. *Cr* 3. [Formerly numbered Ed 19A] MR. OLSON

***41 (141). Teaching Social Studies in the Secondary School.***—Current practices in teaching social studies; selection and use of instructional materials; modern trends in curriculum construction for social studies in the secondary school. *Cr* 3. [Formerly numbered Ed 19C] MR. FOSTER, MR. SUPPLE

***42 (142). Teaching Science in the Secondary School.***—Methods and materials in the teaching of science; development of the science curriculum, and equipment, supplies, and supplementary materials for science teaching in the secondary schools. *Cr* 3. [Formerly numbered Ed 19D] MR. DAVIS

***60 (160). Correction of Reading Difficulties in the Secondary School.***—Causes, diagnosis, and correction of reading difficulties; methods, materials, and procedures for corrective work, both group and individual. Grade 7 through 12. *Cr* 3. [Formerly numbered Ed 19R] MR. OLSON

### Observation and Student Teaching

The University's arrangements for Observation and Student Teaching are made semester by semester and are based upon actual need (number, subjects, grades, etc.).

The campus demand for this work has increased to the point where it has become necessary to require written permission from the Director of Student Teaching in order to pre-register for the Student Teaching courses. Normally, this written permission should be obtained during the pre-registration period.

***90 (190). Full-Day Student Teaching (Elementary).***—A full-day, off-campus internship program in a selected school for one half of the semester; a full-day, on-campus program of college courses is provided for the other half of the semester. *Cr* 8. [Formerly numbered Ed 7C] MR. PORTER-SHIRLEY, MR. CARPENTER, MR. BAILEY, MR. RANKIN, MR. MACCAMPBELL, MR. MYERS

***91 (191). Full-Day Student Teaching (Secondary).***—A full-day, off-campus internship program in a selected school for one half of the semester; a full-day, on-campus program of college courses is provided for the other half of the semester. *Cr* 8. [Formerly numbered Ed 7F] MR. PORTER-SHIRLEY, MR. CARPENTER, MR. BAILEY, MR. RANKIN, MR. MACCAMPBELL, MR. MYERS

***92 (192). Half-Day Student Teaching (Elementary).***—A half-day program of observation and student teaching in a selected school in the University area. The same four consecutive periods must be free daily in order to schedule this course. *Cr* 6. [Formerly numbered Ed 8C] MR. PORTER-SHIRLEY MR. CARPENTER, MR. BAILEY, MR. RANKIN, MR. MACCAMPBELL, MR. MYERS

***93 (193). Half-Day Student Teaching (Secondary).***—A half-day program of observation and student teaching in a selected school in the University area. The same four consecutive periods must be free daily in order to schedule this course. *Cr* 6. [Formerly numbered Ed 8F] MR. PORTER-SHIRLEY, MR. CARPENTER, MR. BAILEY, MR. RANKIN, MR. MACCAMPBELL, MR. MYERS

***94 (194). Supervised Student Teaching (Elementary).***—A limited program of observation, with some opportunity for supervised teaching available to students who cannot meet schedule requirements of Ed M 90 or Ed M 92. *Cr* 2. [Formerly numbered Ed 9C] MR. PORTER-SHIRLEY, MR. CARPENTER, MR. BAILEY, MR. RANKIN, MR. MACCAMPBELL, MR. MYERS

***95 (195). Supervised Student Teaching (Secondary).***—A limited pro-

gram of observation with some opportunity for supervised teaching available to students who cannot meet schedule requirements of Ed M 91 or Ed M 93. *Cr* 3. [Formerly numbered Ed 9F] MR. PORTER-SHIRLEY, MR. CARPENTER, MR. BAILEY, MR. RANKIN, MR. MACCAMPBELL, MR. MYERS

### General (Ed X)

***98 (198). Problems in Education.***—Individual work on a problem of the student's own selection. Primarily for majors in Education. *Cr, Ar.* [Formerly numbered Ed 98] MR. CRAWFORD

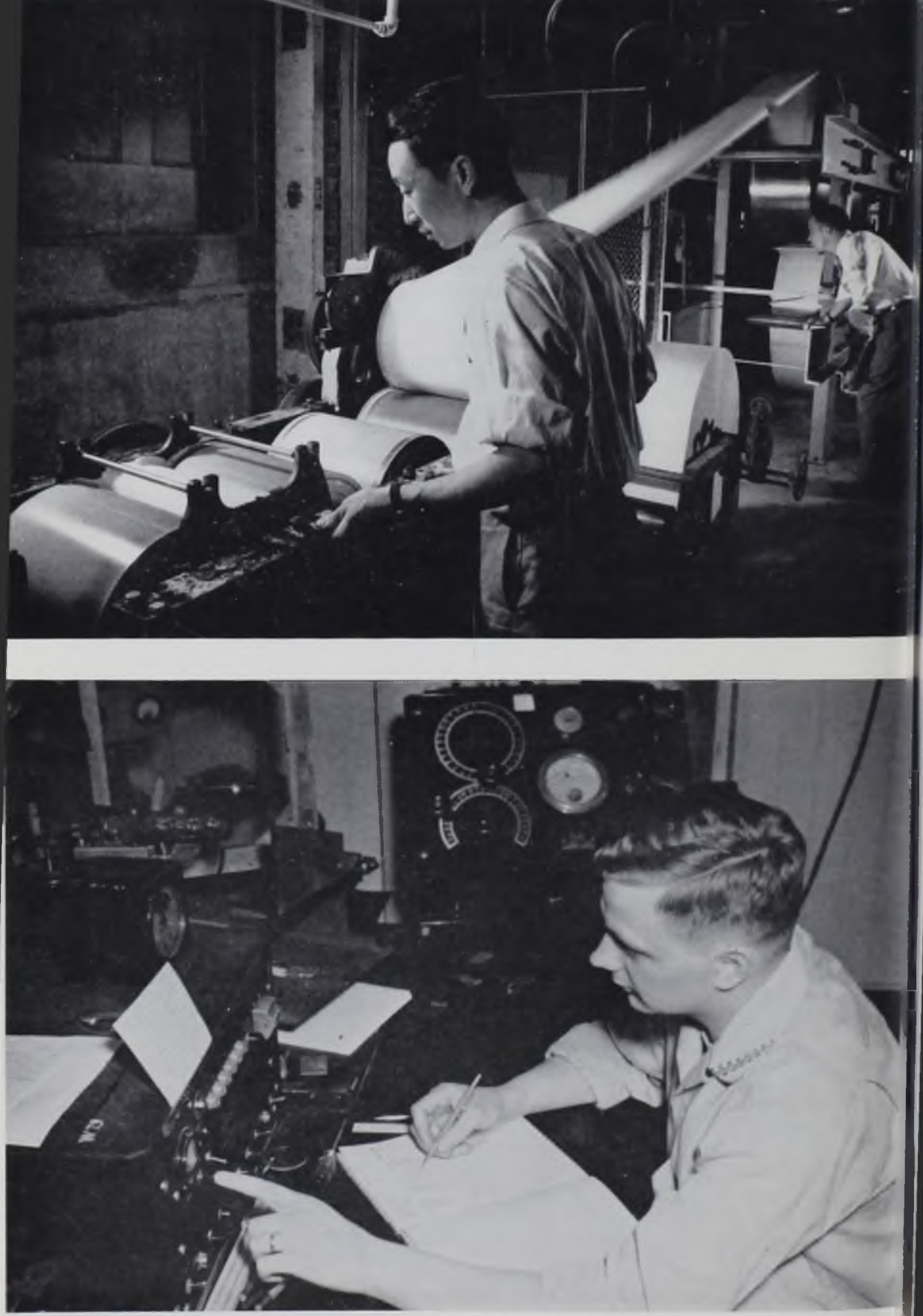
### New Numbering System

Effective July 1, 1959, course numbers were changed. Following is a list of courses which shows the old numbers and corresponding new numbers.

| OLD NUMBER | NEW NUMBER | TITLE |
|---|---|---|
| Ed 4 | Ed H1 | Introduction to Education |
| Ed 5 | Ed C1 | Secondary School Curriculum |
| Ed 6 | Ed M6 | Principles of Teaching |
| Ed 7C | Ed M90 | Full-Day Student Teaching (Elem.) |
| Ed 7F | Ed M91 | Full-Day Student Teaching (Sec.) |
| Ed 8C | Ed M92 | Half-Day Student Teaching (Elem.) |
| Ed 8F | Ed M93 | Half-Day Student Teaching (Sec.) |
| Ed 9C | Ed M94 | Supervised Student Teaching (Elem.) |
| Ed 9F | Ed M95 | Supervised Student Teaching (Sec.) |
| Ed 12A | Ed M13 | Teaching Reading in Elem. School |
| Ed 12B | Ed M14 | Teaching Arithmetic in Elem. School |
| Ed 12C | Ed M15 | Teaching Social Studies in Elem. School |
| Ed 12D | Ed M16 | Teaching Science in Elem. School |
| Ed 12F | Ed M17 | Teaching Literature in Elem. School |
| Ed 12G | Ed M18 | Teaching Lang. Arts in Elem. School |
| Ed 14B | Ed M51 | Newer Practices in Arithmetic |
| Ed 16 | Ed C2 | Audio-Visual Instruction Materials |
| Ed 19A | Ed M40 | Teaching Reading in Secondary School |
| Ed 19C | Ed M41 | Teaching Social Studies in Secondary School |
| Ed 19D | Ed M42 | Teaching Science in Secondary School |
| Ed 19R | Ed M60 | Correction of Reading Difficulties in Secondary School |
| Ed 20C | Ed C11 | Status and Trends of the Elementary School Curr. |
| Ed 25F | Ed C21 | Planning Secondary School Curriculum |
| Ed 30 | Ed L1 | Supervision of Instruction |
| Ed 40 | Ed A1 | Statistical Methods in Education |
| Ed 41C | Ed A11 | Measurement in Elementary School |
| Ed 41F | Ed A21 | Measurement in Secondary School |
| Ed 42 | Ed A31 | Use of Standard Tests |
| Ed 45 | Ed A51 | Principles and Techniques of Guidance |
| Ed 45A | Ed A52 | Group Guidance |
| Ed 46 | Ed A53 | Occupational and Educational Information |
| Ed 47 | Ed A54 | Organization and Administration of Pupil Personnel Services |

| | | |
|---|---|---|
| Ed 48 | Ed A55 | Principles and Techniques of Counseling |
| Ed 50 | Ed L2 | School Organization and Administration |
| Ed 51C | Ed L11 | Elementary School Principalship |
| Ed 51F | Ed L21 | Secondary School Principalship |
| Ed 56D | Ed L31 | School Law |
| Ed 82D | Ed H51 | Education for Intercultural Understanding |
| Ed 208 | Ed G291 | Graduate Apprenticeship |
| Ed 212A | Ed G201 | Seminar in Reading |
| Ed 212B | Ed G202 | Seminar in Arithmetic |
| Ed 212C | Ed G203 | Seminar in Social Studies (Elementary) |
| Ed 212D | Ed G204 | Seminar in Science (Elementary) |
| Ed 212G | Ed G207 | Seminar in Language Arts |
| Ed 215 | Ed G215 | Seminar in Methods of Teaching |
| Ed 216 | Ed G216 | Seminar in Audio-Visual Aids |
| Ed 219C | Ed G221 | Seminar in Social Studies (Secondary) |
| Ed 219D | Ed G222 | Seminar in Science (Secondary) |
| Ed 220 | Ed G231 | Seminar in Curriculum (Elementary) |
| | Ed G232 | Seminar in Curriculum (Secondary) |
| Ed 230 | Ed G241 | Seminar in Supervision |
| Ed 245 | Ed G261 | Seminar in Guidance |
| Ed 250 | Ed G242 | Seminar in Administration |
| Ed 299 | Ed G299 | The Thesis |


Colvin Hall, a dormitory for women



Engineering research requires great efforts

# College of Technology

W. S. EVANS, DEAN

# COLLEGE OF TECHNOLOGY

The College of Technology, which recommends the degree of Bachelor of Science upon completion of any of its curricula, provides instruction in the following:

Agricultural Engineering (Jointly with College of Agriculture)
Chemical Engineering
Chemistry
Civil Engineering
- Highway Engineering
- Sanitary Engineering
- Structural Engineering
- Public Management

Electrical Engineering
- Communication
- Power

Engineering Physics
Mechanical Engineering
Pulp and Paper Technology

By special arrangement, a Five-Year Pulp and Paper Management Curriculum may be arranged in conjunction with curricula in Chemical, Civil, Electrical, and Mechanical Engineering.

For Agricultural Engineering see page 77.

The freshman year is common to all engineering courses and chemistry.

**Freshman Year**

| FALL SEMESTER | | | | | | SPRING SEMESTER | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Subject | | | Hours | | | Subject | | | Hours | | |
| | | | Rec | Lab | Cr | | | | Rec | Lab | Cr |
| Ch | 1 | Gen. Chemistry | 3 | 3 | 4 | Ch | 2 | Gen. Chemistry | 3 | 3 | 4 |
| Eh | 1 | Freshman Comp. | 3 | 0 | 3 | Eh | 2 | Freshman Comp. | 3 | 0 | 3 |
| Eg | 1 | Engineering Drawing | 0 | 4 | 2 | Eg | 2 | Engineering Drawing | 0 | 4 | 2 |
| Ms | 1 | Trigonometry | 2 | 0 | 2 | Ms | 12 | Anal. Geom. & Cal. | 4 | 0 | 4 |
| Ms | 3 | Algebra | 2 | 0 | 2 | Mt | 2 | Military Science I | 2 | 1 | 1½ |
| Mt | 1 | Military Science I | 2 | 1 | 1½ | Pe | 2 | Physical Education | 0 | 2 | 0 |
| Pe | 1 | Physical Education | 0 | 2 | 0 | Ps | 2 | General Physics | 4 | 2 | 5 |
| Ps | 1 | General Physics | 4 | 2 | 5 | | | | | | |

Graduation requirements (common to all curricula in the College of Technology):

1. a) Passing grades in all courses required by the major department.
   b) A minimum of 143 degree hours (degree hours shall not be granted for Basic Military Science, Mt 1, 2, 3, and 4, nor for courses in which a failing grade of E is received).
   c) An accumulative average of 1.80.
2. Passing grades in the following courses:
   a) Drawing, Eg 1 and 2, or equivalent.
   b) Language: Eh 1 and 2, or equivalent, Sh 1, Eh 5, or equivalent.
   c) Mathematics, Ms 1, 3, 12, 27 and 28, or equivalent.

d) Science: Ch 1 and 2, Ps 1 and 2, or equivalent.

e) Military Science and Tactics, seven credit hours. Physical Education, two semesters and the satisfactory completion of required tests or four semesters. Veterans may be excused.

3. Passing grades in a minimum of six credit hours in each of the two categories listed, and a minimum of eighteen credit hours total.

I. Economics, Sociology, Psychology

Any course may be taken that is listed in the catalog under economics and sociology, business administration, modern society, and psychology, for which the student can qualify.

II. History, Philosophy, Languages, English Literature, Art, Music

Any course may be taken that is listed in the catalog under history and government, philosophy, modern languages and classics, English literature, art, or music, for which the student can qualify, excepting Gm 13 & 14 (Scientific German). No more than three credits may be accepted in applied music (e.g., band, chorus, instrumental music lessons, or voice lessons).

### Course Expenses

For College of Technology students the minimum and maximum course expenses (inclusive of required equipment, books, and supplies, but exclusive of Military deposit) are indicated in the following table:

| | |
|---|---|
| Freshmen | $150.00 Per Year, of which approximately $100.00 will be required for the first semester. |
| Sophomores | $100.00—140.00 Per Year |
| Juniors | 100.00—160.00 Per Year |
| Seniors | 100.00—160.00 Per Year |

In Chemistry and Chemical Engineering courses, students are required to pay for all apparatus broken or lost and for certain non-returnable supplies. Breakage cards at $3.00 each are obtainable at the Treasurer's office. Unused portions will be refunded at the end of the semester on obtaining clearance at the chemistry storeroom.

### Graduate Study

Graduates from accredited undergraduate programs are eligible for graduate study in the College of Technology, provided their undergraduate records meet general requirements. (See general requirements in the catalog section on Graduate Study.) Candidates must complete, without credit, any undergraduate courses which may be prerequisite to courses included in the programs of graduate study. In general, from six to ten credit hours will be devoted to a thesis in the field of major interest. Selection of courses must conform to a general plan laid down either before study begins or very soon after registration.

## DEPARTMENTS OF INSTRUCTION

*Courses numbered 1-99 are for undergraduates; courses numbered 200 and above are primarily for graduates. Courses numbered below 100 which have been approved for graduate credit are indicated by a graduate designation, in parentheses, after the regular course number.*

*One number is used for a course which is given both fall and spring.*

*When a dash is used between the two numbers (e.g., 1-2), both semesters must be taken to obtain credit; when a semicolon is used (e.g., 1;2), the first semester may be taken by itself, but the second cannot be taken unless the first is taken previously; when a period is used (e.g., 1.2), either semester may be taken for credit.*

*Courses offered in 1959-60 and alternate years are indicated by the sign (†) placed before the number of the course; courses offered in 1960-61 and alternate years are indicated by the sign (‡) placed before the number of the course.*

## CHEMICAL ENGINEERING

### (including Pulp and Paper Technology)

PROFESSORS JENNESS, HOWELL, DURST, ZIEMINSKI; ASSOCIATE PROFESSOR CHASE; ASSISTANT PROFESSOR GORHAM; MR. CHASE, MR. GOODWIN

The Chemical Engineering curriculum is designed to provide the education necessary to prepare men for successful living in the modern world, for those who wish to undertake professional work in the design, operation, and improvement of the processes of chemical industry. The curriculum provides a broad background in the humanities and in the fundamentals of science and engineering, and affords the opportunity for the application of these fundamentals in professional courses.

Since it is essential that chemical engineers have a sound basic training in chemistry, the curriculum in the sophomore and junior years includes all the fundamental courses in the Chemistry curriculum. In order that the student may gain an early understanding of the significance of his major field, professional Chemical Engineering courses are introduced in the sophomore year and are continued through the last three years in logical sequence. The great majority of the course work in the senior year is made up of these professional courses. Necessary basic knowledge of electrical and mechanical engineering is provided by courses in the appropriate departments. The curriculum leads to the degree of Bachelor of Science in Chemical Engineering.

An important activity of this department is the Division of Pulp and Paper Technology. Students who intend to enter the Pulp and Paper industry or allied fields may elect to take a senior year curriculum largely composed of specialized professional subjects in the pulp and paper field, the other years being identical with the straight Chemical Engineering curriculum. This curriculum leads to the Bachelor of Science degree in Pulp and Paper Technology. It is possible for certain students, who do not desire a B.S. degree, to register as special students for a series of related Pulp and Paper and Chemical Engineering courses.

A five year program with emphasis on courses in management is available to students who expect to enter the field of production of Pulp and Paper. This curriculum contains the required courses of the four year curricula in Chemical

Engineering and Pulp and Paper Technology. It also includes selected courses in Economics and Business Administration. It leads to the degree of Bachelor of Science in Chemical Engineering and a certificate indicative of the curriculum.

### Graduate Work in Chemical Engineering

Candidates for the degree of Master of Science must have received the degree of Bachelor of Science. They must also have completed a curriculum consistent with the requirements of the American Institute of Chemical Engineers, or take the necessary courses to accomplish that objective without receiving graduate credit for them. Graduate credit for the advanced degree generally consists of twenty hours of professional courses and ten hours of investigation and thesis. Some industrial fellowships and assistantships are available to graduate students. A candidate who accepted either of these usually requires two years to complete the requirements for the Master of Science degree.

Graduate work leading to the Master of Science degree is also offered in the Pulp and Paper Division. Candidates who complete the five year program in Pulp and Paper may receive graduate credit for twenty hours of suitable courses taken in the fifth year.

## CURRICULUM IN CHEMICAL ENGINEERING

**Freshman Year.** See Page 188.

### Sophomore Year

FALL SEMESTER

| | Subject | Hours Rec | Lab or Comp | Cr |
|---|---|---|---|---|
| Ch 51 | Organic Chemistry | 3 | 4 | 5 |
| ChE 1 | Fund. of Chem. Eng. | 2 | 4 | 4 |
| Ms 27 | Calculus | 5 | 0 | 5 |
| Mt 3 | Military Science II | 2 | 1 | 2 |
| Pe 3 | Physical Education | 0 | 2 | 0 |
| | Hum. Elective | — | — | — |

SPRING SEMESTER

| | Subject | Hours Rec | Lab or Comp | Cr |
|---|---|---|---|---|
| Ch 41 | Quantitative Anal. | 2 | 3 | 3 |
| Ch 52 | Organic Chemistry | 3 | 4 | 5 |
| ChE 2 | Fund. of Chem. Eng. | 2 | 4 | 4 |
| Ms 28 | Calculus | 5 | 0 | 5 |
| Mt 4 | Military Science II | 2 | 1 | 2 |
| Pe 4 | Physical Education | 0 | 2 | 0 |

### Junior Year

| | | Rec | Lab or Comp | Cr |
|---|---|---|---|---|
| Ch 71 | Physical Chemistry | 2 | 6 | 5 |
| ChE 37 | Intro. to Thermodynamics | 3 | 0 | 3 |
| ChE 64 | Elem. of Chem. Eng. | 3 | 0 | 3 |
| Eh 5 | Technical Comp. | 2 | 0 | 2 |
| Me 53 | Applied Mechanics | 3 | 0 | 3 |
| | Hum. Elective | — | — | — |

| | | Rec | Lab or Comp | Cr |
|---|---|---|---|---|
| Ch 72 | Physical Chemistry | 2 | 6 | 5 |
| ChE 65 | Elem. of Chem. Eng. | 3 | 0 | 3 |
| ChE 81 | Chem. Eng. Lab. | 1 | 4 | 3 |
| Me 54 | Applied Mechanics | 3 | 0 | 3 |
| Sh 1 | Public Speaking | 2 | 0 | 2 |
| | Hum. Elective | — | — | — |

### Senior Year

FALL SEMESTER

| Subject | | | Hours Rec | Lab or Comp | Cr |
|---|---|---|---|---|---|
| ChE | 77 | Chem. Process Industries | 3 | 0 | 3 |
| ChE | 82 | Chem. Eng. Lab. | 1 | 4 | 3 |
| ChE | 96 | Process Control and Instrumentation | 3 | 0 | 3 |
| *ChE | 99 | Thesis | 0 | 2 | 1 |
| Ee | 41 | Electric Circuits | 2 | 0 | 2 |
| | | Hum. Elective | — | — | — |

SPRING SEMESTER

| Subject | | | Hours Rec | Lab or Comp | Cr |
|---|---|---|---|---|---|
| ChE | 78 | Chem. Process Industries | 3 | 0 | 3 |
| ChE | 94 | Chem. Eng. Thermodynamics | 3 | 0 | 3 |
| *ChE | 99 | Thesis | 0 | 4 | 2 |
| ChE | | Elective | 3 | 0 | 3 |
| Ee | 43 | Applied Electronics or Electrical Machinery | 1½ | 1 | 2 |
| Me | 41 | Mechanical Lab. | 0 | 3 | 1½ |
| | | Hum. Elective | — | — | — |

## CURRICULUM IN PULP AND PAPER TECHNOLOGY

**Freshman Year.** See Page 188.

**Sophomore** and **Junior Years,** Identical with Chemical Engineering with the exception of Ch 71 and Ch 72 which are recommended electives.

### Senior Year

| | | | Lab Rec | or Comp | Cr |
|---|---|---|---|---|---|
| Ee | 41 | Electric Circuits | 2 | 0 | 2 |
| Pa | 65 | Pulp Technology | 3 | 0 | 3 |
| Pa | 73 | Pulp Manufacture and Testing | 0 | 8 | 4 |
| Pa | 89 | Pulp & Paper Mill Inspections | 0 | 4 | 2 |
| *Pa | 99 | Thesis | 0 | 2 | 1 |
| | | Hum. Elective | — | — | — |
| ChE | 86 | Chem. Eng. Lab. | 1 | 4 | 3 |
| Ee | 43 | Applied Electronics or Electrical Machinery | 1½ | 1 | 2 |
| Pa | 66 | Paper Technology | 3 | 0 | 3 |
| Pa | 72 | Pulp & Paper Equipment | 3 | 0 | 3 |
| Pa | 74 | Paper Manufacture and Testing | 0 | 8 | 4 |
| *Pa | 99 | Thesis | 0 | 4 | 2 |

* Recommended elective.

## CURRICULUM IN FIVE YEAR PULP AND PAPER MANAGEMENT OPTION

**Freshman Year.** See Page 188.

**Sophomore** and **Junior Years,** Identical with Chemical Engineering

### Senior Year

| | | | Lab Rec | or Comp | Cr |
|---|---|---|---|---|---|
| Be | 9 | Elem. Accounting | 3 | 0 | 3 |
| ChE | 77 | Chem. Process Industries | 3 | 0 | 3 |
| ChE | 82 | Chem. Eng. Lab. | 1 | 4 | 3 |
| Ee | 41 | Electric Circuits | 2 | 0 | 2 |
| Be | 33 | Labor Organ., & Legislation | 3 | 0 | 3 |
| Pa | 65 | Pulp Technology | 3 | 0 | 3 |
| | | Hum. Elective | — | — | — |
| ChE | 78 | Chem. Process Industries | 3 | 0 | 3 |
| ChE | 94 | Chem. Eng. Thermodynamics | 3 | 0 | 3 |
| Ee | 43 | Applied Electronics or Electrical Machinery | 1½ | 1 | 2 |
| Me | 41 | Mechanical Lab. | 0 | 3 | 1½ |
| Pa | 66 | Paper Technology | 3 | 0 | 3 |
| | | Hum. Elective | — | — | — |

## Fifth Year

FALL SEMESTER

| Subject | | | Hours Rec | Lab or Comp | Cr |
|---|---|---|---|---|---|
| Be | 51 | Corp. Finance | 3 | 0 | 3 |
| ChE | 96 | Process Control and Instrumentation | 3 | 0 | 3 |
| Pa | 84 | Paper Mill Mgt. | 3 | 0 | 3 |
| Pa | 73 | Pulp Manufacture and Testing | 0 | 8 | 4 |
| Pa | 89 | Pulp and Paper Mill Inspections | 0 | 4 | 2 |
| Pa | 295 | Seminar | 1 | 0 | ½ |
| Pa | 99 | Thesis | 0 | 2 | 1 |
| | | Hum. Elective | — | — | — |

SPRING SEMESTER

| Subject | | | Hours Rec | Lab or Comp | Cr |
|---|---|---|---|---|---|
| Be | 55 | Business Law | 3 | 0 | 3 |
| Ms | 31 | Math. Statistics | 3 | 0 | 3 |
| Pa | 72 | Pulp & Paper Mill Equipment | 3 | 0 | 3 |
| Pa | 74 | Paper Manufacture and Testing | 0 | 8 | 4 |
| Pa | 295 | Seminar | 1 | 0 | ½ |
| Pa | 99 | Thesis | 0 | 4 | 2 |
| | | Elective | — | — | — |

### Courses in Chemical Engineering

(In each laboratory course a breakage card is required.)

***1; 2. Fundamentals of Chemical Engineering.***—A quantitative correlation of basic concepts of chemistry, physics, and mathematics necessary for the analysis of problems in chemical engineering operations and processes. Prerequisite, Ch 2. *Rec* 2, *Lab* 4, *Cr* 4. MR. GOODWIN, MR. JENNESS

***33. Stoichiometry.***—Application of the principles of heat and material balances to the solution of problems in combustion and industrial chemistry. Transfer students only. Prerequisite, Ch 2. *Rec* 3, *Cr* 3.

***37. Introduction to Thermodynamics.***—Development of the first law of thermodynamics and its application to engineering problems of both the batch and the flow type. Consideration of the second law. Prerequisite, Ch 2; Ms 8. *Rec* 3, *Cr* 3. MR. DURST

***43. Plastics Technology.***—An introductory course in the chemistry and physics of high polymeric substances. Practical applications and commercial practice in this field are considered. Lectures, demonstrations, reports. Prerequisite, Ch 51. *Rec* 3, *Cr* 3.

