



THE
UNIVERSITY OF
VERMONT

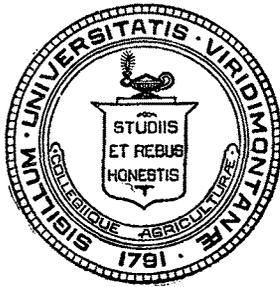
Bulletin | *April* **1966**

FOUNDED 1791

• BURLINGTON, VERMONT

Bulletin of

THE UNIVERSITY OF
VERMONT



THE CATALOGUE • 1965 - 1966
ANNOUNCEMENTS • 1966 - 1967

Cover photo: The Guy W. Bailey Library.
Photo by Eldred.

Inside back cover: Entrance to Bailey Library.
Photo by Eldred.

Cover design by John MacLeod
Printing by The Lane Press, Inc.

Bulletin of the University of Vermont

VOLUME 63

APRIL 15, 1966

NUMBER 10

Published by the University of Vermont, Burlington, Vermont, ten times a year—once each in September, October, and December, three times in January, and twice in March and April.
Second-class postage paid at Burlington, Vermont 05401.

V The University of Vermont

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

¶ Burlington, the largest city in the State, with a population of 35,000, is 95 miles from Montreal, 230 miles from Boston, and 300 miles from New York City. The city has daily plane and bus service to these points.

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

¶ Although its legal title is The University of Vermont and State Agricultural College, the University is known to its students and alumni as UVM. This popular abbreviation is derived from the Latin *Universitas Viridis Montis*.

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

¶ The University is accredited by the following associations:

The New England Association of Colleges and Secondary Schools

The National Council for Accreditation of Teacher Education

National Association of Schools of Music

The American Medical Association

The American Dental Association

National League for Nursing

The Engineers Council for Professional Development

The American Chemical Society

The Philosophy and Objectives of The University of Vermont¹

Today, more than ever before, higher education is in need of a basic philosophy—one which will clarify its purposes and goals, and which, at the same time, will protect it from any loss of its essential characteristics. It is important to note well that a university, the home of higher education, is not a barometer of public opinion, and that it cannot conceivably bend to meet every demand of society if it is to carry out effectively its major responsibilities to scholarship and learning.

A university must be committed to scholarship, it must be dedicated to education in the very highest branches of learning, and it must aspire to the supreme level of excellence.

If, in the constantly changing environment of modern civilization, a university finds itself in the role of a service agency, ready to meet every demand that society may make upon it, then there is real danger that the vital purposes and goals of higher education may be lost. If the danger is recognized and guarded against, however, the integrity of our educational program will not be jeopardized.

What, then, is the basic purpose of the University of Vermont—what is its philosophy of education?

Basically, the University is an institution dedicated to pure learning in the humanities, the natural sciences, and the social sciences. Our responsibility is that of creating a community of scholars, both old and young; of providing an atmosphere for the discovery, exchange, and transmission of ideas; and of furnishing continuing generations with the intellectual means for leading full and purposeful lives.

Institutional Goals

Quite naturally there is a diversity of goals among American institutions of higher education, and inevitably there are differences in the goals of public and private institutions. As a publicly supported institution, the University has accepted the responsibility of providing an educational opportunity for all qualified men and women residing in the State of Vermont.

1. Cited from the President's Report, 1960.

The University continues to meet this responsibility at the same time that it is able to enhance the educational opportunity afforded Vermonters by the admission of students coming from many large and small communities outside Vermont's borders. This tradition, not enjoyed by many state universities, not only provides a heterogeneity of background and experience for all students, but also makes possible a breadth and depth of academic offerings which the University of Vermont otherwise might not be able to provide for Vermonters alone.

Thus our institutional goals are . . .

. . . to provide a liberal education through individual capacity for the making of intelligent decisions. Such an education becomes meaningful with a knowledge of our historical heritage; it becomes operational through the use of all disciplines, including mathematics and science; and it becomes influential through the art of effective communication

. . . to extend an opportunity for the development of a cultural life by virtue of the arts and the formulation of philosophical and moral values

. . . to provide skill training in preparation for specific professions and careers

. . . to create an atmosphere conducive to research and scholarship through the development of programs which will implement both undergraduate and graduate education

. . . to develop graduate programs leading to the master's and doctor's degree in areas supported by faculty, laboratory, and library facilities as a means of specialization and of complementing desired research and study in selected fields

. . . to carry on a program of adult education through the Evening Division, off-campus activities, cooperative extension, and modern communication media

. . . to provide services to state and local government where University personnel, data, or organization are particularly adaptable to a public need which otherwise may not be filled.

Institutional Means

Clearly, our institutional goals cannot be achieved without a faculty of distinction aided by an administration which recognizes that its obligation is both to provide the facilities and to help create the conditions in which the faculty and students can pursue their educational responsibilities.

One of the most important of the University's means to the desired end is the development of an undergraduate curriculum which provides a liberal education in every professional program. This is not to say that every student should

matriculate in the College of Arts and Sciences. It does mean that the professional and vocational must not crowd out a liberal education simply because the subject matter of each professional field is increasing. It is impossible today to teach everything there is to know in the professions, whether in medicine, law, engineering, business, or agriculture. For this reason it is important that we continually review the curriculum to reevaluate, modify, and consolidate the fundamentals of professional education so that the teaching of effective communication—mathematics, history, science, and the arts—retains its central importance.

Facilitating this is the emphasis placed upon individual excellence, wherein the gifted student may advance more rapidly through small seminars, conferences, individual research assignments, the use of original sources, and student advisory services.

Further means include a constant reviewing of admissions requirements to insure an educational opportunity to those applicants who will receive the greatest benefit from a college education; a fostering of research projects which are related to the teaching program and to our established institutional goals, providing opportunity for research in the social sciences and the humanities as well as in the natural sciences; the development of a full graduate program as rapidly as resources permit; and finally, a sustained plan of university self study to provide a continuing evaluation of achievement and a basis for the consideration of new techniques and methods.

Basic to these means, of course, and a resource without which the institution ceases to be a university, is the library. To make our philosophy of education meaningful, to make our goals realizable, and to make our other means workable, a truly fine library is indispensable.

The University's philosophy of education, then, is to create a community of scholars and provide facilities and an environment for full educational development. Our goals are to insure the undergraduate a well-rounded academic background, regardless of the field of concentration; to offer sound graduate programs at the master's and doctor's levels; to pursue a program of continuing adult education; and to provide the State and community with professional and cultural services.

CORRESPONDENCE

Admissions	Requests for a catalogue, or information concerning admission policies and procedures, rooms and tuition
Undergraduate Colleges	<i>Director of Admissions</i>
College of Medicine	<i>Dean of the College of Medicine</i>
Graduate College	<i>Dean of the Graduate College</i>
Evening Division	<i>Dean of the Evening Division</i>
Summer Session	<i>Dean of the Summer Session</i>
Conferences and Institutes	<i>Director of Conferences and Institutes</i>
Transcripts of Records	<i>Registrar</i>
Student Personnel	<i>Student Personnel Services</i>
Scholarships and Loans	<i>Director of Financial Aid</i>
Employment of Seniors and Alumni	<i>Director of Placement</i>
Matters of Alumni Interest	<i>Director of Alumni Affairs</i>
Matters of General University Interest	<i>The President</i>

THE CONTENTS

PERSONNEL	1
INTRODUCTION	24
STUDENT LIFE	35
THE ADMISSION OF STUDENTS	44
STUDENT EXPENSES	47
GENERAL INFORMATION	51
THE COLLEGE OF AGRICULTURE	57
THE COLLEGE OF ARTS AND SCIENCES	68
THE SCHOOL OF DENTAL HYGIENE	78
THE COLLEGE OF EDUCATION AND NURSING	80
THE COLLEGE OF TECHNOLOGY	89
THE GRADUATE COLLEGE	98
THE COLLEGE OF MEDICINE	108
THE UNIVERSITY EXTENSION	111
COURSES OF INSTRUCTION	113
THE ALUMNI COUNCIL	216
ENROLLMENT STATISTICS	219
DEGREES	222
LOAN FUNDS, SCHOLARSHIPS, AND PRIZES	237
GENERAL INDEX	249
ACADEMIC CALENDAR	252

University of Vermont Personnel

THE BOARD OF TRUSTEES

SHANNON McCUNE, Ph.D., LL.D.	President	} Ex-Officio
PHILIP HENDERSON HOFF, B.A., LL.B.	Governor	

March, 1961—March, 1967

HAROLD CARLTON BILLINGS, B.S.	<i>Springfield, Vt.</i>
MRS. MILDRED JOSLYN BURBANK, B.A.	<i>Waitsfield, Vt.</i>
JAMES NORMAN KENNEDY, D.D.S.	<i>Island Pond, Vt.</i>
ROBERT EMMETT O'BRIEN, B.S., M.D.	<i>Winooski, Vt.</i>

March, 1962—March, 1968

WOODHULL STANTON HALL, M.D.	<i>Bennington, Vt.</i>
ELMER LYLE NICHOLSON, B.S.	<i>Newington, Conn.</i>
LAWRENCE HARLAND MARVIN, B.S.	<i>Essex Junction, Vt.</i>

March, 1963—March, 1969

ALLAN BEHAM ANGNEY, JR., B.S.	<i>Arlington, Vt.</i>
BARTHOLOMEW FRANCIS GARRITY, B.S.	<i>Burlington, Vt.</i>
SANBORN PARTRIDGE, LL.B., M.S.	<i>Proctor, Vt.</i>
ELLERY REDFIELD PURDY, B.S., M.Ed.	<i>Mendon, Vt.</i>

March, 1964—March, 1970

LAWRENCE JAMES DOOLIN, B.S.	<i>Philadelphia, Pa.</i>
FLOYD MERLE JAMES, B.S.	<i>West Hartford, Conn.</i>
ROBERT FLEMING PATRICK, B.S., M.B.A.	<i>Burlington, Vt.</i>

March, 1965—March, 1971

WILLIAM THOMAS BURNS, B.S.	<i>Dorset, Vt.</i>
EDWARD RICHARDSON EURICH	<i>Waitsfield, Vt.</i>
LEO O'BRIEN, JR., B.A.	<i>South Burlington, Vt.</i>

March, 1966—March, 1972

JOHN LUTHER BECKLEY, Ph.B.	<i>Montclair, N.J.</i>
KENNETH NASH SCOTT, B.S.	<i>Detroit, Mich.</i>
LEON DONALD LATHAM, JR., Ph.B., LL.B.	<i>Burlington, Vt.</i>

ADMINISTRATIVE PERSONNEL

OFFICERS OF THE BOARD

LAWRENCE HERMAN AVERILL, B. S. ¹	<i>Chairman of the Board</i>
ROBERT MORTON TRACY, B. S. ¹	<i>Vice Chairman of the Board</i>
LAWRENCE HARLAND MARVIN, B.S.	<i>Secretary of the Board</i>
BARTHOLOMEW FRANCIS GARRITY, B.S.	<i>Assistant Secretary of the Board</i>
MELVIN ALLEN DYSON, B.B.A., C.P.A.	<i>Vice President for Financial Affairs</i>

OFFICERS OF ADMINISTRATION

CLINTON DANA COOK, Ph.D.	<i>Vice President for Faculty Affairs</i>
LYMAN SMITH ROWELL, M.S.	<i>Vice President for Administrative and Student Affairs</i>

Administrative Council

THOMAS WHITFIELD DOWE, Ph.D.	<i>Dean, College of Agriculture and Director of Agricultural Experiment Station</i>
WARREN ORVEL ESSLER, Ph.D.	<i>Dean, College of Technology</i>
ANNA RANKIN HARRIS, M.A.	<i>Dean of Women</i>
GEORGE VINCENT KIDDER, Ph.D.	<i>Dean, College of Arts and Sciences</i>
THOMAS CLAIR KING, Ed.D.	<i>Dean, College of Education and Nursing</i>
WILLIAM HOOPER MACMILLAN, Ph.D.	<i>Dean of the Graduate College</i>
ROLAND DIETZ PATZER, M.A.	<i>Dean of Men</i>
RAYMOND VIRGIL PHILLIPS, Ph.D.	<i>Dean, Summer Session, Evening Division, and Director, Conferences and Institutes</i>
ROBERT JAMES SLATER, M.D.	<i>Dean, College of Medicine</i>

Administrative Divisions

RICHARD WALKER AMIDON, M.D.	<i>Director of Student Health</i>
BEN COOK BOWMAN, M.A. ²	<i>Director of Libraries</i>
ROBERT POWERS DAVIDSON, M.Ed.	<i>Director, Agricultural Extension Service</i>
JACK ERNEST LITTLE, Ph.D.	<i>Director of Resident Instruction, Agriculture</i>
WADI I. SAWABINI, D.D.S.	<i>Director, School of Dental Hygiene</i>
LAWRENCE E. VAN BENTHUYSEN, B.A.	<i>Director of Public Relations</i>

1. Term expires March 1, 1966.
2. Resigned as of January 1, 1966.

Officers of Instruction

EMERITI

FLORENCE EMILY BAILEY, M.S.	<i>Professor of Home Economics</i>
HOWARD GORDON BENNETT, A.M.	<i>Professor of Music</i>
DAVID MARSH BOSWORTH, M.D.	<i>Consultant Orthopedic Surgery</i>
CHARLES E. BRAUN, Ph.D.	<i>Pomeroy Professor of Chemistry and Dean of the Graduate College</i>
LELAND LAWRENCE BRIGGS, M.B.A.	<i>Professor of Economics</i>
THOMAS STEPHEN BROWN, M.D.	<i>Professor of Anatomy</i>
WILLIAM EUSTIS BROWN, M.D.	<i>Dean, College of Medicine and Professor of Preventive Medicine</i>
ROY ORVILLE BUCHANAN, B.S.	<i>Associate Professor of Electrical Engineering</i>
FRED DONALD CARPENTER, Ph.D., L.H.D.	<i>Professor of German</i>
JOSEPH EDWARD CARRIGAN, A.M., LL.D.	<i>Dean, College of Agriculture and Home Economics</i>
FAYE CRABBE, A.M.	<i>Professor of Nursing</i>
LEON W. DEAN, A.B.	<i>Associate Professor of English</i>
JOHN BELLOWES DEFOREST, Ph.D.	<i>Professor of Romance Languages</i>
ROLAND FREEMAN DOANE, D.U.	<i>Associate Professor of Romance Languages</i>
CHARLES GEORGE DOLL, Ph.D.	<i>Professor of Geology</i>
GEORGE DYKHUIZEN, Ph.D.	<i>James Marsh Professor of Intellectual and Moral Philosophy</i>
OLIVER NEWELL EASTMAN, M.D.	<i>Professor of Gynecology</i>
HOWARD BOWMAN ELLENBERGER, Ph.D.	<i>Professor of Animal and Dairy Science</i>
PAUL DEMUND EVANS, Ph.D.	<i>Professor of History</i>
JOHN LOUIS PHILLIPPE FOREST, M.D.	<i>Instructor in Clinical Psychiatry</i>
PERCY AUSTIN FRALEIGH, Ph.D.	<i>Professor of Mathematics</i>
PAUL KENDRICK FRENCH, M.D.	<i>Professor of Clinical Medicine</i>
WILLIAM LAWRENCE GARDNER, B.S.	<i>Associate Professor of Physical Education for Men</i>
ALEXANDER GERSHOY, Ph.D.	<i>Professor of Botany</i>
RAYMOND AVERY HALL, A.M.	<i>Associate Professor of Religion</i>
RALPH MAYNARD HOLMES, Ph.D.	<i>Professor of Physics</i>
FRED KINNEY JACKSON, M.D.	<i>Professor of Physiology</i>
FLORENCE BEESON KING, Ph.D.	<i>Professor of Home Economics</i>
ELIZABETH KUNDERT, M.D.	<i>Assistant Professor of Clinical Psychiatry</i>
PETER PAUL LAWLOR, M.D.	<i>Assistant Professor of Clinical Otolaryngology</i>
JULIAN IRA LINDSAY, A.M., L.H.D.	<i>Professor of English</i>
CARL LUCARINI, A.M.	<i>Assistant Professor of Chemistry</i>
EDD RUTHVEN McKEE, M.S.E.E.	<i>Professor of Electrical Engineering and Dean of College of Technology</i>
EDWARD DOUGLAS McSWEENEY, M.D.	<i>Assistant Professor of Gynecology</i>
MIRIAM NATILEE MARSTON, A.M.	<i>Assistant Professor of Music</i>
DAVID MARVIN, M.D.	<i>Professor of Pharmacology</i>
SALLY BERRY MAYBURY, Ed.D.	<i>Associate Professor of Commerce and Economics</i>
JOHN TRUMBULL METCALF, Ph.D.	<i>Professor of Psychology</i>
ALVIN REES MIDGLEY, Ph.D.	<i>Professor of Agronomy</i>
HENRY LEE MILLS, D.V.M.	<i>Instructor in Public Health</i>
JOHN ALVIN NEWLANDER, Ph.D.	<i>Professor of Animal and Dairy Science</i>
GEORGE HUBERT NICHOLSON, M.A.	<i>Associate Professor of Mathematics</i>
LENA RAUB OAKLEY, M.A.	<i>Associate Professor of Nursing</i>
HERBERT DEAN PEARL, A.M.	<i>Professor of Education</i>
HAROLD BARNARD PIERCE, Ph.D.	<i>Professor of Biochemistry</i>
HERBERT EVERETT PUTNAM, Ph.D.	<i>Associate Professor of History</i>
WILHELM RAAB, M.D.	<i>Professor of Experimental Medicine</i>
WALFORD TUPPER REES, M.D. ¹	<i>Professor of Clinical Surgery</i>
ALBAN BENNETT ROONEY, M.S.	<i>Associate Professor of Physics</i>
BERTHA MAY TERRILL, A.M., Sc.D.	<i>Professor of Home Economics</i>

1. Deceased November, 1965.

BENJAMIN BOOTH WAINWRIGHT, A.M.
 MYRON ELLIS WITHAM, C.E.
 LLOYD ABRAM WOODWARD, M.S.

Associate Professor of English
Assistant Professor of Mathematics
Associate Professor of Physics

FACULTY

Dates after names represent the year of appointment, either original or following a lapse in service. Asterisk indicates member of Graduate Faculty

JOHN ABAJIAN, JR., M.D. (1940-42; 1946) *Professor of Anesthesiology*
 NELLE ALEXANDER ADAMS (MRS. W. R.), A.M. (1926) *Assistant Professor of Education*
 *WILLIAM RITCHIE ADAMS, Ph.D. (1926) *Professor of Forestry*
 PAUL COMSTOCK AGNEW, M.D. (Dec. 1964) *Assistant Professor of Psychology*
 WILLIAM STEWART AGRAS, M.B.B.S. (1961) *Assistant Professor of Psychiatry*
 ROBERT BASCOM AIKEN, M.D., M.P.H. (1941) *Associate Professor of Epidemiology and Community Medicine*
 CHARLES PETER ALBRIGHT, M.D. (Jan. 1965) *Instructor in Clinical Medicine*
 PETER D. ALDEN, M.D. (1964) *Instructor in Clinical Medicine*
 SINCLAIR TOUSEY ALLEN, JR., M.D. (1948) *Associate Professor of Medicine*
 ABBAS ALNASRAWI, Ph.D. (1963) *Assistant Professor of Commerce and Economics*
 ZUELL PHILIP AMBROSE, Ph.D. (1962) *Assistant Professor of Classics*
 ELLSWORTH LYMAN AMIDON, M.D. (1933) *Professor of Medicine*
 RICHARD WALKER AMIDON, M.D. (1949) *Assistant Professor of Clinical Medicine*
 *EDWARD CLINTON ANDREWS, JR., M.D. (1958) *Associate Professor of Pathology*
 *HEINZ LUDWIG ANSBACHER, Ph.D. (1946) *Professor of Psychology*
 EARL LEE ARNOLD, Ph.D. (1953) *Associate Professor of Agricultural Engineering*
 WALTER PAUL ASCHENBACH (1959) *Instructor in Art*
 *HENRY VERNON ATHERTON, Ph.D. (1949-51; 1953) *Professor of Animal and Dairy Science*
 FRANK LUSK BABBOTT, JR., M.D. (1963) *Associate Professor of Epidemiology and Community Medicine*
 LYNN BAIER, M.A. (Jan. 1965) *Instructor in Speech*
 *JOHN EMERSON BAKER, Ph.D. (1963) *Professor of Education*
 DONALD JAMES BALCH, Ph.D. (1952-56; 1957) *Associate Professor of Animal and Dairy Science*
 *BETTY BANDEL, Ph.D. (1947)¹ *Professor of English*
 RALPH JOHN BANNISTER (1950) *Instructor in X-Ray Technique*
 JAMES HENRY BANNON, M.D. (1955) *Assistant Professor of Clinical Medicine*
 ANN BILLINGS BARBER, M.S. (Jan. 1965) *Instructor in Pathology*
 BERNARD BENJAMIN BARNEY, M.D. (1955-63; 1964) *Assistant Professor of Clinical Surgery*
 HORACE GARDINER BARNUM, Ph.D. (1965) *Assistant Professor of Geography*
 *RICHMOND JAY BARTLETT, Ph.D. (1958) *Associate Professor of Plant and Soil Science*
 WILLIAM JOHN BECKETT, Ph.D. (1960) *Assistant Professor of Philosophy and Religion*
 WARREN LAZELL BEEKEN, M.D. (1965) *Assistant Professor of Medicine*
 JOHN FRYE BELL, M.D. (1947) *Associate Professor of Orthopedic Surgery*
 RITA C. BELLERSEN, B.S.N. (1965) *Instructor in Nursing*
 JOYCE ROCKENBACH BELL (MRS. R. T.), M.S. (1958) *Instructor in Nursing*
 *ROSS TAYLOR BELL, Ph.D. (1955) *Associate Professor of Zoology*
 *HOWARD GORDON BENNETT, A.M. (1925) *Professor of Music*
 JAMES LOWELL BENSON, B.S.M.E. (1965) *Visiting Instructor in Mechanical Engineering*
 IRVING OTMAN BENTSEN, Ph.D. (1964) *Assistant Professor of Mathematics*
 HENRY WEINBERG BERGER, M.S. (1965) *Instructor in History*
 RENEE KIRSCH BERGNER, M.D. (1965) *Instructor (Clinical) in Pediatrics*
 JAMES JOSEPH BEST, Ph.D. (1964) *Assistant Professor of Political Science*
 CARLOS JOHN BLAKELY, M.Ed. (1965) *Visiting Instructor in Mechanical Engineering*
 JOHN HARDESTY BLAND, M.D. (1952) *Associate Professor of Medicine*
 DONALD ALAN BLOCH, M.D. (Jan. 1965) *Associate Professor of Clinical Psychiatry*
 SAMUEL S. BLOOMBERG, LL.B. (1964) *Instructor in Commerce and Economics*