***64; 65 (164; 165). Elements of Chemical Engineering.***—Basic principles of the Unit Operations and their application to engineering problems. Prerequisite, Ms 8, and either ChE 2 or ChE 33. *Rec* 3, *Cr* 3. MR. ZIEMINSKI, MR. GORHAM

***70 (170). Chemical Engineering of Pulp and Paper Manufacture.***—An advanced course in those unit operations of particular importance in the manufacture of pulp and paper; e.g., flow of fluids, heat transfer, absorption, evaporation, drying, etc. Prerequisite, Ch 72; ChE 65. *Rec* 3, *Cr* 3. MR. JENNESS

***76 (176). Nuclear Engineering.***—Reactor design and operation. Preparation and processing of fuels. Special attention to fluid flow and heat transfer problems. Waste treatment and radiation hazards. Applications of nuclear energy to industrial engineering. Prerequisite, Ps 70, Thermodynamics and heat transfer. *Rec* 3, *Cr* 3. MR. DURST

***77. 78. Chemical Process Industries.***—Representative industrial chemical processes. Quantitative and qualitative evaluations of the processes and proposed changes and improvements are stressed. *Rec* 3, *Cr* 3. MR. ZIEMINSKI

***81; 82 (181; 182). Chemical Engineering Laboratory.***—Application of the principles of the unit operations in the laboratory, using pilot scale equipment.

Emphasis is placed upon the preparation of formal reports. Prerequisite, ChE 64 for 81, ChE 65 for 82. *Rec* 1, *Lab* 4, *Cr* 3. MR. DURST

***84 (184). Nuclear Engineering Laboratory.***—A study of the fundamentals of reactor operation including monitoring, measurement of absorption, thermal cross-sections, neutron flux, neutron temperature, critical mass, temperature coefficient and related characteristics. Prerequisite, ChE 76 or taken concurrently. *Rec* 1, *Lab* 3. MR. DURST

***86. Chemical Engineering Laboratory.***—A one-semester course in chemical engineering laboratory, for pulp and paper majors only. Prerequisite, ChE 65. *Rec* 1, *Lab* 4, *Cr* 3. MR. GORHAM

***87. 88 (187; 188). Chemical Engineering Mill Practice.***—Group investigations of the operation of commercial equipment in neighboring industrial plants. Open only to seniors and graduate students. *Time and credit arranged.* MR. DURST

***94. Chemical Engineering Thermodynamics.***—Development and quantitative application of the second law of thermodynamics. Considerations of heat engines, the concept of availability, chemical equilibrium, etc. Prerequisite, ChE 37, 65. *Rec* 3, *Cr* 3. MR. DURST

***96. Process Control and Instrumentation.***—Techniques employed by process engineers for the control of unit operations and chemical processes. Control theory, operating principles and application of industrial instruments, principles and methods of automatic control. Prerequisite, ChE 37. *Rec* 3, *Cr* 3. MR. GORHAM

***99. Undergraduate Thesis.***—Original investigation of a chemical engineering problem, and reporting of the results. Open only to seniors. *Cr, Ar.* THE CHEMICAL ENGINEERING STAFF

### Graduate Courses

***242. Colloid Technology.***—*Rec* 3, *Cr* 3.
***246. Fuels and Combustion.***—*Rec* 3, *Cr* 3.
***275. Chemical Engineering Plant Design.***—*Rec* 3, *Cr* 3.
***277. Economic Balance.***—*Rec* 3, *Cr* 3.
***295. Graduate Seminar.***—*Rec* 1, *Cr* ½.
***299. Graduate Thesis.***—*Cr, Ar.*

### Courses in Pulp and Paper Technology

***40s. Summer Mill Practice.***—The obtaining of practical mill experience is encouraged of students who have completed their junior year and contemplate senior work in pulp and paper technology. *Cr* 2. MR. JENNESS

***65 (165). Pulp Technology.***—A course in the manufacture of various kinds of wood pulps and the chemistry involved in present-day pulp making. Prerequisite, Ch 2. *Rec* 3, *Cr* 3. MR. CHASE

***66 (166). Paper Technology.***—A course in the processes of manufacturing paper. Prerequisite, Pa 65. *Rec* 3, *Cr* 3. MR. HOWELL

***72 (172). Pulp and Paper Equipment.***—A lecture and recitation course involving the description, and production calculations, of pulping, stock preparation, stock flow, paper formation, power plant, and auxiliary equipment. Prerequisite, Pa 65. *Rec* 3, *Cr* 3. MR. HOWELL

***73 (173). Pulp Manufacture and Testing.***—A laboratory course involving the production and testing of chemical and semi-chemical wood pulps.

Prerequisite, Ch 40, Pa 65 (can be taken simultaneously). *Lab* 8, *Cr* 4.
MR. HOWELL, MR. GORHAM

***74 (174). Paper Manufacture and Testing.***—A laboratory course in the manufacture of paper, including beating, jordaning, sizing, etc., and physical, chemical, and microscopical testing. Prerequisite, Ch 40, Pa 66 (can be taken simultaneously). *Lab* 8, *Cr* 4. MR. CHASE, MR. HOWELL

***84 (184). Pulp and Paper Mill Management.***—The operating departments of a paper mill are discussed from the standpoint of their function and management at various levels. *Rec* 3, *Cr* 3. MR. HOWELL

***89 (189). Pulp and Paper Mill Inspections.***—Mill visits involving the observation of operations in various types of pulp and paper plants. *Lab* 4, *Cr* 2. This course requires a laboratory fee of approximately $20.00. MR. GORHAM

***99. Undergraduate Thesis.***—Original investigation of a pulp and paper problem and reporting of the results. Open only to seniors. *Cr, Ar.*
THE CHEMICAL ENGINEERING STAFF

### Graduate Courses

***295; 196. Graduate Seminar.***—*Rec* 1, *Cr* ½.

***299. Graduate Thesis.***—*Cr, Ar.*

## CHEMISTRY

PROFESSORS BEAMESDERFER, DOUGLASS; ASSOCIATE PROFESSORS BOGAN, DUNLAP, MARTIN, OTTO, WOLFHAGEN; ASSISTANT PROFESSORS BRAUNSTEIN, PETTIT; MRS. HESS, MR. HESS, MR. HILL, MR. GEORGITIS, MR. SOTTERY, MR. YOUNG

The Chemistry curriculum is designed to give the student a thorough understanding of the fundamental nature of all material substances, the changes they undergo and the laws governing such changes. It also aims to develop skill in those laboratory techniques required to synthesize and to analyze substances and to study their properties.

Because a knowledge of chemistry is fundamental to successful work in so many fields, the Chemistry curriculum affords an unusual opportunity for a wide choice of electives so that the Chemistry major may adapt his program to his individual interests and future needs. The curriculum leading to American Chemical Society certification prepares the student, upon graduation, for employment in chemical production and control, research, or for graduate study in chemistry. The proper choice of electives will enable the student to enter the related fields of industrial management, technical sales and service, or teaching, and will qualify him for admission to medical school. Students interested in any of these fields may obtain from the Chemistry Department specimen curricula showing recommended elective sequences.

Students intending to major in Chemistry who have a special interest in mathematics, physics, nuclear science, geology, or the biological sciences may also obtain specimen curricula designed to help them attain their educational goals.

The Chemistry major student, in order to qualify for certification to the American Chemical Society Committee on Professional Training, must complete courses 1, 2, 31, 40, 51, 52, 64, 71, 72, 90 and take one of the courses 54, 77, 91

or 84 and also one of the courses 74, 79 or 80. Additional requirements include one year of physics, a reading knowledge of German, mathematics through differential and integral calculus and 16-18 hours of non-specialized courses other than the physical sciences, exclusive of German and freshman English.

Superior students should give serious consideration toward continuing their studies at the graduate level and should plan on meeting only the minimum ACS requirements so that they can include in the undergraduate program a second language, advanced mathematics, and advanced physics.

For Chemistry courses in the Summer Session, see the Summer Session Bulletin.

For a description of courses in biochemistry, see the list of courses given by the Department of Biochemistry.

## GRADUATE WORK IN CHEMISTRY

The Department of Chemistry offers a program of study and research leading to the M.S. and Ph.D. degrees. The general requirements for advanced degrees are described in the general section of the Bulletin of the Graduate Division. Specific requirements for admission to advanced study in Chemistry and information about the programs of study offered are given in the Chemistry section of the Bulletin.

## CHEMISTRY CURRICULUM

**Freshman Year.** See Page 188.

### Sophomore Year

FALL SEMESTER

| | | Subject | Hours Rec | Lab or Comp | Cr |
|---|---|---|---|---|---|
| Ch | 31 | Semi-Micro Qualitative Anal. | 2 | 3 | 3 |
| Ch | 51 | Organic Chemistry | 3 | 4 | 5 |
| Ms | 27 | Calculus | 5 | 0 | 5 |
| Mt | 3 | Military Science II | 2 | 1 | 2 |
| Pe | 3 | Physical Education | 0 | 2 | 0 |
| Sh | 1 | Public Speaking | 2 | 0 | 2 |
| | | Elective Economics, Sociology or Psychology | | | 3 |

SPRING SEMESTER

| | | Subject | Hours Rec | Lab or Comp | Cr |
|---|---|---|---|---|---|
| Ch | 40 | Quantitative Anal. | 2 | 6 | 4 |
| Ch | 52 | Organic Chemistry | 3 | 4 | 5 |
| Ms | 28 | Calculus | 5 | 0 | 5 |
| Mt | 4 | Military Science II | 2 | 1 | 2 |
| Pe | 4 | Physical Education | 0 | 2 | 0 |
| | | Elective Economics, Sociology or Psychology | | | 3 |

### Junior Year

| | | | Rec | Lab or Comp | Cr |
|---|---|---|---|---|---|
| Ch | 71 | Physical Chemistry | 2 | 6 | 5 |
| *Ch | 64 | Int. Quant. Anal. | 1 | 8 | 4 |
| Gm | 11 | Scientific German (Elementary) | 3 | 0 | 3 |
| | | Hum. Elective | | | 3 |
| | | Other Elective | | | 3 |

| | | | Rec | Lab or Comp | Cr |
|---|---|---|---|---|---|
| Ch | 72 | Physical Chemistry | 2 | 6 | 5 |
| *Ch | 90 | Intermediate Organic Chemistry Lab. | 1 | 4 | 2 |
| Gm | 12 | Scientific German (Elementary) | 3 | 0 | 3 |
| | | Hum. Elective | | | 3 |
| | | Other Electives | | | 5 |

### Senior Year

| FALL SEMESTER | | | | | | SPRING SEMESTER | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Subject | | | Hours | | | Subject | | | Hours | | |
| | | | Rec | Lab or Comp | Cr | | | | Rec | Lab or Comp | Cr |
| Ch | 85 | Chem. Literature | 2 | 0 | 2 | *Ch | | Elective | | | 2 |
| *Ch | | Elective | | | 3 | | | Adv. Chem. Lab. | | | |
| | | Adv. Chem. Lec. | | | | Eh | 5 | Technical Comp. | 2 | 0 | 2 |
| | | *Hum. Elective | 2-3 | 0 | 2-3 | | | Other Electives | | | 14 |
| | | Other Electives | | | 7-8 | | | | | | |
| Gm | 13 | Scientific German (Intermediate) | 3 | 0 | 3 | | | | | | |

* For American Chemical Society certification.

### Courses in Chemistry

(In each laboratory course a breakage card is required.)

***1; 2. General Chemistry.***—The principles of general chemistry. Ch 2 is largely devoted to an introduction to the elements of qualitative analysis. *Rec* 3, *Lab* 3, *Cr* 4. STAFF

***7. General Chemistry.***—For Three Year Nursing students only. An introduction to the principles of inorganic and organic chemistry. *Rec* 2, *Lab* 2, *Cr* 3. MRS. HESS

***31. Semi-Micro Qualitative Analysis.***—A systematic theoretical and laboratory study of the fundamental principles of analysis as applied to the common anions on the semi-micro scale. Prerequisite, Ch 2. *Rec* 2, *Lab* 3, *Cr* 3. MR. OTTO

***40 (140). Quantitative Analysis.***—An introductory course illustrating the fundamental principles of gravimetric and volumetric analysis. Prerequisite, Ch 2 or 5. *Rec* 2, *Lab* 6, *Cr* 4. MR. BOGAN

***41. Quantitative Analysis.***—Same course as Ch 40 except that fewer laboratory determinations are made. Prerequisite, Ch 2 or 5. *Rec* 2, *Lab* 3, *Cr* 3. MR. BOGAN

***51; 52 (151; 152). Organic Chemistry.***—An introduction to the chemistry of carbon compounds. No graduate credit for Chemistry or Chemical Engineering majors. Prerequisite, Ch 2. *Rec* 3, *Lab* 4, *Cr* 5. MR. DOUGLASS

***54 (154). Advanced Inorganic Chemistry.***—Advanced theoretical and descriptive inorganic chemistry emphasizing periodic relationships. Prerequisite, Ch 2, 31 and 40. *Rec* 3, *Cr* 3. MR. BOGAN

***64 (164). Intermediate Quantitative Analysis.***—A continuation of Ch 40, taking up some of the more difficult volumetric and gravimetric methods. No graduate credit for Chemistry or Chemical Engineering majors. Prerequisite, Ch 40. *Rec* 1, *Lab* 8, *Cr* 4. MR. OTTO

***71; 72 (171; 172). Physical Chemistry.***—A detailed study of fundamental principles of chemistry and their applications. No graduate credit for Chemistry or Chemical Engineering majors. Prerequisite, Ch 40 or 41, Ps 2, and Ms 28. *Rec* 2, *Lab* 6, *Cr* 5. MR. DUNLAP, MR. BRAUNSTEIN

***74 (174). Chemical Microscopy.***—The technique of handling and analyzing samples of very small size. Chemical and physical changes, crystalline form, density and refractive index observed under the microscope. Prerequisite, Ch 40. *Lab* 6, *Cr* 2. MR. OTTO

***77 (177). Intermediate Physical Chemistry.***—A discussion of the modern topics of Physical Chemistry not adequately covered in Ch 71 and 72. Prerequisite, Ch 72. *Rec* 3, *Cr* 3. MR. BEAMESDERFER

***79 (179). Advanced Physical Chemistry Laboratory.***—An advanced laboratory course with emphasis on the use of physico-chemical methods. Prerequisite, Ch 72. *Lab* 6, *Cr* 2. MR. BEAMESDERFER

***80 (180). Radiochemistry.***—Chemical aspects of nuclear properties and processes. Application of the techniques involving radioactivity to chemical problems. Prerequisite, Ch 72. *Rec* 1, *Lab* 4, *Cr* 3. MR. BRAUNSTEIN

***84. Metallurgy.***—A theoretical and descriptive course dealing with ferrous and non-ferrous metals and emphasizing the theory of binary alloys. Prerequisite, Ch 2. *Rec* 3, *Cr* 3. MR. MARTIN

***85 (185). Chemical Literature.***—A study of methods for searching the chemical literature. Prerequisite, Ch 52 and Elementary German. *Rec* 2, *Cr* 2. MR. MARTIN

***90 (190). Intermediate Organic Chemistry Laboratory.***—An introduction to the isolation, identification and semi-micro scale preparation of organic compounds. Prerequisite, Ch 52. *Rec* 1, *Lab* 4, *Cr* 2. MR. PETTIT

***91 (191). Intermediate Organic Chemistry.***—A detailed study of the preparation of the more complex organic compounds and of newer synthetic methods than are considered in Ch 51-52. Prerequisite, Ch 52. *Rec* 3, *Cr* 3. MR. WOLFHAGEN

***95 (195). Chemical Thermodynamics.***—A brief study of the laws of thermodynamics as applied to chemical problems. Prerequisite, Ch 72. *Rec* 3, *Cr* 3. MR. BRAUNSTEIN

***99. Undergraduate Thesis.***—The thesis will embody the result of an original investigation carried out in the library and in the laboratory. Open only to seniors with the consent of the department head. *Cr* 1 to 3. CHEMISTRY STAFF

### Graduate Courses in Chemistry

†***213. The Chemistry of Cellulose and Wood Components.***—*Rec* 3, *Cr* 3.
***251. Topics in Advanced Organic Chemistry.***—*Rec* 2, *Cr* 2.
‡***253. The Chemistry of Organic Sulfur Compounds.***—*Rec* 2, *Cr* 2.
‡***254. The Chemistry of Heterocyclic Compounds.***—*Rec* 2, *Cr* 2.
†***256. Mechanisms of Organic Reactions.***—*Rec* 2, *Cr* 2.
***265. Organic Quantitative Analysis.***—*Lab* 6, *Cr* 3.
***271. Topics in Advanced Physical Chemistry.***—*Rec* 2, *Cr* 2.
***273. Statistical Thermodynamics.***—*Rec* 3, *Cr* 3.
‡***274. Colloid and Surface Chemistry.***—*Rec* 2, *Cr* 2.
†***276. Physico-Chemical Methods.***—*Rec* 2, *Cr* 2.
***289. Advanced Organic Laboratory.***—*Lab* 6, *Cr* 3.
***290. Organic Qualitative Analysis.***—*Rec* 1, *Lab* 6, *Cr* 4.
***295. Graduate Seminar.***—*Rec* 1, *Cr* 1.
***299. Graduate Thesis.***—*Cr, Ar.*

# CIVIL ENGINEERING

PROFESSOR TREFETHEN; ASSOCIATE PROFESSORS TAYLOR, GORRILL, WADLIN; ASSISTANT PROFESSORS BUZZELL, SPROUL (On Leave 1959-61); MR. BRIDGE; MR. FOLEY; MR. NIGHTINGALE

The Civil Engineering curriculum has been revised to provide a broader understanding of engineering problems in general and at the same time provide for greater specialization in several branches of Civil Engineering and in the field of Public Management. While the new curriculum is broad enough to qualify graduates with the Bachelor of Science Degree to start in any field of Civil Engineering, special emphasis is placed upon Highway Engineering, Sanitary Engineering, and Structural Engineering. While graduates with the Bachelor of Science Degree go directly into Town Management, the Public Management option specifically prepares graduates for a fifth year in the Department of History and Government at the end of which they receive degrees of Master of Arts in Public Management.

While the foundation of all engineering is highly technical, an attempt is made throughout to help the student sense the broader aspects of engineering problems. In addition to this, studies in the social sciences and humanities are included to assist the graduate to assume an administrative position in his chosen field.

### Graduate Work in Civil Engineering

Graduate programs are well established in the fields of Public Management, Sanitary Engineering, Highway Engineering, and Structural Engineering. The Public Management program for the fifth year is listed on page 201.

In the other above-mentioned special fields, the graduate program is flexible enough to meet the student's personal desires. The general program will include advanced courses in the student's major field which will constitute about half of his requirements. The other half of the program will consist of advanced courses in mathematics, non-technical courses, and the graduate thesis. This general program leads to the Degree of Master of Science in Civil Engineering.

**Freshman Year.** See Page 188.

## CIVIL ENGINEERING CURRICULUM

### Sophomore Year

| FALL SEMESTER | | | | | | SPRING SEMESTER | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Subject | Hours | | | | | Subject | Hours | | |
| | | | Rec | Lab | Cr | | | | Rec | Lab | Cr |
| Ce | 4 | Civil Eng. Orien. | 1 | 0 | 0 | Gy | 16 | Geology for Engrs. | 2 | 1½ | 2½ |
| Ce | 5 | Surveying | 2 | 3 | 3 | Ee | 8 | Basic Elec. Eng. | 2½ | 1½ | 3 |
| Ee | 7 | Basic Elec. Eng | 2½ | 1½ | 3 | Eg | 3 | Descriptive Geom. | 0 | 4 | 2 |
| Ms | 27 | Calculus | 5 | 0 | 5 | Me | 50 | Mechanics (Statics) | 3 | 0 | 3 |
| Mt | 3 | Military Science II | 2 | 1 | 2 | Ms | 28 | Calculus | 5 | 0 | 5 |
| Pe | 3 | Physical Education | 0 | 2 | 0 | Mt | 4 | Military Science II | 2 | 1 | 2 |
| Sh | 1 | Public Speaking | 2 | 0 | 2 | Pe | 4 | Physical Education | 0 | 2 | 0 |
| | | Elective | | | 3 | | | Elective | | | 3 |

## COLLEGE OF TECHNOLOGY

### Junior Year

| FALL SEMESTER | | | | | | SPRING SEMESTER | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Subject | | | Hours | | | Subject | | | Hours | | |
| | | | Rec | Lab | Cr | | | | Rec | Lab | Cr |
| Ce | 26 | Hydraulics | 3 | 3 | 4 | Ce | 20 | Materials | 2 | 3 | 3 |
| Ce | 29 | Intro. to High. Engrg. | 3 | 0 | 3 | Ce | 32 | San. Engrg. Design | 2 | 3 | 3 |
| Ce | 31 | Intro. to San. Engrg. | 3 | 0 | 3 | Ce | 52 | Struc. Anal. & Design | 3 | 0 | 3 |
| Gy | 17 | Geology for Engrs. | 2 | 1½ | 2½ | Me | 43 | Heat Engineering | 3 | 0 | 3 |
| Me | 51 | Strength of Mat. | 4 | 0 | 4 | Me | 52 | Dynamics | 3 | 0 | 3 |
| | | Elective | | | 3 | | | Elective | | | 3 |

### Senior Year

| | | | Rec | Lab | Cr | | | | Rec | Lab | Cr |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Ce | 57 | Eng. Relations | 3 | 0 | 3 | Ce | 58 | Theory of Struc. | 3 | 0 | 3 |
| Ce | 61 | Reinf. Concrete | 3 | 0 | 3 | Eh | 5 | Tech. Comp. | 2 | 0 | 2 |
| | | Elective | | | 3 | | | Elective | | | 3 |
| | | Option | | | 9 | | | Option | | | 9 |

### Highway Engineering Option

| | | | Rec | Lab | Cr | | | | Rec | Lab | Cr |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Ce | 69 | Structural and Highway Materials | 1 | 6 | 3 | Ce | 63 | High. Adm. & Traffic Eng. | 3 | 0 | 3 |
| Ce | 65 | Soil Mechanics | 3 | 0 | 3 | Ce | 72 | Highway Engrg. | 3 | 0 | 3 |
| Ce | 68 | Highway Engrg. | 3 | 0 | 3 | Ce | 76 | App. of Soil Mech. | 3 | 0 | 3 |

### Structural Option

| | | | Rec | Lab | Cr | | | | Rec | Lab | Cr |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Ce | 59 | Structural Design | 0 | 9 | 3 | Ce | 60 | Structural Design | 0 | 9 | 3 |
| Ce | 65 | Soil Mechanics | 3 | 0 | 3 | Ce | 76 | App. of Soil Mech. | 3 | 0 | 3 |
| Ms | 57 | Engineering Math. | 3 | 0 | 3 | Ce | 92 | Adv. Th. of Struc. | 3 | 0 | 3 |

### Sanitary Engineering Option

| | | | Rec | Lab | Cr | | | | Rec | Lab | Cr |
|---|---|---|---|---|---|---|---|---|---|---|---|
| By | 27 | Gen. Bacteriology | 3 | 4 | 5 | Ce | 34 | Sanitary Engrg. | 2 | 6 | 4 |
| Ce | 71 | Sanitary Engrg. | 2 | 3 | 3 | Ce | 74 | Sanitary Engrg. | 2 | 3 | 3 |
| | | | | | | Ms | 31 | Statistics | 3 | 0 | 3 |

### Public Management Option

The Public Management Option is based on a five-year program, the fifth year being taken in the College of Arts and Sciences. As prerequisites for this fifth year, the following subjects should be taken during the sophomore, junior, and senior years:

| | | Semester Hours |
|---|---|---|
| Be 9 | Accounting | 3 |
| Gt 1; 2 | American Government | 6 |
| Gt 7; 8 | Maine Government | 2 |
| Gt 33 | Municipal Government | 3 |
| Gt 34 | Municipal Administration | 3 |
| Gt 40 | Community Planning | 2 |
| Gt 51; 52 | Public Administration | 6 |

P. Mgt. 93—Internship between Junior and Senior years

## Fifth Year

### For M.A. in Public Management Degree

FALL SEMESTER

| | | Subject | Hours Rec | Lab | Cr |
|---|---|---|---|---|---|
| Be | 61 | Personnel Mgt. | 3 | 0 | 3 |
| Be | 71 | Public Finance | 3 | 0 | 3 |
| Ce | 68 | Highway Engrg. | 3 | 0 | 3 |
| | | or | | | |
| Ce | 71 | Sanitary Engrg. | 2 | 3 | 3 |
| Gt | 41 | Police and Fire Adm. | 2 | 0 | 2 |
| Gt | 44 | Public Relations | 2 | 0 | 2 |
| Gt | 83 | Amer. Constitution | 3 | 0 | 3 |

SPRING SEMESTER

| | | Subject | Hours Rec | Lab | Cr |
|---|---|---|---|---|---|
| Ce | 72 | Highway Engrg. | 3 | 0 | 3 |
| | | or | | | |
| Ce | 74 | Sanitary Engrg. | 2 | 3 | 3 |
| Gt | 42 | Public Works Adm. | 2 | 0 | 2 |
| Gt | 46 | Municipal Law | 3 | 0 | 3 |
| Gt | 58 | Public Opinion | 3 | 0 | 3 |
| Gt | 84 | Amer. Constitution | 3 | 0 | 3 |

P. Mgt. 203 Internship ..... 3 Sem. Hours
Thesis ..... 6 Sem. Hours

See Page 144

## Courses in Civil Engineering

***4. Civil Engineering Orientation.***—Designed to acquaint Sophomores with the various professional fields of Civil Engineering. *Rec* 1, *Cr* 0.

MR. WADLIN

***5. Surveying.***—Surveying instruments and their use and the various methods commonly used for plane surveying. Prerequisite, Ms 1. *Rec* 2, *Lab* 3, *Cr* 3.

STAFF

***10. Curves and Earthwork.***—The geometry of simple, compound, and reverse circular curves, transition curves, vertical curves, and earthwork. Prerequisite, Ce 5. *Rec* 2, *Cr* 2. MR. BRIDGE

***20. Materials.***—The properties of materials which are significant in building construction and how they are determined. The selection of materials to fulfill given requirements. Prerequisite, Me 51. *Rec* 2, *Lab* 3, *Cr* 3.

***26. Hydraulics.***—An elementary course presenting fundamental principles of fluid flow and their applications to engineering problems. Includes study of hydrostatics, liquid measuring devices, and channel and pipe flow. Prerequisite, Me 50. *Rec* 3, *Lab* 3, *Cr* 4. MR. BUZZELL

***29. Introduction to Highway Engineering.***—The geometry of simple and compound curves and spirals; parabolic curves; earthwork computations; drainage; types of pavements and their suitability to various conditions of traffic, soil and climate. Prerequisite, Ce 5. *Rec* 3, *Cr* 3. MR. BRIDGE

***31. Introduction to Sanitary Engineering.***—Methods and applications of engineering principles involved in providing sewers and sewage treatment, swimming pools, stream pollution programs, garbage and waste disposal, and safe and sanitary water and food supply. Prerequisite, Ce 5. *Rec* 3, *Cr* 3. MR. BUZZELL

***32. Sanitary Engineering Design.***—Study and design problems involved in providing municipal water supplies, sewers, sewage treatment and stream pollution control. Prerequisite Ce 31 and Ce 26. *Rec* 3, *Cr* 3. MR. BUZZELL

***34. Sanitary Engineering.***—Principles, techniques, and interpretation of quantitative analytical chemical theory and tests as related to water, sewage and industrial wastes. Prerequisite, Ce 33. *Rec* 2, *Lab* 6, *Cr* 4.