1. Sabbatical leave second semester 1966-67.

- LORNA CHRISTIAN BOAG (MRS. T. J.), M.B.Ch.B. (1961) *Instructor in Clinical Psychiatry*
 THOMAS JOHNSON BOAG, M.B.Ch.B. (1961) *Professor of Psychiatry*
 JOHN DOUGLAS BOARDMAN, M.D. (1955) *Assistant Professor of Clinical Obstetrics and Gynecology*
- *SAMUEL NATHANIEL BOGORAD, Ph.D. (1946) *Professor of English*
 BETTY MACHTEL BOLLER, D.E.D. (1960) *Associate Professor of Education*
 *WESSON DUDLEY BOLTON, D.V.M. (1950) *Professor of Animal Pathology*
 *CHARLES FARRINGTON BOND, Ph.D. (1950-55; 1957) *Professor of Zoology*
 JOSEPH BORNSTEIN, M.S. (1961) *Assistant Professor of Agricultural Engineering*
 RICHARD EMILE BOUCHARD, M.D. (1955) *Assistant Professor of Clinical Medicine*
 *ALEC BRADFELD, M.S. (1947) *Professor of Animal and Dairy Science*
 CAROL ELIZABETH BRASSARD, B.S. (1965) *Instructor in Physical Education*
 MARY EVELYN BREEN, B.S. (1957) *Instructor in Medical Technology (Pathology)*
 HORACE WILKINSON BRIGGS, II., M.A.L.D. (1964) *Instructor in Political Science*
 STEPHEN C BROMLEY, Ph.D. (1965) *Assistant Professor of Zoology*
 F. LESLIE BROOKS, JR., Ph.D. (1964) *Assistant Professor of Chemistry*
 GEORGE WILSON BROOKS, M.D. (1953) *Associate Professor of Clinical Psychiatry*
 CONSTANCE LORRAINE BROWN, M.S. (1928) *Assistant Professor of Chemistry*
 DEWEES HAROLD BROWN, M.D. (1963) *Instructor in Epidemiology and Community Medicine*
 MARION HUNTINGTON BROWN, M.S. (1942)¹ *Associate Professor of Home Economics*
 JOHN HARLAND BRYANT, M.D. (1960)² *Associate Professor of Experimental Medicine*
 ROGER TRUE BRYANT, M.Ed. (1965) *Assistant Professor of Physical Education for Men*
 JOHN FRANKLIN BURKE, M.A. (1963) *Instructor in Mathematics*
 LEO DANIEL BURNS, M.A. (1965) *Instructor in Mathematics*
 STANLEY LIVINGSTON BURNS, JR., M.D. (1960) *Assistant Professor of Medicine*
 DAVID LAWRENCE BUTLER, M.A. (1965) *Instructor in Romance Languages*
 ROY VEDDER BUTTLES, M.D. (1950) *Assistant Professor of Pathology*
 FRANCIS ARNOLD CACCAVO, M.D. (1960) *Instructor in Clinical Surgery*
 ROBERT NOLAN CAIN, M.D. (Jan., 1953) *Instructor in Clinical Surgery*
 CHARLES LYMAN CALAHAN, M.S. (1948) *Extension Horticulturist and Lecturer*
 MARTHA MARIE CALDWELL, M.S. (1954-59³; 1960) *Associate Professor of Home Economics*
 ANTHONY SAMUEL CAMPAGNA, M.A. (1965) *Assistant Professor of Commerce and Economics*
 MARTIN JOHN CANNON, M.D. (1953) *Instructor in Clinical Obstetrics and Gynecology*
 MAURICE RAYMOND CARON, M.D. (1953) *Instructor in Clinical Psychiatry*
 HOWARD JULIAN CARPENTER, M.S. (1947) *Associate Professor of Mechanical Engineering*
 BURCHARD MURDOCH CARR, Ph.D. (1964) *Assistant Professor of Speech*
 ROBERT RICHARD CARR, M.A. (1964) *Assistant Professor of Speech*
 ROBERT WAYNE CASWELL, Ph.D. (1960) *Assistant Professor of English*
 JAMES FRANCIS CAWLEY, M.Ed. (1965) *Instructor in Education*
 *ERLING WILLIAM CHAMBERLAIN, Ph.D. (1962) *Assistant Professor of Mathematics*
 *ALFRED HAYES CHAMBERS, Ph.D. (1948) *Associate Professor of Physiology and Biophysics*
 *WILBERT FRANKLIN CHAMBERS, Ph.D. (1955-62; 1963) *Associate Professor of Anatomy*
 *JAMES PATRICK CHAPLIN, Ph.D. (1947) *Professor of Psychology*
 MARILYN CHASE, M.Ed. (1965) *Instructor in Physical Education for Women*
 VICTOR EDWARD CHASE, M.B.Ch.B. (1964) *Assistant Professor of Psychiatry*
 *ROBERT KENNETH CHIPMAN, Ph.D. (1962) *Assistant Professor of Zoology*
 RUPERT ADDISON CHITTICK, M.D. (1944) *Professor of Psychiatry*
 CHARLES CHRISTENSEN, JR., M.Ed. (1959) *Assistant Professor of Physical Education for Men*
 STANLEY GEORGE CHRISTIE, M.D. (1963) *Assistant Professor of Surgery*
 BENJAMIN FRANKLIN CLARK, M.D. (1952) *Assistant Professor of Clinical Obstetrics and Gynecology*
- ELIZABETH ANN CLARK, M.D. (Feb., 1961) *Instructor in Clinical Pediatrics*
 PAUL DENNISON CLARK, M.D. (1930) *Associate Professor of Clinical Pediatrics*
 VIRGINIA PRESCOTT CLARK (Mrs. H. L.) M.A. (1963; 1965) *Instructor in English*
 *JACKSON JOSHUA WALTER CLEMMONS, M.D. (1962) *Associate Professor of Pathology*
 BARBARA JEAN COCHRAN, M.Ed. (1962) *Instructor in Physical Education for Women*
 *ROBERT WILLARD COCHRAN, Ph.D. (1954) *Associate Professor of English*

1. Sabbatical leave second semester 1965-66.
2. On leave January 1, 1966 to December 31, 1966.
3. Sabbatical leave first semester 1966-67.

- JULIUS GEORGE COHEN, M.D. (1950) *Assistant Professor of Clinical Psychiatry*
 FRANCIS PEABODY COLBURN, Ph.B. (1942) *Professor of Art*
 *CLINTON DANA COOK, Ph.D. (1946-48; 1955) *Professor of Chemistry*
 *PHILIP WILLIAM COOK, Ph.D. (1963) *Assistant Professor of Botany*
 *ROBERT WILLIAM COON, M.D. (1955) *Professor of Pathology*
 REX DEE COUCH, M.D. (1962) *Assistant Professor of Pathology*
 NORMAN BRIGGS COUNCIL, M.A. (1964) *Instructor in English*
 ALBERT JAMES CRANDALL, M.D. (1939) *Instructor in Clinical Surgery*
 EDWARD BYINGTON CRANE, M.D. (Jan., 1961) *Instructor in Epidemiology and Community Medicine (General Practice)*
 GEORGE CHAPMAN CROOKS, Ph.D. (1930) *Associate Professor of Chemistry*
 *ALBERT DARY CROWELL, Ph.D. (1955) *Professor of Physics*
 JAMES OWEN CULVER, M.D. (1959) *Assistant Professor of Epidemiology and Community Medicine*
 JOHN CHARLES CUNNINGHAM, M.D. (1949) *Shipman Professor of Ophthalmology*
 *MALCOLM DANIEL DAGGETT, Ph.D. (1945) *Professor of Romance Languages*
 JOHN FIDLAR DALY, M.D. (1949) *Professor of Dermatology*
 *ROBERT VINCENT DANIELS, Ph.D. (1956-57; 1958)¹ *Professor of History*
 CLARK DANIELSON, A.M. (1962) *Instructor in Romance Languages*
 JOANNA DAVENPORT, M.S. (1959-62; 1965) *Assistant Professor of Physical Education for Women*
 PHILIP HOVEY DAVIS, M.D. (1958) *Instructor in Clinical Orthopedic Surgery*
 *JEAN MARGARET DAVISON, Ph.D. (1955) *Associate Professor of Classical Languages and History*
 WILLIAM NELSON DEANE, Ph.D. (1960) *Assistant Professor of Social Psychiatry*
 HERNANDO de la CUESTA, Ph.D. (1963) *Assistant Professor of Electrical Engineering*
 IMELDA DELGADO, M.M. (1964) *Instructor in Music*
 *LUBOMIR ATANOSOV DELINESCEFF DELLIN, J.S.D. (1957) *Associate Professor of Commerce and Economics*
 JEAN PIERRE de LOESCHNIGG, B.A. (1965) *Instructor in Romance Languages*
 ALINE LOUISE DEMERS, M.S. (1960) *Assistant Professor of Nursing*
 WILLIAM D. DENNIS, Ph.D. (1964) *Associate Professor of Romance Languages*
 GINO ALDO DENTE, M.D. (1950) *Assistant Professor of Clinical Anesthesiology*
 GARY THOMAS DEVINO, M.S. (1965) *Assistant Professor of Agricultural Economics*
 RAYMOND GEORGE DILLEY, M.A. (1966) *Instructor in Speech*
 CARROLL WILLIAM DODGE, Ph.D. (1963) *Visiting Professor of Botany*
 RAYMOND MADIFORD PEARDON DONAGHY, M.D. (1946) *Professor of Neurosurgery*
 JOHN EDWARD DONNELLY, M.A. (1952) *Associate Professor of Physical Education for Men*
 *GERALD ALTON DONOVAN, Ph.D. (1960) *Associate Professor of Poultry Science*
 HENRY MEADE DOREMUS, II, D.V.M. (1964) *Assistant Professor of Pharmacology*
 ROGER WILSON DORWART, M.C.E. (1963) *Instructor in Civil Engineering*
 ROBERT KINGSLAND DOTEN, Ph.D. (1939) *Associate Professor of Geology*
 *THOMAS WHITFIELD DOWE, Ph.D. (1962) *Professor of Animal and Dairy Science*
 HOWARD DUCHACEK, M.S.A.E. (1949) *Associate Professor of Mechanical Engineering*
 WILFRID GERALD DUDEVOIR, M.S.E.E. (Feb., 1958)² *Assistant Professor of Electrical Engineering*
 *FRED WILLIAM DUNIhue, Ph.D. (1936) *Professor of Anatomy*
 HERBERT ASHLEY DURFEE, JR., M.D. (1957) *Associate Professor of Clinical Obstetrics and Gynecology*
 MARVIN LYLE DURHAM, Ph.D. (1964) *Assistant Professor of Political Science*
 KATHARINE STONEMAN DUROE, M.S. (Jan. 15, 1964) *Assistant Professor of Home Economics*
 WINFIELD BOOTH DURRELL, D.V.M. (1949) *Associate Professor of Animal Pathology*
 ALEXANDER HARRY DUTHIE, Ph.D. (Feb., 1964) *Assistant Professor of Animal and Dairy Science*
 *JULIUS SOLOMON DWORK, Ph.D. (1954) *Associate Professor of Mathematics*
 *GEORGE DYKHUIZEN, Ph.D. (1926) *Marsh Professor of Intellectual and Moral Philosophy*
 BRIAN VIGORS EARLE, M.D. (Jan. 1965) *Assistant Professor of Clinical Psychiatry*
 OLIVER ROLFE EASTMAN, M.D. (1948) *Associate Professor of Clinical Obstetrics and Gynecology*

1. Sabbatical leave academic year 1966-67.

2. On leave academic year 1965-66.

- ROBERT WEBSTER EASTMAN, LL.B. (Feb. 1952) *Instructor in Political Science*
 CHESTER BARSTOW EATON, B.S. (Jan. 1965) *Instructor in Commerce and Economics*
 EILEEN THERESA ECKHARDT, Ph.D. (1962) *Assistant Professor of Pharmacology*
 WINSTON MILO EDDY, M.D. (1960) *Assistant Professor of Clinical Medicine*
 MARGARET EDWARDS, M.A. (1964) *Instructor in Romance Languages*
 DONALD MERRITT ELDRED, M.A. (1949) *Instructor in Clinical Psychology*
 MARY JANE ELLIS, M.S. (Jan. 1966) *Assistant Professor of Home Economics*
 FAITH GRISCOM EMERSON, M.A. (1959) *Assistant Professor of Nursing*
 ROBERT RICHARD ENGISCH, M.D. (1961) *Instructor in Clinical Neurology*
 WARREN WALTER EPINETTE, M.D. (1965) *Instructor in Dermatology*
 LOUIS WILLIAM ESPOSITO, M.D. (1954) *Instructor in Clinical Urology*
 *WARREN ORVEL ESSLER, Ph.D. (1961) *Professor of Electrical Engineering*
 JOHN WILLIAM STEVENS BURICH, M.A. (1963) *Instructor in German*
 JOHN CLIFFORD EVANS, B.S. (1937) *Associate Professor of Physical Education for Men*
 *PAUL DEMUND EVANS, Ph.D. (1930) *Professor of History*
 FREDERICK CHRISTIAN EVERING, JR., Ph.D. (1965) *Assistant Professor of Electrical Engineering*
- WILLIAM THOMAS FAGAN, JR., M.D. (1954) *Assistant Professor of Clinical Urology*
 DAVID SPERBER FAIGEL, D.D.S. (1954) *Instructor in Dental Hygiene*
 FRANK JAMES FALCK, Ph.D. (1957) *Associate Professor of Speech Therapy (Epidemiology and Community Medicine)*
- VILMA TARASI FALCK (MRS. F. J.), Ph.D. (1960) *Assistant Professor of Audiology*
 JOHN EDWARD FARNHAM, D.D.S. (1963) *Clinical Instructor in Dental Hygiene*
 SANDRA MORTON FARRELL, M.S. (1962) *Instructor in Physical Education for Women*
 HELEN ELIZABETH FARRINGTON, M.P.H. (1962) *Instructor in Nursing*
 DOUGLAS PATTEN FAY, M.S. (1953) *Associate Professor of Civil Engineering*
 *JEREMY POLLARD FELT, Ph.D. (1957) *Associate Professor of History*
 ARTHUR WILLIAM FINEHOUT, B.S., Captain, United States Army (1964) *Assistant Professor of Military Science*
- JOHN CLEMENT FINLEY, B.S. (1965) *Lecturer in Agricultural Education*
 *KENNETH DEANE FISHER, Ph.D. (Jan., 1963) *Assistant Professor of Botany*
 JOHN RICHARD FITZGERALD, M.D. (1961) *Instructor in Clinical Medicine*
 ROBERT FITZSIMMONS, Ph.D. (1949) *Associate Professor of Animal and Dairy Science*
 MARTIN EDWARD FLANAGAN, M.D. (1962) *Assistant Professor of Clinical Neurosurgery*
 *TED BENJAMIN FLANAGAN, Ph.D. (1961) *Associate Professor of Chemistry*
 THEODORE ROSS FLANAGAN, Ph.D. (1953) *Assistant Professor of Plant and Soil Science*
 CURTIS M. FLORY, M.D. (1964) *Assistant Professor of Pathology*
 ARTHUR HOWARD FLOWER, JR., M.D. (1950) *Associate Professor of Clinical Dermatology*
 EDWARD LEO FOLEY, Ph.D. (1962) *Assistant Professor of Physics*
 JOSEPH CLAYTON FOLEY, M.D. (1954) *Associate Professor of Clinical Radiology*
 *MURRAY WILBUR FOOTE, Ph.D. (1947-51; 1953) *Associate Professor of Agricultural Biochemistry*
- JOHN LOUIS PHILIPPE FOREST, M.D. (1942) *Assistant Professor of Clinical Psychiatry*
 *DONALD GABRIEL FORGAYS, Ph.D. (1964) *Professor of Psychology*
 ROSE JULIET FORGIONE, M.A. (1964) *Assistant Professor of Nursing*
 STEVEN LESLIE FREEDMAN, Ph.D. (1965) *Assistant Professor of Anatomy*
 EDWARD ESAU FRIEDMAN, M.D. (1963) *Clinical Instructor in Epidemiology and Community Medicine*
- ROBERT WEEKS FULLER, M.S. (Jan. 1966) *Assistant Professor of Wildlife Management*
 *FRED WILLIAM GALLAGHER, Ph.D. (1944) *Professor of Medical Microbiology*
 ALBERT HENDERSON GARDNER, M.A. (1962) *Instructor in Education*
 BRUCE ARTHUR GAYLORD, Ed.D. (Feb., 1960) *Associate Professor of Agricultural Education*
 THOMAS HOWARD GENO, M.A. (1965) *Instructor in Romance Languages*
 STOKES GENTRY, M.D. (1962) *Instructor in Clinical Pediatrics*
 ANTONIO ISAIAS GERMAN, M.D. (1965) *Instructor in Pathology*
 SOM NATH GHEI, Ph.D. (1962) *Assistant Professor of Psychology*
 THOMAS CHOMETON GIBSON, M.B., B.Chir. (Dec., 1962) *Assistant Professor of Epidemiology and Community Medicine*
 and *Assistant Professor of Medicine*
- *BRADY BLACKFORD GILLELAND, Ph.D. (1957) *Professor of Classical Languages*
 *ERLAND CHENEY GJESSING, Ph.D. (1954)¹ *Associate Professor of Biochemistry*

1. Sabbatical leave academic year 1965-66.

- *RICHARD WILLIAM GLADE, Ph.D. (1958) Associate Professor of Zoology
 ARTHUR GLADSTONE, M.D. (1933-36; 1941) Associate Professor of Clinical Surgery
 CHARLES MORTON GLUCK, M.D. (1965) Instructor in Clinical Medicine
 ROBERT JOHN GOBIN, Ph.D. (1965) Assistant Professor of Physical Education for Men
 BRUCE McLEAN GOLDEN, D.M.D. (1964) Clinical Instructor in Dental Hygiene
 RICHARD HERRON GOLDSBOROUGH, M.D. (1961) Instructor in Clinical Otolaryngology
 *LYMAN JAY GOULD, Ph.D. (1953) Associate Professor of Political Science
 RAYMOND WALLACE GRANT, A.M. (1965) Assistant Professor of Geology
 DAVID HENRY GRAY, M.D. (1962) Clinical Instructor in Epidemiology and Community Medicine
 MARY JANE GRAY, M.D. (1960) Associate Professor of Obstetrics and Gynecology
 *DONALD CROWTHER GREGG, Ph.D. (1946) Pomeroy Professor of Chemistry
 *EDWIN CHARLES GREIF, M.S. (1950) Professor of Commerce and Economics
 HAROLD ALFRED GREIG, M.P.E. (1962) Instructor in Physical Education for Men
 HOWARD THEODORE GUARE, M.D. (1952) Assistant Professor of Clinical Radiology
 KENNETH WILLIAM HAAS, JR., B.A., Captain, United States Army (1964) Assistant Professor of Military Science
 KATHLEEN AUDREY HAGER, M.S. (1964) Instructor in Nursing
 CARLETON RAYMOND HAINES, M.D. (1950-52; 1954) Assistant Professor of Clinical Surgery (Oncology)
 MARY STARRITT HALL, M.A. (1961-62; 1965) Instructor in English
 *ROBERT WILLIAM HALL, Ph.D. (1957-63; 1964) Associate Professor of Philosophy and Religion
 *SAMUEL B. HAND, Ph.D. (Feb., 1961) Assistant Professor of History
 LUCIEN MASON HANKS, Ph.D. (1965) Visiting Professor of Sociology and Anthropology
 JOHN SHERWOOD HANSON, M.D. (1958)¹ Associate Professor of Medicine
 DANIEL ARTHUR HART, M.D. (1964) Instructor in Clinical Medicine
 JOHN FARWELL HARWOOD, B.S. (1964) Instructor in Radiology
 *ROLF NORDAHL BRUN HAUGEN, Ph.D. (1947) Professor of Political Science
 WILLIAM A. HAVILAND, Ph.D. (1965) Assistant Professor of Sociology and Anthropology
 MARY CATHERINE HEININGER (MRS. P. L.), R.N. (1958) Instructor in Dental Hygiene
 PAUL LEHMANN HEININGER, D.D.S. (1950) Instructor in Dental Hygiene
 JOHN WILBUR HEISSE, JR., M.D. (1956) Assistant Professor of Clinical Ophthalmology and Otolaryngology
 PETER ROBERT HEITKAMP, M.A. (1965) Instructor in Romance Languages
 DONALD CEDRIC HENDERSON, M.S. (1944) Associate Professor of Poultry Science
 MARGARET ISABELLE HENRY, M.S. (1965) Instructor in Home Economics
 EARL BENNETTE HENSON, Ph.D. (1965) Associate Professor of Zoology
 CHRISTINE HEMENWAY HILBERG (Mrs. R.), M.A. (1965) Instructor in English
 *RAUL HILBERG, Ph.D. (1956) Associate Professor of Political Science
 DAVID BYRNE HILL, Ph.D. (1965) Assistant Professor of Mathematics
 WILLIAM ELWIN HODGKIN, M.D. (1964) Assistant Professor of Pediatrics
 *CHARLES WILLIAM HOILMAN, M.S. (1949) Associate Professor of Electrical Engineering
 *RICHARD JOHN HOPP, M.S. (1947) Professor of Plant and Soil Science
 JAMES FRANCIS HORA, M.D. (1965) Assistant Professor of Otolaryngology
 GEORGE RICHARD HOWE, Ph.D. (1962) Assistant Professor of Physiology
 JAMES ROBINSON HOWE, M.A. (1964) Instructor in English
 ROBERT BRUCE HUBER, Ph.D. (1946) Professor of Speech
 HANS ROSENSTOCK HUESSEY, M.D. (1960) Assistant Professor of Psychiatry
 *MURIEL JOY HUGHES, Ph.D. (1942-44; 1945) Professor of English
 ALLEN STANDISH HUNT, Ph.D. (Feb., 1961) Assistant Professor of Geology
 ROBERT JACOB HUNZIKER, M.D. (Jan., 1963) Assistant Professor of Clinical Radiology
 JACK LIONEL HURSCH, JR., Ph.D. (1965) Assistant Professor of Mathematics
 BEAL BAKER HYDE, Ph.D. (1965) Professor of Botany
 EDWARD SUTER IRWIN, M.D. (Jan., 1963) Instructor in Ophthalmology
 *JOSEPH ANTHONY IZZO, Ph.D. (1956) Associate Professor of Mathematics
 RUTH KELLEY IZZO (MRS. J.), Ed.D. (Feb., 1964) Associate Professor of Mathematics
 *JULIAN JOSEPH JAFFE, Ph.D. (1961) Associate Professor of Pharmacology
 CLINTON DALES JANNNEY, Ph.D. (1959) Associate Professor of Radiologic Physics
 RICHARD HARRY JANSON, Ph.D. (1958) Associate Professor of Art
 CLARK JOHNSON, Ph.D. (1964) Assistant Professor of Sociology and Anthropology

1. On leave to July 1, 1966.

ELBRIDGE EUGENE JOHNSTON, M.D. (1951)	<i>Assistant Professor of Clinical Medicine</i>
*STUART LYNDE JOHNSTON, Ph.D. (1940-43; 1943-44; 1946) ¹	<i>Professor of Romance Languages</i>
WILLIAM HERBERT JOHNSTON, M.D. (1952)	<i>Instructor in Clinical Radiology</i>
*DONALD BOYES JOHNSTONE, Ph.D. (1948)	<i>Professor of Microbiology and Medical Microbiology</i>
*LEONIDAS MONROE JONES, Ph.D. (1951)	<i>Professor of English</i>
*DAVID WILLIAM JUENKER, Ph.D. (1964)	<i>Associate Professor of Physics</i>
ROY GEORGE JULOW, Ph.D. (1957)	<i>Associate Professor of Romance Languages</i>
HARRY HELMUTH KAHN, M.A. (1948-53; 1954) ²	<i>Assistant Professor of German</i>
LEE A. KALSTROM, M.S. (1965)	<i>Instructor in Speech</i>
DAVID S. KEENE, Ph.D. (1964)	<i>Assistant Professor of Political Science</i>
JAMES KEENE, M.Mus.Ed. (1963)	<i>Assistant Professor of Music</i>
PHILIP CONBOY KELLEHER, M.D. (1963)	<i>Assistant Professor of Medicine</i>
JAY EDGAR KELLER, M.D. (1950)	<i>Assistant Professor of Clinical Surgery</i>
ROBERT COLLAMER KELLY, M.S. (1963)	<i>Instructor in Commerce and Economics</i>
MARK CLARK KENNEDY, M.A. (1965)	<i>Assistant Professor of Sociology and Anthropology</i>
*JOHN HARVEY KENT, Ph.D. (1950)	<i>Roberts Professor of Classical Languages and Literature</i>
RAMAKANT GOVIND KHAZANIE, Ph.D. (1965)	<i>Assistant Professor of Mathematics</i>
GEORGE VINCENT KIDDER, Ph.D. (1922)	<i>Professor of Classical Languages and Literature</i>
HEE-JIN KIM, M.A. (1965)	<i>Assistant Professor of Philosophy and Religion</i>
WILSON KIMNACH, M.A. (1963)	<i>Instructor in English</i>
THOMAS CLAIR KING, Ed.D. (1951)	<i>Professor of Education</i>
WILLIAM JAMES KING, Ph.D. (1965)	<i>Associate Professor of History</i>
WILLIAM WALTER KING, Ph.D. (1964)	<i>Instructor in English</i>
*DAVID LESLIE KINSEY, Ph.D. (1950)	<i>Associate Professor of Music</i>
THOMAS ROBERT KLEH, M.D. (1965)	<i>Instructor in Ophthalmology</i>
FRIEDRICH WILHELM KLEMPERER, M.D. (1955)	<i>Assistant Professor of Clinical Medicine</i>
MARTHA FITZGERALD KNIGHT, B.S. (1965)	<i>Instructor in Dental Hygiene</i>
STEPHEN CECIL KNIGHT, JR., M.S. (1952)	<i>Associate Professor of Civil Engineering</i>
ESTHER LUCILE KNOWLES, M.S. (1945)	<i>Associate Professor of Home Economics</i>
MAURICE EMILE KOHLER, M.A. (1965)	<i>Assistant Professor of Romance Languages</i>
LORRAINE BAGDON KORSON, M.S. (Feb., 1964)	<i>Instructor in Zoology</i>
*ROY KORSON, M.D. (1951-52; 1954)	<i>Associate Professor of Pathology</i>
*ANDREW PAUL KRAPCHO, Ph.D. (1960)	<i>Associate Professor of Chemistry</i>
*JOHN ERNEST KRIZAN, Ph.D. (1962)	<i>Assistant Professor of Physics</i>
*MARTIN ERIC KUEHNE, Ph.D. (1961)	<i>Assistant Professor of Chemistry</i>
RAYMOND FRANK KUELMANN, M.D. (1951)	<i>Assistant Professor of Clinical Orthopedic Surgery</i>
ARTHUR SAUL KUNIN, M.D. (1957)	<i>Assistant Professor of Medicine and Clinical Biochemistry</i>
BERT KARL KUSSEROW, M.D. (1959)	<i>Associate Professor of Pathology</i>
ROBERT JULIUS KWIK, M.S. (1965)	<i>Instructor in Mathematics</i>
DAVID CHIN LAI, Eng.D. (1965)	<i>Associate Professor of Electrical Engineering</i>
DENIS EMERY LAMBERT, M.A. (1964)	<i>Instructor in Physical Education for Men</i>
LLOYD MILTON LAMBERT, JR., Ph.D. (1965)	<i>Associate Professor of Electrical Engineering</i>
*MERTON PHILIP LAMDEN, Ph.D. (1947)	<i>Associate Professor of Biochemistry</i>
S. HENRY LAMPERT, D.D.S. (1963)	<i>Instructor in Dental Hygiene</i>
JOHN CLIFFORD LANTMAN, M.D. (1957)	<i>Instructor in Epidemiology and Community Medicine (General Practice)</i>
RALPH ROBERT LAPOINTE, M.Ed. (1951)	<i>Assistant Professor of Physical Education for Men</i>
JEAN-PIERRE LASCOUMES, LIC. (1964)	<i>Instructor in Romance Languages</i>
MARY CLANTON LEE, M.A. (1964)	<i>Instructor in Physical Education for Women</i>
LESLIE RAYMOND LEGGETT, D.P.E. (1962)	<i>Assistant Professor of Physical Education for Men</i>
HAROLD LEITENBERG, Ph.D. (1965)	<i>Assistant Professor of Psychology</i>
MARY ELLEN LEONARD (MRS. M. H.), M.A. (1964)	<i>Instructor in English</i>
MICHAEL HEATON LEONARD, M.A. (1964)	<i>Instructor in English</i>
EUGENE LEPESCHKIN, M.D. (1946)	<i>Professor of Experimental Medicine</i>
JULIA LEPESCHKIN (MRS. E.), M.A. (1962)	<i>Instructor in Home Economics</i>

1. On leave academic year 1966-67.

2. Sabbatical leave second semester 1966-67.

- *DAVID ALLEN LeSOURD, Ph.D. (1952) *Associate Professor of Commerce and Economics*
 HYMAN BERNARD LEVINE, M.D. (1961) *Instructor (Clinical) in Epidemiology and Community Medicine*
- ARTHUR MAURICE LEVY, M.D. (1963) *Assistant Professor of Medicine*
 GORDON FIELDING LEWIS, Ph.D. (1961) *Associate Professor of Sociology and Anthropology*
 WILLIAM J. LEWIS, Ph.D. (1954) *Professor of Speech*
- *FRANK WAYNE LIDRAL, Ph.D. (1960) *Professor of Music*
 *HARRY LIGHTHALL, JR., Ph.D. (1955) *Associate Professor of Mathematics*
 PETER CASTLE LINTON, M.D. (Jan., 1965) *Instructor in Surgery*
 RICHARD LEWIS LIPSON, M.D. (Dec., 1963) *Assistant Professor of Medicine*
 GEORGE THOMAS LITTLE, Ph.D. (1950)¹ *Professor of Political Science*
 JACK ERNEST LITTLE, Ph.D. (1945) *Professor of Biochemistry (Agriculture)*
- *JOHN HUTCHISON LOCHHEAD, Ph.D. (1942) *Professor of Zoology*
 MARGIT LOCHHEAD (MRS. J. H.), Ph.D. (1954) *Instructor in Nursing*
 ROSALIE MAE LOMBARD, M.A. (1959)¹ *Assistant Professor of Nursing*
 NORMAN THEODORE LONDON, Ed.D. (1960) *Assistant Professor of Speech*
 *LITTLETON LONG, Ph.D. (1949) *Associate Professor of English*
 JAMES MYRICK LOWERRE, Ph.D. (1965) *Visiting Assistant Professor of Mathematics*
 WALTER LeBARON LUCE, B.S. (1965) *Visiting Instructor in Mechanical Engineering*
 JEROLD FRANCIS LUCEY, M.D. (1956) *Associate Professor of Pediatrics*
 WILLIAM HOSSFELD LUGINBUHL, M.D. (1960) *Associate Professor of Pathology*
 *ELEANOR MERRIFIELD LUSE, Ph.D. (1947) *Professor of Speech*
 JOHN HAMILTON MABRY, Ph.D. (1963) *Associate Professor of Epidemiology and Community Medicine*
- MURDO GLENN MacDONALD, M.D. (1960) *Assistant Professor of Clinical Pharmacology*
 ALBERT GEORGE MACKAY, M.D. (1933) *Professor of Surgery*
 *WILLIAM HOOPER MacMILLAN, Ph.D. (1954) *Professor of Pharmacology*
 JAMES FREDERICK MADISON, M.D. (Nov., 1964) *Instructor in Clinical Dermatology*
 JOHN VAN SICKLEN MAECK, M.D. (1950) *Professor of Obstetrics and Gynecology*
 FREDERICK JOSEPH MAHER, JR., B.A. (1958) *Assistant Professor of Sociology and Anthropology*
- FRANCIS XAVIER MAHONEY, B.S., Captain United States Army (1962) *Assistant Professor of Military Science*
- JAMES EDWARD MARCEAU, D.D.S. (1949-52; 1954) *Instructor in Dental Hygiene*
 DONALD FRANKLIN MARN, M.A. (1964) *Instructor in Mathematics*
 GILBERT ADAMS MARSHALL, M.S. (1947) *Associate Professor of Mechanical Engineering*
 *FREDERIC CARVER MARSTON, JR., Ph.D. (1948)² *Professor of English*
 HERBERT LLOYD MARTIN, M.D. (1954) *Associate Professor of Clinical Neurology*
 *JAMES WALLACE MARVIN, Ph.D. (1939) *Professor of Botany*
 MARTIN CHARLES MATHES, Ph.D. (1964) *Assistant Professor of Botany*
 *ROBERT ARTHUR MAXWELL, Ph.D. (1962) *Associate Professor of Pharmacology*
 ANTHONY JOHN MAYHEW, Ph.D. (1965) *Assistant Professor of Psychology*
 MARGARET ANNIE MAYS, M.Ed. (1962) *Instructor in Physical Education for Women*
 JOHN EDMUND MAZUZAN, JR., M.D. (1959) *Assistant Professor of Anesthesiology*
 CHRISTOPHER PATRICK McAREE, M.B. (1962) *Assistant Professor of Psychiatry*
 *HERBERT CHRISTIAN McARTHUR, Ph.D. (1950) *Professor of English*
 MAXWELL L. McCORMACK, D.F. (1964) *Assistant Professor of Forestry*
 VERNE LIONEL McDONALD, JR., M.Ed. (1956) *Instructor in Education*
 JAMES BISHOP McGILL, M.D. (1952) *Assistant Professor of Clinical Surgery*
 GERALD FRANCIS McGINNIS, M.D. (1962) *Assistant Professor of Psychiatry*
 JERRY LEON McINTOSH, Ph.D. (1964) *Assistant Professor of Plant and Soil Science*
 ROBERT JAMES McKAY, JR., M.D. (1949) *Professor of Pediatrics*
 MARION CLAIRE McKEE, M.D. (1958) *Assistant Professor of Clinical Pediatrics*
 BRUCE ALLAN McNALLIE, M.A. (1964) *Instructor in English*
 E. DOUGLAS McSWENEY, JR., M.D. (1964) *Instructor in Surgery*
 PHILIP CLARKE MEDENBACH, A.B., Captain, United States Army (1965) *Assistant Professor of Military Science*
 HAROLD EDWARD MEDIVETSKY, M.D. (1937) *Assistant Professor of Clinical Medicine*

1. On leave 1965-66.

2. Deceased October 23, 1965.

- CORNELIUS IRVING MEEKER, M.D. (1962) *Assistant Professor of Obstetrics and Gynecology*
 HAROLD AUSTIN MEEKS, Ph.D. (1964) *Assistant Professor of Geography*
 RICHARD WALLACE PAUL MELLISH, M.B. (1963) *Assistant Professor of Surgery*
 *DONALD BURTON MELVILLE, Ph.D. (1960) *Professor of Biochemistry*
 BRUCE ELWYN MESERVE, Ph.D. (1964) *Professor of Mathematics*
 WILLIAM CRAIG METCALFE, M.A. (1963) *Instructor in History*
 GARY KEITH MICHAEL, M.B.A. (1965) *Assistant Professor of Commerce and Economics*
 *WILLIAM LAROS MEYER, Ph.D. (1962) *Instructor in Biochemistry*
 *REGINALD VENN MILBANK, M.S. (1946-48; 1949)¹ *Professor of Civil Engineering*
 EDWARD JERVIS MILES, Ph.D. (1962) *Associate Professor of Geography*
 DONALD BARKER MILLER, M.D. (1951) *Associate Professor of Clinical Surgery (Thoracic)*
 JEAN BEATTIE MILLIGAN, M.A. (1953) *Associate Professor of Nursing*
 ERNEST LEE MILLS, M.D. (1952-53; 1955) *Assistant Professor of Clinical Anesthesiology*
 ISABEL CLARK MILLS (MRS. C. H.), M.A. (1932)² *Associate Professor of Art*
 JOHN HOLLISTER MILNE, M.D. (1964) *Instructor in Clinical Medicine*
 JAMES LEO MONAHAN, B.S. (1965) *Instructor in Political Science*
 DALE BISHOP MONTGOMERY, D.M.D. (Feb., 1965) *Instructor in Dental Hygiene*
 *PAUL AMOS MOODY, Ph.D. (1927) *Howard Professor of Natural History and Zoology*
 DOROTHY JACKSON MORROW (MRS. R. C.), M.D. (1952) *Assistant Professor of Clinical Pediatrics*
 RUFUS CLEGG MORROW, M.D. (1951) *Associate Professor of Otolaryngology*
 *ELLEN HASTINGS MORSE, Ph.D. (1960) *Associate Professor of Home Economics*
 *DONALD EUGENE MOSER, Ph.D. (1960) *Associate Professor of Mathematics*
 STANLEY IRVIN MOUR, M.A. (1962) *Assistant Professor of Education*
 HANS JOACHIM MURBE, Ph.D. (1960) *Assistant Professor of English*
 LOUIS ANTHONY MULIERI, B.E.E. (1965) *Instructor in Physiology and Biophysics*
 SALLY JEAN NADON, B.S. (1965) *Instructor in Nursing*
 *MILTON JOSEPH NADWORNYY, Ph.D. (1952)³ *Professor of Commerce and Economics*
 RICHARD L. NAEYE, M.D. (1960) *Associate Professor of Pathology*
 CHESTER ALBERT NEWHALL, M.D. (1929) *Thayer Professor of Anatomy*
 DAVID SOWLE NEWHALL, M.A. (1959) *Assistant Professor of History*
 GEORGE HUBERT NICHOLSON, A.M. (1923) *Associate Professor of Mathematics*
 ALEXANDER NIES, M.D. (1965) *Instructor in Psychiatry*
 DAVID ALLEN NOBLE, A.M. (Jan., 1965) *Instructor in German*
 MITSUO NUMOTO, M.D. (1962) *Instructor in Experimental Neurosurgery*
 *ANDREW EDGERTON NUQUIST, Ph.D. (1938) *McCullough Professor of Political Science*
 *WESLEY LEMARS NYBORG, Ph.D. (1960) *Professor of Physics*
 *ELBERT AUSTIN NYQUIST, M.S., C.P.A. (1953)⁴ *Professor of Commerce and Economics*
 ROBERT EMMETT O'BRIEN, M.D. (1955) *Associate Professor of Clinical Medicine*
 *PAUL OREN, JR., Ph.D. (1958)⁴ *Professor of Sociology and Anthropology*
 *RALPH HARRY ORTH, Ph.D. (1959) *Assistant Professor of English*
 *JOHN OGDEN OUTWATER, Sc.D. (1956) *Professor of Mechanical Engineering*
 WILLIAM EDWARD PADEN, M.A. (1965) *Instructor in Philosophy and Religion*
 PAUL PAGANUZZI, Ph.D. (1961) *Assistant Professor of Russian*
 HAROLD GORDON PAGE, M.D. (1954) *Associate Professor of Clinical Surgery*
 MARY ELLEN PALMER (MRS. E. M.), M.S. (1953-56; 1958) *Assistant Professor of Nursing*
 *IPPOCRATES PAPPOTSAKIS, Mus.M. (1944) *Professor of Music*
 MALCOLM SKEELS PARKER, D.M.L. (1953) *Associate Professor of Romance Languages*
 WAYNE CURTIS PATTERSON, Ph.D. (Jan., 1965) *Assistant Professor of Psychology*
 EDWIN MATTSON PAXSON, M.D. (1957) *Assistant Professor of Clinical Pediatrics*
 MERVYN WILLIAM PERRINE, Ph.D. (1961) *Assistant Professor of Psychology*
 OSCAR SYLVANDER PETERSON, JR., M.D. (1944) *Associate Professor of Clinical Radiology and Associate in Biophysics*
 MARY MARGARET PETRUSICH, M.Ed. (1962) *Assistant Professor of Education*
 LORRAINE WATERS PHILLIPS, M.N. (1962) *Assistant Professor of Nursing*
 RAYMOND VIRGIL PHILLIPS, Ph.D. (1961) *Professor of Education*

1. Sabbatical leave second semester 1965-66.
2. Sabbatical leave first semester 1966-67.
3. Sabbatical leave second semester 1966-67.
4. On leave to June 30, 1966. Resigned effective June 30, 1966.

- RONALD CHESTER PICOFF, M.D. (1965) *Assistant Professor of Pathology*
 SIDNEY BORIS POGER, Ph.D. (1962) *Assistant Professor of English*
 JAMES EUGENE POOLEY, A.M. (1928) *Associate Professor of Classical Languages and History*
 WILLARD BISSELL POPE, Ph.D. (1934-36; 1937) *Frederick Corse Professor of English Language and Literature*
 MARJORIE NUTTING PORTER, Ed.M. (1965) *Instructor in Nursing*
 ARCHIBALD THOMSON POST, Ed.M. (1929) *Associate Professor of Physical Education for Men*
 BOYD WALLACE POST, D.F. (1963) *Assistant Professor of Forestry*
 *MILTON POTASH, Ph.D. (1951)¹ *Associate Professor of Zoology*
 AGNES TERESA POWELL, M.S. (1963) *Assistant Professor of Home Economics*
 PLATT RUGAR POWELL, M.D. (1949) *Associate Professor of Clinical Urology*
 HENRY LEWIS PRATT, M.D. (1952) *Instructor in Clinical Obstetrics and Gynecology*
 WILLIAM ARTHUR PRATT, M.D. (1954) *Instructor in Clinical Medicine*
 RALPH SMITH PROVOST, D.D.S. (1963) *Instructor in Dental Hygiene*
 PHYLLIS MELVILLE QUINBY, B.S. (1950) *Assistant Professor of Dental Hygiene*
 *DAVID WILLIAM RACUSEN, Ph.D. (1958) *Associate Professor of Agricultural Biochemistry*
 ROBERT MALCOLM RAGAN, Ph.D. (1959-62; 1964) *Assistant Professor of Civil Engineering*
 CHARLES LEWIS RAVARIS, M.D. (1965) *Assistant Professor of Psychiatry*
 LOUISE ADELE RAYNOR, Ph.D. (1946)² *Associate Professor of Botany*
 JOHN ANDREW REDMOND, Ed.D. (1965) *Visiting Associate Professor of Education*
 ELMER MCCREADY REED, M.D. (1948) *Assistant Professor of Otolaryngology*
 ERNEST MARVIN I. REIT, Ph.D. (Jan., 1966) *Assistant Professor of Pharmacology*
 LESTER EDMUND RICHWAGEN, B.S. (1965) *Professor of Hospital Administration*
 HEATH KENYON RIGGS, Ph.D. (1953)³ *Professor of Mathematics*
 BENJAMIN ALBERT RING, M.D. (1959) *Associate Professor of Neuroradiology and Radiologic Anatomy*
 *SOL ALEXANDER RIPPA, Ed.D. (1960) *Professor of Education*
 JACK DAVID RIVES, B.S., Captain, United States Army (1965) *Assistant Professor of Military Science*
 FRANK JAY ROBERTSON, B.S., Captain United States Army (1964) *Assistant Professor of Military Science*
 LEONARD GEORGE ROBINSON, M.A., Colonel United States Army (1963) *Professor of Military Science*
 ALICE KELLY RODGERS, M.S. (1962) *Assistant Professor of Nursing*
 ALBAN BENNETT ROONEY, M.S. (1922) *Associate Professor of Physics*
 JAMES ALBERT ROOT, M.S. (1948) *Associate Professor of Civil Engineering*
 *WILFRED ROTH, Ph.D. (1964) *Professor of Electrical Engineering*
 *HOWARD ROTHSTEIN, Ph.D. (1962) *Assistant Professor of Zoology*
 LYMAN SMITH ROWELL, M.S. (1925) *Associate Professor of Zoology*
 *STANLEY RUSH, Ph.D. (1962) *Associate Professor of Electrical Engineering*
 CHARLES BRUSH RUST, M.D. (1948) *Assistant Professor of Clinical Orthopedic Surgery*
 THOMAS DUDLEY SACHS, Ph.D. (1962) *Assistant Professor of Physics*
 *ALBERT WILLIAM SADLER, Ph.D. (1956)⁴ *Associate Professor of Philosophy and Religion*
 *JACOB ANTHONY SAMENFINK, Ed.D. (1961) *Professor of Home Economics*
 *FREDERIC OBERLIN SARGENT, Ph.D. (1962) *Professor of Agricultural Economics*
 SARAH DAVIS SARGENT (Mrs. S. H.) M.A. (1963) *Instructor in English*
 SEYMOUR HERBERT SARGENT, M.A. (1963) *Instructor in English*
 H. REED SAUNDERS, M.S. (Jan., 1965) *Instructor in Commerce and Economics*
 WADI ISSA SAWABINI, D.D.S. (1952) *Assistant Professor of Oral Hygiene and Dental Medicine*
 ROBERT NEWTON SAXBY, M.D. (1954) *Instructor in Clinical Radiology*
 *LEONARD MICHAEL SCARFONE, Ph.D. (1963) *Assistant Professor of Physics*
 STEPHEN PHILIP SCHEIBLE, M.A. (1965) *Instructor in Romance Languages*
 *ARNOLD HAROLD SCHEIN, Ph.D. (1947) *Associate Professor of Biochemistry*
 WILLIAM MURRELL SCHENK, M.A. (1965) *Instructor in Speech*
 FREDERICK FRANCIS SCHILLER, B.S. (1965) *Assistant Professor of Commerce and Economics*
 *WOLFE WILHELM SCHMOKEL, Ph.D. (1962) *Assistant Professor of History*

1. Sabbatical leave second semester 1966-67.
2. Sabbatical leave first semester 1965-66.
3. Sabbatical leave academic year 1965-66.
4. On leave academic year 1965-66.