***52. Structural Analysis and Design.***—The determination of maximum stresses and strains, the proportioning of members and the design of connections,

for beams, girders, and trusses. Prerequisite, Mechanics 51. *Rec* 3, *Cr* 3.
MR. FOLEY

***55 (155). Hydrology.***—Application of statistical analysis to rainfall and runoff. The collection and presentation of factors affecting rainfall and runoff data. Methods for developing hydrographs and flood routing. Prerequisite, Ce 33 and 26 or the equivalent. *Rec* 2, *Cr* 2. MR. BUZZELL

***57. Reinforced Concrete.***—The theory underlying the design of plain and reinforced concrete structures such as buildings, retaining walls, footings and short span bridges. Prerequisite, Ce 52. *Rec* 3, *Cr* 3.

***58. Structural Theory.***—The determination of stresses in the more complicated determinate structures and the application of moment distribution and slope deflection to indeterminate structures. Prerequisite, Ce 52. *Rec* 3, *Cr* 3.
MR. TAYLOR

***59; 60. Structural Design.***—The designing and detailing of steel and reinforced concrete structures. Prerequisite, Ce 52. *Lab* 9, *Cr* 3. MR. TAYLOR

***61 (161). Engineering Relations.***—Business phases of engineering. The ethical and legal relations among the parties affected by the making of an engineering contract. Specifications for elementary portions of engineering works. Prerequisite, Ce 20 and 52. *Rec* 3, *Cr* 3. MR. TAYLOR

***63 (163). Highway Administration and Traffic Engineering.***—The various functions state highway department has to perform; organization to carry out these functions; financing of highways; traffic studies and geometric designs to control and handle traffic. Prerequisite, Ce 29. *Rec* 3, *Cr.* 3. MR. FOLEY

***65 (165). Soil Mechanics.***—The fundamental physical properties of soils and their effect on the solution of common problems that arise in practical engineering design and construction. Prerequisite, Me 51. *Rec* 3, *Cr* 3.
MR. GORRILL

***68 (168). Highway Engineering.***—Highway location and relocation, including plans of proposed improvement; subgrade structure; base courses and low type pavements. Prerequisite, Ce 29. *Rec* 3, *Cr* 3. MR. GORRILL

***69. Structural and Highway Materials.***—Methods of testing, characteristics of, and specifications for the materials commonly used for highway purposes; design of mixes. Prerequisite, Me 51. *Rec* 1, *Lab* 6, *Cr* 3. MR. GORRILL

***70 (170). Soils Laboratory.***—The technique of performing the usual types of soil tests. Prerequisite, Ce 65. *Lab* 6, *Cr* 2. MR. GORRILL

***71 (171). Sanitary Engineering.***—Sewerage and the theory and design of sewage disposal works, followed by brief studies of municipal and rural sanitation. Prerequisite, Ce 33. *Rec* 2, *Lab* 3, *Cr* 3. MR. BUZZELL

***72 (172). Highway Engineering.***—Various highway problems; rights of way; traffic engineering; drainage; high type pavements and maintenance. Prerequisite, Ce 68. *Rec* 3, *Cr* 3. MR. GORRILL

***74 (174). Sanitary Engineering.***—Continuation of study begun in Ce 71 of rural and municipal sanitation, followed by study of water purification and design of water treatment plants. Prerequisite, Ce 71. *Rec* 2, *Lab* 3, *Cr* 3.
MR. BUZZELL

***76 (176). Soils Engineering.***—The methods of treating certain foundation problems to which soil mechanics provides a solution. Prerequisite, Ce 65. *Rec* 3, *Cr* 3. MR. GORRILL

***81 (181). Seminar.***—Written and oral reports with discussions on assigned topics in any special branch of Civil Engineering. *Rec* 2, *Cr* 2.

***92 (192). Advanced Structural Theory.***—The determination of stresses in such indeterminate structures as rigid frames, bents and arches. Prerequisite, Ce 52. *Rec* 3, *Cr* 3. MR. WADLIN

***99. Thesis.***—The study of and report upon some original investigation or design. Time to be arranged. *Cr* 2 or 3.

### Graduate Courses

***226. Advanced Hydraulics.***—*Rec* 3, *Cr* 3.
***229. Water and Waste Treatment.***—*Rec* 3, *Lab* 3, *Cr* 4.
***270. Advanced Soils Laboratory.***—*Lab* 6, *Cr* 2.
***276. Foundations and Underground Structures.***—*Rec* 3, *Cr* 3.
***290. Vibrations of Structures.***—*Rec* 3, *Cr* 3.
***291. Numerical Analysis of Structures.***—*Rec* 3, *Cr* 3.
***292. Indeterminate Structures.***—*Rec* 3, *Cr* 3.
***299. Graduate Thesis.***

## GEOLOGY AND GEOGRAPHY

PROFESSOR TREFETHEN; ASSOCIATE PROFESSOR OSBERG; ASSISTANT PROFESSORS BORNS, HOWD; MR. HAGAR; MRS. TREFETHEN

For Courses see Page 139

## ELECTRICAL ENGINEERING

PROFESSORS CREAMER, CRABTREE, PARSONS, LIBBEY; ASSOCIATE PROFESSORS CROSBY, TURNER, MACFARLAND; ASSISTANT PROFESSORS BOWLES, BROWN, TWOMBLY; MR. DORRITY

The Electrical Engineering curriculum consists of a logical sequence of courses which, beginning with the basic principles of electric circuits and machines and electronic apparatus, progresses in the advanced courses into the design and operating characteristics of equipment involved in both power and communication systems, as well as the functioning of systems as a whole.

Course work in electro-acoustics, illuminating engineering, feedback control, circuit analysis, and engineering management gives breadth to the curriculum. The principles of vacuum tubes, transistors, and their associated circuits developed in the study of radio, television, and ultra-high-frequency systems provide a substantial background of theory and laboratory experience in modern electronics. Opportunity is provided for the student to concentrate his work in either the power or communication division, but many students prefer to elect some courses in each and so achieve a broader training.

It is the aim of this curriculum to train the student in those fundamental principles which not only find application in electrical research, development, design, and other work of a strictly engineering character, but also serve as basic training for advancement to commercial and administrative positions with electric power and communication utilities, governmental agencies, and various manufacturing and industrial organizations.

## COLLEGE OF TECHNOLOGY

### Graduate Work in Electrical Engineering

A program of graduate study is available for a limited number of students. As a condition for acceptance as a candidate for the degree of Master of Science in Electrical Engineering, the student must have obtained honor grades in a large portion of his major undergraduate work.

**Freshman Year.** See Page 188.

### Sophomore Year

| FALL SEMESTER | | | | | | SPRING SEMESTER | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Subject | Hours Rec | Lab or Comp | Cr | | | Subject | Hours Rec | Lab or Comp | Cr |
| Ee | 1 | Elements of Elec. Eng. | 3 | 4 | 5 | Ee | 2 | Elements of Elec. Eng. | 3 | 4 | 5 |
| Ms | 27 | Calculus | 5 | 0 | 5 | Eh | 9 | Modern Literature | 2 | 0 | 2 |
| Mt | 3 | Military Science II | 2 | 1 | 2 | Ms | 28 | Calculus | 5 | 0 | 5 |
| Pe | 3 | Physical Education | 0 | 2 | 0 | Mt | 4 | Military Science II | 2 | 1 | 2 |
| Py | 1 | General Psychology | 2 | 2 | 3 | Pe | 4 | Physical Education | 0 | 2 | 0 |
| Sh | 1 | Public Speaking | 2 | 0 | 2 | Ps | 36 | Modern Physics | 3 | 0 | 3 |
| | | Hum. Elective | | | 3 | | | Hum. Elective | | | 3 |

### Junior Year

| | | | Lab Rec | or Comp | Cr | | | | Lab Rec | or Comp | Cr |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Ee | 13 | Electronics | 2½ | 1½ | 3 | Ee | 14 | Electronics | 2½ | 1½ | 3 |
| Ee | 21 | Elem. of Communication | 2 | 0 | 2 | Ee | 24 | D-C Machine Lab. | 0 | 3 | 1 |
| Ee | 23 | D-C Machinery | 2 | 0 | 2 | Ee | 30 | A-C Circuits | 2 | 2 | 3 |
| Ee | 29 | A-C Circuits | 2 | 2 | 3 | Ee | 52 | A-C Machinery | 3 | 0 | 3 |
| Me | 50 | Applied Mechanics | 3 | 0 | 3 | Eh | 5 | Technical Comp. | 2 | 0 | 2 |
| Ms | 57 | Eng. Mathematics I | 3 | 0 | 3 | Me | 52 | Applied Mechanics | 3 | 0 | 3 |
| | | Hum. Elective | | | 3 | | | Options—one required | | | |
| | | | | | | Ms | 58 | Eng. Mathematics II | 3 | 0 | 3 |
| | | | | | | | | Hum. Elective | | | 3 |

### Senior Year (Power Engineering)

| | | | Lab Rec | or Comp | Cr | | | | Lab Rec | or Comp | Cr |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Ee | 65 | Elec. Power Systems | 2 | 3 | 3 | Ee | 60 | Adv. Elec. Machinery | 4 | 2-3 | 5 |
| Ee | 75 | Electric Power Lab. | 1 | 3 | 2½ | Ee | 66 | Elec. Power Systems | 2 | 2-3 | 3 |
| Me | 33 | Thermodynamics | 3 | 0 | 3 | Me | 62 | Heat Transfer & Fluid Flow | 3 | 0 | 3 |
| | | Options—three required | | | | | | Options—two required | | | |
| Ee | 59 | Elec. Machine Design | 2 | 2 | 3 | Ee | 64 | Elec. Motive Power | 3 | 0 | 3 |
| Ee | 91 | Illuminating Eng. | 2½ | 1 | 3 | Ee | 90 | Servomechanism Funds. | 3 | 0 | 3 |
| Ee | 94 | Eng. Administration | 3 | 0 | 3 | Ee | 99 | Thesis | | | 1-3 |
| Ee | 99 | Thesis | | | 1-3 | | | | | | |
| Ms | 59 | Vector Analysis | 3 | 0 | 3 | | | | | | |

## Senior Year (Communication Engineering)

FALL SEMESTER

| | | Subject | Hours Rec | Lab or Comp | Cr |
|---|---|---|---|---|---|
| Ee | 75 | Electric Power Lab. | 1 | 3 | 2½ |
| Ee | 81 | Communication Eng. | 1 | 4 | 3 |
| Ee | 85 | Radio Engineering | 2 | 2 | 3 |
| Ee | 87 | Radio Laboratory | 0 | 3 | 1½ |
| Me | 33 | Thermodynamics | 3 | 0 | 3 |
| | | Options—one required | | | |
| Ee | 89 | Electro-Acoustics | 3 | 0 | 3 |
| Ee | 91 | Illuminating Eng. | 2½ | 1 | 3 |
| Ee | 94 | Eng. Administration | 3 | 0 | 3 |
| Ee | 99 | Thesis | | | 1-3 |
| Ms | 59 | Vector Analysis | 3 | 0 | 3 |

SPRING SEMESTER

| | | Subject | Hours Rec | Lab or Comp | Cr |
|---|---|---|---|---|---|
| Me | 62 | Heat Transfer & Fluid Flow | 3 | 0 | 3 |
| | | Options—five required | | | |
| Ee | 80 | High Freq. Systems | 2 | 2 | 3 |
| Ee | 82 | Communication Eng. | 0 | 4 | 2 |
| Ee | 86 | Radio Engineering | 2 | 2 | 3 |
| Ee | 88 | Radio Laboratory | 0 | 3 | 1½ |
| Ee | 90 | Servomechanism Funds. | 3 | 0 | 3 |
| Ee | 99 | Thesis | | | 1-3 |
| Ms | 60 | Adv. Eng. Math. | 3 | 0 | 3 |

## Courses in Electrical Engineering

***1; 2. Elements of Electrical Engineering.***—Fundamentals of electric, magnetic, and dielectric circuits; single phase a-c circuits; electrical measurements. Prerequisite, Ps 1, 2 and Ms 12. *Rec* 3, *Comp* 2, *Lab* 2, *Cr* 5.

***7; 8. Electric Circuits and Machines.***—Theory of electric circuits; characteristics and applications of electric machinery. Prerequisite, Ms 12 and Ps 2. *Rec* 2½, *Lab* 1½, *Cr* 3.

***11; 12. Basic Electrical Engineering.***—Basic theory of electric circuits and machinery. More thorough courses than Ee 41 and Ee 46. Prerequisite, Ms 28. *Rec* 2½, *Lab* 1½, *Cr* 3.

***13. Electronics I.***—Theory of vacuum tubes, gas tubes; photoelectric cells, and magnetic amplifiers; structure and general behavior of semi-conductors exemplified by crystal rectifiers and transistors; analysis and design of associated circuits; measuring techniques. Prerequisite, Ee 2, 8, 11, or 41. *Rec* 2½, *Lab* 1½, *Cr* 3.

***14. Electronics II.***—Tube and solid state power rectifiers; multistage audio-frequency and direct current amplifiers; feedback; audio-frequency oscillators and power amplifiers; laboratory examples. Prerequisite, Ee 13. *Rec* 2½, *Lab* 1½, *Cr* 3.

***21. Elements of Communication.***—Characteristics of the auditory and vocal systems; elements of image analysis and vision; colorimetry; visual and aural aspects of information transfer, information theory; coding and decoding of information; noise; storage of information; principles of feedback and automation. Prerequisite, Ps 2 and Ms 12. *Rec* 2, *Cr* 2.

***23. Direct Current Machinery.***—Theory, construction, operating characteristics, and control of direct current motors and generators; introductory study of rotating amplifiers and control circuits in which they are applied. Prerequisite, Ee 2. *Rec* 2, *Cr* 2.

***24. D-C Machine Laboratory.***—Experimental study of d-c machines to illustrate principles outlined in course Ee 23. Prerequisite, Ee 23. *Lab* 3, *Cr* 1.

***29; 30. Alternating Current Circuits.***—Analysis of single phase and balanced and unbalanced polyphase circuits; introduction to symmetrical components; magnetically coupled circuits; non-sinusoidal waves; steady state and transient phenomena. Prerequisite, Ee 2. *Rec* 2, *Comp or Lab* 2, *Cr* 3.

***41. Electric Circuits.***—Basic course for non-electricals in direct current circuits; magnetic circuits; induced electromotive force; alternating current circuits. *Rec* 2, *Cr* 2.

***43. Applied Electronics.***—Theory and applications of electron tubes. Elementary laboratory tests. Prerequisite, Ee 8, 11 or 41. *Rec* 1½, *Lab* 1, *Cr* 2.

***46. Electric Machinery.***—Theoretical principles and operating characteristics of direct and alternating current machinery. Prerequisite, Ee 41. *Rec* 2, *Cr* 2.

***52. Alternating Current Machinery.***—Theory, construction, and operating characteristics of alternating-current motors, generators, transformers, and rectifiers. Utilization of polyphase power. Prerequisite, Ee 23 and 29. *Rec* 3, *Cr* 3.

***59 (159). Electric Machine Design.***—A study of the principles and practice of electric machine design, with emphasis on basic topics such as core dimensions and winding layouts. Prerequisite, Ee 52. *Rec* 2, *Comp* 2, *Cr* 3.

***60 (160). Advanced Electric Machinery.***—Advanced study of a-c machinery. Analysis of machine performance from test data and from design charts. Prerequisites, Ee 52, and 75. *Rec* 4, *Lab or Comp* 2 or 3, *Cr* 5.

***61 (164). Electromotive Power.***—Problems of power requirement and control in railway transportation and other industrial applications with particular attention given to the use of electronic, magnetic, and rotating control devices. Prerequisite, Ee 52. *Rec* 3, *Cr* 3.

***65; 66 (165; 166). Electric Power Systems.***—Introduction to current practice in the generation, transmission, and distribution of electric power, with emphasis on the technical problems of long lines and system networks. Prerequisites, Ee 29 and 52. *Rec* 2, *Comp or Lab* 2 or 3, *Cr* 3.

***75. Electric Power Laboratory.***—Experimental study of polyphase networks. Commercial tests and laboratory investigations of alternating-current generators, motors, transformers, and converters. Prerequisite, Ee 52. *Rec* 1, *Lab* 3, *Cr* 2½.

***80 (180). High Frequency Systems.***—A study of high-frequency communication apparatus. Television, radar, microwave relays, and similar systems. Analysis of circuits associated with these systems. Prerequisite, Ee 85. *Rec* 2, *Seminar* 2, *Cr* 3.

***81 (181). Communication Engineering.***—Telephone circuit analysis; network analysis by use of propagation and image transfer constants; design of attenuators, equalizers, and filters; audio-frequency lines. Prerequisite Ee 30. *Rec* 1, *Comp* 4, with Lab periods substituted for equivalent class time. *Cr* 3.

***82 (182). Communication Engineering.***—High-frequency lossy and lossless lines; waves in free space; wave guides. Prerequisite, Ee 81. *Comp* 4, *Cr* 2.

***85; 86 (185; 186). Radio Engineering.***—Inductors, capacitors and resistors for radio frequencies; mathematical analysis of radio frequency circuits and methods of excitation; amplitude, frequency, and phase modulation; detection; theoretical analysis and quantitative treatment of antennas and wave propagation. Prerequisite, Ee 13. Ee 87 is required concurrently. *Rec* 2, *Comp* 2, *Cr* 3.

***87; 88 (187; 188). Radio Laboratory.***—Frequency measurements; radio-frequency amplifiers; tests of tube transmitters and receivers; speech input systems; filters; modulation; radio direction finding; antenna arrays; field srength measurements. Ee 85; 86 required concurrently. *Lab* 3, *Cr* 1½.

***89 (189). Electro-Acoustics.***—Physiology of speech and hearing; acoustic waves; dynamical systems of microphones, and loud speakers; sound recording;

studio and theater acoustics. Prerequisite, Ee 21. *Rec* 3, with 4 Lab periods substituted for equivalent class time. *Cr* 3.

***90 (190). Servomechanism Fundamentals.***—The study of feedback control systems with special emphasis on servo systems; demonstration of basic feedback control system design using classical solution of differential equations and Laplace transformations. Prerequisite, Ee 7 or 23 and Ms 55 or 57. *Rec* 3, *Cr* 3.

***91 (191). Illuminating Engineering.***—General illumination theory; different types of lamps; light, photometry, illumination calculations; problems of interior and exterior lighting. Prerequisite, Ee 21. *Rec* 2½, *Lab* 1, *Cr* 3.

***94 (194). Engineering Administration.***—Executive techniques in engineering organizations, including capitalization and amortization, engineering surveys and planning, labor relations and utilization, time and motion study, statistical quality control, technical purchasing and inventory control, safety programs, and patent applications. Open only to Juniors and Seniors. *Rec* 3, *Cr* 3.

***99. Thesis.***—The study of and report upon some original investigation or design. See regulations regarding degrees. *Cr* 1-3.

### Graduate Courses

***235; 236. Advanced Electric Power Systems.***—*Rec* 2 or 3, *Cr* 2 or 3.
***240; 241. Communication Networks.***—*Rec* 2, *Cr* 2.
***242. Electromagnetic Waves.***—*Rec* 2, *Cr* 2.
***247; 248. Circuit Laboratory.***—*Lab* 4, *Cr* 2.
***280. Pulse Techniques.***—*Rec* 2, *Comp* 2, *Cr* 3.
***283. Microwave Circuits.***—*Rec* 2, *Cr* 2.
***292; 293. Transients in Linear Systems.***—*Rec* 2, *Cr* 2.
***295. Communication Seminar.***—*Rec* 2, *Cr* 2.
***298. Advanced Control Systems.***—*Rec* 3, *Cr* 3.
***299. Graduate Thesis.***—*Cr* 6-12.

## ENGINEERING GRAPHICS

PROFESSOR MCNEARY; ASSISTANT PROFESSORS KELSO AND WESTFALL; MR. DESCHANES

The thoughts and computations of engineers and all other persons engaged in design must be put down eventually on paper in a form intelligible to the craftsman who is to do the actual construction. Making drawings for this form of communication is the most familiar phase of engineering graphics. All Technology students, and many students from other Colleges in the University who have an interest in design, take the basic courses in engineering drawing.

Another phase of engineering graphics concerns itself with problem-solving rather than the delineation of objects for manufacture or construction. Descriptive geometry and nomography are two sciences that fall in this category.

The Department of Engineering Graphics does not have major students, but offers service courses to students majoring in other curricula, principally Technology and Forestry.

***1; 2. Engineering Drawing.***—Elements of graphic science for engineers. Creative exercises in instrumental drawing, multi-view drawing, freehand technical sketching, and lettering. Course 2 introduces instrumental and freehand pictorial drawing, and concludes with the preparation of working drawings for elementary design problems requiring creative thinking. *Rec* & *Lab* 4, *Cr* 2. THE STAFF

***3. Descriptive Geometry.***—The solution of problems of a three-dimensional nature by graphic methods. Theoretical and applied problems are given. Prerequisite, Course 1. *Rec & Lab* 4, *Cr* 2. THE STAFF

***4. Machine Drawing.***—The making of detail and assembly drawings of machinery. Special attention is given to the specification of allowances and tolerances, surface finishes, and other like matters relating to production processes. Prerequisite, Course 2. *Rec & Lab* 4, *Cr* 2. THE STAFF

***5. Architectural Drawing.***—The preparation of floor plans, elevations, sections, and pictorial renderings of homes and small buildings. Prerequisite, Course 1. *Rec & Lab* 4, *Cr* 2. MR. WESTFALL

***12. Forestry Drawing.***—A further study of orthographic and pictorial drawing with applied problems in wood utilization, topographical drawing, and other fields related to forestry. Prerequisite, Course 1. *Rec & Lab* 4, *Cr* 2. MR. WESTFALL

***50 (150). Nomography.***—The construction of graphical representations of equations which must be solved repeatedly. Topics include stationary adjacent scales, special slide rules, alignment charts, and network charts. *Rec* 1, *Lab* 2, *Cr* 2. MR. MCNEARY

## ENGINEERING PHYSICS

PROFESSORS BENNETT, CROFUTT, AND BISCOE; ASSOCIATE PROFESSORS COFFIN AND KRUEGER; ASSISTANT PROFESSORS TODD, WYLIE, THOMAS AND CARR; MR. RILEY, MR. RICH, MR. HARTT, MR. RUTA

This curriculum is an answer to the growing demand on the part of industry for college men trained in physics in an engineering atmosphere. It recognizes the fact that for certain students undergraduate specialization in a single engineering field is not a rigid requirement for success in industrial work. In such cases, however, concentration on the scientific principles underlying engineering is often assumed. This program is basically one of applied science supplemented by a strong minor, consisting of a sequence of technical electives, in one or more of the well-defined engineering or science fields. It is developed around a framework of required courses in intermediate and advanced physics, mathematics, and chemistry in addition to certain strictly engineering courses, some required and some elected in the last two years. Thus the emphasis is placed upon both engineering and physics.

The curriculum is also suited for those students who, by virtue of their ability and interest, may be preparing to do graduate work. Graduates have successfully pursued graduate study in Physics and in various fields of Engineering.

### Graduate Work in Physics

Graduate opportunities and requirements for the Master of Science degree in Physics are given on page 158 and in the catalog section on Graduate Study.

**Freshman Year.** See Page 188.

## Sophomore Year

| FALL SEMESTER | | | | | | SPRING SEMESTER | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Subject | | | Hours | | | Subject | | | Hours | | |
| | | | Rec | Lab or Comp | Cr | | | | Rec | Lab or Comp | Cr |
| *Be | 1 | Prin. of Economics or other | | | | *Be | 2 | Prin. of Economics or other | | | |
| | | Hum. Elective I | 3 | 0 | 3 | | | Hum. Elective I | 3 | 0 | 3 |
| *Gm | 11 | German for Chemists (Elem.) or other | | | | *Gm | 12 | German for Chemists (Elem.) or other | | | |
| | | Hum. Elective II | 3 | 0 | 3 | | | Hum. Elective II | 3 | 0 | 3 |
| Me | 7 | Machine Tool Lab. | 1 | 2 | 1½ | Ch | 41 | Quant. Anal. | 2 | 3 | 3 |
| Ms | 27 | Differential Calculus | 5 | 0 | 5 | Ms | 28 | Integral Calculus | 5 | 0 | 5 |
| Mt | 3 | Military Science II | 2 | 1 | 2 | Mt | 4 | Military Science II | 2 | 1 | 2 |
| Pe | 3 | Physical Education | 0 | 2 | 0 | Pe | 4 | Physical Education | 0 | 2 | 0 |
| Ps | 17 | Intermed. Physics | 2 | 4 | 4 | Ps | 18 | Intermed. Physics | 2 | 4 | 4 |
| Sh | 1 | Public Speaking | 2 | 0 | 2 | | | | | | |

## Junior Year

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Rec | Lab or Comp | Cr | | | | Rec | Lab or Comp | Cr |
| Eh | 5 | Technical Comp. | 2 | 0 | 2 | Me | 54 | Mechanics | 3 | 0 | 3 |
| Me | 53 | Mechanics | 3 | 0 | 3 | Ms | 58 | Eng. Math. II | 3 | 0 | 3 |
| Ms | 57 | Eng. Math. I | 3 | 0 | 3 | *Ps | 66 | Electronic Phen. | 3 | 0 | 3 |
| Ps | 53 | Elec. Meas. | 0 | 4 | 2 | Ps | 72 | Optics | 3 | 0 | 3 |
| Ps | 55 | Elec. and Mag. | 3 | 0 | 3 | Ps | 76 | Phys. Meas. | 0 | 4 | 2 |
| | | Hum. Elective | 3 | 0 | 3 | | | Hum. Elective | 3 | 0 | 3 |
| †Technical Electives (choose one field) | | | | | | †Technical Electives (choose one field) | | | | | |
| †ChE | 1 | Fund. Chem. Eng. | 2 | 4 | 4 | †ChE | 2 | Fund. Chem. Eng. | 2 | 4 | 4 |
| †Ch | 71 | Physical Chemistry | 2 | 6 | 5 | †Ch | 72 | Physical Chem. | 2 | 6 | 5 |
| †Ee | 11 | Basic Elec. Eng. | 2 | 3 | 3 | †Ee | 12 | Basic Elec. Eng. | 2 | 3 | 3 |
| †Me | 33 | Thermodynamics | 3 | 0 | 3 | †Me | 34 | Thermodynamics | 3 | 0 | 3 |

## Senior Year

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Rec | Lab or Comp | Cr | | | | Rec | Lab or Comp | Cr |
| Ee | 11 | Basic Elec. Eng. | 2 | 3 | 3 | **Ch | 84 | Metallurgy | 3 | 0 | 3 |
| *Ms | 59 | Vector Anal. | 3 | 0 | 3 | (required unless Ch 71 is elected) | | | | | |
| Ps | 69 | Modern Physics | 3 | 0 | 3 | **Ee | 12 | Basic Elec. Eng. | 2 | 3 | 3 |
| *Ps | 70 | Nuclear Physics | 2 | 1 | 3 | *Ms | 60 | Adv. Eng. Math. | 3 | 0 | 3 |
| Ps | 81 | Advanced Lab. | 0 | 6 | 3 | Ps | 62 | Heat and Thermo. | 3 | 0 | 3 |
| *Ps | 91 | Math. Physics I | 3 | 0 | 3 | Ps | 82 | Advanced Lab. | 0 | 6 | 3 |
| Ps | 98a | Seminar | 1 | 0 | ½ | *Ps | 92 | Math. Physics II | 3 | 0 | 3 |
| | | | | | | Ps | 98b | Seminar | 1 | 0 | ½ |
| †Technical Electives (same field as chosen in junior year) | | | | | | †Technical Electives (same field as chosen in junior year) | | | | | |
| †ChE | 64 | Elem. Chem. Eng. | 3 | 0 | 3 | †ChE | 65 | Elem. Chem. Eng. | 3 | 0 | 3 |
| †Ch | 51 | Organic Chem. | 3 | 4 | 5 | †Ch | 52 | Organic Chem. | 3 | 4 | 5 |
| †Ee | 13 | Electronics | 2 | 3 | 3 | †Ee | 14 | Electronics | 2 | 3 | 3 |
| †Me | 59 | Fluid Mechanics | 3 | 0 | 3 | †Me | 92 | Aerodynamics | 3 | 0 | 3 |

* The asterisk designates courses which are recommended electives. Approved substitutions can be made. See page 189 for humanity requirements in Bands I and II. It is expected that during the junior and senior years a normal registration will be from 18 to 20 hours each semester. Students who may continue with graduate work will do well to take at least one year of German.