- EDWIN CALVIN SCHNEIDER, M.S. (1946) *Professor of Agricultural Engineering*
 *NORMAN JAMES SCHOONMAKER, Ph.D. (1956) *Professor of Mathematics*
 *HAROLD SEESSEL SCHULTZ, Ph.D. (1946) *Professor of History*
 HERBERT LOUIS SCHULTZ, M.A. (1957) *Assistant Professor of Music*
 GEORGE ADAM SCHUMACHER, M.D. (1950) *Professor of Neurology*
 ROBERTA B. SCHWALB, M.A. (1958) *Assistant Professor of Nursing*
 BENJAMIN F. SCHWEYER, LL.B. (1963) *Instructor in Commerce and Economics*
 *MALCOLM FLOYD SEVERANCE, Ph.D. (1951-52; 1953) *Associate Professor of Commerce and Economics*
 WALLACE T. SHAKUN, M.S.M.E. (1965) *Visiting Assistant Professor of Mechanical Engineering*
 DANIELLE J. SCHWARTZ, M.A. (1965) *Instructor in Romance Languages*
 JAMES DOUGLASS SHARPE, M.D. (Jan., 1965) *Instructor in Clinical Psychiatry*
 WILLIAM IRELAND SHEA, M.D. (1952) *Assistant Professor of Clinical Surgery*
 MARVIN GODDARD SHEFFIELD, D.D.S. (1965) *Clinical Instructor in Dental Hygiene*
 ALLAN GLASS SHEPHERD, III, M.S. (1965) *Instructor in English*
 CHARLES DANIEL SHIELDS, M.D. (Feb., 1966) *Professor of Physical Medicine and Rehabilitation*
 LAURENCE FORREST SHOREY, M.S. (1926) *Associate Professor of Electrical Engineering*
 *FERDINAND JACOB MORRIS SICHEL, Ph.D. (1937) *Professor of Physiology and Biophysics*
 *KENNETH ROGERS SIMMONS, Ph.D. (1963) *Assistant Professor of Animal and Dairy Science*
 MORRIS LEON SIMON, M.A. (1954) *Assistant Professor of Political Science*
 JAMES EDWIN SIMPSON, M.D. (1953) *Assistant Professor of Clinical Orthopedic Surgery*
 ETHAN ALLEN HITCHCOCK SIMS, M.D. (1950) *Associate Professor of Biochemistry and Medicine*
 *ROBERT ORVILLE SINCLAIR, Ph.D. (1953-55; 1956)¹ *Professor of Agricultural Economics*
 HOWARD DARRELL SLACK, D.D.S. (1950) *Instructor in Dental Hygiene*
 NORMAN JOSEPH SLAMECKA, Ph.D. (1957) *Associate Professor of Psychology*
 ROBERT JAMES SLATER, M.D. (Dec., 1961) *Professor of Clinical Pediatrics*
 WILLIAM JOSEPH SLAVIN, JR., M.D. (1942) *Associate Professor of Obstetrics and Gynecology*
 WILSON GEORGE SMILLIE, M.D. (1962) *Visiting Professor of Epidemiology and Community Medicine*
 *ALBERT MATTHEW SMITH, Ph.D. (1957) *Associate Professor of Animal and Dairy Science*
 *DURWOOD JAMES SMITH, M.D. (1953) *Professor of Pharmacology*
 GORDON CHARLES SMITH, M.A. (1965) *Instructor in Mathematics*
 *HOWARD MARSHALL SMITH, JR., M.S. (1947) *Professor of Electrical Engineering*
 PATRICIA SMITH, M.S. (1963) *Assistant Professor of Home Economics and Home Management House Director*
 ROBERT PEASE SMITH, M.D. (1951-54; 1956) *Instructor in Medicine, and Epidemiology and Community Medicine*
 DAVID LEE SOBERS, B.A. (1965) *Instructor in Philosophy and Religion*
 FELIX SOMER, M.D. (Jan., 1965) *Instructor in Clinical Psychiatry*
 ARTHUR BRADLEY SOULE, JR., M.D. (1929) *Professor of Radiology*
 ALTON RICHARD SPARKS, B.A., Captain, United States Army (1965) *Assistant Professor of Military Science*
 THOMAS JOHN SPINNER, JR., Ph.D. (1957-59; 1962) *Assistant Professor of History*
 *THOMAS SPROSTON, JR., Ph.D. (1946) *Professor of Botany*
 HORACE HARRISON SQUIRE, Ph.D. (1962) *Assistant Professor of Commerce and Economics*
 MARY ELIZABETH SQUIRE (MRS. H. H.), M.A. (1963) *Assistant Professor of Commerce and Economics*
 JAMES WARD STACKPOLE, M.D. (1962) *Instructor in Clinical Pediatrics*
 WILLIAM MARTIN STAHL, JR., M.D. (1962) *Associate Professor of Surgery*
 ROLFE SEATON STANLEY, Ph.D. (1964) *Assistant Professor of Geology*
 ERNEST STARK, M.D. (1945) *Associate Professor of Pathology*
 STANISLAW JAN STARON, Ph.D. (1961) *Assistant Professor of Political Science*
 BURDETT KENNEY STEARNS, Ph.D. (Nov., 1965) *Assistant Professor of Civil Engineering*
 *FRANK LESLIE STEEVES, Ed.D. (1958) *Professor of Education*
 HAROLD JUNIE STEWART, B.S.M.E. (1965) *Visiting Instructor in Mechanical Engineering*
 NOEL EDWARD STEVENSON, M.A. (1965) *Instructor in Romance Languages*
 ROBERT LEO STONE, M.A. (1964) *Instructor in Physical Education for Men*
 DARBY JOHN MCGANNON STRONG, M.A. (1965) *Assistant Professor of Romance Languages*

1. Sabbatical leave first semester 1965-66.

- *NEIL RALPH STOUT, Ph.D. (1964) *Assistant Professor of History*
 VICTOR HUGO STRANDBERG, Ph.D. (1962) *Assistant Professor of English*
 NORMAN KENNETH STRASSBURG, M.Ed. (1946) *Assistant Professor of Physical Education for Men*
- WILLIAM CRAIGIE STREET, M.D. (1963) *Clinical Instructor in Anesthesiology*
 WALTER ALVA STULTZ, Ph.D. (1937) *Professor of Anatomy*
 JOSEPH ROBERT SURIANO, Ph.D. (1959)¹ *Assistant Professor of Medical Microbiology*
 RALPH DANIEL SUSSMAN, M.D. (1946) *Associate Professor of Clinical Pediatrics*
 DAVID LUTHER SYLWESTER, Ph.D. (1965) *Assistant Professor of Mathematics*
 BURTON SAMUEL TABAKIN, M.D. (1954) *Associate Professor of Medicine*
 DAVID LATHAM TABER, M.D. (1953) *Instructor in Clinical Obstetrics and Gynecology*
 JOHN PETER TAMPAS, M.D. (1962) *Assistant Professor of Radiology*
 *CHARLES FRANCIS TAYLOR, Ph.D. (Jan., 1964) *Associate Professor of Electrical Engineering*
 *FRED HERBERT TAYLOR, Ph.D. (1943) *Professor of Botany*
 HOWARD CANNING TAYLOR, III, M.D. (1962) *Assistant Professor of Pathology*
 CHRISTOPHER MARLOWE TERRIEN, M.D. (1939) *Associate Professor of Clinical Medicine*
 LOUIS GEORGE THABAULT, M.D. (1939) *Instructor in Clinical Surgery*
 WILFRED LOUIS THABAULT, M.D. (1958) *Instructor in Clinical Obstetrics and Gynecology*
 MARY ELIZABETH THOMPSON, M.A. (1958) *Assistant Professor of Nursing*
 KARL JEFFERSON THOMSON, M.D. (Jan., 1963) *Professor of Experimental Medicine*
 WILLIAM ALLAN TISDALE, M.D. (1965) *Professor of Medicine*
 JOHN BUTLER TOMPKINS, M.D. (Dec., 1964) *Assistant Professor of Clinical Psychiatry*
 *SEIKICHI TOKUDA, Ph.D. (1963) *Assistant Professor of Medical Microbiology*
 HELENE WALLACE TOOLAN (MRS. JAMES M.), Ph.D. (1964) *Associate Professor of Pathology*
 JAMES MICHAEL TOOLAN, M.D. (1964) *Assistant Professor of Psychiatry*
 RANDOLPH SHEPARDSON TOWNE, A.M. (1928) *Assistant Professor of Romance Languages*
 THOMAS DERMOTT TRAINER, M.D. (1960) *Assistant Professor of Pathology*
 *RAYMOND HERMAN TREMBLAY, Ph.D. (1953) *Associate Professor of Agricultural Economics*
- *JACK TREVITHICK, Ph.D. (1946) *Professor of English*
 KEITH FRANK TRUAX, M.D. (1932) *Associate Professor of Clinical Surgery*
 ARTHUR FREDERICK TUTHILL, M.S. (1946) *Professor of Mechanical Engineering*
 JOHN CUSHMAN TWITCHELL, M.D. (1961) *Instructor in Clinical Medicine*
 MARSHALL COLEMAN TWITCHELL, JR., M.D. (1942) *Assistant Professor of Ophthalmology*
 LOUIS MALDONADO UGALDE, M.A. (1962) *Assistant Professor of Romance Languages*
 HENRY CARMER VAN BUREN, M.D. (1962) *Instructor in Clinical Medicine*
 FREDERICK WILLIAM VAN BUSKIRK, M.D. (1946) *Associate Professor of Clinical Radiology*
 KENNETH EVERSON VARNEY, M.S. (1946) *Assistant Professor of Plant and Soil Science*
 PETER JOHN VINTON, B.S. (1965) *Instructor in Physical Education*
 RAUL HORACIO VISPO, M.D. (1963) *Assistant Professor of Psychiatry*
 *HUBERT WALTER VOGELMANN, Ph.D. (1955) *Associate Professor of Botany*
 LUCILLE MARION WAKEFIELD, M.S. (1957) *Assistant Professor of Home Economics*
 *NELSON LEE WALBRIDGE, Ph.D. (1924) *Professor of Physics*
 HAROLD JAMES WALLACE, JR., M.D. (1964) *Instructor in Clinical Medicine and Pharmacology*
 LESTER JULIAN WALLMAN, M.D. (1948) *Professor of Neurosurgery*
 JOSEPH FRANKLIN WARK, D.M.D. (Nov., 1964) *Instructor in Dental Hygiene*
 HERBERT FRANKLIN WASS, M.A. (1964) *Assistant Professor of Commerce and Economics*
 JAMES HARVEY WATERS, Ph.D. (1965) *Assistant Professor of Chemistry*
 LELON ASHLEY WEAVER, JR., Ph.D. (1962) *Assistant Professor of Psychiatry*
 *FRED CLARENCE WEBSTER, Ph.D. (1951-53; 1956) *Professor of Agricultural Economics*
 SELINA WILLIAMS WEBSTER (MRS. T. M.), M.S. (1960) *Assistant Professor of Home Economics*
 TRUMAN MARION WEBSTER, Ph.D. (1945) *Associate Professor of German*
 JOHN GEORGE WEIGER, M.A. (1964) *Assistant Professor of Romance Languages*
 WILLIAM LEONARD WEIN (1965) *Visiting Instructor in Mechanical Engineering*
 FRANCIS ALEXANDER WEINRICH, M.A. (1950) *Assistant Professor of Music*
 GEORGE WILLIAM WELSH, 3rd, M.D. (1958-62; 1964) *Associate Professor of Medicine*
 BRUCE RICHARD WENNER, Ph.D. (1964) *Assistant Professor of Mathematics*
 ALBERT LOUIS WENZ, B.S., Major United States Army (1962) *Assistant Professor of Military Science*

1. On leave to July 31, 1966.

WENDELL JENNISON WHITCHER, Ph.D. (1952)	<i>Associate Professor of Chemistry</i>
*JAMES FELLOWS WHITE, Ph.D. (1955) ¹	<i>Professor of German</i>
*WILLIAM NORTH WHITE, Ph.D. (1963)	<i>Professor of Chemistry</i>
ROY ALVIN WHITMORE, JR., M.F. (1958)	<i>Associate Professor of Forestry</i>
MARGARET BEACH WHITTLESEY, M.S.W. (1964)	<i>Assistant Professor of Home Economics</i>
*SAMUEL CLAUDE WIGGANS, Ph.D. (Feb., 1963)	<i>Professor of Plant and Soil Science</i>
BLAIR WILLIAMS, M.S. (1946-48; 1949)	<i>Associate Professor of Home Economics</i>
*JAMES WILSON, Ph.D. (1964)	<i>Assistant Professor of Political Science</i>
*GLEN MEREDITH WOOD, Ph.D. (1950)	<i>Associate Professor of Plant and Soil Science</i>
FLORENCE MAY WOODARD, Ph.D. (1923)	<i>Professor of Commerce and Economics</i>
NORMA LOWYN WOODRUFF, M.A. (1952)	<i>Associate Professor of Nursing</i>
RICHARD S. WOODRUFF, M.D. (1950)	<i>Assistant Professor of Pathology</i>
*STUART COWAN WOODRUFF, Ph.D. (1961)	<i>Assistant Professor of English</i>
WILLIAM ALOYSIUS ALFRED WOODRUFF, M.B. (1962)	<i>Assistant Professor of Psychiatry</i>
*ROBERT CUMMINGS WOODWORTH, Ph.D. (1961)	<i>Assistant Professor of Biochemistry</i>
CLAUS ADOLF WULFF, Ph.D. (1965)	<i>Assistant Professor of Chemistry</i>
ALBERT WILHELM WURTHMANN, M.A. (1947) ²	<i>Assistant Professor of German</i>
WILLIAM GREENHILL YOUNG, M.D. (1949)	<i>Associate Professor of Clinical Psychiatry</i>
LUTHER EUGEN ZAI, D.Sc.Tech. (Feb., 1963)	<i>Associate Professor of Forestry</i>
LEONARD MARTIN ZUBKO, M.M.E. (1965)	<i>Visiting Associate Professor of Mechanical Engineering</i>

Associates in Instruction and Research

HARRY LIVINGSTON COLOMBO, M.D.	<i>Clinical Associate in Medicine</i>
JOHN PATRICK CORLEY, M.D.	<i>Clinical Associate in Medicine</i>
WILLIAM HENRY HEININGER	<i>Clinical Associate in Medicine</i>
HERMAN CONRAD HERRLICH, Ph.D.	<i>Research Associate in Experimental Medicine</i>
SHEILA ELIZABETH ISRAEL, Ph.D.	<i>Research Associate in Biochemistry</i>
FREDERICK MITCHELL LAING, M.S.	<i>Research Associate in Botany</i>
GEORGE E. LUCIA, JR., M.D.	<i>Clinical Associate in Surgery</i>
WILLIAM EDWARD MITCHELL, M.A.	<i>Research Associate</i>
CHARLES E. MOISAN, JR., M.D.	<i>Clinical Associate in Medicine</i>
MAURICE E. MONGEON, M.D.	<i>Clinical Associate in Medicine</i>
JOHN LOUIS SAIA, M.D.	<i>Clinical Associate in Medicine</i>
TAMOTSU SHINOZAKI, M.D.	<i>Research Associate in Surgery</i>
JOHN BUTLER TOMPKINS, M.D.	<i>Clinical Associate in Medicine (Psychiatry)</i>
LOUIS JOSEPH WAINER, M.D.	<i>Clinical Associate in Medicine</i>
MAURICE JAMES WALSH, M.D.	<i>Clinical Associate in Medicine</i>
ZANG ZEE ZAO, M.D.	<i>Research Associate in Experimental Medicine</i>

Other Administrative Officers

DAVID RICHARD ABBOTT, M.A.	<i>Assistant Registrar</i>
EDWIN BARTLETT ABBOTT	<i>Auditor</i>
KARL ALBAN ANDREN, B.S.	<i>Publications Specialist</i>
EDWARD CLINTON ANDREWS, JR., M.D.	<i>Associate Dean, College of Medicine</i>
DAVID ALEXANDER BAIN, M.A.	<i>Director of Billings Center and Student Activities</i>
THOMAS D. SEYMOUR BASSETT, Ph.D.	<i>Librarian, Wilbur Library, and University Archivist</i>
JAMES HENRY BATES, M.Ed.	<i>Executive Assistant to Dean, College of Medicine</i>
NORMAN ASHLEY BISHOP, B.S.C.E.	<i>University Engineer</i>
HORACE WILKINSON BRIGGS, M.A.L.D.	<i>Director of World Affairs Information Center</i>
STANLEY LIVINGSTON BURNS, JR., M.D.	<i>Assistant Dean, College of Medicine</i>
JOHN ROBERT BUSHEY, B.S.	<i>Assistant Director, Evening Division, Conferences and Institutes, Summer Session</i>
NORBERT FABIAN CHARBONNEAU, M.A.	<i>Computing Consultant</i>
THOMAS PAUL CLAIRMONT, M.Ed.	<i>Assistant Director of Admissions</i>
HAROLD SMITH CLARKE, M.Ed.	<i>Registrar</i>
GEORGE NAY CLERKIN	<i>Treasurer</i>
HAROLD CAMPBELL COLLINS, B.S.	<i>Director of Admissions</i>

1. Sabbatical leave academic year 1965-66.
2. Sabbatical leave first semester 1966-67.

DAVID DANIEL DEMSKY	<i>Superintendent of Buildings and Grounds</i>
JOHN EDWARD DONNELLY, M.A.	<i>Director of Intercollegiate Athletics</i>
HENRY MEADE DOREMUS, II, D.V.M.	<i>Director of Animal Services, Medical College</i>
MARVIN LYLE DURHAM, Ph.D.	<i>Foreign Student Adviser</i>
CARL ORTON EYCKE, M.A.	<i>Assistant Dean of Men</i>
EDWARD JOSEPH FEIDNER, M.F.A.	<i>Director of Drama</i>
EDGAR CLARENCE FORSBERG, A.B.	<i>Director of Housing</i>
DOUGLAS OLIVER HANAU, M.A.	<i>Director of Placement</i>
ROLF NORDAHL BRUN HAUGEN, Ph.D.	<i>Director of Government Research Center</i>
FREDERICK OWEN HENEY	<i>Manager of University Store</i>
WALTER ALFRED HIGGINS, M.B.A.	<i>Director Personnel Office</i>
GEORGE HARMON HUNTER, B.L.S.	<i>Medical Librarian</i>
RICHARD HARRY JANSON, Ph.D.	<i>Director of the Fleming Museum</i>
A. GRANT KENNEDY	<i>Director, Data Processing Center</i>
LAWRENCE ALAN KIMBALL, B.A.	<i>Assistant Director of Public Relations</i>
NORMAN THEODORE LONDON, Ed.D.	<i>Assistant Dean, College of Arts and Sciences</i>
PROCTOR MAYO LOVELL	<i>Assistant Business Manager</i>
HERBERT CHRISTIAN McARTHUR, Ph.D.	<i>Associate Dean, College of Arts and Sciences</i>
HELEN OUSTINOFF (MRS.), B.A.	<i>Assistant Director and Technical Services Librarian</i>
GORDON PATERSON, B.S.	<i>Bursar</i>
PHYLLIS MELVILLE QUINBY, B.S.	<i>Assistant Director of School of Dental Hygiene</i>
ALBERT WILLIAM SADLER, Ph.D. ¹	<i>Consultant on Religious Programs</i>
HERBERT LOUIS SCHULTZ, M.A.	<i>Director of University Band</i>
MALCOLM FLOYD SEVERANCE, Ph.D.	<i>Director of Institutional Research and Assistant to the Vice President for Administrative and Student Affairs</i>
HOWARD MARSHALL SMITH, JR., M.S.	<i>Associate for Institutional Programs</i>
JOHN FRANKLIN SMITH, B.S.	<i>Director of Audio-Visual Center and University Photography</i>
STEPHEN TOWNSEND WELCH, M.B.A.	<i>Assistant Comptroller</i>
ALLEN LEE WALKER, A.M.	<i>Director of Financial Aids</i>
ELIZABETH WILSON, R.N.	<i>Director of Infirmary, Health Service</i>
MARGARET MARY WING, M.A.	<i>Assistant Dean of Women</i>
CHARLES LEWIS WOLF, M.A.	<i>Assistant Auditor</i>
CONSTANCE ZOLOTAS (MRS.), B.S.	<i>Director of Alumni Activities</i>

Retired Officers of Administration

MARY OLIVE BOYNTON, Ph.B.	<i>Librarian, Medical Library</i>
HORACE BYRON ELDRED	<i>Director of Audio-Visual Services</i>
FORREST WILKINS KEHOE, B.S.	<i>Superintendent of Buildings and Grounds, and Associate Registrar</i>
LAURA LOUDON	<i>Assistant in Public Relations</i>
MARJORIE BELLINGWOOD LUCE, B.S.	<i>State Home Demonstration Leader</i>
HELEN BARNES SHATTUCK, A.B.	<i>Librarian, Billings Library</i>
MARY JEAN SIMPSON, Ph.B.	<i>Dean of Women</i>

1. On leave.

Experiment Station Staff

AGRICULTURAL

The Agricultural Experiment Station has as its essential functions to conduct research in agriculture and home economics, to administer certain regulatory statutes, and to publish the results of such work.

THOMAS WHITFIELD DOWE, Ph.D.

Dean and Director

WILLIAM RITCHIE ADAMS, JR., Ph.D.
 EARL LEE ARNOLD, Ph.D.
 HENRY VERNON ATHERTON, Ph.D.
 DONALD JAMES BALCH, Ph.D.
 RICHMOND JAY BARTLETT, Ph.D.
 MALCOLM IRVING BEVINS, M.S.
 WESSON DUDLEY BOLTON, D.V.M., M.S.
 BERTIE REYNOLD BOYCE, M.S.
 ALEC BRADFIELD, M.S.
 GARY THOMAS DEVINO, M.S.
 GERALD A. DONOVAN, Ph.D.
 WINFIELD BOOTH DURRELL, D.V.M., M.S.
 ALEXANDER HARRY DUTHIE, Ph.D.
 KENNETH DEANE FISHER, Ph.D.
 ROBERT FITZSIMMONS, Ph.D.
 THEODORE ROSS FLANAGAN, Ph.D.
 HARRISON LEIGH FLINT, Ph.D.
 MURRAY WILBUR FOOTE, Ph.D.
 ROBERT WEEKS FULLER, M.S.
 DONALD CEDRIC HENDERSON, M.S.
 RICHARD JOHN HOPP, M.S.
 BEAL BAKER HYDE, Ph.D.
 DONALD BOYES JOHNSTONE, Ph.D.
 RAMAKANT KHAZANIE, Ph.D.
 DONALD EUGENE KEYSER, Ph.D.
 KARIN KRISTIANSSON (MRS. G.), M.A.
 FREDERICK MITCHELL LAING, M.S.
 GEORGE BUTTERICK MacCOLLOM, Ph.D.
 JAMES WALLACE MARVIN, Ph.D.
 MARTIN CHARLES MATHES, Ph.D.
 MAXWELL LELAND McCORMACK, Ph.D.
 THOMAS JAMES McCORMICK, B.S.
 JERRY LEON McINTOSH, Ph.D.
 SUSAN BREWSTER MERROW, M.Ed.
 ELLEN HASTINGS MORSE, Ph.D.
 ROGER WALTER MURRAY, D.V.M.
 BRUCE LAWRENCE PARKER, Ph.D.
 BOYD WALLACE POST, D.F.
 DAVID WILLIAM RACUSEN, Ph.D.
 FREDERIC OBERLIN SARGENT, Ph.D.
 EDWIN CALVIN SCHNEIDER, M.S.
 KENNETH ROGERS SIMMONS, Ph.D.
 ROBERT ORVILLE SINCLAIR, Ph.D.
 ALBERT MATTHEWS SMITH, Ph.D.
 JOHN WALLACE SPAVEN, B.S.
 THOMAS SPROSTON, JR., Ph.D.
 JAMES GLENDON SYKES, M.S.
 ENOCH HAROLD TOMPKINS, M.S.