† Under Technical Electives the student is expected to complete in the junior and senior years

an informal "minor" consisting of approximately 12 hours (or no less than 3 semester courses) in a given field of Engineering or Science. In a given field it is recommended that a sequence of courses be followed, commencing with the course listed under "Technical Electives" in the junior year. Students choosing the field of Electrical Engineering may count the required courses Ee 11 and Ee 12 as technical electives. Students choosing the field of Mechanical Engineering should try to include some mechanical laboratory work in the senior year.

** The double asterisk designates courses which are required unless suitable substitutions are made.

**Courses in Engineering Physics.** See Page 155.

## MECHANICAL ENGINEERING

PROFESSORS WATSON, PRAGEMAN, SPARROW; ASSOCIATE PROFESSORS HILL, SULLIVAN, LYMAN, CLIFFORD; ASSISTANT PROFESSORS DEMING, CALKINS, CHAPMAN, CLARK; MR. GRANT, MR. HOPKINS, MR. LASKEY, MR. VEST

The Mechanical Engineering curriculum is broad, highly technical, and designed to give the student the necessary background to prepare him for various types of positions available in industry. Emphasis is placed on the fundamental principles underlying the numerous fields of mechanical engineering and their application to practical engineering problems. The fields of mechanical engineering include aeronautical, automotive, steam power, transportation, refrigeration, heating and air conditioning, Diesel engines, industrial safety, sales, research, and management. The mechanical engineer may be responsible, either directly or in an administrative capacity, for the design, development, production, installation, operation and maintenance of machines for industries in the various fields.

Courses in electrical engineering are included in the curriculum to provide the student with a background for this phase of engineering, which he probably will encounter in industry. Non-technical courses are included in the program to broaden the student's perspective and to prepare him for the administrative responsibilities he will assume later.

An option in pulp and paper management, a five-year course, is available to mechanical engineers who are interested in this field of work. This option includes all of the required courses for the four-year curriculum in mechanical engineering, plus essential courses in chemistry, chemical engineering, and pulp and paper, as well as selected courses in business administration. It leads to the Bachelor of Science degree in Mechanical Engineering and a certificate indicative of the Management Option in Pulp and Paper.

### Graduate Work in Mechanical Engineering

The program for graduate study will vary in each case since the courses required as a background for the thesis will depend upon the specific phase of mechanical engineering chosen for the investigation. Advanced courses in mathematics are usually required in all programs.

**Freshman Year.** See Page 188.

### Sophomore Year

| FALL SEMESTER | | | | | | SPRING SEMESTER | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | Subject | | Hours | | | | Subject | | Hours | | |
| | | | Rec | Lab or Comp | Cr | | | | Rec | Lab or Comp | Cr |
| Eg 3 | Desc. Geometry | | 0 | 4 | 2 | Sh 1 | Public Speaking | | 2 | 0 | 2 |
| Me 1 | Mfr. Tools & Proc. | | 1 | 2 | 1½ | Me 22 | Elem. of Mech. Eng. | | 3 | 0 | 3 |
| Me 21 | Engr. Mats. & Metall. | | 3 | 0 | 3 | Me 26 | Mechanical Lab. | | 0 | 3 | 1½ |
| Ms 27 | Calculus | | 5 | 0 | 5 | Me 50 | Appl. Mechanics, Statics | | 3 | 0 | 3 |
| Mt 3 | Military Science II | | 2 | 1 | 2 | Ms 28 | Calculus | | 5 | 0 | 5 |
| Pe 3 | Physical Education | | 0 | 2 | 0 | Mt 4 | Military Science II | | 2 | 1 | 2 |
| | Hum. Elective | | | | 6 | Pe 4 | Physical Education | | 0 | 2 | 0 |
| | | | | | | | Hum. Elective | | | | 3 |

### Junior Year

| | | | Lab | | | | | | Lab | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Rec | or Comp | Cr | | | | Rec | or Comp | Cr |
| Me 7 | Mach. Tools & Mfr. Proc. | | 1 | 2 | 1½ | Eh 5 | Technical Comp. | | 2 | 0 | 2 |
| Me 23 | Kinematics | | 3 | 3 | 4 | Ee 7 | Elec. Cir. & Machines | | 2 | 3 | 3 |
| Me 33 | Thermodynamics | | 3 | 0 | 3 | Me 8 | Mach. Tools & Mfr. Proc. | | 1 | 2 | 1½ |
| Me 37 | Mechanical Lab. | | 0 | 3 | 1½ | Me 24 | Machine Design | | 2 | 3 | 3 |
| Me 51 | Strength of Materials | | 4 | 0 | 4 | Me 34 | Thermodynamics | | 3 | 0 | 3 |
| Ms 57 | Eng. Math. | | 3 | 0 | 3 | Me 38 | Mechanical Lab. | | 0 | 3 | 1½ |
| | Hum. Elective | | — | — | — | Me 52 | Appl. Mechanics, Dynamics | | 3 | 0 | 3 |
| | | | | | | | Hum. Elective | | — | — | — |

### Senior Year

| | | | Lab | | | | | | Lab | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Rec | or Comp | Cr | | | | Rec | or Comp | Cr |
| Ee 8 | Elec. Cir. & Mach. | | 2 | 3 | 3 | Ee 43 | Appl. Electronics | | 1½ | 1 | 2 |
| Me 59 | Fluid Mechanics | | 3 | 0 | 3 | Me 60 | Heat Transfer | | 3 | 0 | 3 |
| Me 71 | Mechanical Lab. | | 0 | 3 | 1½ | Me 72 | Mechanical Lab. | | 0 | 3 | 1½ |
| Me 87 | Adv. Mach. Design | | 1 | 3 | 2 | Me 86 | Power Plants | | 3 | 0 | 3 |
| | Hum. Elective | | — | — | — | Me 96 | Seminar | | 1 | 0 | 1 |
| | Tech. electives, two required | | | | | | Hum. Elective | | — | — | — |
| Me 81 | Modern Turbines | | 2 | 3 | 3 | | Tech. electives, one required | | | | |
| Me 91 | Heating & Air Cond. | | 3 | 0 | 3 | Me 58 | Adv. Strength of Materials | | 3 | 0 | 3 |
| Me 93 | I. C. Engines | | 3 | 0 | 3 | Me 84 | Industrial Mgt. | | 3 | 0 | 3 |
| | | | | | | Me 92 | Aerodynamics | | 3 | 0 | 3 |

## PULP AND PAPER MANAGEMENT OPTION IN MECHANICAL ENGINEERING

### Five Year Program

The first three years of this program are the same as the regular mechanical engineering program, as stated above, including all specified courses through the junior year.

## Senior Year

| FALL SEMESTER | | | | | | SPRING SEMESTER | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Subject | | | Hours Rec | Lab or Comp | Cr | Subject | | | Hours Rec | Lab or Comp | Cr |
| Ee | 8 | Elec. Cir. & Mach. | 2 | 3 | 3 | Ee | 43 | Appl. Electronics | 1½ | 1 | 2 |
| Me | 59 | Fluid Mechanics | 3 | 0 | 3 | Me | 72 | Mechanical Lab. | 0 | 3 | 1½ |
| Me | 71 | Mechanical Lab. | 0 | 3 | 1½ | Me | 84 | Industrial Mgt. | 3 | 0 | 3 |
| Me | 87 | Adv. Mach. Design | 1 | 3 | 2 | Me | 86 | Power Plants | 3 | 0 | 3 |
| Pa | 65 | Pulp Technology | 3 | 0 | 3 | Ch | 41 | Quant. Analysis | 2 | 3 | 3 |
| | | Tech. electives, one required | | | | Be | 9 | Elem. Acctg. | 3 | 0 | 3 |
| Me | 81 | Modern Turbines | 2 | 3 | 3 | Pa | 66 | Paper Technology | 3 | 0 | 3 |
| Me | 91 | Heating & Air Cond. | 3 | 0 | 3 | | | | | | |
| Me | 93 | I. C. Engines | 3 | 0 | 3 | | | | | | |
| | | Hum. Elective | — | — | — | | | | | | |

## Fifth Year

| | | | Rec | Lab or Comp | Cr | | | | Rec | Lab or Comp | Cr |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Bc | 51 | Corp. Finance | 3 | 0 | 3 | Ms | 31 | Math. Statistics | 3 | 0 | 3 |
| Pa | 73 | Pulp Mfr. & Test. | 0 | 8 | 4 | Me | 60 | Heat Transfer | 3 | 0 | 3 |
| Pa | 84 | Mgt. and Operation Paper Mills | 3 | 0 | 3 | Me | 96 | Seminar | 1 | 0 | 1 |
| Pa | 89 | Pulp & Paper Mill Inspection | 0 | 4 | 2 | Pa | 72 | Pulp & Paper Equip. | 3 | 0 | 3 |
| | | Hum. Elective | — | — | — | Pa | 74 | Paper Mfr. & Testing | 0 | 8 | 4 |
| | | Tech. electives, one required | | | | | | Engrg. Project | | | 3 |
| Me | 81 | Modern Turbines | 2 | 3 | 3 | | | Elective | — | — | — |
| Me | 91 | Heating & Air Cond. | 3 | 0 | 3 | | | | | | |
| Me | 93 | I. C. Engines | 3 | 0 | 3 | | | | | | |

A student desiring to elect this option must submit his application before May 1st of his junior year.

### Courses in Mechanical Engineering

***1. Manufacturing Tools and Processes.***—Modern tools and processes, engineering nomenclature and terminology. Discussions of usual shop processes and machines; production processes, their possibilities and limitations as applied to pattern work and foundry processes. Gages used in unit-production and mass-production system measurements. *Rec and Lab* 3, *Cr* 1½. MR. LASKEY

***7; 8. Machine Tools and Manufacturing Processes.***—Discussion of various machine tools and materials employed in modern manufacturing processes. Use of basic machine tools, stressing the selection of feeds, speeds, depth of cuts and workability for various metals in different operations. *Rec and Lab* 3, *Cr* 1½. MR. HOPKINS

***21. Engineering Materials and Metallurgy.***—A study of ferrous and non-ferrous metals; the theory of binary alloy equilibrium microstructures; properties and their relationship to composition, mechanical work, heat treatment. *Rec* 3, *Cr* 3. MR. LYMAN AND STAFF

***22. Elements of Mechanical Engineering.***—Elementary thermodynamics, mechanical apparatus, power plant equipment; engineering calculations relative to heat, power, work, and mechanical and electrical energy. *Rec* 3, *Cr* 3.

***23. Kinematics.***—An analysis of the motions of machine parts, including

such machine elements as linkwork, cams, gears, belts, and trains of transmission. *Rec* 3, *Comp* 3, *Cr* 4. MR. PRAGEMAN, MR. CHAPMAN, MR. GRANT

***24. Machine Design.***—Application of the laws of applied mechanics and strength of materials to the design of machine parts. Safety and economic considerations are included. Prerequisite, Me 23 and 51. *Rec* 2, *Comp* 3, *Cr* 3. MR. PRAGEMAN, MR. CLIFFORD

***26. Mechanical Laboratory.***—Slide Rule computations and laboratory experiments on calibration and testing of mechanical equipment. *Lab* 3, *Cr* 1½.

***33. Thermodynamics.***—The thermodynamic system, properties, equations relating properties, processes, the First and Second Laws and their corollaries. Prerequisite, Ms 28 and Ps 1, 2. *Rec* 3, *Cr* 3. MR. HILL, MR. LYMAN

***34. Thermodynamics.***—The application of the concept and laws of Me 33. Selected topics in the following areas: steam power plants, internal combustion engines, refrigeration, compressors, nozzles and turbines, flow measurement of compressible and incompressible fluids; combustion and air conditioning. Prerequisite, Me 33. *Rec* 3, *Cr* 3. MR. HILL, MR. LYMAN

***37; 38. Mechanical Laboratory.***—Applications of the principles and laws of thermodynamics and mechanics of materials in experiments on various types of mechanical equipment and engineering materials. Me 33, 51, 34 are required concurrently. *Lab* 3, *Cr* 1½. MR. SPARROW, MR. CALKINS AND STAFF

***41. Mechanical Laboratory.***—For non-mechanical engineers. Calibration in instruments; testing strength of materials; testing of steam engines, gas engines, hydraulic testing. Prerequisite, Me 43 or ChE 37. *Lab* 3, *Cr* 1½.

***43. Heat Engineering.***—A short course for non-mechanical engineers covering the laws of thermodynamics and their application to heat motors, air compressors, refrigerating machinery, and power-plant equipment. Prerequisite, Ms 28 and Ps 2. *Rec* 3, *Cr* 3. MR. DEMING

***50. Applied Mechanics, Statics.***—The study of forces acting on objects in equilibrium. Two and three dimensional systems, moments, couples, force analyses of structures; friction: distributed forces, first and second moments, centroids. Prerequisite, Ms 27. *Rec* 3, *Cr* 3. MR. SULLIVAN, MR. CLARK AND STAFF

***51. Strength of Materials.***—The principles of mechanics of materials and their application to practical problems. Stresses and strains in objects subject to tension, compression and torsion; beam theory including deflections; columns; combined stresses. Prerequisite, Me 50. *Rec* 4, *Cr* 4. MR. SULLIVAN AND STAFF

***52. Applied Mechanics, Dynamics.***—The velocities, accelerations, and forces accompanying the motion of objects. Work, energy, impulse, momentum; application to engineering problems. Prerequisite, Me 50. *Rec* 3, *Cr* 3. MR. SULLIVAN AND STAFF

***53. Applied Mechanics.***—A course similar to Me 50 with some kinematics and kinetics included. Prerequisite, Ms 27. *Rec* 3, *Cr* 3. MR. CLARK, MR. GRANT AND STAFF

***54. Strength of Materials.***—An abbreviated course similar to Me 51. Prerequisite, Ms 28 and Me 53. *Rec* 3, *Cr* 3. MR. CLARK, MR. GRANT AND STAFF

***57. Advanced Dynamics.***—Dynamics of a particle, free and forced vibrations, numerical methods. Energy, momentum, engine balancing, flywheels. Vibrations of masses with single, two, and n-degrees of freedom; viscous damping. Gyroscopic motion. Prerequisite, Ms 28 and Me 52. *Rec* 3, *Cr* 3. MR. SULLIVAN

***58 (158). Advanced Strength of Materials.***—Limitations of elementary stress formulas, theories of failure, unsymmetrical bending, curved flexural mem-

bers, flat plates, torsion of non-circular bars, thick-walled cylinder, stress concentrations, energy methods, and introduction to theory of elasticity. Prerequisite, Ms 28 and Me 51. *Rec* 3, *Cr* 3. MR. SULLIVAN

***59 (159). Fluid Mechanics.***—Statics and dynamics of fluids. Compressible and non-compressible fluids. Measurement of fluid flow. Laws of dynamic similitude. Laminar and turbulent flow. Applications to lubrication, aerodynamics, and hydrodynamics. Prerequisite, Me 34 and 52. *Rec* 3, *Cr* 3. MR. DEMING

***60 (160). Heat Transfer.***—The laws of conduction, convection, and radiation of heat energy and their application to engineering problems. The analytical, numerical, and graphical solution of one, two, and three dimensional problems. Prerequisite, Me 33, 59. *Rec* 3, *Cr* 3. MR. DEMING

***62. Heat Transfer and Fluid Flow.***—For non-mechanical engineers. The laws of conduction, convection, and radiation of heat energy. Principles of fluid flow for non-viscous and viscous fluids. Application of the principles of heat transfer and fluid flow to engineering problems. Prerequisite, Me 33 or 43. *Rec* 3, *Cr* 3. MR. DEMING

***71; 72. Mechanical Laboratory.***—Application of basic laws and theory in tests on condensers, boilers, air compressors, fans, hydraulic equipment, heating equipment, internal combustion engines, turbines, and fuels. Special projects. Prerequisite, Me 38. *Lab* 3, *Cr* 1½. MR. SPARROW AND STAFF

***81 (181). Modern Turbines.***—A continuation of Me 33 and 34, dealing with steam and gas turbines; considerations affecting the design and efficiency of operation of the various types. Prerequisite, Me 34. *Rec* 2, *Comp* 3, *Cr* 3. MR. HILL

***84. Industrial Management.***—The management of industrial enterprises, layout of industrial buildings, time and motion study, wage systems and selection of personnel, labor problems, and finance. Prerequisite, M.E. senior. *Rec* 3, *Cr* 3. MR. HILL

***86 (186). Power Plants***—Design, construction, and operating theory of steam, diesel, and hydrcelectric power plants, and the application of engineering economics. Prerequisite M.E. senior. *Rec* 3, *Cr* 3. MR. WATSON, MR. CLIFFORD

***87. Advanced Machine Design.***—A continuation of Me 24, including the execution of the design of some pieces of mechanical equipment. Emphasis is given to the development of creative ability. Prerequisite, Me 24. *Rec* 1, *Comp* 3, *Cr* 2. MR. PRAGEMAN, MR. CLIFFORD, MR. SULLIVAN

***88 (188). Dynamics of Machines.***—The forces due to reciprocating and rotating masses with special application to balancing high-speed machinery, designing governors and flywheels. Prerequisite, Me 23, 24, and 87. *Rec* 2, *Cr* 2.

***90 (190). Advanced Thermodynamics.***—Mathematical relationships; equations of state; equilibrium considerations; thermodynamics of combustion. Prerequisite, Me 93. *Rec* 3, *Cr* 3. MR. HILL

***91 (191). Heating and Air-Conditioning.***—Determination of transmission coefficients for various wall construction. Heat losses from buildings, costs of heating. Design of heating, ventiliating, and air-conditioning systems. Prerequisite, Me 34 or 43. *Rec* 3, *Cr* 3. MR. WATSON

***92 (192). Aerodynamics.***—Flow of an ideal fluid; application of dimensional analysis to engineering problems; properties of airfoils; engine and propeller characteristics; airplane performance calculations; propeller theory. Prerequisite, Me 52 and 59. *Rec* 3, *Cr* 3. MR. SULLIVAN

***93. Internal Combustion Engines.***—Application of thermodynamic laws

and principles to internal combustion engine cycles; theory of design and operation; fuels and combustion; carburetion, detonation, cooling, and lubrication. Prerequisite, Me 34. *Rec* 3, *Cr* 3. MR. CLIFFORD

***94. Hydraulic Machinery.***—Prerequisite, Me 52 and 59. *Rec* 3, *Cr* 3.

***96. Seminar.***—Coordination of various mechanical engineering courses, with the basic principles involved applied to the solution of comprehensive problems. Industrial safety is also covered in this course. *Rec* 1, *Cr* 1. MR. WATSON

***99. Thesis.***—*Cr, Ar.*

### Graduate Courses

***201. Metallography.***—Cr, Ar.

***291. Mechanical Engineering Projects.***—Cr, Ar.

Future scientists studying at Maine

Main Building at Portland Campus

# University of Maine in Portland

WILLIAM L. IRVINE, DEAN

# UNIVERSITY OF MAINE IN PORTLAND

By an act of Maine Legislature, the University of Maine in Portland was established as an integral part of the University of Maine on August 28, 1957, through a merger with Portland Junior College.

Since 1933, Portland Junior College had effectively served the educational needs of many young men in the Portland area. The academic program and campus facilities of the former institution are now being expanded to further extend the educational opportunities for young men in the Portland area who are seeking basic college work (of the first two years) within commuting distances of their homes.

The University of Maine in Portland, with offices at 23 Brighton Avenue, is located in the central section of Portland on an eighteen-acre campus. Present buildings include the Administration Building, which houses the offices of the Dean, Registrar, Bursar, and Director of Admissions; South Hall and Raeburn House; and three classroom and laboratory buildings, West Hall, East Hall, and North Hall. There is a college library, a school store, and an assembly hall-gymnasium-cafeteria building. Authorized for construction is a permanent, multi-purpose, academic building on Falmouth Street.

## ACADEMIC PROGRAM

The University of Maine in Portland is a fully accredited institution.

Basic courses of the first two college years parallel to those at Orono are offered in subject-matter areas essential for continuation to upper class work in degree programs on the Orono campus. For students planning to continue beyond the first two years, programs have been designed to allow continuation at the several colleges of the University in Orono or upper division work at other colleges. Since present facilities do not permit the offering of all second-year courses in preprofessional curricula, transition to Orono for work in some specialized curricula will be necessary after one year at the University of Maine in Portland.

Basic programs are provided for students in the Colleges of Agriculture, Arts and Sciences, Education, and Technology. Curricula covering work of the first two years are available in Arts and Sciences and Education. At the end of the first year, transition to the Orono campus will be necessary for those students who wish to continue programs in the College of Agriculture, the College of Technology, or in certain preprofessional programs such as Chemistry, Physics, Premedicine, etc., which require courses or course sequences not yet available at the University of Maine in Portland.

## ADMISSION

Applications for admission and all inquiries concerning admission to the University of Maine in Portland should be addressed to the Director of Admissions, 23 Brighton Avenue, Portland, Maine. Application blanks should be filled out and returned promptly, together with the application fee of $10.00 which cannot be refunded. Information for veterans may be procured from the Registrar's Office, Administration Building.

The same requirements for admission prevail at both the Orono and Portland campuses of the University. Please see page 27 for these Requirements for Admission.

## FINANCIAL INFORMATION

The student expenses outlined below are the anticipated charges for 1959-60. Changing costs may require an adjustment of these charges.

**Tuition and Fees for the Academic Year**

| Regular Students | Residents of Maine | Non-Residents of Maine |
|---|---|---|
| Tuition | $265.00 | $700.00 |
| Accident Insurance | 9.00 | 9.00 |
| Student Activities | 20.00 | 20.00 |
| Gymnasium | 5.00 | 5.00 |
| | $299.00 | $734.00 |
| Special Students | | |
| Tuition for *each semester hour* | 14.00 | 28.00 |

**Special Fees.**—A graduation fee of $10.00 is charged at the beginning of the second semester of the sophomore year.

A fee of $10.00 is required with the application for admission. This fee cannot be refunded.

A fee of $10.00 is charged for late registration.

Each student provides his own books and supplies, including a physical education uniform. The semester cost varies from $30.00 to $60.00. Students in laboratory courses are required to pay for apparatus broken or lost and for certain supplies.

**Payment of Bills.**—Charges for tuition and fees are due and payable on or before registration day for each semester. Full tuition and fees will be charged for more than nine semester hours.

## ACCIDENT AND SICKNESS INSURANCE

All students are required to carry accident insurance under a group plan provided by a standard insurance company. This insurance gives general compensation for injury by accident from the date of registration in September until Commencement Day in June. The fee is small ($9.00) and covers students off campus as well as on campus. In addition to accident insurance there is available on a voluntary basis group insurance covering sickness. The cost of this extra coverage is small in comparison with the benefits provided. Descriptive folders are furnished incoming students giving details in regard to the two insurance plans. College officers take no part in the administration of the insurance plans other than to provide students with the proper forms and to assist them in filling them out.

## PHYSICAL EXAMINATIONS

At the time of registration each student must present a report showing he has had an examination, preferably by the family physician. These reports are made on forms furnished by the college. A physical examination may be required of any student at any time during his attendance at the college.

Each year through the cooperation of the Maine Department of Health and Welfare chest X-rays are made available to all students without charge.

## UNIVERSITY OF MAINE IN PORTLAND

### STUDENT REGULATIONS

It is assumed that all students admitted to the University of Maine in Portland are willing to subscribe to the following: *The University expects from every student respect for order, morality, and the rights of others, and such sense of personal honor as is demanded of good citizens.* It reserves the right to dismiss any student whose conduct or academic standing is regarded by the administration and faculty to be unsatisfactory. (Please see page 22 for additional information.)

### STUDENT ACTIVITIES

Students organize and take part in many activities during the year. The athletic program and club activities are financed wholly or partly from student activity funds collected each semester.

The Athletic Department of the University of Maine in Portland sponsors varsity basketball, baseball, and golf teams which compete with small college and freshman teams throughout New England. The University of Maine in Portland is a member of the Southwestern Maine Small College Conference.

The Physical Education Department supervises various intramural and informal sports, including soccer.

All student activities other than athletics are organized under the leadership of the Student Council, a group of elected student representatives who discuss the expenditure of the student activity funds by chartered clubs and organizations.

The Student Council members include the class officers. Election campaigns are a prominent campus activity each year.

Chartered groups at present are as follows:

| | |
|---|---|
| Outing Club | Longhair Club |
| Circle K | Jazz Club |
| The Umpire | Camera Club |

Each year students from the University of Maine in Portland have taken active part in the productions of the Masque Candle, Westbrook Junior College's dramatic society.

### COURSES OF INSTRUCTION OFFERED AT PORTLAND

#### Business, Economics and Sociology

(See page 125 for course descriptions)

| | | | |
|---|---|---|---|
| Be | 1; 2 | Principles of Economics | Cr 3 |
| Be | 9; 10 | Elementary Accounting | Cr 3 |
| Be | 41; 42 | Intermediate Accounting | Cr 3 |
| Be | 38 | New England Economy | Cr 3 |
| Be | 61 | Personnel Management | Cr 3 |

#### Engineering Graphics

(See page 207 for course description)

| | | | |
|---|---|---|---|
| Eg | 1; 2 | Engineering Drawing | Cr 2 |

## English, Journalism, Speech

(See pages 131-148-162 for course descriptions)

| | | | |
|---|---|---|---|
| Eh | 1, 2 | Freshman Composition | Cr 3 |
| Eh | 3, 4 | English Literature | Cr 3 |
| Eh | 15, 16 | Masterpieces of English and American Literature | Cr 3 |
| Eh | 43 | American Literature | Cr 3 |
| Eh | 67 | History of the English Language | Cr 2 |
| Sh | 1 | Public Speaking | Cr 2 |
| Sh | 31 | Voice and Diction | Cr 2 |
| Sh | 7 | Debate | Cr 2 |

## Foreign Languages

(See page 134 for course descriptions)

| | | | |
|---|---|---|---|
| Fr | 1-2 | Elementary French | Cr 4 |
| Fr | 3; 4 | Intermediate French | Cr 3 |
| Gm | 1-2 | Elementary German | Cr 4 |
| Gm | 3; 4 | Intermediate German | Cr 3 |
| Sp | 1-2 | Elementary Spanish | Cr 4 |
| Sp | 3; 4 | Intermediate Spanish | Cr 3 |

## History and Government

(See page 141 for course descriptions)

| | | | |
|---|---|---|---|
| Hy | 3; 4 | United States History | Cr 3 |
| Hy | 5; 6 | History of Western Europe | Cr 3 |
| Hy | 21, 22 | Current World Problems | Cr 2 |
| Gt | 1; 2 | American Government | Cr 3 |

## Mathematics

(See page 149 for course descriptions)

| | | | |
|---|---|---|---|
| As | 9 | Descriptive Astronomy | Cr 3 |
| Ms | 1 | Trigonometry | Cr 2 |
| Ms | 3 | College Algebra | Cr 2 |
| Ms | 5; 6 | Elements of College Mathematics | Cr 3 |
| Ms | 7 | Basic Math | Cr 3 |
| Ms | 12 | Analytic Geometry and Calculus | Cr 4 |
| Ms | 15; 16 | Elements of Calculus | Cr 3 |
| Ms | 19 | Statistics | Cr 3 |

## Physical Education

(See pages 229 to 232 for course descriptions)

| | | | |
|---|---|---|---|
| Pe | 1; 2 | Physical Education | Cr 0 |
| Pe | 11, 12 | Technique of Team Sports | Cr 1½ |

## Psychology

(See page 158 for course description)

| | | | |
|---|---|---|---|
| Py | 1; 2 | General Psychology | Cr 3 |

## UNIVERSITY OF MAINE IN PORTLAND

### Science

(See pages 111 to 168 for course descriptions)

| | | | |
|---|---|---|---|
| Ch | 1, 2 | General Chemistry | Cr 4 |
| Ps | 3 | Descriptive Physics | Cr 3 |
| Ps | 1; 2 | General Physics | Cr 5 |
| Bt | 1 | General Botany | Cr 4 |
| Zo | 1 | General Zoology | Cr 4 |

### Technology

(See page 188 for course description)

| | | | |
|---|---|---|---|
| Gc | 5 | Tech Orientation | Cr 0 |

## CONTINUATION AT THE UNIVERSITY OF MAINE IN ORONO

Any degree candidate in good standing at the completion of his program at the University in Portland may continue his education at Orono. Such students should notify the Assistant Dean at Portland by mid-year of the major program in which they intend to specialize at Orono.