Forester
Associate Agricultural Engineer
Associate in Dairy Bacteriology
Associate Animal Scientist
Associate Agronomist
Associate Agricultural Economist
Animal Pathologist
Research Assistant
Associate in Dairy Manufacturing
Assistant Agricultural Economist, Marketing
Poultry Scientist
Associate Animal Pathologist
Assistant Dairy Scientist
Assistant Plant Pathologist
Assistant Dairy Scientist
Assistant Agronomist
Associate Horticulturist
Associate Biochemist
Wildlife Management Specialist
Poultry Scientist
Horticulturist
Cell Biologist
Microbiologist
Statistician
Assistant Biochemist
Assistant Editor
Research Associate
Associate Entomologist
Plant Physiologist
Assistant Plant Physiologist
Assistant Forester
Assistant Editor
Assistant Soil Scientist
Associate Nutritionist
Associate Nutritionist
Assistant Animal Pathologist
Assistant Entomologist
Assistant Forester
Associate Biochemist
Agricultural Economist
Agricultural Engineer
Assistant Animal and Dairy Scientist
Agricultural Economist, Farm Finance
Associate Dairy Scientist
Editor
Plant Pathologist and Mycologist
Assistant Agricultural Economist
Associate Agricultural Economist

EXPERIMENT STATION STAFF

RAYMOND HERMAN TREMBLAY, Ph.D.	<i>Agricultural Economist, Farm Management</i>
KENNETH EVERSON VARNEY, M.S.	<i>Associate Agronomist</i>
KATHLEEN BEAVINGTON WEBB, B.S.	<i>Associate Editor</i>
FRED CLARENCE WEBSTER, Ph.D.	<i>Agricultural Economist, Marketing</i>
SAMUEL CLAUDE WIGGINS, Ph.D.	<i>Horticulturist</i>
BLAIR WILLIAMS, M.S.	<i>Home Economist</i>
ROY ALVIN WHITMORE, JR., M.F.	<i>Associate Forester</i>
GLEN MEREDITH WOOD, Ph.D.	<i>Associate Agronomist</i>
LUTHER EUGEN ZAI, Ph.D.	<i>Associate Forester</i>

ENGINEERING

WARREN ORVEL ESSLER, Ph.D.	<i>Director and Electrical Engineer</i>
REGINALD VENN MILBANK, M.S.	<i>Civil Engineer</i>
JOHN OGDEN OUTWATER, M.A., Sc.D.	<i>Mechanical Engineer</i>

RELATED SERVICES STAFF

The Related Services Division renders various services in the fields of agriculture and home economics, such as inspection of feed, seeds, and fertilizer; analysis of soils, milk, and other agricultural products on request; diagnosis of diseases of plants, poultry and other livestock, and analyses for the Vermont Pari-Mutuel Racing Commission.

THOMAS WHITFIELD DOWE, Ph.D.	<i>Dean and Director</i>
WESSON DUDLEY BOLTON, D.V.M., M.S.	<i>Animal Pathologist</i>
ALEC BRADFIELD, M.S.	<i>Associate, Dairy Manufacturing</i>
HOLLIS EARL BUCKLAND, B.S.	<i>Seed Analyst</i>
WINFIELD BOOTH DURRELL, D.V.M., M.S.	<i>Associate Animal Pathologist</i>
ROGER WALTER MURRAY, D.V.M.	<i>Assistant Animal Pathologist</i>
HARRY LEONARD SAWYER, JR., B.S.	<i>Associate Chemist</i>
THOMAS SPROSTON, JR., Ph.D.	<i>Plant Pathologist and Mycologist</i>
JAMES ROGER WADSWORTH, V.M.D., M.S.	<i>Animal Pathologist</i>
ROBERT THOMAS WETHERBEE, M.S.	<i>Chemist</i>

Extension Service Staff

The Cooperative Extension Service is a cooperative undertaking of the State of Vermont, the College of Agriculture and Home Economics, the United States Department of Agriculture, and the several counties of the State. It has a State staff, with headquarters at the University, and a staff of county extension agents in each county. Its purpose is "to aid in diffusing among the people . . . useful and practical information on subjects relating to agriculture, home economics, resource development, community development and related subjects, and to encourage the application of the same". Its programs are available to all the people of the State, including both adults and youth.

THOMAS WHITFIELD DOWE, Ph.D.
ROBERT POWERS DAVISON, M.Ed.

Dean
Director

HENRY VERNON ATHERTON, Ph.D.	Dairy Bacteriologist
DONALD JAMES BALCH, Ph.D.	Animal Scientist
MALCOLM IRVING BEVINS, M.S.	Agricultural Economist
WESSON DUDLEY BOLTON, D.V.M., M.S.	Animal Pathologist
KEITH TRAVER BRADLEY, M.Ed.	Area Resource Development Specialist
CHARLES LYMAN CALAHAN, M.S.	Horticulturist
BRUCE LELAND CRAIG, M.S.	Area Resource Development Specialist
WARREN ALBERT DODGE, B.S.	Dairyman
GERALD A. DONOVAN, Ph.D.	Poultry Scientist
DWIGHT KIMBALL EDDY, B.S.	Agricultural Economist
KENNETH DEANE FISHER, Ph.D.	Plant Pathologist
ROBERT FITZSIMMONS, Ph.D.	Dairyman, Breeding
THEODORE ROSS FLANAGAN, Ph.D.	Assistant Agronomist
HARRISON LEIGH FLINT, Ph.D.	Ornamental Horticulturist
RAYMOND THOMAS FOULDS, JR., M.F.	Forester
VERLE RANDALL HOUGHABOOM, Ph.D.	Agricultural Economist, Farm Management
KARIN KRISTIANSSON (MRS. G.), M.A.	Assistant Editor
WILLIAM PATRICK LEAMY, M.S.	Dairyman, DHIA
JOHN JOSEPH LINDSAY, B.S.F.	Recreation Development Specialist
GEORGE BUTTERICK MacCOLLOM, Ph.D.	Entomologist
THOMAS JAMES McCORMICK, B.S.	Assistant Editor
JERRY LEON McINTOSH, Ph.D.	Agronomist
JOHN DOTY MERCHANT, B.S.	State 4-H Club Leader
LEONARD SMITH MERCIA, M.S.	Poultryman
GORDON ROY NIELSEN, Ph.D.	Entomologist
FAITH KENYON PRIOR (MRS.), M.S.	Home Management Specialist
MARY PAULINE ROWE, M.E.	Associate 4-H Club Leader
FREDERIC OBERLIN SARGENT, Ph.D.	Agricultural Economist
KENNETH ROGERS SIMMONS, Ph.D.	Dairyman, Physiology
ALBERT MATTHEWS SMITH, Ph.D.	Dairyman, Nutrition
JOHN WALLACE SPAVEN, B.S.	Editor
THOMAS SHEARER STANLEY, B.S.	Agricultural Economist, Food Merchandising
DORIS HOSMER STEELE (MRS. B.), M.A.	State Home Demonstration Leader
WILLIAM WILLARD STONE, M.A.	County Agent Leader and Rural Development Specialist
KATHLEEN LeBARON STRASSBURG, B.S.	Clothing Specialist
ANDREW TESSMANN, B.S.	Agricultural Engineer
NOAH THOMPSON, B.S.	Rural Defense Specialist
ENOCH HAROLD TOMPKINS, M.S.	Rural Sociologist
JAMES ROGER WADSWORTH, V.M.D., M.S.	Animal Pathologist
WINSTON ARTHUR WAY, M.S.	Agronomist
KATHLEEN BEAVINGTON WEBB, B.S.	Associate Editor

FRED CLARENCE WEBSTER, Ph.D.
 KATHERINE LUCILLE WHITNEY, B.S.
 ANNA MARION WILSON, M.S.

*Agricultural Economist, Marketing
 Home Economist, Rural Civil Defense
 Nutritionist*

County Extension Agents

Addison County

LUCIEN DEMERS PAQUETTE, M.E.E.	Middlebury
JOHN FRANKLIN STEPHENSON, M.E.E. (Associate)	Middlebury
MRS. LEONA WARREN THOMPSON, B.S.	Middlebury
BERNARD MAURICE NADEAU, B.S.	Middlebury

Bennington County

JOHN CALVIN PAGE, M.S.	Bennington
MRS. MARION STONE HARRIS, B.S.	Bennington
JAMES ALBERT EDGERTON, M.E.E.	Bennington

Caledonia County

PHILIP KAIR GRIME, B.S.	St. Johnsbury
MRS. ALICE JOHNSON BLAIR, B.S.	St. Johnsbury
LINDSAY THOMAS TOWNSEND, B.S.	St. Johnsbury

Chittenden County

ROBERT LACKIE CARLSON, B.S.	Essex Junction
MRS. F. ALINE COFFEY, B.S.	Essex Junction
MRS. MARGARET POOLE MacDONOUGH, B.S.	Essex Junction

Essex County

EARLE DRAKE CLARK, B.S.	Guildhall
MRS. ELSIE L. M. DORR, B.E.	Guildhall

Franklin County

ERDEN WELLS BAILEY, B.S.	St. Albans
DONALD JAMES McFEETERS (Assistant)	St. Albans
JOY HAYES LALIKOS, B.S.	St. Albans
MARJORIE ELAINE PORTER, B.S.	St. Albans

Grand Isle County

ROBERT ELLIS WHITE, B.S.	North Hero
--------------------------	------------

Lamoille County

SILAS HAMILTON JEWETT, B.S.	Morrisville
MRS. ELIZABETH EMMONS ROBINS, B.S.	Morrisville
GERALDINE MARIA PHILLIPS, B.S.	Morrisville

Orange County

GORDON VOLNEY FARR, B.S.	Chelsea
MRS. SHIRLEY HALL CUSHING, B.S.	Chelsea
MARGUERITE ELIZABETH MERRILL, B.Ed.	Chelsea

Orleans County

ROGER DAVIS WHITCOMB, B.S.	Newport
JOHN ROBERT PRICE, B.S. (Associate)	Newport
MRS. MARION McIVER BUCKLAND, B.S.	Newport
WILLIAM TARBEL ZELLER, B.S.	Newport

Rutland County

WILLIAM MICHAEL COREY, M.S.	Rutland
DAVID PAUL NEWTON, M.E.E. (Associate)	Rutland
MRS. BETHIA NOBLE MUNGER, B.S.	Rutland
CHESLEY PECK HORTON, M.Ed.	Rutland

Washington County

KENNETH STEWART GIBSON, M.S.
MRS. HAZEL C. BROWN, M.S.
JUDITH PILLSBURY SICCAMA, B.S.

Montpelier
Montpelier
Montpelier

Windham County

RAYMOND IRVING PESTLE, JR., M.S.
MRS. RUTH DENSMORE HERTZBERG, B.S.
HOWARD HARRY SMITH, B.S.

Brattleboro
Brattleboro
Brattleboro

Windsor County

JOYCE WILLIAM SUMNER, B.S.
JANICE SYLVIA JACKSON, B.S.
EDWARD WALTER GOODHOUSE, B.S.

Woodstock
Woodstock
Woodstock

University Committees

SENATE STANDING COMMITTEES

Admissions

A. M. Smith, *Chairman*
 R. W. Cochran
 H. C. Collins¹
 T. C. King¹
 S. C. Knight
 Roberta B. Schwalb
 A. H. Schein
 F. C. Webster

Buildings and Grounds

T. R. Flanagan, *Chairman*
 D. D. Demsky¹
 W. Roth
 L. S. Rowell¹
 E. A. H. Sims
 F. A. Weinrich
 S. C. Wiggans

Ceremonies

R. A. Whitmore, *Chairman*
 R. J. Forgione
 B. B. Gilleland¹
 F. W. Lidral
 J. E. Little
 F. C. Marston²
 D. E. Moser
 H. J. Murbe
 H. K. Riggs
 A. W. Sadler¹
 J. P. Tampas
 Constance Zolotas¹

Curriculum

R. J. Hopp, *Chairman*
 B. M. Boller
 J. P. Felt
 R. W. Glade
 D. C. Gregg
 R. J. Hopp
 R. Korson
 A. S. Kumin
 P. Oren, Jr.
 A. W. Sadler
 R. J. Suriano
 A. F. Tuthill

Policy

S. T. Allen (Medicine), *Chairman*
 J. H. Kent (Graduate)
 L. M. Jones (Arts and Sciences)
 R. V. Milbank (Technology)
 Jean Milligan (Education and Nursing)
 B. Williams (Agriculture and Home Economics)

Library

A. P. Krapcho, *Chairman*
 B. C. Bowman¹
 Jean Davison
 L. A. D. Dellen
 F. W. Dunihue
 R. Hilberg
 E. H. Morse
 F. J. Steeves
 S. C. Woodruff

Museum

M. M. Caldwell, *Chairman*
 H. V. Atherton
 T. D. Bassett
 Muriel Hughes
 R. H. Janson¹
 G. V. Kidder¹
 J. W. Marvin
 E. J. Miles
 C. A. Newhall

Public Relations

D. P. Fay, *Chairman*
 J. H. Bates¹
 T. W. Dowe¹
 F. G. Emerson
 B. A. Gaylord
 R. B. Huber
 W. J. Lewis¹
 J. E. Mazuzan
 R. J. Slater¹
 L. E. Van Benthuisen¹

Research

T. B. Flanagan, *Chairman*
 R. J. Bartlett
 R. T. Bell
 S. L. Johnston
 H. C. McArthur
 S. I. Mour
 R. L. Naeye
 W. L. Nyborg
 S. Rush
 N. J. Slamecka
 C. F. Taylor

Student Aid

Alec Bradfield, *Chairman*
 W. J. Beckett
 Constance Brown
 H. J. Carpenter
 H. C. Collins¹
 C. O. Eycke¹
 A. E. Nuquist

1. *Ex-Officio*.

2. Deceased October 23, 1965.

G. Paterson¹
 H. B. Pierce¹
 N. K. Strassberg
 A. L. Walker¹
 Margaret Wing¹
 all Deans

Student Excellence Committee

B. B. Gilleland, *Chairman*
 R. W. Cochran
 H. C. Collins¹
 C. D. Cook¹
 R. W. Glade
 H. C. McArthur

S. I. Mour
 R. O. Sinclair
 C. F. Taylor

Student Life

C. Christensen, Jr., *Chairman*
 G. A. Donovan
 A. R. Harris¹
 J. A. Izzo
 H. Lighthall
 R. D. Patzer¹
 M. Perrine
 J. A. Samenfink
 R. S. Towne

GENERAL COMMITTEES

Athletic Council

H. W. Vogelmann, *Chairman*
 J. B. McGill
 M. J. Nadworny
 J. A. Root

Evening Division

R. V. Phillips, *Chairman*
 Betty Bandel
 L. J. Gould
 J. A. Izzo
 G. V. Kidder
 F. L. Steeves
 Blair Williams

George Bishop Lane Series

J. Trevithick, *Executive Secretary*
 E. J. Feidner
 F. W. Lidral
 G. Paterson
 L. E. Van Benthuyssen

Radiological Safety

O. S. Peterson, Jr., *Chairman*
 J. Abajian, Jr.
 E. L. Amidon
 A. D. Crowell
 C. D. Janney (Radiological Safety Officer)
 D. W. Racusen
 F. J. M. Sichel
 D. J. Smith
 A. B. Soule
 F. W. Van Buskirk

Residence

H. C. Collins, *Chairman*
 G. N. Clerkin
 M. F. Severance
 L. D. Latham
 J. E. Little
 C. A. Newhall

Jurisdiction

L. J. Gould
 A. Rankin Harris
 R. D. Patzer

Institutional Grants

W. H. Macmillan, *Chairman*
Subcommittee A
 R. Korson, *Subchairman*
 J. H. Bates
 M. A. Dyson
 B. B. Hyde
 R. A. Maxwell
 R. W. P. Mellish
 H. Rothstein
 K. R. Simmons
 F. J. Sichel
 S. C. Wiggans
Subcommittee B
 H. M. Smith, *Subchairman*
 M. A. Dyson
 D. W. Juenker
 A. P. Krapcho
 G. F. Lewis
 C. F. Taylor
Subcommittee C
 S. N. Bogorad, *Subchairman*
 Z. P. Ambrose
 S. B. Hand
 S. L. Johnston
 D. A. LeSourd

Coordinating Committee on Teacher Education

J. E. Baker, *Chairman*
 D. C. Gregg
 J. E. Little
 R. V. Phillips
 H. C. McArthur
 C. D. Cook¹
 T. C. King¹

Computing Center Executive Committee

H. M. Smith, *Director*
 N. F. Charbonneau, *Assistant Director*
 W. R. Adams
 J. H. Bates
 J. P. Chaplin
 G. N. Clerkin
 T. W. Dowe
 D. P. Fay
 W. L. Nyborg
 H. K. Riggs

1. *Ex-Officio.*

Introduction

The University of Vermont was founded in 1791, taking its place among the handful of colleges founded in this country in the eighteenth century for the higher education of young colonials and Americans of the first post-revolutionary generation. The University was the fifth New England college chartered, the second established by a state to grant the bachelor's degree, and the twentieth in the nation to do so.

Though it has enjoyed a long tradition which has seen it receive substantial private support, University development has been closely identified with that of the State since 1791, when Vermont's founding General Assembly granted a charter to the University and set aside about 29,000 acres throughout the State with the intent that rents from this land would support the new educational institution.

That same Vermont General Assembly established that the by-laws of the University should give no preference to any religious sect or denomination or discriminate against any, making the University of Vermont the first in this country and possibly the first in history to go on public record as supporting freedom of religion upon its campus.

Colleges and Curricula

The University consists of the College of Arts and Sciences, the College of Agriculture and Home Economics, the College of Technology, the College of Education and Nursing, the College of Medicine, the Graduate College, and the two-year School of Dental Hygiene.

The College of Arts and Sciences

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

music, philosophy, physics, political science, psychology, sociology, Spanish, speech, and zoology.

Majors in the Department of Commerce and Economics may specialize in options which include accounting; banking and finance; industrial management; and marketing and sales promotion. These programs lead to the degree of Bachelor of Science in Commerce and Economics.

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

The College of Agriculture and Home Economics

In 1862, the Congress of the United States enacted legislation, fostered by Vermont Senator Justin Smith Morrill, which provided for the establishment of a system of colleges—one for every state—which would make possible college education for all who were qualified. These institutions came to be known as the Land-Grant institutions of America because the Morrill Act provided federal funds for each state which would set aside lands for the new colleges. Their aim was to make possible a new kind of education which combined and blended the agricultural and mechanic arts with education in the liberal and scientific courses. The State of Vermont moved to charter a land-grant institution, the Vermont College of Agriculture, in 1864, and this new college was joined with the University of Vermont in 1865. Under later federal legislation, the services of the land-grant colleges were expanded by the creation of agricultural research and service divisions—the Agricultural Experiment Station and the Agricultural Extension Service respectively.

Today the College of Agriculture and Home Economics offers four-year curricula leading to the degree of Bachelor of Science in Agriculture, Bachelor of Science in Agricultural Engineering, Bachelor of Science in Forestry, and Bachelor of Science in Home Economics. It also offers a two-year program in preveterinary science which prepares students for admission to other institutions for professional training.

The curriculum in agriculture provides options in general agriculture, agricultural economics, agricultural education, animal and dairy science, botany, foreign agricultural service, plant and soil science, and poultry science.

The curriculum in home economics provides options in clothing, textiles and related art; family living and human development; food and nutrition; teaching and extension education; and housing and home management.

The College of Technology

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

The College of Education and Nursing

The University of Vermont has contributed teachers to its state, region and nation virtually since its founding. The evolution of formal professional education preparation resulted first in the department, then the School of Education in 1946, and, in 1951, the College of Education and Nursing, offering four-year curricula leading to the Bachelor of Science degree in the fields of elementary, secondary, business and music education; and a four-calendar-year curriculum leading to the degree of Bachelor of Science in Nursing.

Although techniques have varied, the primary concern of the education curricula has been to produce qualified teachers who have a strong background in academic subject matter and an adequate preparation in professional education.

The University's collegiate program of nursing is designed to educate the student for the practice of professional nursing in beginning positions in the hospital, home and community, and to provide a foundation for advanced study in nursing at the graduate level.

The College of Medicine

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

The Graduate College

Many academic departments of the University have a long history of providing formal graduate study for well qualified candidates. The Graduate College was formally established in 1952, and since that time has served to provide

graduate study opportunities in academic fields in which University resources have made sound graduate programs possible. In recent years several doctoral programs have been inaugurated and more are being planned. The Graduate College administers all studies beyond the Bachelor's degree, with the exception of the program of the College of Medicine leading to the doctor of medicine.

Scholarship aid, fellowships, assistantships and special loan programs are available in increasing numbers for graduate study for the student who achieves a good academic record in his undergraduate program. Nationally, the demand for men and women with advanced training continues to be urgent.

A separate catalogue describing graduate programs at Vermont is available from the Office of the Dean of the Graduate College.

The School of Dental Hygiene

The School of Dental Hygiene was established at the University in 1949. This two-year program leads to a Certificate in Dental Hygiene. Recipients of the certificate are eligible to take all state board examinations for licensing as dental hygienists. Enrollment in the School is limited to women.

Regional Cooperation

The University of Vermont is an active participant with the other state universities of New England in a program of regional cooperation aimed at increasing educational opportunities for the qualified young men and women of the six New England states. Under the program New England residents are given admissions preference and resident tuition privileges in certain specialized curricula. The University of Vermont offers several programs in which qualified residents of other New England states may be granted admissions preference and resident tuition benefits. A special brochure, detailing these specialized curricula, has been prepared by the New England Board of Higher Education and is available through the University of Vermont admissions office and from the other New England state universities.

The University of Vermont offers the following programs in which the Vermont in-state tuition rate is available for students from the states named beginning with the year indicated. Students from the New England states may enter the programs earlier than the year indicated but in that event the out-of-state rate of tuition would apply.

Classics, freshman year, Massachusetts, New Hampshire, Rhode Island; graduate, Maine, Massachusetts and Rhode Island.

Dairy Manufacturing, junior year, Maine, New Hampshire, Rhode Island.

Foreign Agricultural Service, freshman year, Massachusetts, Rhode Island.

Medical Electronics, graduate, Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island.

Medical Technology, junior year, Massachusetts.

Microbiology, graduate, Maine, Rhode Island.

The Vermont Campus

The campus and present buildings had their origin in 1800, when Burlington was virtually still frontier territory.

The University's inaugural president and his first four students felled trees from ground which is today's College Green for timber for the first college building. From their labors and from financial contributions of the citizens of Burlington, the first college building rose. When, in the early 1820's fire destroyed this first structure, it was rebuilt, again through support of Burlington residents. General Lafayette laid the cornerstone in 1825 for that second building which still stands as today's Old Mill. A modern classroom addition, Lafayette Hall, was dedicated in 1958 with a direct descendant of General Lafayette present for the ceremonies.

Following its earliest tradition, much of the University's growth in terms of buildings has been the result of generous private philanthropy.

The Billings Center, now serving as a student center, was one of several structures dedicated in the late 1800's. A fine example of the work of Henry Hobson Richardson, the well-known American architect, the Library was the gift of Frederick Billings of Woodstock. The Williams Science Hall, the first completely fire-proofed college building in this country, was added in 1896 to house the expanding departments of the several sciences. The gift of Dr. and Mrs. Edward H. Williams of Philadelphia, it was built and furnished at a cost of \$160,000. The effect of changing times is illustrated by the fact that a major renovation of the chemistry department facilities in Williams Science Hall was completed recently at a cost of over \$400,000.

Converse Hall, an unusual design of Gothic architecture, was completed in 1895. John H. Converse, class of 1861, purchased the land on which Converse stands, erected the building, and presented the completed gift to his alma mater. He also gave two houses for faculty members on the "south common".

The University dedicated a new \$3,000,000 physical education facility in 1962, with alumni and private philanthropy contributing \$1,000,000 of the total. The State of Vermont provided a \$2,000,000 bond issue, the major share of which will be repaid by student fees. The gymnasium is named to honor Roy L. Patrick, '98; the pool to honor Frank D. Forbush, '86; and the Field House to honor Albert L. Gutterson, a 1912 graduate who won in that same year an Olympic Gold Medal in the broad jump. The baseball facilities in the Field House

Cage honor two Vermont alumni who achieved prominence in Major League baseball—Larry Gardner and Ray Collins, both members of the Class of 1909.

A new \$1,895,000 engineering building, made possible by a state appropriation, houses electrical, civil, and mechanical engineering departments and the department of mathematics. Opened in the spring semester of 1964, it is named to honor the late Josiah Votey, a graduate of the class of 1884, who served as dean of the then College of Engineering at Vermont from 1901 until his death in 1931.

Morrill Hall, named to honor Vermont's Senator Justin S. Morrill, father of the Land-Grant Act, was the first university building to be provided by an appropriation from the State of Vermont. It was erected in 1907 and houses administrative offices for the College of Agriculture and Home Economics.

The twentieth century has seen the construction of several buildings of Georgian architecture. The Ira Allen Memorial Chapel, with an imposing bell tower was completed in 1927. It was the gift of James B. Wilbur, who also made a generous gift to provide scholarships for Vermont residents. In 1955 a sixty-four-bell electronic carillon was installed in the tower, a gift of winter carnival funds, and dedicated to all men and women of the University who served in the armed forces. Mr. Wilbur's bequest also contributed to the building of the Fleming Museum. Named for Robert Hull Fleming, class of 1862, the Museum was made possible by a gift from Miss Katherine Wolcott of Chicago, Mr. Fleming's niece, and by gifts from other friends of the University. Completed in 1931, it houses the University's art collection, and a fine Arena Theater.

The Waterman Building, dedicated in 1941, was the gift of Charles W. Waterman, class of 1885, and Anna R. Waterman. It contains administrative offices, classrooms, laboratories, recreation facilities, a dining hall, and the University Store. A well-equipped language laboratory is maintained in the Waterman Building with tape-recording facilities and listening stations as an aid to pronunciation, aural comprehension, and pattern practice in French, German, Hebrew, Russian and Spanish. An I.B.M. 1620 model electronic computer has been installed to be used for teaching and research in the University and for use by other colleges which may have need for its service. An I.B.M. 1401 model computer has been installed in the reorganized data processing center.

In 1949, a group of modern buildings, financed by state appropriation, was erected on the East campus. These are the Hills Agricultural Science Building, named to honor Joseph L. Hills, for many years Dean of the College of Agriculture; the Bertha M. Terrill Home Economics Building, named in honor of the originator and first chairman of the department of home economics; and the Joseph E. Carrigan Hall which houses the department of animal and dairy science. A Life Science Building to house the departments of botany and zoology and to provide teaching and research space is planned for construction. This will

also include a lecture auditorium to seat about 400. This building is to be completed for use in 1967.

A new University Bookstore will be erected in 1966-67 on the East Campus as an adjunct to this instructional area. Landscaping of the area will accent the central Mall with a number of interconnecting plazas. Sugar maples are being planted to arch the walks in this area.

The Redstone campus for women was originally a large estate. The mansion and the carriage house now serve as Redstone and Robinson Halls. Mable Louise Southwick Memorial Building, another imposing Georgian structure, was completed in 1936 as a center for women's activities. A gift from the family of Miss Southwick, a University graduate in the class of 1905, a bequest from Miss Shirley Farr, federal funds, and a student subscription provided the building and its furnishings.

Slade Hall, built in 1929, is of Colonial-type architecture. Mrs. William G. Slade made a gift toward this building, in memory of her daughter, Harriet Slade Crombie. In 1947, the Grace Goodhue Coolidge Hall, a residence hall for women, was built adjacent to Southwick. Grace Goodhue, class of 1902, was the wife of Calvin Coolidge, President of the United States.

Coolidge Hall and the three men's residence halls, Buckham, Chittenden and Wills Halls, were the first University residence halls to be financed by a bond issue guaranteed by the State of Vermont. Room rents are used to liquidate the bond issue.

Also built on these terms are the three residence halls for women south of Coolidge. Mason, Simpson, and Hamilton Halls were completed in 1957 and named, appropriately, to honor three distinguished women. Mason Hall and Hamilton Hall honor Vermont's first two women graduates, Lida Mason Hodge and Ellen Hamilton Woodruff, class of 1875, who were also the first women admitted to Phi Beta Kappa at the University. Simpson Hall honors Dean of Women Emeritus Mary Jean Simpson, class of 1913. A three unit residence and dining facility was named to honor James Marsh, distinguished scholar who served as president of the University from 1826-33, and who introduced the works of Coleridge in this country; the late Professor Frederick Tupper, a noted scholar of Chaucer; and for Warren R. Austin, a Vermont graduate of the class of 1899, who served as the U. S. Representative to the United Nations from 1946-53. This unit for men was completed in the fall of 1961 under the federal housing loan program. A unit for women, named to honor former Dean of Women Marian Patterson was also completed in 1961 and two new units, Wright and Christie, the former containing a dining hall, were added in September, 1964. These were named to honor Jessie Elvira Wright Whitcomb, a Vermont graduate of 1887, and Jean Alice Christie Chandler Bull, a graduate of 1886.

A new, three house unit, is to be constructed near Marsh, Austin and Tupper in 1966-1967. This will provide housing and dining facilities for about 450 men or women.

Other buildings of interest include Grassmount, a gracious Georgian mansion which was the home of a former Governor of Vermont; Pomeroy Building, erected in 1829 for the medical department and now used to house the department of speech. The Wasson Infirmary, believed to have been an underground railway stop for escaping Negro slaves at the time of the Civil War, was purchased for the University in 1944 by a group of faculty and alumni, and named for the first dean of women, Pearl Randall Wasson. A modern home management laboratory, named to honor the late Miss Alice E. Blundell, a member of the University's home economics faculty, was completed on the Redstone campus in 1961.

To support the teaching, research and Extension programs of the College of Agriculture and Home Economics, the University maintains animal, dairy and poultry science facilities on Spear Street in South Burlington, approximately a mile from the main campus; and has entered into a contract with the U. S. Forest Service for establishment of a forestry research center nearby; maintains the Blasberg Horticultural Research Center off Shelburne Road in South Burlington; the Vermont Research Forest with units in Charlotte, Jericho, Williston, and Wolcott; the Proctor Maple Research Farm in Underhill; and the Weybridge Research Center and Morgan Horse Farm at Weybridge, about 35 miles south of the University's main campus at Burlington. The Weybridge facility attracts many visitors each year who come to admire, and many to buy, the University's Morgan Horses.

The College of Medicine

Alumni and private philanthropy has proven the key to a modern building program of the College of Medicine. Vermont medical alumni led the nation in terms of the total amount given in the first year of a three-year fund drive which saw alumni contributions more than match a federal grant which permitted completion of a \$1,200,000 first unit of a three-phase program.

So impressive was this record of alumni giving that it attracted the interest and support of private philanthropy which made it possible for the University to match a second federal grant in completing in 1962 the second \$1,500,000 unit of the program.

Construction now underway on the \$8,700,000 third unit of the medical building program marks the successful completion of the most ambitious single building fund campaign ever undertaken by the University of Vermont. A \$2,000,000 gift from the Given Foundation, the largest single building gift ever received by the University was included in the total raised to match grants

made under the Medical Facilities Act of 1964. The entire facility is scheduled for completion in 1968.

Development of the College of Medicine, together with the fine hospitals with which the medical college is affiliated, has meant the development in Burlington of a modern medical center which serves citizens of all three northern New England states, as well as many residing in upper New York.

The Bailey Library

The library is named to honor the late Guy W. Bailey, thirteenth president of the University. Construction was made possible by a bond issue guaranteed by the state, to be repaid through an annual student library fee. It holds the largest book collection in Vermont and 2,000 periodical titles are regularly received. The University's library collection also includes the medical library housed in the medical building.

Support of the library is derived mainly from University operating funds. Some support is received from income from endowments designating the library as beneficiary, and a group of friends, the Library Fellows, interest themselves in the library and its support.

The library is a depository of U. S. Government publications and Canadian Government publications. Newspapers, pamphlets, maps, state agricultural publications, and microfilms are included in the collection. Special collections include the George P. Marsh Library, of about twelve thousand volumes in the humanities, the Howard-Hawkins Civil War collection, and the Whittingham-Stevens collection of Chiswick imprints.

The James B. Wilbur Library is rich in manuscript materials, early Vermont imprints, books relating to Vermont, and books by Vermont authors. The Wilbur Library has recently been given the personal collection of Dorothy Canfield Fisher, consisting of books, correspondence, and literary manuscripts.

The Robert Hull Fleming Museum

The Museum, an integral part of the University's teaching program, provides a fourfold educational service to the University and the people of Vermont through its permanent collections covering the history of art, temporary exhibitions, the Fleming Museum Association, and Children's Classes in the Creative Arts.

The permanent collection is arranged to augment in so far as possible the University's teaching in varied fields. Particular galleries are devoted to ancient, medieval, and renaissance art; baroque and modern painting and sculpture; American art; primitive art; and the Orient. Two galleries are devoted to temporary exhibitions which supplement the permanent collections by repre-

senting various aspects of painting, sculpture, graphic arts, architecture, photography and related material.

The Fleming Museum Association, open to the public, is composed of friends of the Museum whose support makes possible certain special exhibitions, guest lectures and films. Gallery talks related to exhibitions and the permanent collections are given from time to time and guide service for schools and clubs is available. Children's classes offer instruction in painting and the dance to youngsters of the community.

The Museum has a conference room, a lounge with a high-fidelity sound system, and a kitchenette available for meetings and social functions, a collection of several thousand photographs of painting and sculpture, and study area for courses in art.

The ground floor of the Museum houses an arena theater with about three hundred seats. The arrangement provides the intimate atmosphere of a small theater and has contributed much to the dramatic offerings of the college year. It also houses the annual summer Shakespeare Festival.

The George Bishop Lane Artists Series

The George Bishop Lane Artists Series is one of the largest collegiate artists series in the country. It was inaugurated in 1955 by a gift of over \$300,000 from the late Mrs. Lane, in honor of her husband, George Bishop Lane of the Class of 1883.

The Lane Series makes it possible for the University to bring to the campus and the community a continuing program of outstanding musical, theatrical, dance and other artistic productions for a moderate admission fee.

The Series is planned and produced by a student-faculty committee, with townspeople serving with student and faculty members on an advisory committee.

The Lane Series has presented many of the world's finest artists and groups, including the London Philharmonia, the Vienna Philharmonic, the Philadelphia Orchestra, the Chicago Symphony Orchestra, the Moscow Philharmonic Orchestra with David Oistrakh, the Royal Ballet of London, the American Ballet Theatre, Rudolf Serkin, Artur Schnabel, Van Cliburn, Isaac Stern, Nathan Milstein, Andres Segovia, The Vienna Choir Boys, the Weavers, the Robert Shaw Chorale, the Budapest String Quartet, Dave Brubeck, Errol Garner, Benny Goodman, Victor Borge, Al Hirt, Mantovani, Harry Belafonte, Joan Baez, Sir John Gielgud, Roberta Peters, the New York City Opera Company, and a number of plays including *Tea and Sympathy*, *Li'l Abner*, *Camelot*, *Man for All Seasons*, *Look Homeward, Angel*, and *J. B.* In addition to two major

series presented during each academic year, the Lane Series also sponsors a Chamber Arts Series in the spring semester, and the Lane Summer Series.

Conferences and Institutes

An increasing number of groups hold educational conferences, institutes and seminars on the campus of the University of Vermont. Wherever it is possible to do so, the University is pleased to cooperate in making its facilities available for this purpose. Nominal charges are made to cover costs to the University.

Further information may be obtained through the Office of Conferences and Institutes.

V Student Life

The general welfare of students is the responsibility of the Offices of the Dean of Women and the Dean of Men.

Housing

All undergraduate women who do not live locally with their families or in a sorority house are required to live and have their meals in University residence halls. All freshman, sophomore and junior men who do not live locally with their families or in a fraternity house are required to live and have their meals in University residence halls.

Contracts for room and board are binding for the college year, unless cancelled for due cause with the sanction of the Dean of Women or the Dean of Men. In August each new student will receive notification of a room assignment, and the date and hour of the opening of his or her residence hall. The rooms for freshman women and men may not be occupied until the date specified. Other students may occupy their rooms no earlier than twenty-four hours before the day of enrollment. Each student is expected to leave the residence hall no later than twenty-four hours after his or her last examination at the close of the school year.

Facilities for doing personal laundry are provided in residence areas as well as space for the storage of trunks, baggage, and skis. Bed linen and towels may be furnished by the student or rented from a commercial linen service which provides weekly delivery of two sheets, a pillow case, and three towels. Students provide their own window draperies, pillows, metal waste baskets, bureau covers, desk lamps and reading lamps.

Women

There are eleven residence halls for women and seven sorority houses. The residents of the halls on Redstone Campus: Christie, Coolidge, Hamilton, Mason, Patterson, Redstone, Robinson, Simpson, Slade and Wright will have their meals in the dining halls in Simpson or Wright on a twenty meal per week annual contract. The residents of Allen House will have meal contracts at the Waterman Dining Hall.

Usually, only junior and senior women are permitted to live in sorority

houses. All other residences have a prorated number of residents from each of the four undergraduate classes. Housing is not normally provided for married women in the residence halls.

A Head Resident on the staff of the Dean of Women's Office is in charge of each living unit. In each larger living unit, there is also a House Fellow, who is a mature and responsible senior woman. The Head Resident and House Fellow work together to assist the women in their residence to profit from the educational opportunities that the University offers and to assist the residents to grow in maturity and self direction.

There is a student house president in each women's residence unit who is appointed by the Women's Student Government Council to carry out the policies of the Association; and a house committee, elected by the residents of each unit, to assist the house president in seeing that the traditions, standards and ideals of the University, and of the Women's Student Government Association are observed.

Men

Austin, Buckham, Chittenden, Converse, Marsh, Tupper, and Wills Halls are residence halls for men. All students who live in these residence halls must have board contracts for the year for twenty meals per week. Sophomore, junior and senior men who are members of fraternities are eligible to live in their fraternity houses. Other sophomore and junior men will live in University residence halls.

Senior men may live either in their fraternity houses, University residence halls or in approved off-campus housing.

Sixteen fraternity houses representing fourteen national fraternities and two local fraternities provide housing and, in most cases, dining facilities for approximately 500 upperclassmen. Only upperclass fraternity men may contract for meals or a room in fraternity housing.

Student Personnel Services

Student personnel services are available to assist students in the development of individual or group goals. These services include the offices of Dean of Women, Dean of Men, Student Activities, Financial Aid, Placement, Health Service, Testing, and Foreign Student Advisor.

Extensive resources applicable to group goals, purposes and organizational problems is offered through consultation with these offices. The student personnel staff is trained to work with individuals and groups in an effort to obtain optimum educational objectives and experiences.

COUNSELING The offices of the Dean of Women and the Dean of Men offer assistance to students who may have social, vocational and per-

sonal problems. Psychiatric counseling is available through the University Health Service.

PLACEMENT SERVICE To assist graduating Seniors and Alumni in exploring and selecting among various employment possibilities, the University operates an extensive Placement Program. A large number of representatives from business organizations, governmental agencies, and school systems come to the campus each year to interview for fulltime positions. Related services include individual career counseling and the preparation of confidential credentials. For undergraduates, occupational information is available in the Placement Office and career planning lectures are given during the semester.

VETERANS ADMINISTRATION BENEFITS Students who are eligible to receive educational benefits under Public Laws 634 (veteran's child) or 894 (disabled veteran) should present a "Certificate for a Program of Education" to the Office of the Dean of Men at the time of registration. If the student is presently in training at another institution, he should request his school to complete a "Change of Place of Training" form so that a new certificate will be presented to him for use at the University of Vermont. Questions regarding Veterans Administration benefits should be directed to the Office of the Dean of Men.

FINANCIAL AID The University Financial Aid office counsels students on financial problems, administers the University's Scholarship and Loan Funds and assists students in obtaining part-time employment.

READING CENTER The University Reading Center provides a free service for students who wish to improve their reading, vocabulary, and study techniques. The first semester classes are open primarily to freshmen who are selected as a result of diagnostic tests given at the beginning of the academic year. Other students may enroll in the reading program as places become available. Students who enroll must attend regularly throughout the semester.

SPEECH CLINIC Services of the speech clinic, located in Pomeroy Hall, are free to students in the University who have problems of articulation, foreign dialect, stuttering, inadequate vocal control, cerebral palsy, or hearing loss.

Health Services

The University has complete resources for maintaining the physical well-being of members of the student body. The Health Service, with its headquarters at the Wasson Memorial Infirmary, provides medical, minor surgical, orthopedic,

and psychiatric care for all students. Major medical, surgical, orthopedic and psychiatric cases will be treated at one of the modern general hospitals adjacent to the campus, or if feasible, arrangements made for such care at a hospital nearer the student's home. Long-term psychiatric cases will be treated by a local psychiatrist outside the Health Service, at the student's expense. Athletic teams are examined prior to activity and care of injuries in these sports is supervised by the Health Service.

The Health Service is staffed by a medical director, associate physicians, and psychiatric consultants, who have regular clinic hours. An orthopedic consultant holds a regular clinic at the infirmary.

The infirmary is staffed by an administrative director, full staff of registered nurses, a part-time laboratory technician, and physical therapists who are also the athletic trainers. The infirmary is never closed. One of the staff physicians is on call at all times in addition to the scheduled office hours. A student may employ a private physician at his own expense, and use the infirmary facilities.

Parents are notified of illness by phone or letter, depending on seriousness of the illness or injury.

Every student who pays full tuition for the normal college year of nine months is entitled to a maximum of five days of free infirmary care and such routine medical care as is needed and as the infirmary and health service can render during the academic year. Students who require infirmary care for more than five days in the college year are charged at the rate of \$8.00 per day.

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

Student Activities

The University officially recognizes the activities of a number of organizations supplementing the social and recreational needs of students, developing their cultural and religious interests, providing them with valuable business and executive experience, and broadening their contacts. Because it is within this area that qualities of leadership may be developed, the University encourages participation consistent with its scholastic requirements. The students manage the affairs and finances of these organizations within the framework of the University's regulations.

RELIGIOUS LIFE Although the University cannot itself attempt to guide the religious life of its students, this work is carried out by several independent agencies: the B'nai B'rith Hillel Foundation, the Council for a

Cooperative Ministry (representing the Baptist, Congregational Christian, Methodist, and Presbyterian churches), the Episcopal Church at the University of Vermont, and the Newman Club. In addition, the Inter-Varsity Christian Fellowship, the Society of Friends, the Christian Science College Organization, and the Church of Jesus Christ of Latter-Day Saints are also represented on campus. Students desiring information on any of these groups are referred to the office of the Consultant on Religious Programs.

THE BILLINGS CENTER The following offices of campus organizations and activities are located here: The Director of Student Activities, Student Association, Women's Student Government Association, Panhellenic, Interfraternity Council, Student Court, Kake Walk, *Cynic*, *Ariel* and Student Photography Staff.

Billings also provides study and recreational lounges, and snack bar facilities in the Catamount Den. The major function of this multi-purpose building is to provide an atmosphere in keeping with the goals of the University for appropriate development of student activities.

UVM STUDENT ASSOCIATION All students enrolled in the undergraduate colleges and schools are charged a student activity fee and thus become members of the UVM Student Association. A Senate, consisting of elected officers and representatives, holds weekly meetings during the year and conducts the regular business of the association. However, the student body may be convoked by the Senate or by any group of students to hold a referendum or to conduct extraordinary business. There are many opportunities for students to participate in the work of the standing committees.

STUDENT COURT The judicial authority of the Student Association is vested in the Student Court, which consists of representatives of each of the undergraduate colleges. The Court has exclusive jurisdiction in all cases concerning interpretation of the Constitution and Bylaws of the Student Association and legislation enacted in pursuance thereof. The Court hears cases referred to it by the Dean of Women, the Dean of Men or the Standing Committee on Jurisdiction.

WOMEN'S STUDENT GOVERNMENT ASSOCIATION Every woman who enrolls as an undergraduate student at the University becomes a member of the Women's Student Government Association. W.S.G.A. Council, elected by the women students, works to educate students to become self-directing individuals, to respect the rights of others, and to develop into responsible citizens of the college community.

W.S.G.A.'s primary purpose is to promote the academic success and the social

development of all women students, while at the same time respecting the personality and the worth of the individual.

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

Mortar Board is a national honorary society for senior women. Though membership in Mortar Board comes as a great honor for a University of Vermont woman in recognition of outstanding service, scholarship, and leadership, it is also a challenge for continued sound and honest scholarship, and for unselfish service in the best interests of the college campus. Other honorary class societies for women are Staff and Sandal for juniors and Sophomore Aides.

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

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

Other national honorary societies include Alpha Omega Alpha, medicine; Alpha Zeta, agriculture; Kappa Delta Pi, education; Tau Beta Pi, engineering; Omicron Nu, home economics; Delta Sigma Rho-Tau Kappa Alpha, debating; Sigma Phi Alpha, dental hygiene; National Collegiate Players, dramatics; Alpha Lambda Delta, freshman women's scholastic; Ethan Allen Rifles, outstanding students in the Reserve Officers Training Corps and Pershing Rifles, a military fraternity.

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

The Women's Recreation Association sponsors intramural and extramural sports events for women in a variety of team sports, individual, dual and recreational activities. Through its program, WRA endeavors to provide opportunity for leadership and to encourage participation in and administration of recreational activities for all women students.

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

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

KAKE WALK The outstanding social event of the year is the Kake Walk week end in February. This unique celebration is UVM's gala occasion and many alumni attend annually. Festivities include a formal ball at which a king and queen are crowned, snow sculptures, and athletic events. For two nights, fraternity and independent teams compete with one another in original skits and in walking for the much prized "Kakes".

MUSICAL ACTIVITIES Opportunities for participation and appreciation are provided for students with strong musical interests. The University Choir, the University Orchestra, and the University Band appear in public presentations many times during the year. Christmas and Easter concerts and a spring opera are regular events. Faculty, senior and monthly departmental recitals are scheduled throughout the year.

The University Band is under the guidance of a director who is a member of the music department. The band appears at military reviews, Kake Walk, football games and parades. The band also performs as a concert band in which valuable experience for students in musical education is obtained.

FINE ARTS FESTIVAL A Fine Arts Festival is held each spring primarily to show student talents and work in the fine arts. Among the highlights of the Festival are exhibitions of painting, sculpture, and arts and crafts. Productions include an opera, a dance program, and student directed plays, as well as choral and orchestral concerts. Exhibitions, lectures and movies are scheduled at the Fleming Museum.

DRAMA, DEBATING AND RADIO The University Players, an organization of students interested in theatre arts, offers opportunities for student participation. These include two or more full length plays, an annual opera or musical comedy, a faculty-student variety show, Readers Theatre productions, and a Drama Workshop for qualified student directors. Outstanding juniors and seniors are eligible for membership in National Collegiate Players, a national theatre honorary.

The Lawrence Debate Club provides opportunities for participation in all types of forensic activities—debate, discussion, oratory, after-dinner, and extemporaneous speaking. Members of the club appear before service clubs, farm organizations, high schools, and other groups throughout the state. The members of the club participate in more than three hundred intercollegiate debates annually with the beginners getting as extensive an experience as the veterans. The club travels to various discussion programs and to outstanding tournaments in the East. Outstanding performers receive recognition by election to Delta Sigma Rho-Tau Kappa Alpha, the national honorary forensic fraternity.