## MILITARY SCIENCE AND TACTICS—ROTC

Students transferring from the University of Maine in Portland, to University of Maine in Orono are normally exempt from ROTC by institution authority to the extent indicated below:

Students transferring and accepted as juniors, seniors, or for graduate work are not required to enroll in Basic Military Science.

Students transferring and accepted as sophomores and not exempt by previous military service are required to take one year of Basic Military Science.

Students transferring and accepted as freshmen and not exempt by previous military service are required to take Basic Military Science.

Advanced Military Science.—Advanced Military Science is elective and is not required by state law. Students admitted to Advanced Military Science must have completed Basic Military Science or receive credit for previous military service (veterans) or ROTC Training, meet the physical standards prescribed by the Department of the Army, and be selected by the Professor of Military Science and Tactics and the President of the University based upon their leadership, scholarship, military ability, and potential as officers in the Army Reserve.

# *Graduate Study*

EDWARD N. BRUSH, DEAN

# GRADUATE STUDY

Programs of study leading to the degrees of Master of Arts, Master of Science, Master of Education, and Doctor of Philosophy are offered by the University. At the present time, the Ph.D. degree is awarded only in the fields of chemistry and American history.

Graduate programs in education, and in certain other fields, may be carried on, in whole or in part, during the Summer Sessions. A limited amount of credit toward the degree of Master of Education may be earned in Class Extension courses, offered on the campuses of the University of Maine in Orono and in Portland, at Extension Centers, and elsewhere throughout the state. Candidates for the M.A. degree in English, history, and occasionally in other fields, may find it possible to complete a part of their work in Extension classes. However, Extension work is not accepted toward the M.A. and M.S. degrees in Education.

The professional degrees of Chemical Engineer, Civil Engineer, Electrical Engineer, Forest Engineer, or Mechanical Engineer are granted upon completion of appropriate requirements.

The post-master's Certificate of Advanced Study, designed for teachers and school administrators, is awarded for the completion of a program of thirty hours of work beyond the master's degree.

The applicant who wishes to work toward the degree of Master of Arts or Master of Science is ordinarily expected to have had an undergraduate major, or its equivalent, in the field in which he proposes to do his advanced work. Applicants for most programs leading to the degree of Master of Education are expected to have had sufficient work in professional education to qualify for the appropriate type of certification. Teaching experience is also ordinarily expected.

Under certain circumstances, students are allowed to register once for graduate credit in Summer Session and Extension classes before they have secured admission to graduate study. Approval of an application for admission to graduate study is required before a second such registration, however.

Several scholarships of the value of a year's tuition are available to graduate students with outstanding undergraduate records. A number of departments require the services of graduate assistants who devote part time to study while engaging in teaching or research duties.

No graduate credit is allowed for any work carried on by correspondence.

A thesis is required of all candidates for the M.A. and M.S. degrees, and for the Ph.D. degree.

All work for the M.A. and M.S. degrees must be completed within an eight-year period. For the M.Ed. and the Ph.D. degrees the time limit is ten years.

The Bulletin of the Division of Graduate Study, containing more detailed information concerning the graduate program, may be obtained from the Office of the Dean of Graduate Study, 43 North Stevens Hall.

# *Miscellaneous*

# MILITARY SCIENCE AND TACTICS

PROFESSOR OF MILITARY SCIENCE AND TACTICS, COLONEL OLSON; ASSOCIATE PROFESSORS LIEUTENANT COLONEL PHILBRICK, LIEUTENANT COLONEL ADAMS; ASSISTANT PROFESSORS MAJOR REGAN, MAJOR COLON-TIRADO, MAJOR DUBOIS, MAJOR NORMAN, CAPTAIN GWINN, CAPTAIN MCDONALD, CAPTAIN WIRTH, CAPTAIN CLARK; SERGEANT MAJOR, MASTER SERGEANT WADE; ADMINISTRATIVE NCO, MASTER SERGEANT HOLMES; SUPPLY NCO, MASTER SERGEANT GAIDA, INSTRUCTORS, MASTER SERGEANT KENNEY, MASTER SERGEANT BELL, MASTER SERGEANT EVANS, SERGEANT FIRST CLASS SMITH, SERGEANT FIRST CLASS BRUNDIGE, SERGEANT CRAIG, AND SERGEANT LYLE.

**General.**—The Department of Military Science and Tactics conducts the General Military Science Curriculum prescribed by the Department of the Army for the Senior Division, Army Reserve Officers Training Corps. Under this program, Reserve Commissions are awarded in the various branches of the Army after considering the preference and qualifications of the individual and the needs of the service. Commissions in the Regular Army are offered to selected students.

**Purpose.**—The purpose of the Army ROTC is to train college students as junior officers who have the qualities and the attributes essential to their progressive development as Army officers with particular emphasis on the United States Army Reserve. The senior division provides junior officers for the Regular Army through the selection of a number of Distinguished Military Graduates for direct Regular Army appointment.

**Curriculum.**—The duration of the complete course of instruction is four academic years plus a Summer Camp of six weeks between the junior and senior years. The course is organized and correlated in sequence with the various four-year college curricula. For example:

Mt 1 & 2, Freshman year, 3 hours per week
Mt 3 & 4, Sophomore year, 3 hours per week
Mt 5 & 6, Junior year, 5 hours per week
Summer Camp—End of Junior year, 6 weeks
Mt 7 & 8, Senior year, 5 hours per week.

FALL SEMESTER

| No. | Subject | Hours | | |
|---|---|---|---|---|
| | | Rec | *Lab | Cr |
| Mt 1 | Military Science, basic | 2 | 1 | 1½ |
| Mt 3 | Military Science, basic | 2 | 1 | 2 |
| Mt 5 | Military Science, advanced | 4 | 1 | 3 |
| Mt 7 | Military Science, advanced | 4 | 1 | 3 |

SPRING SEMESTER

| No. | Subject | Hours | | |
|---|---|---|---|---|
| | | Rec | *Lab | Cr |
| Mt 2 | Military Science, basic | 2 | 1 | 1½ |
| Mt 4 | Military Science, basic | 2 | 1 | 2 |
| Mt 6 | Military Science, advanced | 4 | 1 | 3 |
| Mt 8 | Military Science, advanced | 4 | 1 | 3 |

* Drill

## REQUIREMENTS

**Basic Military Science (Mt 1, 2, 3, 4).**—All physically fit male citizens enrolled in the University of Maine are required by state law to complete successfully the Basic Military Science course (2 years) unless exempted by institution authority.

**Exemptions.**—Students in the following categories are normally exempt from the above requirements to the extent indicated in each category:

Students presenting evidence of previous Active Military Service or ROTC training as a claim for exception from the required courses are exempted within the following limits:

Active service or active duty for training:

12 months or more, exempt from Mt 1, 2, 3, 4.

6-12 months, exempt from Mt 1, 2.

Less than 6 months, no exemption.

Senior division (College), Army, Air or Naval ROTC training—that part of the course successfully completed.

Military School Division ROTC—partial credit in accordance with Army regulations.

Junior division (high school) ROTC Training:

Mt 1—no exemption

Mt 1 and 2—no exemption

Mt 1, 2, 3, exempt from Mt 1, 2.

Transfer students (not otherwise exempt) accepted as juniors, seniors, or for graduate work, exempt from Mt 1, 2, 3, 4.

Transfer students (not otherwise exempt) accepted as sophomores, exempt from Mt 1 and 2, or Mt 3 and 4.

Transfer students (not otherwise exempt) accepted as freshmen, no exemptions.

**Advanced Military Science (Mt 5, 6, 7, 8).**—Advanced Military Science is elective and is not required by state law. Students admitted to Advanced Military must: have completed Basic Military Science or have received credit for previous military training, meet the physical standards prescribed by the Department of the Army, and be selected by the PMS&T and the President of the University based upon his leadership, scholarship, military ability, and potential as an officer in the Army Reserve. The general objective is to provide a basic military education and in conjunction with other college disciplines, to develop individual character, leadership training and attributes essential to an individual.

**Credits.**—Credit for previous active military service or ROTC training toward admission into Advanced Military Science may be granted on the following basis:

Twelve months or more of military service—credit not to exceed Mt 1, 2, 3, 4.

Six months or more of military service—credit not to exceed Mt 1, 2.

Less than six months of military service—no credit.

Previous training in the Army, Navy, Air Force, or Coast Guard Academies, and in the Naval or Air ROTC—credit for equivalent training.

## ADDITIONAL COURSES

**Flight Training.**—Army ROTC Flight Training is offered to selected Senior ROTC cadets as an extracurricular subject at no cost to the student. Upon completion of thirty-five hours' ground instruction and thirty-six and one-half hours' in-flight instruction, the cadet is eligible for a CAA Pilot's Certificate and is qualified for further Army Flight Training when on active duty. Flight uniforms are issued to individuals for this instruction.

**Judo Training** is offered to all Military Science students who desire to improve themselves physically and who volunteer for Judo training. The Judo trainees

receive their training during their scheduled drill hours and meet one hour, one night a week for specialized drill training.

**Winter Survival Training** is offered to selected Military Science cadets who show aptitude and can qualify for this training. Like Judo Training, it requires extra time on the part of cadets participating.

**Rifle Marksmanship Training** is offered to all Military Science cadets. The ROTC rifle teams have an enviable record and have won many trophies. Those qualifying may compete in the scheduled Varsity and ROTC rifle matches. Varsity Rifle Team members receive Athletic Letters for their participation.

**Emoluments.**—Basic Military Science cadets are issued modified officer-type uniforms free of charge for use at drill and other authorized training. These uniforms must be returned to the Military Department at the end of each academic year and upon separation from the University.

Advanced Military Science cadets are provided free of charge, regulation officer-type uniforms which remain in their custody while enrolled in the course. Upon successful completion of the course and upon graduation these uniforms become their personal property.

Advanced Military Science cadets are normally paid a monetary allowance of approximately ninety cents per day for not to exceed 595 days. For the six-week period of Summer Camp they normally receive the pay of a soldier of the grade E-1 ($78.00 per month), rations, quarters, all necessary uniforms and equipment, and a monetary allowance for transportation at the rate of five cents per mile to and from Camp. Upon completion of Mt 8 and graduation they may be commissioned 2nd Lieutenants, U. S. Army Reserve, dependent upon the needs of the Army.

**Deferment.**—Universal Military Training and Service Act provides for the deferment of all Advanced Military Science ROTC members and those Basic Military Science ROTC members tentatively selected for enrollment in Mt 5 as prescribed by the Secretary of Defense until completion or termination of the course of instruction.

# PHYSICAL EDUCATION AND ATHLETICS

Professor Rankin; Associate Professors Rogers, Woodbury, Cassidy, Westerman, and Sezak; Assistant Professors J. Butterfield, P. Butterfield, Finnegan, McCall, and Styrna; Mr. Curtis and Miss Mohrman

The development of alert minds, strong wills, and healthy, enduring bodies is the goal of physical education at the University of Maine. As one factor in achieving this goal, participation in athletics and/or other forms of physical exercise by all students is strongly encouraged.

Immediate responsibility for instruction, supervision, and guidance in this area rests with the Department of Physical Education and Athletics, a department comprising three divisions: the Division of Physical Education for Men, the Division of Physical Education for Women, and the Division of Intercollegiate Athletics. The Department of Physical Education and Athletics also participates in a professional training program to prepare qualified students to teach health and physical education, to coach athletic teams, and to direct recreational programs. (See page 231.)

## PHYSICAL EDUCATION FOR MEN

Prescribed courses in physical education are required of all non-veteran freshmen and sophomores. These courses are designed to improve body control and strength, to stimulate the development of mental and physical alertness, to establish habits of regular exercise, to teach basic motor skills, and to provide experience in various kinds of recreative sports that may be enjoyed while in college and during later years. The program of activities is planned with due regard to individual differences so that it may be suited to the needs and adjusted to the capabilities of individual students. During the fall and spring, emphasis is placed on outdoor activities, while appropriate indoor activities are stressed during the winter.

All students including those out for athletic teams, who have passed Pe 1 and are taking Pe 2, will take a physical efficiency test at the end of the spring term. Students passing this test will be given credit for Pe 3 and 4 requirements. Those not passing the test will register for Pe 3 the following fall. The test will again be given to Pe 3 students, and those passing will be given credit for Pe 4. Any student still not passing will register for Pe 4. All courses must be passed to satisfy the graduation requirement. A student who is excused from Pe 2 for medical reasons will register for Pe 3 and take the test at the end of the semester. The foregoing will also apply for any student who is absent from the test for any reason.

Any student who has failed a Pe course because of lack of attendance will forfeit his right to take the physical efficiency test and must register for and pass all four semesters of the required course.

A prescribed uniform is required for all physical education classes.

The Intramural Athletic Association, composed of one representative from each participating unit and acting under the supervision of the Division of Physical Education for Men, promotes general participation in athletics. Schedules are arranged in a wide variety of outdoor and indoor sports and each student is given

an opportunity to engage in the activities of his choice with others of comparable skill. Teams representing the several dormitories, fraternities, and other housing units compete for championships in their respective leagues. As new interests develop, and when facilities can be made available, new sports are added. The program of intramural athletics is closely co-ordinated with the prescribed courses in physical education and with intercollegiate athletics to the end that "Athletics for All" may be a reality among Maine men.

***Pe 1, 2. Physical Education.***—These courses or their equivalents are required of all non-veteran freshmen. Outdoor and indoor games, calisthenics, tests, and intramural activities. *Two hours a week, no credit.*

***Pe 3, 4. Physical Education.***—These courses or their equivalents are required of all non-veteran sophomores who have not passed the physical efficiency test. A continuation of courses 1 and 2. *Two hours a week, no credit.*

## PHYSICAL EDUCATION FOR WOMEN

Physical Education is required of all freshman and sophomore women. The courses are designed to help develop and maintain physical health and general fitness through physical activity; mental health through skill in recreational activities, which can provide release from tensions; social attributes which are attained in group activities; and understanding and appreciation of the place which sports, dance, and wholesome recreation activities have in good living.

As a precaution for general health and for education regarding one's physical condition, medical examinations are given by the University Physician during Freshman Week, and physical examinations are given by the Head of the Physical Education Department early in the semester. These examinations also assist with placing the student in a program of physical education suited to her individual need.

In general, students will be assigned to the regular program of physical education which consists of one semester each of Fundamentals of Gymnastics, Modern Dance, Individual Sports, Team Sports or Roller Skating. When examination findings indicate need for an adaptive program, that will be prescribed according to specific needs. It includes modified or light recreational activity, individual gymnastics or corrective activity for postural or foot conditions, or even prescribed rest periods, as substitutes for regular areas indicated above.

A prescribed uniform is required for all physical education classes.

In addition to the required courses, the Women's Athletic Association, under the guidance of the Division of Physical Education for Women, offers an opportunity for voluntary participation in a broad program of athletics and club activities. Schedules are arranged in a variety of outdoor and indoor sports in order that each student may engage in the activities of her choice. Teams representing classes and dormitories compete for championships in their respective groups.

The Women's Athletic Association is governed by a Council elected by the women students. Membership in the Association is automatic for regular students.

***Pe 1, 2. Physical Education.***—Required for freshmen. Activities are chosen from two of the following five areas: (1) Team Sports (basketball, field hockey, volleyball, softball, lacrosse); (2) Individual Sports (archery, tennis, golf, skiing, badminton, fencing); (3) Fundamentals of Gymnastics; (4) Modern Dance; (5) Roller Skating. *Two hours a week, no credit.*

***Pe 3, 4. Physical Education.***—These courses are required for sophomores. Activities are selected from areas not taken in Pe 1, 2. *Two hours a week, no credit.*

***Adaptive Physical Education.***—Required of freshmen and sophomores for whom individual work for specific needs is prescribed by University Physician, or recommended by Division Head. Includes prescribed exercises for improvement of muscle tone, correction of postural, foot, weight, menstrual problems, etc., and includes prescribed rest and/or participation in recreational games, e.g., shuffleboard, bowling, table tennis, quoits, skish, croquet, etc. Substitutes for other Pe 1, 2, 3, or 4 courses.

***Pe 21. Healthful Living.***—Required of all freshman women in the College of Arts and Sciences and the College of Education. A one semester course designed to give a mature and scientific understanding of the principles of health and to create interest in their application to one's self, and one's social relationships. *Two hours a week. Two credit hours.*

## INTERCOLLEGIATE ATHLETICS

As an integral part of the University's program of physical education, intercollegiate athletics serve the general purposes of that program. In addition, they constitute an effective means of maintaining interest in all-round physical fitness; they set standards of excellence in physical efficiency; they provide a wholesome and natural common interest around which University loyalties may be rallied and institutional esprit developed; and they afford experience in emotional control and in the capacity to think quickly and act vigorously while under the pressure of strong opposition.

Intercollegiate athletics are governed by an Athletic Board, the membership of which is representative of the University faculty and administration, the Board of Trustees, the alumni, and the undergraduates. Regular schedules are arranged and expert coaches are provided for the following sports: football, basketball, baseball, track, cross country, golf, tennis, winter sports, and rifle. Provision is made for Freshman as well as Varsity competition in these sports. In coaching procedures and in all other particulars, the program is conducted with primary concern for the best interests of the individual participant and his relationship toward the broader objectives of the University.

All students pay an activities fee for the support of University-sponsored activities, including athletics. There is no admission charge for students to University-supported athletic contests conducted on the home grounds.

## FACILITIES

The University facilities for athletics and physical education are listed on page 16.

## PROFESSIONAL TRAINING IN PHYSICAL EDUCATION

The professional curriculum in Physical Education is designed to prepare qualified students to teach health and physical education, to coach athletic teams, and to direct recreational programs. It provides for a major in physical education and a minor in another teaching field to be selected by the student.

Definite evidence of intellectual capacity, positive qualities of character and personality, good health, and reasonable proficiency in motor skills are the factors determining admission. Applicants who lack any of these qualities, which are considered essential for professional success in physical education, will be advised to enter some other field of study. Applicants are urged to present at least

one unit in a laboratory science (chemistry, physics, or biology). Other academic requirements for admission are listed on page 27.

Students desiring to pursue the curriculum in physical education will register in the College of Education. For advice in planning their programs, students will consult with Mr. Rankin, 20 South Stevens Hall, or with Miss Rogers, Women's Gymnasium.

The Degree of Bachelor of Science in Education is conferred upon students who successfully complete a total of 128 semester hours as outlined below. The law requires, also, that all non-veteran men complete in addition seven hours of military science during their freshman and sophomore years.

| | Semester Hours | |
|---|---|---|
| | MEN | WOMEN |
| Physical Education Techniques | 10 | 10 |
| Physical Education Methods | 8 | 8 |
| Physical Education Theory | 18 | 20 |
| Education | 18 | 18 |
| Psychology | 9 | 9 |
| English (including Speech) | 14 | 14 |
| Social Studies | 8 | 8 |
| Science | 8 | 8 |
| Second Teaching Field | 24 | 24 |
| Electives | 11 | 9 |
| Total | 128 | 128 |
| Military Science, required of non-veteran freshman and sophomore men) | 7 | |

The normal load for a semester is 15-18 hours. A program of study calling for less than 15 hours or more than 18 hours will be permitted only by special arrangement with the Dean.

The booklet entitled "A Four-Year Program for the Preparation of Teachers" gives specific information with regard to the fulfilling of general education requirements, academic teaching field and subject certification on pages 3 to 14. Professional courses in education required in this program are listed on page 16 in this booklet.

Various extracurricular activities contribute materially to the professional training of teachers of Physical Education, and students are encouraged to participate, within reasonable limitations, in such activities.

## CURRICULUM

### First Semester

| | | | Rec | Lab | Credit Men | Credit Women |
|---|---|---|---|---|---|---|
| Eh | 1 | Freshman Composition | | | 3 | 3 |
| Zo | 1 | Zoology | | | 4 | 4 |
| Hy | 3 | United States History | | | 3 | 3 |
| Mt | 1 | 1st Yr. Basic Military Science | | | 1½ | |
| Ed | 1 | Orientation | | | 0 | 0 |
| Sh | 1 | Speech | | | 2 | 2 |
| Pe | 21 | Healthful Living | | | | 2 |
| *Pe | 11M | Technique in Team Sports | 0 | 3 | 1½ | |
| *Pe | 11W | Technique in Individual Sports | 0 | 3 | | 1½ |
| *Pe | 1W | Physical Education Elective | | | | 0 |

* When Pe course numbers are followed by letters, they have the following significance: M—Men; W—Women.

### Second Semester

| | | | Rec | Lab | Credit Men | Credit Women |
|---|---|---|---|---|---|---|
| Eh | 2 | Freshman Composition | | | 3 | 3 |
| Sh | 1 | Speech | | | 2 | 2 |
| Zo | 8 | Anatomy and Physiology | | | 4 | 4 |
| Hy | 4 | United States History | | | 3 | 3 |
| Mt | 2 | 1st Yr. Basic Military Science | | | 1½ | |
| Pe | 12 | Techniques in Rhythmical Activities | 0 | 3 | 1½ | 1½ |
| *Pe | 12M | Technique in Team Sports | 0 | 3 | 1½ | |
| *Pe | 12W | Technique in Team Sports Elective | 0 | 3 | | 1½ |

### Third Semester

| | | | Rec | Lab | Credit Men | Credit Women |
|---|---|---|---|---|---|---|
| Py | 1 | Psychology | | | 3 | 3 |
| Eh | 15 | Masterpieces of English and American Literature | | | 3 | 3 |
| Mt | 3 | 2nd Yr. Basic Military Science | | | 2 | |
| *Pe | 13M | Technique in Gymnastics | 0 | 4 | 2 | |
| *Pe | 13W | Technique in Gymnastics | 0 | 4 | | 2 |
| Pe | 14 | Technique in Play and Game Activities | 0 | 3 | 1½ | 1½ |
| Pe | 61M | Methods in Sports Activity | 2 | 0 | 2 | |
| Pe | 61W | Methods in Sports Activity Elective | 2 | 0 | | 2 |

### Fourth Semester

| | | | Rec | Lab | Credit Men | Credit Women |
|---|---|---|---|---|---|---|
| Py | 2 | Psychology | | | 3 | 3 |
| Eh | 16 | Masterpieces of English and American Literature | | | 3 | 3 |
| Ed | H1 | Educational Foundations I—Introduction to Education | | | 2 | 2 |
| Mt | 4 | 2nd Yr. Basic Military Science | | | 2 | |
| *Pe | 14M | Technique in Apparatus and Tumbling | 0 | 4 | 2 | |
| *Pe | 14W | Technique in Modern Dance | 0 | 4 | | 2 |
| Pe | 62M | Methods in Sports Activity | 2 | 0 | 2 | |
| Pe | 62W | Methods in Sports Activity Elective | 2 | 0 | | 2 |

### Fifth Semester

| | | | Rec | Lab | Credit Men | Credit Women |
|---|---|---|---|---|---|---|
| Py | 65 | Educational Psychology | | | 3 | 3 |
| *Pe | 63W | Methods in Modern Dance | 1 | 2 | | 2 |
| *Pe | 63M | Coaching Football and Basketball | 2 | 0 | 2 | |
| Pe | 71 | Principles in Physical Education | 2 | 0 | 2 | 2 |
| Pe | 73 | Athletic Training | 1 | 2 | 2 | |
| Pe | 76 | Preventive and Remedial Gym | 3 | 0 | 3 | 3 |
| | | Elective | | | | |

### Sixth Semester

| | | | | | | |
|---|---|---|---|---|---|---|
| Ed | M6 | Educational Foundations III—Principles and Practice of Teaching | | | 2 | 2 |
| Pe | 24 | First Aid | | | | 2 |
| *Pe | 64W | Methods in Physical Education | 1 | 2 | | 2 |
| Pe | 50 | Camp Leadership | | | 2 | 2 |
| Pe | 72 | Tests and Measurements in Physical Education | 3 | 0 | 3 | 3 |
| Pe | 74 | Organization and Administration of Recreational Activities | 2 | 0 | 2 | 2 |
| | | Elective | | | | |

### Seventh Semester

| | | | | | | |
|---|---|---|---|---|---|---|
| Ed | C1 | Educational Foundations II—The Curriculum | | | 2 | 2 |
| Ed | M91 | Observation and Supervised Student Teaching | | | 8 | 8 |
| Ed | C2 | Audio-Visual Education | 1 | 2 | 2 | 2 |
| Ed | A21 | Measurement and Evaluation in Education | | | 2 | 2 |
| Ed | A51 | Principles and Techniques of Guidance | | | 2 | 2 |

### Eighth Semester

| | | | | | | |
|---|---|---|---|---|---|---|
| *Pe | 64M | Coaching Track and Baseball | 2 | 0 | 2 | |
| Pe | 77 | Organization and Administration of Physical Education and Athletics | 2 | 0 | 2 | 2 |
| Pe | 78 | Health Education | 2 | 0 | 2 | 2 |
| | | Elective | | | | |

## COURSE DESCRIPTIONS

***Pe 11, 12, 13, and 14.***—These are courses designed to develop skill in the various activities in which the physical education instructor must be proficient. These courses give a total of ten credit hours through the freshman and sophomore years. STAFF

***Pe 24. First Aid.***—Course includes fundamentals prescribed by the American Red Cross. Leads to A.R.C. Standard, Advanced, and Instructor certificates in First Aid. *Rec* 3, *Cr* 2. MISS ROGERS

***Pe 50. Camp Leadership.***—Designed for the training of camp counselors. The course consists of lectures, discussions, practice, and participation in the varied activities of camping education. In addition to the regular two hours per week in the classroom, field trips will be arranged. *Cr* 2. MR. SEZAK

***Pe 61M-62M. Methods in Sports Activities (Men).***—Designed to acquaint students with methods of organizing and administering intramural programs.

Attention is given to individual and recreational activities with stress placed on instruction, appreciation, and officiating. *Rec* 2, *Cr* 2. MR. WOODBURY

***Pe 61-62W. Methods in Sports Activities (Individual and Team Sports for Women).***—Instruction in sports and games of higher organization including hockey, basketball, volleyball, softball, speedball, soccer, lacrosse, archery, tennis, badminton, golf, skiing and fencing as well as recreational games. *Rec* 1, *Lab* 2, *Cr* 2. MISS MOHRMAN

***Pe 63M. Coaching Football and Basketball (Men).***—Practical instruction in football and basketball for men preparing to enter the coaching profession. *Rec* 2, *Cr* 2. MR. WESTERMAN AND MR. MCCALL

***Pe 63W. Methods in Modern Dance (Women).***—Designed for students preparing to teach Modern Dance. Stresses the teaching of techniques in Rhythmical Activities and Dance Composition. Open to Physical Education Majors, others by special permission only. *Rec* 3, *Cr* 2. MISS CASSIDY

***Pe 64M. Coaching Track and Baseball (Men).***—Devoted to a study of the mechanics of running, jumping, and weight throwing, with discussion of different styles involved; also to a study of approved methods in coaching baseball, in all its phases. *Rec* 2, *Cr* 2. MR. STYRNA AND MR. J. BUTTERFIELD

***Pe 64W. Methods in Physical Education (Women).***—A course in practical methods of teaching physical education activities in the elementary and secondary school program. *Rec* 1, *Lab* 2, *Cr* 2. MISS ROGERS

***Pe 71 (171). Principles in Physical Education.***—An interpretation of the scientific foundations of Physical Education. Open to juniors who are preparing to teach Physical Education. *Rec* 2, *Cr* 2. MR. RANKIN

***Pe 72 (172). Tests and Measurements in Physical Education.***—A practical course in the use of objective measurements, and statistical methods in physical education and athletics. *Rec* 3, *Cr* 3. MISS MOHRMAN

***Pe 73. Athletic Training.***—Methods necessary to the conditioning of athletes, care of injuries and injury prevention. Diagnosis, prescription, diet, massage, taping, first aid, etc. *Rec* 1, *Lab* 2, *Cr* 2.

***Pe 74 (174). Organization and Administration of Recreational Activities.***—Designed to acquaint students with the need, nature, and extent of recreational programs. Special consideration is given to the contribution of physical education to community recreation. *Rec* 2, *Cr* 2. MR. RANKIN

***Pe 76 (176). Preventive and Remedial Gymnastics.***—The study of body mechanics as they relate to good functional use of the body, postural abnormalities and problems of the atypical student regarding weight, cardiac conditions, posture, menstrual problems, and the programs of activity advised for them. *Rec* 3, *Cr* 3. MISS ROGERS

***Pe 77 (177). Organization and Administration of Physical Education and Athletics.***—Administrative policies and procedures, legal aspects of physical education and athletics, budgets, evaluation and coordination of the several phases of physical education and athletics. *Rec* 2, *Cr* 2. MR. RANKIN

***Pe 78 (178). Health Education.***—Stress is placed on elements of services, facilities, and instruction at elementary and secondary school levels as they influence habits of positive health. *Rec* 2, *Cr* 2. MISS ROGERS

***Pe 80 (180). Physical Education and Health in the Elementary School.***—Attention is focused on health and physical education activities in relation to the growth and development of children in the elementary grades. *Rec* 3, *Cr* 3. MR. RANKIN






Maine's Athletic Program Is Varied and Outstanding

# EXTENSION COURSES

The University offers numerous extension courses throughout the college year. These courses are administered by the General Extension Division as an additional program of the College of Education. Extension courses are not limited to the field of education but cover several academic areas. Many departments of the University participate in this program. A special Bulletin giving a list of these offerings is available upon request.

Four general types of courses are offered as follows: (1) Correspondence courses which are handled entirely by mail on an individual basis; (2) extension classes, which may be organized in any community where sufficient demand exists, provided an instructor is available for the course desired; (3) Extension Center classes which are offered at the Portland, Orono, Auburn-Lewiston, Augusta, Presque Isle, and Calais and Machias centers; (4) evening courses which are offered on the campus.

All types of extension courses may be taken on either a *credit* or *non-credit* basis. When taken by qualified students, extension courses carry college credit. Subject to the regulations of the department and college in which the student is registered, courses taken by extension may be applied toward the requirements for the bachelor's degree. Appropriate center and evening extension classes given on the campus carry regular residence credit. Undergraduate students who desire to earn credit toward their degree by extenison course work should obtain approval from their department or college before they register.

University students who desire to enroll for correspondence study during the summer vacation period may register for such courses at the end of the regular school year. All lessons and the final examination in such courses must be completed prior to registration for the fall semester. A grade of "Inc." will be reported to the registrar of the University for any such course which is not completed on time. In the event a regular University student decides to withdraw from a correspondence course, a refund of money is made according to the published schedule in the Extension Bulletin, except that after August 15 no refunds are granted. All requests to withdraw from a course should be made in writing and addressed to the Director of Extension.

In some instances, extension work, other than that taken by correspondence, may be used in meeting the requirements for the master's degree. Before enrolling for graduate work by extension, students should verify the amount of such work, if any, that can be used for the particular program in which they are enrolled.

Persons interested in additional information on extension courses, on either a credit or non-credit basis, should write to the Director of General Extension Division, College of Education, Orono, Maine.

# SUMMER SESSION

The University offers a Summer Session extending over a period of six weeks. Professional courses in elementary and secondary education, along with academic subjects, are offered. In addition, special workshops in both elementary and secondary education are conducted for a period of three weeks. Some courses are organized on a three-week basis thereby enabling the student who enrolls for a workshop to complete a full six-week Summer Session schedule. Several conferences on special educational problems, usually lasting for a week, are available for students who are interested in them.

As an integral part of the University organization, the Summer Session has similar standards of academic achievement. The faculty consists of members of the University staff and numerous visiting professors from other institutions.

The Session is primarily for the benefit of teachers and school administrators who desire to take professional courses in the field of education or to pursue other subjects which may be helpful to them in connection with their work. Hence special attention is given to teachers' courses in the various subjects offered.

The Session also affords opportunities for students in the University of Maine or other similar institutions to secure credits toward a degree. Normal-school graduates who are admitted to advanced standing as candidates for the bachelor's degree in the College of Education may do a considerable part of their work in the Summer Session.

The facilities of the Summer Session are open to both men and women, and students are admitted without examinations. The requirements for admission are, in general, the same as those for the other sessions of the University. Students are expected to have completed as a minimum preparation a standard high-school course or its equivalent.

Transcripts for work previously done are necessary only when the student plans to become a candidate for a degree at the University of Maine. New students who expect to become candidates for the master's degree should communicate with Dr. Edward Brush, Dean of Graduate Study.

Classes meet five times a week Monday to Friday inclusive. The normal registration for the six-week session is for two or three courses.

Registration for the Summer Session is held early in July, and the Session terminates about the middle of August. (See Calendar, page 2.) The Bulletin, describing courses offered during this period, is issued about March 15. For further information concerning the program address Mark R. Shibles, Director of the Summer Session, Orono, Maine.

# PERSONNEL

## EMERITI

ARNOLD, FRANCES ELIZABETH; B.A., Maine, 1910; M.A., 1923; Associate Professor Emerita of Romance Languages.

ASHBY, STANLEY ROYAL; B.A., Texas, 1904; B.A., Oxford, 1907; M.A., 1923; A.M., Harvard, 1925; Ph.D., 1927; Professor Emeritus of English.

ASHMAN, ROBERT IRVING; A.B., Cornell University, 1913; M.F., Yale, 1929; Sc.D., Maine, 1957; Professor Emeritus of Forestry.

BARROWS, WILLIAM EDWARD; B.S., Maine, 1902; E.E., 1908; Professor Emeritus of Electrical Engineering.

BEVERLY, VERNE CURTIS; B.S., Maine, 1920; County Agent Emeritus.

BOARDMAN, HAROLD SHERBURNE; B.C.E., Maine, 1895; C.E., 1898; Eng.D., 1922; LL.D., Colby, 1927; Eng.D., Rhode Island, 1928; LL.D., Bates, 1929; President Emeritus.

BONNEY, LUTHER ISAAC; B.A., Bates, 1906; M.A. (Hon.), 1951; Sc.D. in Ed., Maine, 1959; Dean Emeritus, University of Maine in Portland.

BRANN, BERTRAND FRENCH; B.S., Maine, 1909; M.S., 1911; S.M., Massachusetts Institute of Technology, 1912; Professor Emeritus of Chemistry.

BRAUTLECHT, CHARLES ANDREW; Ph.B., Yale, 1906; Ph.D., 1912; Professor Emeritus of Chemistry and Chemical Engineering.

BUZZELL, MARION STEPHANIE; B.A., Maine, 1914; M.A., 1915; Associate Professor Emerita of Romance Languages.

CHADBOURNE, AVA HARRIET; B.A., Maine, 1915; M.A., 1918; A.M., Columbia, 1919; Ph.D., 1928; Professor Emerita of Education.

CLAYTON, MARY MORRIS; B.S., Columbia, 1918; M.S., Rochester, 1926; Ph.D., 1929; Nutritionist Emerita.

CLOKE, PAUL; E.E., Lehigh, 1905; M.S., 1913; Eng.D., Maine, 1934; Dean Emeritus of the College of Technology, and Professor Emeritus of Electrical Engineering.

CRANE, PERCY FREMONT; B.S., Bowdoin, 1917; Director of Admissions Emeritus.

DAY, CLARENCE; M.S., Maine, 1929; Extension Editor Emeritus.

DEERING, ARTHUR LOWELL; B.S., Maine, 1912; Sc.D., 1934; Dean of Agriculture Emeritus.

FOLSOM, DONALD; A.B., Nebraska, 1912; M.A., Minnesota, 1914; Ph.D., 1917; Plant Pathologist Emeritus.

GANNETT, JAMES ADRIAN; B.S., Maine, 1908; M.A., 1928; Registrar Emeritus; Resident Secretary, Pulp and Paper Foundation.

GREENE, PEARL STUART; B.A., Northwestern, 1909; B.S., Lewis Institute, 1914; A.M., Columbia, 1923; Professor Emerita of Home Economics.

HALL, HOWE WIGGIN; B.S., Maine, 1914; M.S., 1925; Assistant Professor Emeritus of Animal Husbandry.

HAUCK, ARTHUR ANDREW; A.B., Reed, 1915; Ph.D., Columbia, 1932; LL.D., Lafayette, 1936; LL.D., New Hampshire, 1937; LL.D., Rhode Island, 1943; LL.D., New Brunswick, 1943; LL.D., Reed, 1946; LL.D., Bowdoin, 1947; LL.D., Boston University, 1948; L.H.D., Bates, 1950; L.H.D., Nasson College, 1952; L.H.D., University of Florida, 1953; LL.D., University of Kentucky, 1953; Litt.D., Colby 1953; LL.D., Maine, 1958; President Emeritus.

HAWKINS, JOHN HENRY; B.S., Illinois, 1926; M.S., Maine, 1927; Ph.D., Cornell University, 1935; Entomologist Emeritus.

HITCHNER, ELMER REEVE; B.S., Pennsylvania State, 1915; M.S., 1916; Ph.D., Wisconsin, 1931; Professor Emeritus of Bacteriology.

JACKMAN, ERNEST DELMORE; A.B., Colby, 1912; A.M., Columbia, 1924; L.H.D., Colby, 1949; Professor Emeritus of Education.

JENKINS, CHESTER ALBERT; B.S., Dartmouth, 1911; M.S., Maine, 1931; Professor Emeritus of Physical Education.

LATHROP, FRANK HEIDTMAN; B.S., Clemson, 1913; M.S., Ohio State, 1915; Ph.D., 1923; Entomologist Emeritus.

LENGYEL, HELEN ANNA; Diploma, Sargent School for Physical Education, 1915; B.A., Maine, 1927; M.A., 1936; Professor Emerita of Physical Education.

LUCAS, WARREN STANHOPE; B.A., Maine, 1914; M.A., 1922; Professor Emeritus of Mathematics.

NASON, ESTELLE; B.S., Maine, 1922; Home Demonstration Agent Leader Emerita.

PERKINS, HARRY ROY; Instructor Emeritus of Mechanical Engineering.

ROWE, WILFRED SHERMAN; County Agent Emeritus.

SCHRUMPF, WILLIAM ERNEST; B.S., Maine, 1928; M.S., 1930; Associate Agricultural Economist Emeritus.

SMALL, GEORGE WILLIAM; B.A., Tennessee, 1915; M.A., Johns Hopkins, 1921; Ph.D., 1922; B.Litt., Oxford, 1927; Professor Emeritus of English Language and Literature.

SMITH, HARRY WOODBURY; B.S., Maine, 1909; M.S., 1922; Ph.D., Rutgers, 1934; Professor Emeritus of Biochemistry.

SMITH, PAYSON; A.M., Tufts, 1903; Litt.D., Bates, 1909; Litt.D., Bowdoin, 1909; Ed.D., Rhode Island State Teachers College, 1926; Ed.D., Colby, 1940; LL.D., Maine, 1908; LL.D., Norwich University, 1928; LL.D., Springfield College, 1934; LL.D., Northeastern University, 1935; Professor Emeritus of Education.

STEINMETZ, FERDINAND HENRY; B.S., Illinois, 1915; M.S., Minnesota, 1921; Ph.D., 1926; Pd.D., Eastern Illinois State College, 1949; Professor Emeritus of Botany.

TALBOT, RICHARD FOSTER; B.S., Maine, 1907; Extension Dairy Specialist Emeritus.

TOBEY, ELMER ROBERT; B.S., Maine, 1911; M.S., 1917; Ch.E., 1920; Chemist Emeritus, Agricultural Experiment Station.

TURNER, ALBERT MORTON; A.B., Harvard, 1912; A.M., 1914; Ph.D., 1920; Professor Emeritus of English and Comparative Literature.

WALLACE, STANLEY MOORE; Diploma, New Haven School of Gymnastics, 1917; Professor Emeritus of Physical Education.

WESTON, CHARLES PARTRIDGE; B.C.E., Maine, 1896; C.E., 1899; A.M., Columbia, 1902; Sc.D., Maine, 1941; Professor Emeritus of Mechanics.

WHITMORE, ALBERT AMES; B.S., Maine, 1906; M.A., 1917; Professor Emeritus of History.

YOUNGS, FREDERICK SHAW; B.S., Maine, 1914; B.A., 1928; Treasurer Emeritus.

## PERSONNEL*

*(Dates in parentheses indicate year of initial appointment)*

ABBOTT, WARREN (1946); Technician, Department of Chemical Engineering.

ADAMS, BERT (1958); Lieutenant Colonel, Infantry, U. S. Army; B.S., Western

* Officers of the University are listed on pages 5 to 6.

Michigan University, 1940; Assistant Professor of Military Science and Tactics.

ALLEN, DAVID D. (1958); B.S., Cornell University, 1956; M.S., University of Massachusetts, 1958; Club Agent, Southern Aroostook County.

†ANDERSON, CHARLES LOWELL (1955); B.A., University of Utah, 1949; M.A., 1951; Instructor in English.

ANDERSON, JAMES M. (1959); B.A., Westminster College (Pa.), 1955; M.A., Brown, 1959; Instructor in English.

ANDERSON, JERRY MAYNARD (1959); B.S., Wisconsin State College, 1958; M.A., Northern Illinois University, 1959; Instructor in Speech.

ANDERSON, MELVIN JOSEPH (1958); B.S., Utah State Agricultural College, 1953; M.S., Cornell University, 1957; Ph.D., 1959; Assistant Professor of Animal Science.

ANTONITIS, JOSEPH JOHN (1950); A.B., Indiana University, 1946; A.M., Columbia, 1947; Ph.D., 1950; Professor of Psychology.

†AVILA, LILIAN ESTELLE (1947); A.B., Brown, 1930; A.M., Middlebury College, 1941; Associate Professor of Romance Languages.

BAGLEY, EDWARD FORREST (1956); B.S., Maine, 1943; Club Agent, Waldo County.

BAILEY, RUSSELL MANLEY (1931); B.S., Maine, 1928; Associate Professor of Genetics, Agricultural Experiment Station.

BAILEY, WILLIAM OSCAR (1959); B.S., Bates, 1922; M.Ed., 1940; Assistant Professor of Education.

BAIN, WILLIAM MURRAY (1959); A.B., Indiana University, 1951; M.A., 1952; Assistant Professor of Bacteriology.

BAKER, GREGORY (1935); B.S., Maine, 1924; M.F., Yale, 1939; Professor of Forestry.

BARDEN, ALBERT ARNOLD, JR. (1946); A.B., Brown, 1932; Sc.M., 1934; Ph.D., Northwestern, 1941; Associate Professor of Zoology.

BARKER, MRS. NATALIE G. (1957); House Director, South Estabrooke Hall.

BARNES, GERALD WRIGHT (1954); B.A., University of Arkansas, 1949; M.A., 1951; Associate Professor of Psychology.

BARON, ALAN (1957); B.A., Brooklyn College, 1952; M.S., 1953; Ph.D., University of Oregon, 1957; Assistant Professor of Psychology.

BARUSHOK, JAMES WILLIAM (1956); B.S., Northwestern University, 1951; M.A., 1952; Assistant Professor of Speech.

BASS, HERBERT JACOB (1957); A.B., Boston University, 1950; Ph.D., University of Rochester, 1956; Instructor in History.

BATES, EDWIN HILL (1953); B.S., Maine, 1937; Assistant Director, Agricultural Extension Service.

BATES, HARVEY HARLAN, JR. (1959); B.A., DePauw University, 1951; B.D., Union Theological Seminary, 1954; Director of Religious Affairs.

BEAMESDERFER, JOHN WILLIAM (1947); B.S., Gettysburg College, 1932; M.S., University of Michigan, 1939; Ph.D., 1947; Professor and Head of Department of Chemistry.

†BECKWITH, GERALD CLIFFORD (1955); A.A., Flint Junior College, 1949; B.A., Michigan State College, 1951; M.A., 1954; Instructor in Speech and Assistant Director of Publicity, for Television.

BEECHHOLD, HENRY F. (1956); B.S., Oklahoma State University, 1951; M.A.,

† On leave of absence, 1959-60.

1952; Ph.D., Pennsylvania State University, 1956; Assistant Professor of English.

Bell, David Malcolm (1958); Master Sergeant, U. S. Army; Instructor in Military Science and Tactics.

Bell, Harry Adelbert (1956); B.S., Maine, 1949; Assistant County Agent, Cumberland County.

Belyea, Paul Raymond (1958); B.S., Maine, 1956; M.S., 1958; Instructor in Chemistry, Agricultural Experiment Station.

Bennett, Clarence Edwin (1934); Ph.B., Brown, 1923; Sc.M., 1924; Ph.D., 1930; Professor and Head of Department of Physics.

Berce, Lewis C. (1956); B.S., Maine, 1950; Club Agent, Washington County.

Bergeson, Clarence Oscar (1953); B.A., Gustavus Adolphus College, 1940; M.S., University of Minnesota, 1951; Ed.D., Columbia, 1956; Associate Professor of Education and Director of Audio-Visual Service.

Berry, John Edwin (1958); B.S., Pennsylvania State University, 1954; M.S., 1955; Ph.D., Kansas State College, 1958; Assistant Professor of Poultry Science.

Berry, Thelma Huff (1951); B.S., Rhode Island, 1934; M.S., Syracuse, 1935; Associate Professor of Clothing.

Beyer, Frank Kemp (1947); B.S., Cornell University, 1929; M.S., University of Wisconsin, 1930; Associate Professor of Forestry.

Billias, George Athan (1954); B.A., Bates, 1948; M.A., Columbia, 1949; Ph.D., 1958; Associate Professor of History.

Biscoe, Jonathan (1946); B.S., Massachusetts Institute of Technology, 1931; M.S., 1932; Professor of Physics.

Bissell, Lewis Prouty (1949); B.S., New Hampshire, 1940; M.F., Yale, 1947; Forestry Specialist, Agricultural Extension Service.

Blackmon, Clinton Ralph (1956); B.S., Clemson A & M College, 1941; M.S., University of Massachusetts, 1949; Ph.D., Rutgers, 1955; Assistant Professor of Agronomy.

Blaisdell, Corinne Merrill (1928-38) (1951); B.S., Farmington Normal, 1928; Club Agent, Penobscot County.

Bogan, Edgar Junior (1929); A.B., Miami (Ohio), 1926; A.M., Princeton, 1929; Ph.D., Ohio State, 1947; Associate Professor of Chemistry.

Bogan, Sally Palmer (1928); B.A., Maine, 1927; Circulation Librarian.

Bondurant, Byron Lee (1954); B.S., A.E., Ohio State University, 1949; M.S., University of Connecticut, 1953; Professor and Head of Department of Agricultural Engineering.

Booker, Lillian (1955); B.S., New Hampshire, 1937; Home Demonstration Agent, Kennebec County.

Borns, Harold William, Jr. (1955); B.S., Tufts, 1951; M.A., Boston University, 1955; Ph.D., 1959; Assistant Professor of Geology, Department of Civil Engineering.

Boulanger, Leo Wilfred (1955); B.S., Providence College, 1951; M.S., Cornell University, 1954; Associate Professor of Entomology, Agricultural Experiment Station.

Bourne, Frances (1948); Secretary to Vice President for Administration.

Bowden, Ralph Freeman (1925); Technician, Department of Mechanical Engineering.

Bowles, Leonard Welch (1956); B.S., Maine, 1955; M.S., 1956; Assistant Professor of Electrical Engineering.

Boyce, Marion (1959); B.S., Farmington State Teachers College, 1956; M.Ed., Maine, 1959; Instructor in Education.

Bradbury, Harry Edward (1958); B.S., Maine, 1954; M.S., Rutgers, 1956; Instructor in Chemistry, Agricultural Experiment Station.

Branch, Charles F.; M.D., Vermont, 1923; Lecturer in Medical Technology; Central Maine General Hospital, Lewiston.

Braunstein, Jerry (1954); B.S., College of City of New York, 1942; M.A., Wesleyan University, 1947; Ph.D., Northwestern University, 1951; Assistant Professor of Chemistry.

Bricker, Herschel Leonard (1928); A.B., Coe, 1928; Associate Professor of Speech.

Bridge, John Cameron (1957); B.S., Maine, 1957; Instructor in Civil Engineering.

Briwa, Kathryn Elizabeth (1941); A.B., Vassar, 1915; M.A., Columbia, 1929; Ph.D., 1940; Nutrition Specialist, Agricultural Extension Service.

Brockway, Philip Judd (1935); B.A., Maine, 1931; M.A., 1940; Director of Placement.

Brown, Carleton Merle (1955); B.S., Maine, 1949; Assistant Professor of Electrical Engineering.

Brown, Cecil Sanford (1953); B.S., New Hampshire, 1949; M.S., Cornell University, 1951; Ph.D., 1955; Associate Professor of Agronomy.

Brugman, Herman Henry (1950); B.S.A., University of Manitoba, 1944; M.S., University of Minnesota, 1947; Ph.D., 1948; Associate Professor of Animal Science.

Brundige, George M. (1959); Sergeant First Class, U. S. Army; Instructor in Military Science and Tactics.

Brush, Edward Newcomb (1928); A.B., Vermont, 1925; A.M., Harvard, 1926; Ph.D., 1932; Professor of Psychology, and Dean of Graduate Study.

Buck, Charles Elon (1951); B.S., North Dakota State College, 1942; M.S., 1947; Ph.D., Ohio State University, 1951; Associate Professor of Bacteriology.

Butterfield, John Everett (1955); B.S., Maine, 1953; Assistant Professor of Physical Education, Assistant Coach of Football, and Head Coach of Baseball.

Butterfield, Philip James, Jr. (1956); B.S., Ed., Maine, 1953; Assistant Professor of Physical Education, Assistant Coach of Football and Freshman Coach of Basketball and Baseball.

Button, Lloyd H., Jr., (1954); B.S., Vermont, 1953; M.S., 1954; County Agent, Somerset County.

Buzzell, James Chandler, Jr. (1956); B.S., Maine, 1954; M.S., 1959; Assistant Professor of Civil Engineering.

Cameron, Mary Norton (1918); Secretary to the Director of the Agricultural Experiment Station.

Campana, Richard John (1958); B.S., University of Idaho, 1943; M.F., Yale, 1947; Ph.D., 1952; Professor of Botany and Head of Department of Botany and Plant Pathology.

Campbell, Ford (1958); B.A., Kansas University, 1931; M.A., Yale, 1933; Accountant.

Carpenter, Elaine S. (1949); Circulation Assistant in the Library.

Carpenter, Paul Nathaniel (1943-44) (1946); B.S., Bates, 1933; M.S., Maine, 1949; Associate Professor of Agronomy, Agricultural Experiment Station.

Carpenter, Roland Joy (1956); B.S., Bates, 1922; M.Ed., 1939; Assistant Pro-

fessor of Education and Assistant Director of General Extension Division.

CARPENTER, WALTER FOWLER (1955); B.S., Vermont, 1951; Associate Professor of Agricultural Engineering.

CARR, EDWARD FRANK (1957); B.S., Michigan State University, 1943; Ph.D., 1954; Assistant Professor of Physics.

CASAVANT, HENRI AIMÉ (1946); B.A., Bowdoin, 1927; M.A., Middlebury, 1940; Associate Professor of Romance Languages.

CASEY, KATHLEEN BERRY (1958); B.S., Farmington State Teachers College, 1935; Home Demonstration Agent, Hancock County.

CASSIDY, MARGARET EILEEN (1937); Diploma, Sargent School for Physical Education, 1928; B.S. in Ed., Maine, 1939; Associate Professor of Physical Education, Women's Division.

CHANTINY, JOHN GEORGE (1957); B.A., Michigan State University, 1942; M.A., Columbia, 1947; Ed.D., 1956; Family Life Specialist, Agricultural Extension Service; Associate Professor of Family Life.

CHAPLIN, JOSEPH BENJAMIN (1959); B.S., Maine, 1921; M.Ed., 1945; LL.D., 1954; M.A., (hon.), Bowdoin, 1958; Associate Director of Admissions.

CHAPMAN, BEN ROBERT (1956); B.S., Maine, 1952; Assistant Professor of Mechanical Engineering.

CHAPMAN, KENNETH S. (1957); B.S., Maine, 1954; M.S., Vermont, 1956; County Agent, Southern Aroostook County.

CHASE, ANDREW JACKSON (1949); B.S., Maine, 1949; M.S., 1951; Associate Professor of Chemical Engineering.

†CHASE, ROBERT CLIFFORD (1955); B.S., Maine, 1955; M.S., 1957; Instructor in Chemical Engineering.

CHELLIS, ELIZABETH A. (1955); B.S., Massachusetts, 1955; Club Agent, York County.

CHUTE, HAROLD LEROY (1949); D.V.M., University of Toronto, 1949; V.S., Ontario Veterinary College, 1949; M.Sc., Ohio State, 1953; D.V.Sc., Toronto, 1955; Professor of Animal Pathology.

CLAPP, ROGER (1929); B.S., Cornell University, 1928; M.S., Maine, 1932; Associate Professor of Horticulture.

CLARK, ELAINE D. (1957); B.S., Farmington State Teachers College, 1955; Club Agent, Kennebec County.

CLARK, LEWIS E. (1954); B.S., Maine, 1950; M.S.A., Cornell University, 1951; Farm Management Specialist, Agricultural Extension Service.

CLARK, LLEWELLYN EVANS (1955); B.S., Maine, 1955; M.S., 1956; Assistant Professor of Mechanical Engineering.

CLARK, RICHARD S. (1959); Captain, Corps of Engineers, United States Army Reserve; B.A., University of Omaha; Assistant Professor of Military Science and Tactics.

CLARK, RUSSELL EMERY (1958); B.S., Maine, 1957; Club Agent, Oxford County.

CLIFFORD, GEORGE EDWIN (1946-51) (1954); B.S., Maine, 1943; M.S. in Education, 1951; Associate Professor of Mechanical Engineering.

CLIFFORD, RONALD WIGHT (1959); B.A., Maine, 1949; Director of Purchases.

COFFIN, VICTOR HALFORD (1943); B.A., Maine, 1931; M.S., 1948; Associate Professor of Physics.

COLON-TIRADO, JOSE ISMAEL (1956); Major, Signal Corps, U. S. Army; B.S., Indiana Technical College, 1936; Assistant Professor of Military Science and Tactics.

† On leave of absence, 1959-60.

COMEGYS, ESTHER (1941); B.A., Wellesley, 1921; M.A., University of Pennsylvania, 1926; Ph.D., Radcliffe, 1941; Associate Professor of Mathematics.

CONANT, CLINTON ARTHUR (1955); B.S., Maine, 1955; County Agent at Large, Agricultural Extension Service.

COOK, ARLIN MILLER (1930-34) (1959); A.B., Western Reserve, 1927; M.A., Columbia, 1928; Assistant Professor of Speech.

COOK, HENRY J., JR. (1959); B.S., University of Rhode Island, 1952; M.S., 1957; Assistant County Agent, Penobscot County.

COOK, RICHARD CHARLES II; B.A., Harvard, 1956; M.A., Maine, 1959; Part-time Instructor in English.