The Radio-Television Workshop operates the campus radio station WRUV and produces many radio and television programs for broadcast on both commercial and educational stations. Open to all students, it provides opportunity for participation in broadcasting activities. The Workshop produces *Spotlight UVM*, a weekly documentary report of campus activities; provides student interviews for hometown stations; presents a daily newscast over a local station; and assists in the production of the university television series, *Living and Learning*.

WRUV, a student owned and operated closed-circuit station with professional equipment, broadcasts to the campus daily.

STUDENT PUBLICATIONS A college newspaper, a literary magazine, and an annual yearbook offer interested students the opportunity for journalistic, literary, and editorial expression. The newspaper, the *Vermont Cynic*, is published weekly by students. The *Ariel*, the annual yearbook, is published by members of the senior class. The annual *Freshman Record Book* for all incoming students is published by a committee of the Student Association.

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

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

V The Admission of Students

To be fully qualified for admission an applicant must have his application on file with the Director of Admissions before February 1 of the year in which admission is sought. Applications filed after this date can be considered only as curriculum and dormitory capacities allow. Forms for admission will be sent upon request. A non-refundable application fee of \$10 is required of all applicants.

Admission to the freshman class is selective and is determined after careful consideration of the high school record, rank in graduating class, recommendation of the high school principal, scores on the College Entrance Examination Board Scholastic Aptitude Test. A personal interview may be requested by the Director of Admissions. The Scholastic Aptitude Test should be taken in December or January of the senior year.

Candidates for admission are expected to present not less than sixteen units from high school. These must include:

English	Four years
Mathematics (as specified below)	Two years
Foreign Language, ancient or modern	Two years of one
Science	Two years
Social Studies	Two years

The two years of mathematics should be one year of algebra and one year of geometry. One year of social studies should be European or world history; or European or world geography. Students planning to enter the College of Agriculture and Home Economics should present a second year of algebra for a total of three years of mathematics. Students who plan to specialize in engineering, forestry, mathematics or science should present both a second year of algebra and a course in trigonometry for a total of four years of mathematics.

Exceptionally qualified students may in some instances be admitted even though they do not meet the above requirements in full.

Additional courses in mathematics, history, science, the fine arts and music, and a third year in the foreign language are recommended as desirable preparation for college. Students who present such courses will be given preference for admission. A student planning to major in music must arrange for an audition

and interview with the chairman of the music department during the year preceding entrance.

SCHOOL OF DENTAL HYGIENE Enrollment is limited to women who are eligible to enter the freshman class of the University. Attributes necessary for success are good health, emotional stability, interest in the work, and the ability to get along well with people.

Types of Enrollment

MATRICULATED STUDENTS Students who have presented appropriate credentials for admission and have been accepted as students in a degree program.

NON-MATRICULATED STUDENTS Students who have presented minimum credentials and are permitted to enroll in one of the colleges of the University to undertake course work for a purpose other than the earning of a degree.

Students in either of these two categories may be full-time or part-time students.

Previously earned credits for non-matriculated students who later matriculate will be evaluated and included in the particular degree program if pertinent.

Students who have been dismissed for low scholarship may not re-enter as non-matriculated students.

Non-matriculated students intending to use courses taken for graduate credit as a basis for admission to the Graduate College at some future time must contact the Dean of the Graduate College prior to enrollment.

Non-matriculated students are enrolled and registered in the same manner as regular students, and are subject to all regulations of the University.

College Entrance Examinations

The College Entrance Examination Board will administer a series of tests during 1966 on May 7, July 9, and December 3, and in 1967 on January 14, March 4, May 6, and July 8. Complete information may be obtained from the College Entrance Examination Board, P. O. Box 592, Princeton, New Jersey.

Admission to Advanced Standing

All applicants for admission who have attended another collegiate institution are required to file with the Director of Admissions and Records an official transcript of high school and college records. A confidential report from the college attended is also required.

A student who transfers to the University from another accredited college or

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

The credit is provisional, pending satisfactory completion of a semester's work at the University. The provisional transfer credits are fully granted if the student is in good standing at the end of the first semester.

Advanced Placement and Advanced Credit

The University of Vermont welcomes applications from high school students who have taken college level courses offered in their high schools under the Advanced Placement Program of the College Entrance Examination Board. Departments will review Advanced Placement examinations and the scores received in order that qualified students may not be required to repeat work already covered adequately.

A student who has been granted Advanced Placement may, upon the recommendation of the department and the student's academic dean, use his Advanced Placement to satisfy distribution requirements for his concentration.

Students who receive Advanced Placement may also receive course credit toward graduation requirements, upon approval of the department and the student's academic dean.

Any student in the University, upon recommendation of the department chairman and the student's academic dean, may be allowed credit for any course by passing a comprehensive examination with a minimum grade of B.

Orientation Program

Entering students are required to take the College Entrance Examination Board achievement tests in mathematics and modern foreign language in all cases where these subjects are to be continued in the student's curriculum. The scores on all tests are used in advising students regarding the course of study and the selection of courses. New students are required to come to the campus in June for a two-day orientation and enrollment. Schedules and dates of these meetings are mailed with the Certificate of Admission. The student will plan his course program with the advice of his adviser and academic dean and complete his registration for the September opening of college.

V Student Expenses

The student expenses outlined in the following paragraphs are the anticipated charges for the academic year 1966-67. Changing costs, however, may require an adjustment of these charges before the opening of college.

APPLICATION FEE An application fee of \$10.00 is charged each applicant for admission to the University.

ORIENTATION FEE An orientation fee of \$15.00 is charged each new student to cover the costs of attending an orientation session.

DEPOSIT A deposit of \$35.00 is required of every applicant after he has received notification of his acceptance as a student at the University. This deposit is held until he graduates or discontinues his course of study, at which time the deposit minus any indebtedness to the University will be returned to him.

An applicant to an undergraduate college who gives written notice of cancellation of an application prior to July 15 will receive a refund of \$15.00.

An applicant to the Graduate College for a program beginning in July or September will receive a \$15.00 refund if the Dean is notified by May 1; if the program is to begin in January, the deadline is December 1.

TUITION The tuition charges are in accordance with the following schedule.

1. VERMONT RESIDENTS

All Undergraduate Colleges and Divisions	\$ 500.00 per year
College of Medicine	550.00 per year
Graduate and Non-Matriculated Students	22.00 per credit hour

2. NON-RESIDENTS OF VERMONT

All Undergraduate Colleges and Divisions	
Freshmen and transfers	
Sophomores, Juniors and Seniors	\$1500.00 per year
College of Medicine	1500.00 per year
Graduate and Non-Matriculated Students	62.50 per credit hour

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

In the College of Medicine students allowed to repeat a year are charged full tuition for that year.

In the Graduate College a tuition fee of \$25.00 per semester is charged each graduate

student who has completed all course requirements but who is in residence for the purpose of completing his thesis.

FEEBS FOR COURSES IN APPLIED MUSIC Private lessons are approximately one-half hour in length, fifteen being given in each semester.

Students who enroll as regular full-time students in a music education curriculum, paying full tuition, are charged one-half the regular rates for applied music for such courses as are required in the curriculum. All others pay the scheduled charges.

One lesson a week	\$50.00 per semester
Two lessons a week	75.00 per semester

FORESTRY SUMMER PROGRAM The charges for the Forestry Summer Program (see page 57) are Vermont resident tuition \$136.00; non-resident tuition \$216.00. In addition there may be charges for transportation.

ROOM CHARGE Rooms in college residence halls are rented for the academic year and the prices are uniform in all residence halls. For each occupant of a room in a resident hall \$400.00 per year is charged. The charge for a single room, when available, is \$450.00. The residence halls are closed during the University recess periods and the University reserves the right to use student rooms to house University students in any of the residence halls during these recess periods. Nominal charges for the use of certain electrical appliances may be levied upon occupants of the residence halls. A \$2.00 fee is charged each male dormitory resident to be used for the Residence Halls' activities program.

A payment of \$50.00 is required by April 15 from each student returning to a University residence hall to hold a room reservation for the next year. If written notice of cancellation is received before July 1, the \$50.00 charge will be refunded.

The University has established procedures under which it will assist fraternities by collecting room rents from their resident members.

BOARD All students who live in a University residence hall are required to have meal contracts for twenty meals per week at a cost of \$470.00 per year. Women living on the Redstone campus take their meals in the Simpson and Wright dining rooms; the men at Marsh, Austin, and Tupper take their meals in the Marsh dining room; the women in Allen and the men in Buckham, Chittenden, Converse and Wills take their meals in the Waterman dining hall. Members of a university fraternity which provides meal service may contract for that service with their fraternity.

LIBRARY FEE A Library fee of \$30.00 per year is charged to all full-time students except those registered in the College of Medicine. Non-matriculated students enrolled in less than twelve hours but more than three hours will be charged a fee of \$15.00 per year. Non-matriculated students enrolled in three hours or less are not subject to the library fee.

ATHLETIC FEE An athletic fee of \$30.00 per year is charged to all full-time students. Students have the privilege of using the facilities in the gymnasium at scheduled times and have free admission to intercollegiate home games.

STUDENT ACTIVITY FEE Matriculated students enrolled in the College of Arts and Sciences, Technology, Agriculture and Home Economics, Education and Nursing, and the School of Dental Hygiene are charged a fee of \$7.50 per semester. This fee is assessed and allocated by Student Association toward the support of

student organizations and student activities. First-year medical students who enter the College of Medicine after three years in the College of Arts and Sciences are charged this same fee.

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

MEDICAL STUDENT ACTIVITY FEE All students in the College of Medicine are charged a fee of \$10.00 per year. This covers the cost of the medical year book and other student activities.

PENALTY PAYMENT Failure to complete financial arrangements and registration by specified dates will result in a penalty of \$10.00.

CHANGE OF ENROLLMENT FEE A fee of \$3.00 is charged, except in the College of Medicine, for any change of enrollment requested by the student concerned. Deans may waive this fee in exceptional cases.

ADVANCED DEGREE FEE A fee of \$25.00, payable during the semester prior to graduation, is charged degree candidates in the Graduate College. This fee includes the cost of thesis binding and the academic hood.

Estimated Expenses Per Year

Estimated expenses (excluding transportation, laundry and spending money), based on the regular tuition for undergraduate students include the following:

Resident Tuition	\$ 500.00
Non-Resident Tuition	1500.00
Meals (contract 20 per week)	470.00
Room (per person)	400.00
Library and Athletic Fees	60.00
Student Association Fee	15.00
Books and Supplies ¹ (estimated)	165.00
	<hr/>
Resident Total	\$1600.00
Non-Resident Total	\$2600.00

Payment of Bills

All fees and tuition for the semester (one-half of the above yearly total) are payable upon notification and not later than at the time of registration. Checks should be made payable to *The University of Vermont*. The University reserves the right to withhold all information regarding the record of any student who is in arrears in the payment of fees or other charges including student loans.

TIME PAYMENT The University of Vermont offers a time payment plan to students or parents wherein, after arranging with the Treasurer's Office, the total charges for a semester may be divided into six equal monthly payments beginning with July 1 for the first semester and January 1 for the second semester. By June 1 the total charges for the year are paid in full. There is a small service charge for this arrangement.

1. Engineering students add about \$50 for instruments. Dental hygiene students add about \$200 for instruments and uniforms. Nursing students should add about \$225 for uniforms and special equipment.

Refunds

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

1. During the first week of any semester the full tuition is refunded. Thereafter 20 percent of the tuition is deducted for each week that has elapsed.
2. No refund is made of the student fees.
3. Refund of board is made on a pro rata basis.
4. No refund is made of room rent.
5. Contracts for rooms are canceled for the remainder of the year for all students not enrolled for the second semester.

Banking Facilities

An arrangement with the Howard National Bank and Trust Company of Burlington enables students to open and maintain regular checking accounts through the University Cashier's Office. Applications for new accounts, deposits to individual accounts, and orders for checkbooks are accepted during office hours in the Cashier's Office. The bank's normal charge of $12\frac{1}{2}\%$ per check is made for this service. The Cashier's Office cashes small personal checks for students in good standing on presentation of a current student identification card.

Financial Aid

Many worthy and deserving students are unable to meet college expenses and for them the University provides, so far as its resources permit, aid in the form of scholarships, loans, and employment. The extent of need and the type of financial assistance which can be awarded is determined by the Director of Financial Aid.

New students should request application forms for aid from the Director of Admissions, the Director of Financial Aid, or from their principal if they are attending a Vermont high school. All applicants for financial assistance must submit a Parents' Confidential Statement to the College Scholarship Service in addition to the application for financial aid. These forms may be obtained from the local high school principal.

Applications for students entering the University should be filed before March 1. Only in cases of emergency will applications after that date be considered.

A complete list of scholarships and loan funds will be found on page 000. A brochure presenting in more detail the types of aid available may be obtained from the Financial Aid office.

General Information

Definition of "Vermont Resident"

The following rules of residence, adopted by the Board of Trustees on October 18, 1952, are used in determining a student's eligibility to benefit from the reduced tuition rate for residents of Vermont.

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

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

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

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

5. Whenever a resident student shall lose his Vermont domicile (as in the case of a minor whose parents move from the State and excepting women who marry nonresidents), the student shall immediately be reclassified as a nonresident.

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

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

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

The Committee on Residence has been authorized by the Board of Trustees to consider exceptions as stated in rule 8 above. Appeals from the decision of the committee may be made to the Board of Trustees.

Application for change of residence classification should be made to the Director of Admissions who is chairman of the Committee on Residence.

Academic Discipline

CONDUCT The general principle governing the conduct of students is set forth in the following "ancient law" of the University:

The conduct of the students toward all men is to be regulated by those plain rules of politeness, honor, and religion which are binding on every free and virtuous community. They are to conform to every requirement of the faculty, which may arise from their relations as instructors, counselors and guardians, and as upright men and good citizens they shall use all lawful exertions to prevent and expose

all violations of the laws of God and of the country, and whatever is at variance with the objects of the University.

Toward this end, the University expects each student to maintain high standards of personal conduct and social responsibility at all times both on and off campus. All students, as responsible citizens, are required to observe and to share in the support of all local, State and Federal regulations. Any student who fails to uphold these standards is subject to disciplinary action by the University.

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

University students and their parents are referred to the booklet *Privileges and Regulations for Students* in which University rules concerning discipline and academic procedures are given in detail. Each student is responsible for knowledge of these.

Use of English

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

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

Reserve Officers' Training Corps

The mission of the Army ROTC is to produce qualified leaders with the training and attributes essential to their progressive development in the United States Army as reserve officers or as career officers. The objective is to prepare college students for positions of responsibility commensurate with their education.

The University offers Military Science as an important contribution to national defense. The U. S. Army ROTC is a recognized part of the University's organization, and all qualified male students are encouraged to satisfy in part, their military obligation under the Universal Military Training and Service Act by participating in the program on a voluntary basis.

The Military Science curriculum is designed to provide a basic education in military subjects and to develop the leadership potential of the student. Instruction is given in subjects common to all branches of the Army with emphasis on national security policy, military technology, U. S. military history, military management, logistics, instruction, and the exercise of command. Qualified graduates are commissioned as lieutenants of armor, army security and intelligence, artillery, engineers, finance, infantry, medical service, signal, ordnance, quartermaster, transportation, or other branch, depending upon aptitudes, the individual's choice, and the needs of the Army.

OPTIONAL PROGRAMS Two programs are offered: (1) A four-year program comprising 90 hours of classroom and laboratory work per academic year during the freshman and sophomore years (basic course) and 120 hours during the junior and senior years (advanced course). (2) A two-year program (advanced course) identical to the junior and senior years of the four-year program, with the following prerequisite: a student who wishes to enroll in the two-year program is required to attend a six-weeks' ROTC basic summer camp at one of the five U. S. Army Basic Training Centers located regionally throughout the United States. Basic camp pay is approximately \$117.00, plus travel and major living expenses.

Advanced course students become members of the Army Reserve during the period of enrollment, receive \$40.00 a month retainer pay during the junior and senior years, and are required to attend a six-weeks' advanced ROTC summer camp at Fort Devens, Massachusetts, at the end of the junior year. Summer camp pay for advanced course students is approximately \$180.00, plus travel and major living expenses. The advanced course camp may be deferred for one year for cogent reasons when approved by the department.

ROTC SCHOLARSHIPS Students motivated toward a career as an Army officer may qualify for one of the 5,500 Army ROTC scholarships authorized by Public Law 88-647 (ROTC Vitalization Act), providing full payment of tuition, books, laboratory fees, and similar educational expenses, plus \$50.00 a month retainer pay. Grants are made on a competitive basis for a two-year or a four-year period, but are contingent on enrollment in the four-year ROTC program. Student agrees to serve on active duty for four years.

ADVANCED PLACEMENT With the concurrence of the Military Science Department, advanced placement may be granted for equivalent training as substantiated by a military training certificate issued by an accredited military or secondary school.

UNIFORMS Uniforms are furnished without cost to each student enrolled in the basic course. A student enrolled in the advanced course receives a uniform allowance credit of \$100.00 which is ample to defray the cost of his uniform. Upon graduation he receives a uniform allowance of \$300.00 which is ample to meet the initial cost of uniforms required of an Army officer on active duty.

FLIGHT TRAINING PROGRAM The Army ROTC Flight Training Program is open to qualified seniors. It is designed to train a reserve pool of Army aviators and affords students the opportunity to qualify for a Federal Aviation Agency private pilot's license. On-campus ground and flight instruction under FAA licensed instructors is provided without cost.

DISTINGUISHED MILITARY STUDENTS Members of the senior class, including ROTC scholarship students, who have demonstrated outstanding motivation toward a military career, and whose academic standing is well above average, may be designated Distinguished Military Students and offered a commission in the Regular Army.

POSTGRADUATE DEFERMENT Upon graduation, ROTC students are normally commissioned as officers in the U. S. Army Reserve and agree to serve on active duty for two years, subject to call to such duty. However, active duty

may be deferred for as many as four years for those who wish to pursue an advanced degree while studying as full-time graduate students.

Physical Education

Two years of physical education, normally completed during the freshman and sophomore years, is required of all undergraduate students. Medical examinations are required of all new students. Those with serious defects may be given restricted work or may be excused by the Director of Student Health. Students twenty-five years of age or older are exempt from physical education requirements. The semester hours listed for physical education are in addition to the total number of hours required for graduation in a specific curriculum.

University Responsibility

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

Student Health Insurance

Through an arrangement with the John C. Paige and Company, insurance, students are able to procure a policy providing for payment up to \$1,000.00 for each accident and \$500.00 for each illness. The cost for one year's coverage is \$25.00. Further details may be obtained from the Treasurer's Office.

Enrollment and Registration

Every student is required to enroll and register at the time and in the manner designated by the Registrar. All charges for the ensuing semester must be paid, or otherwise provided for, before registration is complete.

Changes in Enrollment

Any changes in enrollment must be authorized by the dean of the college in which the student is registered. A student may add a course only during the first week of classes, but may drop a course without academic penalty during the first three weeks of classes. Change of enrollment forms are obtained from the office of the dean of the college.

Auditing Courses

With the approval of the Dean and the instructor concerned, a regularly enrolled student carrying a normal program may audit a course. Others who do not wish to receive credit, or who have not met admissions requirements, may also register as auditors. Auditors have no claim on the time or service of the instructor, the course is not entered on the permanent record, and no grade credit is given for the work. For students paying full tuition, no additional charge is made; for all others, tuition is charged at the applicable rate. Under no circumstances will a change be made after the enrollment period to allow credit for courses audited.

The approval of the Director of the Evening Division and Summer Session is necessary for auditing courses in those divisions.

Undergraduate Degree Requirements

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

In addition to the course requirements of the several curricula, students must also fulfill the general requirements in physical education.

To be eligible for graduation, a student must have attained an average of 1.7 or above in the work required for graduation in his curriculum. Grades in courses accepted for transfer credit are excluded in computing this average.

To be eligible for a degree, a student must have completed eight semesters or the equivalent as a full-time student. Every candidate for a degree is required to have taken 30 of the last 42 semester hours of credit in residence at the University, except that those who have completed three years of premedical study in the University are awarded their degrees after successful completion of one year of study in any approved college of medicine. Courses taken in the regular session or in the summer session at the University are counted toward residence.

Exceptions to this rule may be made in special cases by the University Council.

To qualify for a second bachelor's degree the candidate must have fulfilled all the requirements for the degree and must have taken a full year of work in addition to that taken to qualify for the first degree.

Honors

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

Dean's List

The deans of the undergraduate colleges publish at the beginning of each semester the names of those full time students who have attained an average of at least 3.0 in their college credit courses during the preceding semester.

Grades and Reports

Grades are reported and recorded as letter grades. Averages are calculated from quality point equivalents.

	<i>Grade</i>	<i>Quality points</i>
Excellent	A	4
Good	B	3
Fair	C	2
Poor	D	1
Failure	F	0

A quality point average of 1.70 is the minimum graduating average.

All students enrolled in the undergraduate colleges receive reports of scholarship from the Registrar after the close of each semester. These reports are also sent to the parent or guardian of each freshman student and to the principal of the secondary school from which

he was graduated. Reports of upperclass students are sent to parents only upon request. Special reports of low standing are sent by the deans' offices about the middle of each semester, both to the students concerned and to the parents or guardians.

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

The College of Agriculture and Home Economics

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

The resident instruction division offers professional curricula in agriculture, agricultural engineering, forestry, and home economics and, in addition, two-year programs in preveterinary science. The curriculum in agriculture leading to the degree of Bachelor of Science in Agriculture provides a variety of options. The curriculum in agricultural engineering offered in cooperation with the College of Technology leads to the degree of Bachelor of Science in Agricultural Engineering. The curriculum in forestry provides options in forest management and wildlife management leading to the degree of Bachelor of Science in Forestry. Young women may earn the degree of Bachelor of Science in Home Economics by selecting one of several options. The two-year preveterinary program prepares students for admission to other institutions for professional training.

Most options in the College of Agriculture and Home Economics leading to the Bachelor of Science degree require 130 semester hours of prescribed and elective courses, plus credit for required courses in physical education. The Agricultural Engineering Curriculum requires 142-145 semester hours of prescribed and elective courses. The Forestry Curriculum requires 138 semester hours of prescribed and elective courses, eight hours of which are earned during an eight-week summer program of instruction between the sophomore and junior years. (See page 48 for expenses.) Normally fifteen to eighteen credit hours of courses exclusive of courses in physical education constitute a semester program.

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

It is desirable that students obtain work experience in their field of specialization sometime during their college career. Such opportunities are often provided by departments in the College of Agriculture and Home Economics.

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

The Honors Program

This program of the College of Agriculture is designed to help the superior student. It is intended to provide an environment for such students which will insure that they are constantly challenged by the most advanced work their talents will allow.

Such students are selected on the basis of their academic performance usually as second semester freshmen or during the sophomore year. Their curricula are developed in consultation with an honors committee and are relatively free of the customary restrictions. Special colloquia or consultations may be arranged in lieu of regular class work. Prerequisites may be waived and in general the student is encouraged to work as an individual.

The Curriculum in Agriculture

This curriculum leading to the degree of Bachelor of Science in Agriculture provides the following options:

Agricultural economics
Agricultural education
Animal and dairy science
Botany

Dairy industry
Foreign agricultural economics
Plant and Soil Science
Poultry science
General agriculture

Every candidate for this degree must fulfill the requirements stated below, and present a total of 130 semester hours of credit, which may include not more than 16 semester hours of military science, plus credit for required courses in physical education.