COOPER, CONSTANCE ELAINE (1958); B.S., Maine, 1946; M.S., Cornell University, 1950; State Home Demonstration Agent Leader, Agricultural Extension Service.

COOPER, GEORGE RAYMOND (1950); B.A., Colorado State College of Education, 1942; M.S., Iowa State, 1948; Ph.D., 1950; Professor of Botany.

CORBETT, RALPH ASHTON (1930); B.S., Maine, 1930; M.S., Wisconsin, 1949; Extension Dairyman, Agricultural Extension Service.

COULTER, MALCOLM WILFORD (1948); B.S., Connecticut, 1942; M.S., Maine, 1948; Associate Professor of Game Management; Assistant Leader, Maine Cooperative Wildlife Research Unit.

COUPE, JOHN DONALD (1958); B.S., Worcester Polytechnic Institute, 1953; M.A., Clark, 1957; Assistant Professor of Business and Economics.

CRABTREE, KENNETH GERARD (1926); S.B., Massachusetts Institute of Technology, 1923; Professor of Electrical Engineering.

CRAIG, PHILIP CHARLES (1958); Sergeant, U. S. Army; B.S., Maine, 1939; Instructor in Military Science and Tactics.

CRAM, GORDON WILBUR (1956); B.S., Maine, 1953; Instructor in Chemistry, Agricultural Experiment Station.

CRAWFORD, JOHN RAYMOND (1930); B.A., Culver-Stockton, 1924; M.A., State University of Iowa, 1929; Ph.D., 1931; Professor of Education and Director of Bureau of Educational Research and Service.

CREAMER, WALTER JOSEPH (1919); B.S., Maine, 1918; E.E., 1921; B.A., 1923; Professor of Communication Engineering and Head of Department of Electrical Engineering.

CROFUTT, CHARLES BURTON (1926); B.A., Cornell College, 1919; M.S., State University of Iowa, 1920; Ph.D., 1923; Professor of Physics.

CROSBY, GEORGE HOWARD (1955); B.A., Colby, 1936; Registrar.

CROSBY, HOWARD ALVAH (1946); B.S., Maine, 1943; E.E., 1959; Associate Professor of Electrical Engineering.

CROSBY, RUTH (1929); A.B., Mount Holyoke, 1919; A.M., Radcliffe, 1920; Ph.D., 1929; Professor of English.

CROSSLAND, CHARLES EDWARD (1917); B.S., Maine, 1917; Vice President for Administration, and Clerk, Board of Trustees.

CROSSLAND, FERN (1959); B.A., Maine, 1954; M.A., 1959; Instructor in Mathematics.

CURRIER, ELEANOR (1959); B.S., Maine, 1945; Home Demonstration Agent, Franklin County.

CURTIS, THEODORE SMALL (1930); B.S., Maine, 1923; Faculty Manager of Athletics.

CUSHMAN, PARKER GRINDELL (1946); B.S., Maine, 1931; Director, Engineering Services.

CUTTS, CECIL J. (1959); B.A., Maine, 1925; M.A., 1940; Assistant Director, Student Aid.

DALTON, DOROTHY B.; B.S., Tufts College, 1943; Part-time Instructor in Home Management.

DALTON, FRANK HERBERT (1948); B.S., Massachusetts, 1940; M.S., 1948; Ph.D., 1952; Professor and Head of Department of Bacteriology.

DAVIS, GEORGE THEODORE (1951); A.B., Pennsylvania State University, 1935; M.S., 1941; Ed.D., Harvard, 1950; Professor of Education.

DAY, RICHARD B. (1956); B.S., Maine, 1942; County Agent, Franklin County.

DECOTEAU, RUTH CALLAGHAN (1934-1941) (1951); B.S., Maine, 1933; Home Demonstration Agent, Oxford County.

DE HAAS, HERMAN (1959); B.S., Westminster College, 1947; M.S., University of Michigan, 1950; Ph.D., 1955; Assistant Professor of Biochemistry.

DEMING, DONALD EVERET (1954); B.S., Worcester Polytechnic Institute, 1950; M.S., Connecticut, 1954; Assistant Professor of Mechanical Engineering.

DEMONT, THELMA (1927); Secretary to the Dean of the School of Education.

DEMPSEY, JOHN CARROLL (1929); Superintendent of Buildings and Grounds.

DESCHANES, BERNARD OLIVER (1957); B.S., Maine, 1956; Instructor in Engineering Graphics.

DICKEY, HOWARD CHESTER (1947); B.S., Michigan State, 1934; M.S., West Virginia University, 1936; Ph.D., Iowa State, 1939; Professor of Animal Science.

DIMOND, JOHN BARNET (1959); B.S., University of Rhode Island, 1951; M.S., 1953; Ph.D., Ohio State University, 1957; Assistant Professor of Entomology.

DINSMORE, FLORENCE ELIZABETH (1923); Secretary to the President.

DIRKS, CHARLES ORVILLE (1927); B.S., Kansas State College, 1924; M.S., Iowa State College, 1925; Ph.D., Cornell University, 1935; Professor of Entomology.

DODGE, CLAYTON WILLARD (1956); B.A., Maine, 1956; M.A., 1959; Instructor in Mathematics.

DOLLOFF, RICHARD CARLTON (1929); B.S., Maine, 1927; M.S., Cornell University, 1950; County Agent Leader, Agricultural Extension Service.

DONNINI, MARY WRIGHT (1955); B.S., Maine, 1938; Home Demonstration Agent, Cumberland County.

DORRITY, WILLIAM HOWARD (1957); B.S., Maine, 1957; Instructor in Electrical Engineering.

DOTEN, HENRY LEROY (1939); B.S., Maine, 1923; C.E., 1942; Business Manager.

DOUGLASS, IRWIN BRUCE (1940); B.S., Monmouth College, 1926; Ph.D., Kansas, 1932; Sc.D., Monmouth College, 1958; Professor of Chemistry.

†DOW, EDWARD FRENCH (1929); B.S., Bowdoin, 1925; A.M., Harvard, 1926; Ph.D., 1932; Professor of Government and Head of Department of History and Government.

DOW, GEORGE FARRINGTON (1927); B.S., Maine, 1927; M.S., 1929; Ph.D., Cornell University, 1938; Director, Agricultural Experiment Station.

DOWD, MORGAN DANIEL; A.B., St. Michael's College, 1955; LL.B., Catholic University of America, 1958; Instructor (half-time) in Government.

DOWE, PAUL JONES (1948); B.S., Maine, 1948; Club Agent, Androscoggin-Sagadahoc Counties.

DRAPER, WILLIAM (1958); B.Sc., University of Manchester (England), 1948;

† On leave of absence, 1959-60.

Associate-of-Royal-Institute-of-Chemistry (England), 1952; M.S., Massachusetts, 1958; Assistant Professor of Food Technology, Agricultural Experiment Station.

DROPPERS, GARRETT (1958); B.A., Hobart College, 1952; M.A., Cornell University, 1953; Instructor in History.

DUBOIS, FRANK ALBERT (1957); Major, Ordnance Corps, U. S. Army; Assistant Professor of Military Science and Tactics.

DUBORD, OLIVE CONANT (1957); B.S., Maine, 1957; Club Agent, Franklin County.

DUBOURDIEU, MARION (1957); A.B., Bates, 1919; M.A., Ed., Maine, 1941; Instructor in Mathematics.

DUNLAP, ROBERT DOWNING (1949); B.A., Colgate, 1943; M.S., Pennsylvania State, 1944; Ph.D., 1949; Associate Professor of Chemistry.

DUNNING, CLEMENT STEVENS (1947); B.S., Maine, 1947; County Agent, Cumberland County.

DUNPHY, WILBUR JOHN, JR. (1958); B.S., Maine, 1956; Engineering Aide.

DURST, RICHARD EDWARD (1949); B.S., Otterbein College, Westerville, Ohio, 1929; Ph.D., Ohio State, 1948; Professor of Chemical Engineering.

EASTMAN, CHARLES LESLIE (1925); B.S., Maine, 1922; County Agent, Androscoggin and Sagadahoc Counties.

EDWARDS, HERBERT JOSEPH (1947); B.A., Ohio State, 1923; A.M., Princeton, 1927; Ph.D., Ohio State, 1930; Associate Professor of English.

EGGERT, FRANKLIN PAUL (1949); B.S., Cornell University, 1942; M.S., 1947; Ph.D., 1949; Professor and Head of Department of Horticulture.

ELLIOTT, LLOYD HARTMAN (1958); A.B., Glenville State College, 1937; M.A., West Virginia University, 1939; Ed.D., University of Colorado, 1948; President of the University.

ELLIOTT, WALLACE HENRY (1937); B.S., Maine, 1926; M.S., Cornell University, 1937; Professor and Head of Department of Agricultural Education.

ELSEMORE, VERNON CYRIL (1947); B.A., Maine, 1948; Manager of Men's and Family Housing.

EMERICK, RICHARD GIBBS (1958); B.A., Syracuse University, 1950; M.A., University of Pennsylvania, 1954; Instructor in Sociology.

EUSTIS, ELIZABETH CURRIER (1958); B.S., Maine, 1955; Dietitian, Estabrooke Hall.

EUSTIS, RICHARD ALAN (1958); B.S., Maine, 1955; Engineering Aide.

EVANS, LORING D. (1959); Master Sergeant, U. S. Army; Instructor in Military Science and Tactics.

EVANS, WESTON SUMNER (1920); B.S., Maine, 1918; M.S., 1923; Dean, College of Technology; Professor of Civil Engineering; Director, Technology Experiment Station; Director, Department of Industrial Cooperation.

EVERHART, WATSON HARRY (1948); B.S., Westminster College, 1940; M.S., University of Pittsburgh, 1942; Ph.D., Cornell University, 1948; Professor of Zoology; Fishery Biologist and Head, Fishery Research and Management Division, Maine Department of Inland Fisheries and Game.

EVES, HOWARD WHITLEY (1954); B.S., University of Virginia, 1934; M.S., Harvard, 1936; Ph.D., Oregon State College, 1948; Professor of Mathematics.

FARR, WANDA KIRKBRIDGE; B.S., Ohio University, 1915; M.A., Columbia, 1918; Temporary Associate Professor of Botany, Agricultural Experiment Station.

FIFE, HILDA MARY (1946); A.B., Colby, 1926; A.M., Cornell University, 1933; Ph.D., 1941; Associate Professor of English.

## PERSONNEL

FINK, DAVID REAM, JR. (1957); B.A., Dartmouth, 1950; M.S. in Ed., University of Pennsylvania, 1953; Ph.D., 1957; Assistant Professor of Education.

FINNEGAN, ALICE VIRGINIA (1954); B.S. (Ed.), Bouvé School, Tufts College, 1952; Assistant Professor of Physical Education, Women's Division.

FLANAGAN, ELIZABETH A. (1954); B.S., St. Joseph's College, 1952; Dietitian, Stodder Hall.

FLYNN, CARL MUNRO (1933-1936) (1940); B.A., Maine, 1930; M.A., Wesleyan, 1932; M.A., Harvard, 1939; Ph.D., 1940; Associate Professor of Zoology.

FOBES, KENNETH BROWN (1948); B.S. in Ed., Maine, 1949; Assistant to the Dean, College of Education.

FOLEY, PATRICK JOHN (1958); B.S., Maine, 1958; Instructor in Civil Engineering.

FOSTER, FRANK CLIFTON (1947); B.S., Colby, 1916; B.D., Union Theological Seminary, 1924; M.A., Columbia, 1924; Ph.D., 1933; Professor of Education.

†FREEMAN, STANLEY LEONARD, JR. (1952); B.A., Bates, 1948; M.A., Teachers College, Columbia University, 1950; Ed.D., 1957; Associate Professor of Education.

GAIDA, THEODORE W. (1955); Master Sergeant, U. S. Army; Instructor in Military Science and Tactics.

GARDNER, WOFFORD GORDON (1946); A.B., Southwestern College, 1935; M.A., Northwestern University, 1941; Ph.D., 1952; Professor and Head of Department of Speech.

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POULTON, BRUCE ROBERT (1956); B.S., Rutgers University, 1950; M.S., 1952; Ph.D., 1956; Professor and Head, Department of Animal Science.

PRAGEMAN, IRVING HENRY (1927); Ph.B., Yale, 1918; M.E., 1923; Professor of Mechanical Engineering.

PRATT, HORACE ASA (1930); B.S., Maine, 1930; M.S., 1936; Testing Engineer, Highway Laboratory, Technology Experiment Station.

PRESSEY, DONALD EUGENE (1946); B.S., Maine, 1932; Steam Engineer.

PULLEN, WINSTON EUGENE (1946); B.S., Maine, 1941; M.S., Cornell University, 1942; Ph.D., 1950; Professor of Agricultural Economics.

†QUICK, HORACE FLOYD (1950); B.S., Pennsylvania State, 1937; M.F., University of Michigan, 1940; Ph.D., 1955; Associate Professor of Game Management, School of Forestry.

QUINSEY, DONALD LEROY (1942); B.S., University of Illinois, 1924; M.S., 1932; Ph.D., 1935; Professor og Psychology.

RADKE, FREDERICK HERBERT (1952); B.S., Hamline University, 1947; Ph.D., Iowa State, 1952; Professor and Head, Department of Biochemistry.

RAMSDELL, GORDON ESTEY (1947); B.S., Maine, 1942; M.S., 1951; Associate Professor of Animal Science.

RANDALL, ARTHUR GORDON (1946); B.S., Yale, 1933; M.F., 1934; Associate Professor of Forestry.

RANKIN, KATHERINE M.; Secretary to Dean of Men.

RANKIN, ROME (1947); M.A., University of Michigan, 1934; Ph.D., University of Kentucky, 1948; Professor of Physical Education; Director of Physical Education and Athletics.

RAPHAELSON, ARNOLD HERBERT (1958); A.B., Brown, 1950; M.S., Columbia University, 1951; M.A., Clark, 1956; Assistant Professor of Business and Economics.

REARDON, ARTHUR W. (1958); B.A., Boston University, 1937; M.S., Keene Teachers College, 1959; Assistant Professor of Education.

REED, FRANK DUDLEY (1938); B.S., New Hampshire, 1929; Poultry Marketing Specialist, Agricultural Extension Service.

REED, MARY FLORENCE (1930); B.A., Maine, 1929; B.S., Simmons School of Library Science, 1930; Cataloger in the Library.

REGAN, JAMES MICHAEL (1957); Major, Infantry, U. S. Army; B.S., Niagara University, 1942; Assistant Professor of Military Science and Tactics.

† On leave of absence, 1959-60.

REID, EDWARD R. (1958); B.A., Yale, 1946; M.A., 1950; Instructor in German.

REID, ELIZABETH STANLEY (1945); B.A., Maine, 1941; Secretary, Office of Veterans' Education and Buyer in Purchasing Office.

REYNOLDS, CECIL JOHN (1935); B.Sc., Mount Allison, 1926; B.A., 1927; B.A., Oxford, 1929; B.Litt., 1930; A.M., Harvard, 1932; Associate Professor of English.

REYNOLDS, RODERICK LEE (1955); B.S., Rutgers, 1948; M.S., 1950; Editor, Agricultural Extension Service; Associate Professor and Head, Department of Agricultural Communications.

†RHOADS, ROBERT BARLOW (1952); B.S., Maine, 1950; M.S., 1951; Associate Professor of Agricultural Engineering.

RICHARDS, CHARLES DAVIS (1952); B.A., Wheaton College (Illinois), 1943; M.A., University of Michigan, 1947; Ph.D., 1952; Associate Professor of Botany.

RICHARDSON, CAROL ANN (1958); B.S., Farmington State Teachers College, 1958; Home Demonstration Agent, Piscataquis County.

RILEY, GEORGE FRANCIS (1959); Sc.B., Brown, 1957; M.S., Maine, 1959; Instructor in Physics.

RITTER, MANIA (1959); Brevet elementaire dans l'enseignement superieur—France; Graduate work Yale University, University of Oklahoma, and University of Connecticut; Instructor in French and Russian.

ROBERTS, LEWIS POLLARD (1935); B.S., Maine, 1931; County Agent, Piscataquis County.

ROBINSON, JAMES ARTHUR (1956); B.S., Maine, 1950; County Agent, Central Aroostook County.

ROGERS, CARL ADEN (1944); B.S., Vermont, 1935; County Agent, Hancock County.

ROGERS, MARION ELIZABETH (1927); Diploma, Sargent School for Physical Education, 1927; B.A., Maine, 1930; M.A., 1936; Associate Professor of Physical Education and Head of the Women's Division, Department of Physical Education and Athletics.

ROLLINS, SANDRA A. (1959); B.S., Farmington State Teachers College, 1959; Home Demonstration Agent, Northern Aroostook County.

ROMANYSHYN, JOHN MIKE (1946-1950) (1953); B.A., University of Oklahoma, 1942; M.A., University of Chicago, 1952; Associate Professor of Sociology.

ROSENFELD, WILLIAM (1959); B.A., Utica College, 1951; M.A., University of Minnesota, 1954; Ph.D., 1959; Instructor in English.

ROSINSKI, MARTIN ALBIN (1955); B.S., University of Illinois, 1950; Ph.D., Cornell University, 1955; Associate Professor of Botany.

ROWE, RICHARD JAY (1959); B.S., Cornell University, 1952; B.S., Iowa State College, 1957; M.S., 1959; Assistant Professor of Agricultural Engineering.

ROZELLE, LLOYD G. (1955); B.S., Maine, 1951; County Agent, Washington County.

RUCKSTUHL, WILLIAM J. (1959); B.S., Grove City College, 1951; M.A., University of Pennsylvania, 1955; Assistant Professor of Business and Economics.

SANFORD, ALPHEUS (1958); B.A., Maine, 1947; M.Ed., Boston University, 1954; Ed.D., 1959; Assistant Professor of Education.

SASS, BERNARD (1946); B.S., City College of New York, 1934; M.A., Teachers College, Columbia, 1936; Assistant Professor of Zoology.

SAUNDERS, RICHARD FREMONT, (1953); B.S., Maine, 1950; M.S., Cornell University, 1951; Ph.D., 1953; Associate Professor of Agricultural Economics.

† On leave of absence January 1-June 30, 1960.

SCHEMNITZ, SANFORD DAVID; B.S., University of Michigan, 1952; M.S., University of Florida; 1953; Ph.D., Oklahoma State University, 1958; Temporary Assistant Professor of Forestry.

SCHOENBERGER, WALTER SMITH (1956); A.B., University of Pittsburgh, 1950; M.A., 1953; M.A., Fletcher School of Law and Diplomacy, 1954; Assistant Professor of History and Government.

SEZAK, SAMUEL (1939); B.A. in Ed., Maine, 1931; M.Ed., 1953; Associate Professor of Physical Education; Coach of Freshman Football.

SEZAK, WILLIAM (1946-1948) (1949); B.S. in Ed., Boston University, 1938; M.Ed., Maine, 1946; Ed.D., Columbia, 1956; Associate Professor of Sociology.

SHAW, FRANCIS GOODWIN (1947); B.S., Maine, 1947; B.A., 1948; M.A., 1949; B.Mus., Northern Conservatory of Music, 1951; Part-time Instructor, Department of Music (Band).

SHAW, LAWRENCE NEIL (1959); B.S., North Dakota Agricultural College, 1955; M.S., Purdue, 1959; Assistant in Marketing, Agricultural Extension Service.

SHEIVE, LUCY FARRINGTON (1956); B.S., Maine, 1923; Consumer Marketing Agent, Agricultural Extension Service.

SHELDON, FOREST R. (1958); B.S., Maine, 1953; Club Agent, Piscataquis County.

SHERK, ROBERT KENNETH (1950); B.A., University of Buffalo, 1947; Ph.D., Johns Hopkins, 1950; Associate Professor of Classics and German.

SHIBLES, LOANA SPEARIN (1946); Castine Normal, 1926; Club Agent, Knox-Lincoln Counties.

SHIBLES, MARK RICHARD (1947); B.A., Colby, 1929; M.Ed., Boston University, 1935; L.H.D., Colby, 1954; Sc.D. in Ed., Boston University, 1955; Dean of the College of Education, Director of the Summer Session and the General Extension Division, and Professor of Education.

SIDES, SAMUEL EDWIN (1956); B.S., Maine, 1951; Assistant Professor of Agricultural Engineering, Agricultural Experiment Station; Presque Isle, Maine Potato Handling Research Center.

SIEDLIK, TADEUSZ ANTONI (1957); B.A., Jan Dlugosz College, Lwow, Poland, 1936; LL.B., Glasgow University, 1944; LL.M., Harvard, 1957; Assistant Professor of Business and Economics.

SIMPSON, GEDDES WILSON (1931); A.B., Bucknell, 1929; M.A., Cornell University, 1931; Ph.D., 1935; Professor and Head of Department of Entomology.

SLEEPER, WILLIAM ALLEN, JR. (1949); A.B., Columbia, 1942; Mus.B., Yale, 1948; M.A., Harvard, 1950; Associate Professor of Music.

SMITH, CHARLOTTE CLEAVES (1931); B.S., Maine, 1931; Clothing Specialist, Agricultural Extension Service.

SMITH, STANLEY (1957); Sergeant First Class, U. S. Army; Instructor in Military Science and Tactics.

SMITH, STANLEY JOSEPH (1944); Engineering Aide, Highway Laboratory, Technology Experiment Station.

SMYTH, JOHN ROBERT (1929); B.S., Purdue, 1920; M.S., Kentucky, 1928; Professor and Head of Department of Poultry Science.

SNOW, FLORENCE F. (1958); House Director, Colvin Hall.

SNYDER, MARY ELLA (1936); A.B., Gooding College, 1919; M.S., Iowa State College, 1936; Associate Professor of Foods and Nutrition.

SOTTERY, THEODORE WALTER (1956); B.N.S., Dartmouth, 1946; M.S., Maine, 1956; Instructor in Chemistry.

SPARROW, THERON ALONZO (1926); B.S., Maine, 1924; M.S., 1938; Professor of Mechanical Engineering.

SPERIN, JEAN MAE (1955); B.S., Maine, 1955; Home Demonstration Agent, Androscoggin-Sagadahoc Counties.

SPEICHER, BENJAMIN ROBERT (1937); A.B., Denison, 1929; M.S., Pittsburgh, 1931; Ph.D., 1933; Professor and Head of Department of Zoology.

SPEICHER, KATHRYN GILMORE; B.S., Iowa Wesleyan, 1923; M.S., University of Iowa, 1925; Ph.D., University of Pittsburgh, 1934; Lecturer in Genetics.

SPRAGUE, RICHARD STANTON (1956); B.A., Maine, 1949; M.A., Yale, 1951; Instuctor in English.

*SPROUL, OTIS JENNINGS (1955); B.S., Maine, 1952; Assistant Professor of Civil Engineering.

†STARR, WILMARTH HOLT (1937); B.A., Wesleyan, 1934; Ph.D., Johns Hopkins, 1937; Professor of Romance Languages and Head of Department of Foreign Languages and Classics.

STEVENS, FRANCIS ROBERT (1957); B.S., Maine, 1951; Assistant County Agent, Androscoggin and Sagadahoc Counties.

STEVENS, MARGARET F. (1951); B.S., Simmons, 1934; Assistant State Club Leader, Agricultural Extension Service.

STEWART, ALICE ROSE (1947); B.A., Maine, 1937; A.M., Radcliffe, 1938; Ph.D., 1946; Professor of History.

STEWART, JOHN EMMONS (1928); B.A., Maine, 1927; M.A., 1928; Professor of Mathematics, Dean of Men.

STOECKLER, ERNEST GEORGE (1954); B.S., University of Minnesota, 1943; Research Assistant in Soil Mechanics, Technology Experiment Station.

STORMANN, CHARLES LINWOOD (1937); Technician, Department of Physics.

STRUCHTEMEYER, ROLAND AUGUST (1946); B.S., University of Missouri, 1939; M.A., 1941; Ph.D., Ohio State University, 1951; Professor and Head of Department of Agronomy.

STUART, RICHARD KENNETH (1940-1946) (1948); B.S., Rhode Island, 1938; M.S., 1940; Ph.D., University of Pennsylvania, 1956; Professor of Business and Economics.

STYRNA, EDMUND (1956); B.S., New Hampshire, 1948; Assistant Professor of Physical Education, Head Coach of Track and Cross Country.

SULLIVAN, FRANCIS JOSEPH (1948); S.B., Harvard, 1936; M.S., Kansas State College, 1941; Associate Professor of Mechanical Engineering.

SUPPLE, ROBERT VINCENT (1948); Ed.B., State University of New York, 1943; A.M., New York University, 1945; Ph.D., 1951; Professor of Education.

SWEETMAN, MARION DEYOE (1927); B.S., Iowa State College, 1921; M.S., 1922; Ph.D., Minnesota, 1927; Director of the School of Home Economics; Professor of Food and Nutrition, Head of Department of Home Economics, Agricultural Experiment Station.

SWIFT, HAROLD CLAYTON (1920); B.S., Maine, 1918; M.S., 1923; Associate Professor of Agricultural Engineering.

SWINFORD, LEE H. (1959); B.A., University of California, 1923; Ph.A., 1931; Lecturer in Mathematics.

TAVERNER, DONALD VARDY (1951); B.A., Maine, 1943; Director of Development.

TAYLOR, EVELYN (1931); Assistant Registrar.

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* On leave of absence, 1959-60, 1960-61.

† On leave of absence, 1959-60.

TAYLOR, FRANK MELROY (1940); B.S., Lafayette College, 1928; C.E., 1937; M.S., Maine, 1951; Associate Professor of Civil Engineering.

TAYLOR, ROGER F. (1946); Superintendent of University Forest.

TERRELL, CARROLL FRANKLIN (1948); B.A., Bowdoin, 1940; M.A., Maine, 1950; Ph.D., New York University, 1956; Associate Professor of English.

THOMAS, HARRY S. (1956); B.S., Maine, 1943; M.S., Pennsylvania State, 1951; Assistant Professor of Physics.

THOMPSON, WALTER ALFRED (1956); B.S., Maine, 1951; Club Agent, Hancock County.

THOMSON, ROBERT BRUCE (1947-1950) (1953); A.B., Harvard, 1932; LL.B., 1936; Assistant Professor of Government.

TODD, FRANK HAROLD (1946); B.S., Bowdoin, 1935; M.A., Maine, 1936; Assistant Professor of Physics.

TOLMAN, DAVID BURBANK (1954); Attended University of Maine and Yale; Research Editor, Maine Agricultural Experiment Station.

TOMLINSON, DOROTHY K. (1956); House Director, Stodder Hall, South Section.

TOOLE, JOHN WILLIAM (1959); A.B., Harvard, 1946; M.A., Maine, 1948; M.A., University of Illinois, 1951; Assistant Professor of Mathematics.

TRAFFORD, DAVID WHITE (1947); B.A., Maine, 1939; M.A., Indiana University, 1940; Ph.D., 1947; Professor of History.

TREFETHEN, HELEN BRIGHAM (1948); B.A., Colby, 1930; M.A., Wisconsin, 1934; Part-time Instructor in Geology, Department of Civil Engineering.

TREFETHEN, JOSEPH MUZZY (1938); A.B., Colby, 1931; M.S., University of Illinois, 1932; Ph.D., Wisconsin, 1935; Professor of Geology, Department of Civil Engineering.

TREVETT, MOODY FRANCIS (1946); B.S., Massachusetts State, 1929; M.S., 1940; Associate Professor of Agronomy.

TRIPP, MARLAND EUGENE (1951-1956) (1957); B.S., Maine, 1950; Assistant County Agent, Kennebec County.

TRONERUD, NORMAN KONRAD (1956); B.A., Bowdoin, 1947; M.A., Middlebury College, 1950; Assistant Professor of Romance Languages.

TURNER, WALTER WEEKS (1947); B.S., Massachusetts Institute of Technology, 1947; M.S., 1947; Associate Professor of Electrical Engineering.

TUTHILL, DEAN FANNING (1956); B.S., Cornell University, 1949; M.S., University of Illinois, 1954; Ph.D., 1958; Assistant Professor of Agricultural Economics.

TWITCHELL, PATRICIA (1958); B.S., Maine, 1958; County Club Agent, Central Aroostook County.

TWOMBLEY, GUY EVERETT (1955); B.S., Maine, 1954; Assistant Professor of Electrical Engineering.

VEST, EUGENE W. (1958); B.S., West Virginia Institute of Technology, 1951; Instructor in Mechanical Engineering.

VIRTUE, CHARLES FRANKLIN (1946); B.A., University of Cincinnati, 1925; Ph.D., Yale, 1933; Professor of Philosophy.

VOSE, PRESCOTT HALE (1950); B.S., Bowdoin, 1929; M.B.A., Harvard, 1931; Controller.

WADDELL, GLENWOOD ALDEN (1941); Technician, Agricultural Experiment Station.

WADE, WILLIAM ROBINSON (1956); Master Sergeant, U. S. Army; Sergeant Major and Instructor in Military Science and Tactics.

WADLIN, GEORGE KNOWLTON, JR. (1948); B.S., Pennsylvania State, 1948; M.S.,

Maine, 1953; Associate Professor and Head of Department of Civil Engineering.

WADLIN, NORA; B.S., Pennsylvania State, 1945; M.S., 1948; Lecturer in Child Development.

WADSWORTH, RICHARD C. (1954); A.B., Cornell University, 1926; M.D., University of Rochester School of Medicine and Dentistry, 1931; Lecturer in Medical Technology; Eastern Maine General Hospital, Bangor.

WALDRON, RALPH AUGUSTUS; B.S., Massachusetts, 1910; M.S., Pennsylvania State University, 1912; Ph.D., University of Pennsylvania, 1918; Lecturer in Education, General Extension Division

WARNER, MARDIS R. (1950-55) (1956); B.S., Ohio State, 1949; A.E., Ohio State, 1949; Agricultural Engineer, Agricultural Extension Service.

WATSON, HARRY DEXTER (1920); B.S., Maine, 1920; M.S., 1929; Professor and Head of Department of Mechanical Engineering.

WEBSTER, FRED LOT (1944); County Agent, Waldo County.

WEILER, THEODORE CHRISTLIEB (1946); B.A., Ohio Wesleyan, 1925; Ph.D., Yale, 1936; Professor of Sociology

WELLS, WILLIAM CARL (1931-1945) (1947); B.A., Maine, 1931; Director of Residence and Dining Halls.

WENCE, MILFORD EDWARD (1937); B.A., State University of Iowa, 1933; M.A., 1934; Ph.D., 1937; Professor of English.

WEST, GENE M. (1957); B.S., Nasson College, 1949; M.S., University of Massachusetts, 1954; Home Demonstration Agent, Knox and Lincoln Counties.

WESTERMAN, HAROLD SCOTT (1949); B.A., University of Michigan, 1946; Associate Professor of Physical Education.

WESTFALL, CLAUDE ZEBEDEE (1954); B.S.F., West Virginia University, 1952; M.S., Maine, 1954; Assistant Professor of Engineering Graphics.

WHELDEN, HARRY CROSSMAN, JR. (1955); B.S., University of Connecticut, 1948; Poultry Specialist, Agricultural Extension Service.

WHITNEY, HARRY F. (1955); B.S., Maine, 1954; M.S., Cornell University, 1955; Assistant County Agent, Waldo County.

WHITNEY, WALTER REGINALD (1928); B.S., Bowdoin, 1923; A.M., Harvard, 1935; Associate Professor of English.

WHITTON, LESLIE (1956); B.S., Utah State Agricultural College, 1949; M.S., University of California, 1953; Ph.D., Cornell University, 1956; Assistant Professor of Horticulture.

WILDES, GLENN K. (1958); B.S., University of Rhode Island, 1954; M.S., 1957; Assistant County Agent, York County.

WILLETT, PAULINE (1932); Secretary to the Dean of the College of Arts and Sciences.

WILSON, EDITH GRACE (1931); B.A., Southern California, 1923; M.A., 1928; Dean of Women; Lecturer in Sociology.

WILSON, SARA CURTIS (1946); B.S., Farmington State Normal, 1938; Home Demonstration Agent, Washington County.

WIRTH, HERMAN LOUIS (1957); Captain, Infantry, U. S. Army; B.S., Rutgers, 1951; Assistant Professor of Military Science and Tactics.

WITTER, JOHN FRANKLIN (1932); B.S., Maryland, 1928; D.V.M., Michigan, 1932; Professor and Head, Department of Animal Pathology.

WOJCIK, TADEUSZ ZDZISLAW (1958); Magister Juris, Cracow University, Poland, 1927; LL.D., 1928; LL.M., McGill University, 1957; Lecturer, Department of Business, Economics and Sociology.

WOLFHAGEN, JAMES LANGDON (1952); A.B., Linfield College, 1946; Ph.D., University of California, 1951; Associate Professor of Chemistry.

WOOD, HERBERT HARTLE, JR. (1950); B.A., American University, 1943; M.A., 1947; Ph.D., Columbia, 1957; Associate Professor of Government and Assistant to the Dean of the College of Arts and Sciences.

WOODBURY, HAROLD MACE (1937); B.S., Maine, 1937; M.A., 1948; Associate Professor of Physical Education; Head of Men's Division, Department of Physical Education and Athletics.

WOODMAN, RAYMOND, JR. (1959); B.A., Maine, 1950; Research Assistant, Soils Laboratory, Technology Experiment Station.

WOODS, DONALD PAUL (1959); B.S., Maine, 1959; Instructor in Biochemistry, Agricultural Experiment Station.

WOODWELL, GEORGE MASTERS (1957); B.A., Dartmouth, 1950; M.A., Duke, 1956; Ph.D., 1957; Assistant Professor of Botany.

WOOTTON, ALBERT GEORGE (1956); B.S., Rutgers, 1931; M.A., Columbia, 1951; Associate Professor of Mathematics.

WORRICK, ROBERT CLIFTON (1946-February 1, 1951) (1953); B.S., Maine, 1943; Director of Student Aid.

WORTHING, HARRIET (1955); Home Demonstration Agent, Waldo County.

WORTHLEY, CARL ALLEN (1941); B.S., Maine, 1936; County Agent Aroostook County, North.

WYLIE, DOUGLAS WILSON (1951); B.Sc., University of New Brunswick, 1947; M.Sc., Dalhousie, 1949; Assistant Professor of Physics.

YORK, ROBERT MAURICE (1946); A.B., Bates, 1937; A.M., Clark, 1938; Ph.D., 1941; Professor of History.

YOUNG, HAROLD EDLE (1948); B.S., Maine, 1937; M.F., Duke, 1946; Ph.D., 1948; Associate Professor of Forestry.

YOUNG, RAYMOND HINCHCLIFFE, JR. (1955); B.S., Pennsylvania Military College, 1953; Instructor in Chemistry.

YU, SHIH-CHENG (1959); B.A., Fu Jen University, Peiping, China, 1945; M.A., University of Iowa, 1949; Ph.D., 1952; Assistant Professor of Business and Economics.

ZIEMINSKI, STEFAN ANTONI (1954); Dipl. Ing., Technical University (Lwow, Poland), 1927; Doctor of Technical Science, 1929; Professor of Chemical Engineering.

ZUSI, RICHARD LAURENCE (1958); B.A., Northwestern, 1951; M.S., University of Michigan, 1953; Ph.D., 1959; Instructor in Zoology.

## UNIVERSITY OF MAINE IN PORTLAND

BURKE, LAWRENCE MORRILL, JR.; A.B., Bowdoin, 1949; M.A., University of Washington, 1951; Assistant Professor of English.

CANTY, JOSEPH PATRICK; B.S., United States Naval Academy, 1929; Instructor in Mathematics.

CLARK, ELMER BANKS FRED; B.A.E., University of Florida, 1935; M.A., 1937; Assistant Professor of French and Spanish.

CLARKE, ALFRED EVANS; A.B., Dartmouth, 1929; Director of Admissions and Instructor in History and Government.

COLE, PHILLIP ALBERT; B.S., Boston University, 1954; M.A., 1955; Instructor in History and Government.

Freundlich, Arthur L.; A.B., Northeastern University, 1947; A.M., Boston University, 1948; Part-time Instructor in Psychology.

Goff, Robert Fiske; A.B., Bowdoin, 1922; A.M., Bates, 1942; Assistant Professor of English and Foreign Languages.

Hilton, Donald Bertram; A.B., Boston University, 1955; M.S., Northeastern University, 1958; Instructor in Chemistry.

Hopkinson, David Bradford; B.S., Maine, 1942; M.S., Vermont, 1949; Assistant Professor of Engineering Graphics.

Irvine, William Lloyd; B.A., Maine, 1942; M.Ed., 1947; Ph.D., Cornell University, 1952; Dean.

Jackson, George Stuyvesant; A.B., Bowdoin, 1927; M.A., Harvard, 1931; Instructor in English.

†Jaques, John Frederick; A.B., Bowdoin, 1943; A.M., Columbia, 1946; Assistant Dean and Assistant Professor of English.

Johnson, Justin Oley; B.S., Colby, 1927; Assistant Professor of Mathematics.

Keenan, John Herbert; A.B., Dartmouth, 1923; M.C.S., 1925; M.A., Columbia, 1938; Assistant Professor of Economics.

Kern, Abraham K.; A.B., Bowdoin, 1936; M.Ed., Maine, 1956; Assistant Professor of Botany and Zoology.

Lawrence, Harold Merrill; B.S., Boston University, 1940; Bursar, Registrar and Instructor in Economics.

Nason, Clyde Ellsworth; A.B., Bowdoin, 1925; M.Ed., Boston University, 1952; Instructor in Physics.

Rollins, Cecil Augustus; A.B., Colby, 1917; M.A., Harvard, 1923; Lecturer in English.

Sullivan, James Vincent; B.S. in Ed., Maine, 1951; M.Ed., University of Delaware, 1954; Director of Physical Education and Athletics and Assistant Professor of Physical Education.

Thurlow, Clinton Frederick; B.S., Colby, 1932; M.A., Bates, 1941; Assistant Professor of History and Government.

Whiting, William Lawrence; B.A., Maine, 1937; M.Ed., Bates, 1948; M.A., Northwestern University, 1954; Assistant Professor of Speech.

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† On leave of absence, spring semester 1959-60.

## AGRICULTURAL ADVISORY COUNCIL

| Appointive Members: | Terms Expire (Dec. 31) |
|---|---|
| Mrs. Mason Shibles, Knox (P. O. Thorndike) | 1959 |
| Warren S. Abbott, Rumford | 1960 |
| E. Perrin Edmunds, Fort Fairfield | 1960 |
| Malcolm P. Noyes, Franklin | 1961 |
| Mrs. Clifford B. Smith, Ohio St., RFD #4, Bangor | 1961 |
| Oscar T. Turner, Livermore | 1961 |
| M. Milton MacBride, Presque Isle | 1962 |
| Rockwood Berry, Livermore Falls | 1963 |
| Raynor Brown, North Waterford | 1963 |
| Edmund Smith, Bethel | 1963 |

Ex Officio Members:

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| Lloyd H. Elliott | President, University of Maine |
| Frank W. Hussey, Presque Isle | Trustee Representative |
| E. L. Newdick, Augusta | Commissioner of Agriculture |
| Winthrop C. Libby | Dean of Agriculture |
| George E. Lord | Director, Agricultural Extension Service |
| George F. Dow | Director, Agricultural Experiment Station |

## GENERAL ALUMNI ASSOCIATION

### OFFICERS AND COUNCIL MEMBERS

### 1959-60

### OFFICERS

President—Dr. George F. Dow '27, Orono
First Vice President—Alvin S. McNeilly '44, 71 Lincoln St., Melrose, Mass.
Second Vice President—Mrs. Lucy F. Sheive '27, 19 Montreal St., Portland
Clerk—Edwin H. Bates '37, Orono
Treasurer—Harry T. Treworgy '49, Orono
Executive Director—Donald V. Taverner '43, Orono
Assistant Executive Director—Margaret M. Mollison '50, Orono

### ALUMNI COUNCIL MEMBERS

| | Term Expires |
|---|---|
| Mrs. Winifred C. Anderson '35, 15 Linden St., Auburn | 1962 |
| Frank C. Brown '30, 111 Crest Rd., Ridgewood, N. J. | 1962 |
| Clifton E. Chandler '13, 113 Highland St., Portland | 1961 |
| Arthur T. Forrestall '33, 45 Montrose Ave., Portland 5 | 1962 |
| M. Eleanor Jackson '20, 146 Elm St., Stoneham, Mass. | 1962 |
| Mrs. Emilie K. Josselyn '21, 15 Caryl Ave., Yonkers, N. Y. | 1961 |
| Alfred B. Lingley '20, Bristol Manft. Co., Buttonwood Ave., Bristol, R. I. | 1962 |
| Thomas G. Mangan '16, 22 Church St., Livermore Falls | 1960 |
| Robert B. McLeary '42, 19 Congress St., Augusta | 1962 |
| Robert W. Nelson '45, 37 Prospect St., Attleboro, Mass. | 1960 |
| Albert S. Noyes '24, 90 Stroudwater St., Westbrook | 1960 |
| Carleton B. Payson '41, 24 Otsego Rd., Worcester 5, Mass. | 1961 |
| George A. Potter '20, 125 Hillcrest Rd., Needham, Mass. | 1961 |
| Mrs. Barbara L. Raymond '37, 37 Glenwood Ave., Portland | 1962 |
| Mrs. Winona C. Sawyer '43, 420 French St., Bangor | 1962 |
| Robert P. Schoppe '38, 89 Orchard St., Auburn | 1962 |
| Stanwood R. Searles '34, 109 Greenacre Avenue, Longmeadow, Mass. | 1962 |
| Edward C. Sherry '38, 56 Wall St., Wellesley, Mass. | 1962 |

#### College of Agriculture

| | |
|---|---|
| Clifford G. McIntire '30, Perham | 1962 |

#### College of Arts and Sciences

| | |
|---|---|
| John F. Grant '48, 311 West Broadway, Bangor | 1960 |

### College of Education

| | |
|---|---|
| Ermo H. Scott '31, 88 Main St., Farmington | 1961 |

### College of Law

| | |
|---|---|
| Thomas N. Weeks '16, 112 Main St., Waterville | 1961 |

### College of Technology

| | |
|---|---|
| Henry T. Carey '22, 125 Virginia Ave., Jersey City, N. J. | 1962 |

### Alumni Representative on Board of Trustees

| | |
|---|---|
| Raymond H. Fogler '15, 18 Calumet Ave., Hastings-on-Hudson, N. Y. | 1961 |
| Mrs. Rena C. Bowles '21, 21 Forest Ave., Bangor | 1960 |

## LOCAL ASSOCIATIONS

MAINE CLUB OF AUBURN-LEWISTON
President—Roger Williams '45, 279 Center St., Auburn

AUBURN-LEWISTON ALUMNAE
President—Mrs. Paul Johnson '51, 94 Grandview Ave., Auburn

EASTERN ASSOCIATION OF UNIVERSITY OF MAINE WOMEN
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President—Kingdon Harvey '30, Ft. Fairfield

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NORTHERN KENNEBEC ALUMNI ASSOCIATION
President—Ralph L. Hawkes '37, Bridge St. No., Vassalboro

SOUTHERN KENNEBEC ALUMNI ASSOCIATION
President—Jack Nickerson '50, 4 School St. Place, Augusta

SOUTHERN KENNEBEC ALUMNAE ASSOCIATION
President—Mrs. Robert McLeary '43, 19 Congress St., Augusta

KNOX COUNTY ALUMNI ASSOCIATION
Secretary—Charles L. Grant '55, 42 Beech St., Rockland

MERRYMEETING BAY ALUMNI ASSOCIATION
President—Merle Goff '48, 15 Meadow Brook Dr., Brunswick

OXFORD COUNTY ALUMNI ASSOCIATION
President—Thomas Dickson '27, Box 520, Rumford

NORTHERN PENOBSCOT ALUMNI ASSOCIATION
President—Earle W. Vickery '49, 403 Penobscot Ave., Millinocket

PENOBSCOT VALLEY ALUMNI ASSOCIATION
President—Edwin H. Bates '37, 8 College Heights, Orono

PORTLAND ALUMNAE ASSOCIATION
President—Norma Jean Smaha '54, 118 Bedford St., Portland

CUMBERLAND COUNTY ALUMNI ASSOCIATION
President—William H. Brann '40, 321 Sawyer St., So. Portland

SOMERSET COUNTY ALUMNI ASSOCIATION
President—Elbert M. Prince '50, 17 Lancey St., Pittsfield

WALDO COUNTY ALUMNI ASSOCIATION
Secretary—William P. Keene '52, Edgecomb Rd., R.D. 3, Belfast

SOUTHERN CALIFORNIA ALUMNI ASSOCIATION
President—George O. Ladner '26, 2986 Mt. Curve Ave., Altadena, Calif.

COLORADO ALUMNI ASSOCIATION
President—Roger O. Benjamin '41, 4725 Miller St., Wheatridge, Colo.

NORTHERN CONNECTICUT ALUMNI ASSOCIATION
President—Edward H. Phillips '44, 330 Spring St., Manchester, Conn.

SOUTHERN CONNECTICUT ALUMNI ASSOCIATION
President—Edward F. Etzel '43, 157 Washington Ave., No. Haven, Conn.

CHICAGO, ILLINOIS, ALUMNI ASSOCIATION
President—Charles H. Jack, Jr. '46, 290 Geneva Ave., Elmhurst, Ill.

BOSTON ALUMNI ASSOCIATION
President—Edward C. Sherry '38, 56 Wall St., Wellesley, Mass.

BOSTON ALUMNAE ASSOCIATION
President—Miss M. Eleanor Jackson '20, 146 Elm St., Stoneham

NORTH SHORE ALUMNI ASSOCIATION
President—Ashton P. Sawyer '35, 161 West Shore Drive, Marblehead, Mass.

WESTERN MASSACHUSETTS ALUMNI ASSOCIATION
President—Arvo Solander '31, 308 Amherst Rd., So. Hadley, Mass.

WORCESTER COUNTY, MASSACHUSETTS, ALUMNI ASSOCIATION
President—E. Merle Hildreth '34, 1172 Pleasant St., Worcester 2, Mass.

BALTIMORE, MARYLAND, ALUMNI ASSOCIATION
(Contact James E. Totman '16, 15 Meadow Rd., Baltimore 12, Md.)

KANSAS CITY, MISSOURI, ALMUNI ASSOCIATION
President—William R. Cumerford '39, 604 E. 66th Terr., Kansas City 6, Mo.

WHITE MOUNTAIN ALUMNI ASSOCIATION
President—Robert F. Dinsmore '45, Shelburne, N. H.

SOUTHERN NEW HAMPSHIRE ALUMNI ASSOCIATION
Vice President—Royal A. Roulston '30, 14 Highland Ave., Salem, N. H.

NEW YORK ALUMNI ASSOCIATION
President—Albert M. Parker '28, 18 Montfort Rd., Port Washington, N. Y.

CENTRAL NEW YORK ALUMNI ASSOCIATION
Conan A. Priest '22, 314 Hurlburt Rd., Syracuse 3, N. Y.

NORTHEASTERN NEW YORK ALUMNI ASSOCIATION
President—Harry E. Bickford '50, 32 Skyview Dr., Cohoes, N. Y.

ROCHESTER ALUMNI ASSOCIATION
President—Henry Fogler '43, 227 Pinecrest Dr., Rochester 17, N. Y.

FINGER LAKES REGION (NEW YORK) ALUMNI ASSOCIATION
President—Stanley Smith '44, Slaterville Springs, N. Y.

WESTERN NEW YORK ALUMNI ASSOCIATION
President—Richard E. Smith '48, 84 Bancroft Lane, Snyder 26, N. Y.

WESTERN PENNSYLVANIA ALUMNI ASSOCIATION
President—Robert C. Lycette '43, 103 Mina Drive, Allison Park, Pa.

LEHIGH VALLEY (PENN.) ALUMNI ASSOCIATION
President—Harold T. Pierce '29, 1833 Highland St., Allentown, Pa.

EASTERN PENNSYLVANIA ALUMNI ASSOCIATION
President—A. Wilford Bridges '49, 2708 Fair Oaks Ave., Hatboro, Pa.

UNIVERSITY OF MAINE CLUB OF RHODE ISLAND
President—John Gowell '38, Dockray Rd., Wakefield, R. I.

VERMONT ALUMNI ASSOCIATION
President—Raymond McGinley '38, 17 No. Main St., Enosburg Falls, Vt.

## PERSONNEL

WASHINGTON, D. C., ALUMNI ASSOCIATION
President—Major Clifford West '43, 6020 Hanover Ave., Springfield, Va.
ST. PETERSBURG, FLORIDA, ALUMNI ASSOCIATION
President—O. W. Mountfort '12, 515 38th St., St. Petersburg 7, Fla.
TEACHERS' ASSOCIATION
President—Hector Hebert '30, 14 Forest St., Dexter
PULP AND PAPER ASSOCIATION
Chairman—Robert N. Zabe '50, 66 Mary St., Arlington 34, Mass.
FORESTRY ALUMNI
President—Dwight B. Demeritt '19, 15 University Place, Orono

The ROTC Ball is one of the year's most popular social events

# SUMMARY OF STUDENT ENROLLMENT

**1958-1959**

| | Portland Campus | Orono Campus | | |
|---|---|---|---|---|
| | Men | Men | Women | Total |
| Graduates | — | 149 | 40 | 189 |
| Post Master | — | 1 | — | 1 |
| Fifth Year | — | 23 | — | 23 |
| Seniors | — | 646 | 165 | 811 |
| Juniors | — | 666 | 196 | 862 |
| Sophomores | 55 | 742 | 228 | 1025 |
| Freshmen | 143 | 743 | 264 | 1150 |
| Specials | 50 | 44 | 57 | 151 |
| Three-Year Nurses | — | — | 37 | 37 |
| Two-Year Agriculture—1st Year | — | 26 | — | 26 |
| 2nd Year | — | 19 | — | 19 |
| Two-Year Business—1st Year | 79 | — | — | 79 |
| 2nd Year | 48 | — | — | 48 |
| | 375 | 3059 | 987 | 4421 |
| Summer Session | — | 676 | 940 | 1616 |
| Grand Total (omitting duplicates in Summer Session) | 375 | 3623 | 1868 | 5866 |

Classification by Colleges

| | | | | |
|---|---|---|---|---|
| Graduates | — | 149 | 40 | 189 |
| College of Agriculture | 4 | 535 | 136 | 675 |
| College of Arts and Sciences | 273 | 761 | 523 | 1557 |
| College of Education | 46 | 457 | 280 | 783 |
| College of Technology | 52 | 1157 | 8 | 1217 |
| | 375 | 3059 | 987 | 4421 |

Candidates for Degrees

| | | | | |
|---|---|---|---|---|
| Graduates | — | 137 | 37 | 174 |
| College of Agriculture | 4 | 485 | 133 | 622 |
| College of Arts and Sciences | 95 | 746 | 455 | 1296 |
| College of Education | 46 | 439 | 257 | 742 |
| College of Technology | 52 | 1150 | 8 | 1210 |
| | 197 | 2957 | 890 | 4044 |

Classification by Residence

| | | Regular Session | Summer Session | Total |
|---|---|---|---|---|
| Maine, by counties | | | | |
| Androscoggin | 26 | 247 | 51 | 324 |
| Aroostook | 4 | 232 | 84 | 320 |
| Cumberland | 257 | 488 | 108 | 853 |
| Franklin | 2 | 66 | 24 | 92 |
| Hancock | — | 149 | 66 | 215 |
| Kennebec | 7 | 279 | 57 | 343 |
| Knox | 2 | 100 | 29 | 131 |
| Lincoln | 1 | 70 | 27 | 98 |
| Oxford | 15 | 158 | 41 | 214 |
| Penobscot | 1 | 907 | 329 | 1237 |
| Piscataquis | — | 89 | 49 | 138 |
| Sagadahoc | 10 | 55 | 17 | 82 |
| Somerset | — | 118 | 72 | 190 |
| Waldo | — | 75 | 59 | 134 |
| Washington | — | 86 | 15 | 101 |
| York | 36 | 202 | 38 | 276 |
| | 361 | 3321 | 1066 | 4748 |

## SUMMARY OF STUDENT ENROLLMENT

| | Portland Campus | Orono Campus | | |
|---|---|---|---|---|
| | | Regular Session | Summer Session | Total |
| Maine | 361 | 3321 | 1066 | 4748 |
| Massachusetts | 2 | 290 | 29 | 321 |
| New York | 1 | 138 | 96 | 235 |
| New Jersey | 3 | 106 | 36 | 145 |
| Connecticut | 4 | 56 | 20 | 80 |
| New Hampshire | 1 | 27 | 6 | 34 |
| Pennsylvania | — | 19 | 24 | 43 |
| Vermont | — | 16 | 10 | 26 |
| Maryland | — | 4 | 17 | 21 |
| Rhode Island | — | 17 | 4 | 21 |
| Ohio | — | 3 | 16 | 19 |
| Virginia | — | 3 | 12 | 15 |
| California | — | 1 | 13 | 14 |
| Florida | — | 1 | 9 | 10 |
| District of Columbia | — | 1 | 7 | 8 |
| Iowa | — | — | 6 | 6 |
| Michigan | — | — | 6 | 6 |
| North Carolina | — | — | 6 | 6 |
| Georgia | — | 1 | 4 | 5 |
| Missouri | — | — | 5 | 5 |
| Wisconsin | — | — | 5 | 5 |
| Illinois | — | — | 4 | 4 |
| Kansas | — | — | 4 | 4 |
| Mississippi | — | — | 4 | 4 |
| Alabama | — | — | 3 | 3 |
| Delaware | — | 1 | 2 | 3 |
| Alaska | — | 1 | 1 | 2 |
| Indiana | — | — | 2 | 2 |
| Kentucky | — | 1 | 1 | 2 |
| Minnesota | — | — | 2 | 2 |
| Oregon | — | — | 2 | 2 |
| Texas | 1 | — | 1 | 2 |
| Louisiana | — | — | 1 | 1 |
| Oklahoma | — | 1 | — | 1 |
| South Carolina | — | 1 | — | 1 |
| South Dakota | — | — | 1 | 1 |
| Washington | — | — | 1 | 1 |
| West Virginia | — | 1 | — | 1 |
| Canada | 2 | 12 | 13 | 27 |
| India | — | 4 | — | 4 |
| England | — | 3 | — | 3 |
| Formosa | — | 2 | — | 2 |
| Greece | — | 2 | — | 2 |
| Netherlands, W. I. | — | 2 | — | 2 |
| Puerto Rico | — | — | 2 | 2 |
| Cambodia | — | 1 | — | 1 |
| China | — | — | 1 | 1 |
| Cuba | — | 1 | — | 1 |
| Denmark | — | 1 | — | 1 |
| Dominican Republic | — | — | 1 | 1 |
| Germany | — | 1 | — | 1 |
| Guatemala | — | 1 | — | 1 |
| Iraq | — | 1 | — | 1 |
| Israel | — | 1 | — | 1 |
| Japan | — | 1 | — | 1 |
| Korea | — | 1 | — | 1 |
| Mauritius | — | 1 | — | 1 |
| Pakistan | — | — | 1 | 1 |

| | | | | |
|---|---|---|---|---|
| Philippines | — | 1 | — | 1 |
| Venezuela | — | — | 1 | 1 |
| | 375 | 4046 | 1445 | 5866 |

**General Extension**

**July 1, 1957 to June 30, 1958**

| | MEN | WOMEN | TOTAL |
|---|---|---|---|
| Extension | 473 | 841 | 1314 |
| Saturday Extension | 352 | 976 | 1328 |
| Correspondence | 420 | 705 | 1125 |
| | 1245 | 2522 | 3767 |
| Total (omitting duplicates) | 1181 | 2287 | 3468 |


Upper: Home Economics student serves as dietetic intern
Lower: Professor appears on University's Television Program

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