Courses Required of All Students

- A. Four semesters in English.
Two semesters in Mathematics, or five credit hours.
One semester in Speech.
- B. Four semesters in physical and biological sciences: Chemistry, Physics, Geology, Botany, Zoology.
- C. Social Sciences and Humanities
 - a) Five semesters taken in at least three of the following:
 - Economics and Agricultural Economics;
 - Political Science;
 - History;
 - Geography;
 - Sociology and Anthropology;
 - Psychology.
 - Military Science (not more than two semesters)

b) Two semesters chosen from the following:

Philosophy; Religion; Music; Art;
Literature in addition to any taken under A above;
Foreign Language above the elementary level.

- D. Four semester courses in the College of Agriculture and Home Economics, outside the field of concentration and not included in the option requirements.
- E. Option requirements. Each student must choose one of the options listed above. Specific courses to be taken in each option are listed in the description of each option on pages 59-67. These prescribed courses, where applicable, can be used to fulfill, wholly or partially, the requirements under B and C above. Additional departmental courses, supporting courses, and electives to fulfill the general requirements are chosen in consultation with the student's adviser or the department chairman.

The Freshman Year

Every candidate for the degree of Bachelor of Science in Agriculture is required to enroll in a uniform freshman year as follows:

English	Two semesters
Mathematics	Two semesters or five credit hours
Chemistry	Two semesters
Botany or Zoology	One semester

Electives, preferably in agriculture.

Department Options and Requirements

AGRICULTURAL ECONOMICS is a study of the economic and business phases of agriculture and the rural economy. Most students completing work in this option select one of four concentrations:

1. **Agribusiness and Marketing:** Businesses furnishing capital and supplies to farmers or providing market facilities for farmers.
2. **Farm Management:** The management of farm business operations for profit.
3. **Education and Services:** Aid in solving economic problems relating to agriculture and the rural economy is provided by extension workers, company fieldmen, salesmen, regulatory officials, and others.
4. **Area Development:** Changing resource use to meet regional economic developments requires an increasing number of students who understand principles of area development and resource management.

Required courses: Each student majoring in agricultural economics must satisfactorily complete thirty hours of credit in agricultural economics or general economics; twenty-one hours of which must be in agricultural economics. All courses must be selected in consultation with and have the approval of the student's departmental adviser.

AGRICULTURAL EDUCATION This option prepares students to teach vocational agriculture to high school pupils, young farmers and adult farmers in the community. The program prepares individuals to serve as advisers to local FFA chapters and Young Farmer Associations in their role of developing leadership and citizenship abilities in these organizations.

Students completing this option may pursue many of the professional agricultural careers in commercial concerns, government agencies and foreign services in agricultural education.

Students are prepared to enter graduate programs in agricultural education leading to employment by technical agricultural schools, colleges or departments of education.

Required courses: Each student majoring in agricultural education must satisfactorily

complete twenty hours of credit in agricultural education. Additional courses to be selected by the student in consultation with and with approval of his departmental adviser.

ANIMAL AND DAIRY SCIENCE *Option 1, Animal and Dairy Production*, provides technical and practical instruction in the field of animal science with emphasis on the selection, breeding, nutrition, and management of farm animals. It prepares the graduate for the operation of dairy farms and other livestock enterprises; for field work with federal and state extension services, breed associations, farm organizations and various commercial companies concerned with the animal sciences; for positions in industries related to the processing and sales of dairy products and meats, feed and grain companies, dairy equipment and supply agencies; and for advanced study.

Option 2, Dairy Industry, provides technical and practical instruction to prepare the graduate for positions in either dairy technology or dairy plant management. It prepares the individual for supervisory and management positions in the dairy industry; for quality control work in the dairy industry and allied fields; and for advanced study.

Required courses: Satisfactory completion of eight semester courses in animal and dairy science, including at least five of advanced standing. Additional courses to be selected by the student in consultation with the department in order to place the desired emphasis on the student's special field of interest.

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

Required courses:

Botany 1
Botany 103
Chemistry 131, 132
Physics 5-6
Zoology 1

Introductory Botany
Plant Physiology
Organic Chemistry
General Physics
Introduction to Zoology

Three additional semester courses in botany. Six credit hours foreign language above the elementary level.

FOREIGN AGRICULTURAL ECONOMICS This option is designed to prepare students for opportunities in the vast field of foreign service with particular emphasis on agriculture. Positions available to graduates include those with commercial concerns engaged in foreign trade in agricultural products, with the agencies of the federal government engaged in world-wide activities, and with the international organizations contributing to the solution of world agricultural problems. Graduates are well qualified to enter graduate school.

Required courses:

Agricultural Economics 2
 Agricultural Economics 201-202
 Agricultural Economics 207
 Agricultural Economics 208
 Agricultural Economics 281, 282
 Agricultural Education 102
 Economics 11-12
 Economics 187, 188
 Economics 205
 Political Science 11, 12
 Political Science 51, 52

World Food and Agriculture
 Farm Management
 Agricultural Marketing and Prices
 Agricultural Policy
 Seminar
 Extension Methods
 Principles of Economics
 Elementary Statistics
 International Trade and Finance
 Introduction to Political Science
 International Relations

Twelve credit hours in sociology, anthropology or psychology. Six credit hours foreign language above the elementary level.

PLANT AND SOIL SCIENCE Students interested in soils or in economically important plants and how they are used for food, feed, fiber, recreation, or ornamental purposes may elect the Plant and Soil Science option. This program is designed for both men and women with either rural or urban backgrounds.

The Plant and Soil Science option includes basic biological and physical science courses and allows students to specialize in horticultural science, agronomy, or soil science. It has been designed with sufficient flexibility so that the student may place his primary interest in either science or in agribusiness.

Students interested in technical positions or in graduate study will usually select more of the basic science courses such as botany, chemistry, mathematics, and physics. These courses help lay good foundations for future teaching and research careers.

Students interested in careers in industry, business, marketing, sales, or production will generally select several courses in marketing, economics, accounting, business, and management.

Required courses: Each student must take Introduction to Plant Science, Introduction to Soil Science, and two semesters of Plant and Soil Science Seminar, in addition to the courses in science and humanities required of all agricultural students. Majors in the department also are required to take four courses in Plant and Soil Science at or above the 100 level. These are usually courses concerned with horticultural crops, agronomic crops, or soils, depending on where the student wishes to specialize. Certain advanced courses in other departments may be taken in lieu of one or two of these four 100 level courses with the consent of the student's adviser.

POULTRY SCIENCE This option provides formal training in the theory and practice of poultry science and technology. The phases that may be emphasized are nutrition, physiology, production, marketing technology, incubation and hatchery management. This prepares the student, depending upon curriculum emphasis, for graduate work or positions in poultry or related fields in the areas of resident teaching, extension, research, or industry.

Required courses: Four semester courses plus two semesters of seminar in poultry science. Other courses from supporting disciplines to be selected in consultation with the student's adviser and approved by the department chairman. Such a program is designed to be flexible and allow the student to meet his needs and desires.

GENERAL AGRICULTURE This option is designed for students wishing to return to farming, to become farm managers, to enter off-farm occupations in agriculture; for those seeking a general rather than a specialized knowledge in the field

of agriculture; for those desiring to prepare for county extension work. Through the proper selection of electives, a student may choose a field of concentration in agriculture, and at the same time select courses that contribute to a liberal education.

Required courses: Each student majoring in general agriculture must satisfactorily complete twenty-four hours in the College of Agriculture and Home Economics. All additional courses must be selected in consultation with and have the approval of the departmental adviser.

THE PREVETERINARY PROGRAM This program offers preparation for entrance to colleges of veterinary medicine. Adjustments of individual programs may be made to meet the requirements of different colleges. Students completing the prescribed courses with good grades and suitable qualifications may expect consideration for admission to veterinary colleges. Six months of experience after the age of fourteen years on a farm with a variety of livestock is an important qualification for admission to some veterinary colleges. Opportunities are available for graduate veterinarians in general practice, the armed services, public health, teaching and research, and federal, state and municipal disease control work. Two years of work, totaling at least 60 semester hours, plus training in physical education, are required.

	1st	2nd		1st	2nd
	SEMESTER			SEMESTER	
The Freshman Year			The Sophomore Year		
Freshman English, Eng. 1-2	3	3	Heredity Zoology, Zool. 115	3	..
Introductory Chemistry, Chem. 1-2	4	4	Elementary Physics, Physics 5-6	4	4
Introductory Zoology, Zool. 1	4	..	Organic Chemistry, Chem. 131, 132	4	4
Introductory Botany, Bot. 1	..	4	Political Science or History	3	3
Mathematics	3	3	Public Speaking, Speech 11	..	3
Electives	1-4	1-4	Electives	1-4	1-4

The Agricultural Engineering Curriculum

The curriculum in Agricultural Engineering leads to the degree of Bachelor of Science in Agricultural Engineering. It provides fundamental training in engineering similar to that provided by the engineering curricula in the College of Technology. In addition, it provides specialized training in the several subdivisions of agricultural engineering. The curriculum, the teaching staff, and the course content are approved jointly by the College of Technology and the College of Agriculture and Home Economics.

The graduate is prepared for professional engineering work in soil and water control, agricultural machinery and equipment, agricultural structures, the application of electricity and refrigeration to agriculture, and rural water supply and sanitation. The program prepares the student for advanced study in agricultural engineering.

Employment opportunities exist in government agencies and schools; in manufacturing plants, utility companies, insurance companies and processing plants; in contracting, selling, farming, consulting, and many other types of work which demand college training in engineering or agriculture.

The specific courses required for graduation are given below. The elective courses must be chosen so as to fulfill the requirements on page 91, entitled Humanistic-Social Studies for Engineering Students.

Normally, a student who has a good record in high school mathematics, which includes two years of algebra, one year of geometry and a half year of trigonometry, and who

qualifies in the placement test in mathematics may enroll in mathematics 11 during the first semester and mathematics 12 during the second semester; these students graduate with 142 semester hours of credit. Students who do not qualify for mathematics 11 will enroll in 9 during their first semester and 11 in their second semester, but the graduation requirement is then 145 semester hours.

The Freshman Year		1st SEMESTER	2nd SEMESTER	The Sophomore Year		1st SEMESTER	2nd SEMESTER
Plane Analytic Geometry and Calculus, Math. 11, 12		5	5	Sophomore Mathematics, Math. 21		3	..
Introductory Chemistry, Chem. 1-2		4	4	General Physics, Physics 15, 16		4	5
Freshman English, Eng. 1-2		3	3	Statics, C.E. 24		3	..
Engineering Problems, M.E. 3		1	..	Plane Surveying, C.E. 53		4	..
Engineering Graphics, I-II, M.E. 1-2		2	2	Dynamics, C.E. 130		..	3
General Physics, Physics 14		..	3	Introduction to Soil Science, P. & S.S. 63		3	..
				Public Speaking, Speech 11		..	3
				Electives		..	6
The Junior Year		1st SEMESTER	2nd SEMESTER	The Senior Year		1st SEMESTER	2nd SEMESTER
Junior Seminar, 182		..	1	Principles of Economics, C. and E. 11-12		3	3
Differential Equations Mathematics, 211		3	..	Farm Management, Agric. Econ. 201-202		3	3
Mechanics of Materials I, C.E. 131		3	..	Senior Seminar, 183, 184		1	1
Thermodynamics, M.E. 113		3	..	Farm Structures, 151 or Soil and Water Engineering, 155		3	..
Electrical Circuits and Machines, E.E. 101		4	..	Agricultural Machinery and Equipment, 154 or Farm Power Machinery, 158		..	3
Electricity in Agriculture, 156 or Farm Utilities, 152		..	3	Farm Utilities, 152 or Electricity in Agriculture, 156		..	3
Soil and Water Engineering, 155 or Farm Structures, 151		3	..	Machine Design I, M.E. 135		3	..
Farm Power Machinery, 158 or Agricultural Machinery and Equipment, 154		..	3	Humanistic Social Studies		3	6
Hydraulics, C.E. 162 or Fluid Mechanics, M.E. 142		..	3	Introductory Botany or Introductory Zoology, Bot. 1 or Zool. 1		4	..
English Literature, 25, 26, 27, or 28		..	3				
Mechanics of Materials Lab., C.E. 114		..	1				
Mechanisms, M.E. 132		..	4				
Geology for Engineers, Geol. 21		3	..				

The Forestry Curriculum

The curriculum leading to the degree of Bachelor of Science in Forestry provides a liberal education in the humanities and sciences and a technical education in forest management, or in wildlife management. It is designed to prepare men for positions in forest management, in wildlife management, or for graduate study in the forest or wildlife sciences.

The curriculum emphasizes the science and technique of the multiple-use of forest land in coordinating the management of natural resources for forest products, wildlife, water, and for recreational facilities. Elective courses offered by the department and throughout the University afford the opportunity for either concentrating or broadening the student's

education. Selection of the concentration in Forest Management or in Wildlife Management will be made by the second semester of the sophomore year.

A minimum of 138 semester credit hours of prescribed and elective courses are required for graduation. Eight credit hours are earned for the summer program for eight weeks immediately following the second semester of the sophomore year.

Graduates are employed by Federal and State Conservation agencies; by forest products and related industries; or as private consulting foresters. The undergraduate program may be designed to prepare for graduate study in the forest or in the wildlife sciences.

Forest Management and Wildlife Management

The Freshman Year	1st SEMESTER	2nd SEMESTER	The Sophomore Year	1st SEMESTER	2nd SEMESTER
American Government, Pol. Sci. 2	..	3	Introductory Chemistry, Chem. 1-2	4	4
Introductory Botany, Bot. 1	..	4	Forest Fire Control, 32	..	2
College Algebra, Math. 9	3	..	Forest Mensuration, 41, 42	3	2
Trigonometry, Math. 2	..	3	Foundations of Silviculture, 24	..	3
Dendrology, For. 3, 4	1	4	Plane Surveying, C.E. 53	4	..
Engineering Graphics, M.E. 1	2	..	Public Speaking, Speech 11	..	3
Freshman English, Eng. 1, 2	3	3	Introduction to Zoology, Zool. 1	..	4 ²
Introduction to Forestry, 1	3	..	Elective	6-7 ¹	0-4 ¹
Elective	3-4 ¹	..			

SUMMER FIELD PROGRAM³

Forest Management Planning, 130	3
Forest Mensuration 111, 140	3
Forestry Problems, 100	2

A. Forest Management Concentration

The Junior Year	1st SEMESTER	2nd SEMESTER	The Senior Year	1st SEMESTER	2nd SEMESTER
Principles of Economics, Ec. 11-12	3	3	Forest Economics, 151	2	..
English	3	3	Forest Management, 136	..	3
Elementary Physics, Physics 5-6 or additional Chemistry	4	4-5	Forest Recreation Management, 133	2	..
Silvics, 122	..	3	Timber Harvesting and Milling, 163	4	..
Wood Technology, 161	3	..	Seminar, 282	..	1
Elective	3-4	3-4	Silviculture, 123	3	..
			Watershed Management, 232	..	3
			Elective	5-6	9-10

1. Electives may be in the Arts, Humanities, Languages, Social Sciences, or Mathematics.
2. Required for Wildlife Management. Optional for Forest Management. May be taken in either semester.
3. Courses in the eight week program immediately following the second semester of the sophomore year. See page 48 for expenses.

B. *Wildlife Management Concentration*

The Junior Year		1st SEMESTER	2nd SEMESTER	The Senior Year		1st SEMESTER	2nd SEMESTER
Comparative Vertebrate Anatomy, Zool. 41, 42 or Physiology, Zool. 52		4	3-4	Animal Ecology, Zool. 104 English or Plant Communities, Bot. 113		..	4
Elementary Physics, Physics 5-6 or Additional Chemistry		4	4-5	Field Zoology, Zool. 109 Forestry Seminar, For. 282		3	..
Principles of Economics, Ec. 11-12		3	3	Taxonomy, Bot. 110 or English Wildlife Management, For. 171, 172		..	1
English or Plant Communities Bot. 113		3	..	Wildlife Pathology		3	3
Silvics, For. 122		..	3	Elective		6-7	2-3
Taxonomy, Botany 110 or Eng.		..	3				
Elective		2-3	..				

Curriculum in Home Economics

The curriculum leading to the degree of Bachelor of Science in Home Economics provides a liberal education in the humanities and sciences and in subject matter related to home and family with concentration in a professional area of home economics. Specialization is provided through one of five options.

Candidates for the degree must present 130 semester hours of credit including the requirements for the option selected and required courses in Physical Education. Elective courses allow a student to pursue a special area of interest for the completion of the degree requirements.

Options in Home Economics

CLOTHING, TEXTILES AND RELATED ART This option provides the opportunity for study in the field of fashion, textiles and design for clothing and the home. By the addition of selected courses to meet individual needs and goals the option can be used effectively as preparation for careers in merchandising, consumer research and counseling, the clothing and textile industries, writing, radio, television, and extension services. The program also provides a strong background for further work leading to careers in fashion illustration and textile designing. Graduate work will be necessary for jobs at certain levels, such as college teaching and textile research.

English, 12 credit hours

Basic Speech or Public Speaking, Speech 1 or 11

European Civilization, Hist. 11, 12

The Cultures of Man, Soc. and Anthropol. 21

General Psychology, Psychology 1

Principles of Economics, Econ. 11, 12

Laboratory Science, three semester courses to include: Chemistry 3 and 4 or 1, 2 and 131

Home Economics, 1, 21, 22, 43, 51 or 54, 63, 71, 73, 83, 101, 120, 123, 130, 137, 151, 153, 163, 182, 221, 230

EDUCATION—TEACHING AND EXTENSION This option provides a background which prepares students to teach home economics to elementary, junior and senior high school students and adults in Vermont and may be planned to meet requirements of other states. Students must have a 2.0 average in their home economics subjects to be eligible for student teaching during their senior year.

Through appropriate selection of courses, this option also prepares for Cooperative Extension work as Home Demonstration Agent, 4-H Agent or Specialist.

English, 12 credit hours
 Basic Speech or Public Speaking, Speech 1 or 11
 History or Political Science, 6 credit hours
 The Cultures of Man, Soc. and Anthropol. 21
 General Psychology, Psych. 1
 Principles of Economics, Econ. 11, 12
 Outline of Chemistry, Chem. 3-4
 Home Economics, 1, 21, 22, 43, 51, 54, 63, 73, 83, 101, 130, 135, 137, 139, 144, 151, 153, 163, 204
 Home Nursing, Nursing 7
 Professional Education Courses:
 Home Economics Education, 17 credit hours
 General Education, 3 credit hours

FAMILY LIVING—HUMAN DEVELOPMENT This option prepares men and women in two areas of concentration: **Preschool Education—Human Development, and Preprofessional Social Work.**

Professional opportunities are found as preschool staff members, family consultants and in work with hospitalized children. The Preschool Laboratory provides opportunity for a multidisciplinary study and experience in human development and family relations.

Preprofessional Social Work is available to students enrolled in any college of the University. It may be elected as a field of study in Home Economics or may be combined with a major in another University department. Opportunities are provided for both field observation and experiences. The concentration in Preprofessional Social Work for students from other colleges is based on a broad Liberal Arts program including courses in sociology, psychology and human development, political science, history and economics.

A student in this area may affiliate at the Merrill-Palmer Institute, Detroit, Michigan, for one semester. The cost of this semester, including transportation, is comparable to the cost of one semester at the University of Vermont.

English, 12 credit hours
 Basic Speech or Public Speaking, Speech 1 or 11
 History or Political Science, 6 credit hours
 The Cultures of Man, Soc. and Anthropol. 21 and the Family, Soc. and Anthropol. 51
 General Psychology, Psych. 1, and Personality, Psych. 106
 Principles of Economics, Econ. 11 and 12
 Mammalian Anatomy and Physiology, Zool. 5-6
 Home Economics, 1, 21, 22, 43, 51, 61, 63, 65, 67, 101, 137, 144, 151, 153, 163, 164, 170, 172, 263, 264

FOOD AND NUTRITION This option prepares students for positions in the fields of food testing and promotion, food service management and food demonstration. Academic requirements for membership in the American Dietetic Association are met. Those students interested in careers as administrative, therapeutic or clinic dietitians are advised to plan on an internship after completing their undergraduate program. Course work is planned to give a strong background for graduate study which will qualify the student for positions in college teaching, extension service, research or public health nutrition.

Men find many opportunities in the fields of food and nutrition. They may prepare for them through this program, from which they omit Home Economics 63, 101, 153, 204.

English, 12 credit hours
 Basic Speech or Public Speaking, Speech 1 or 11
 History or Political Science, 6 credit hours

Introductory Chemistry, Chem. 1-2, and Organic Chemistry, Chem. 131, 132
 General Biochemistry, Agric. Biochem. 201
 Mammalian Anatomy and Physiology, Zool. 5-6, or Introduction to Zoology, Zool. 1, and
 Physiology, Zool. 52
 Introductory Microbiology, Bot. 55
 The Cultures of Man, Soc. and Anthropol. 21
 General Psychology, Psych. 1
 Home Economics, 1, 21, 43, 54, 63, 83, 101, 135, 137, 151, 153, 163, 186, 187, 204, 243

Additional courses to meet academic requirements for American Dietetic Association
 Internship:

Area of Concentration:

Therapeutic and Administrative Dietetics

Commerce and Economics, 251

Education, 7 or 202

Home Economics, 244 and 288

Food Service Administration

Commerce and Economics, 13, 14, 141, 251

Home Economics, 288

Sciences—Foods and Nutrition

Education, 7 or 202

Home Economics, 236, 238 or 244, 246 or 248

HOUSING AND HOME MANAGEMENT Professional careers in this option include work with public utility home service departments, magazines, newspapers, radio and TV. Students may prepare to become interior designers, consultants in homemaking rehabilitation, directors of homemaker services, housing managers or researchers in housing design, materials, furnishings or equipment.

Graduate study in this field prepares for college teaching and work as an Extension Specialist in Housing, Home Furnishings, Equipment, Home Management, Family Economics, Consumer Education.

English, 12 credit hours

Basic Speech or Public Speaking, Speech 1 or 11

History or Political Science, 6 credit hours

The Cultures of Man, Soc. and Anthropol. 21

General Psychology, Psych. 1

Principles of Economics, Econ. 11, 12 and Principles of Marketing, Econ. 121

Laboratory Science, 8 credit hours

Home Economics, 1, 21, 22, 43, 51, 54, 63, 83, 101, 130, 137, 151, 153, 163, 204, 105 or 106
 or 230

V The College of Arts and Sciences

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

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

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

The Liberal Arts Curriculum

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

Every candidate for this degree must fulfill the requirements stated in sections A, B and C below, and present a total of 120 semester hours of credit, plus credit in required courses in physical education.

A candidate for this degree who enrolls for the first time on or after September 6, 1966, must present at least 75 of his minimum 120 credit hours in subjects outside the major subject of his concentration.

A. Required of all students

ENGLISH Freshman English the first year, and Sophomore Literature the second year.

FOREIGN LANGUAGE One-year course of at least intermediate grade in a foreign language, to be completed as early as possible in the college career.

SCIENCE One laboratory course, normally the first year, to be chosen from botany, chemistry, geology, physics and zoology. A semester of botany may be combined with a semester of zoology to meet this requirement.

PHYSICAL EDUCATION Two years of physical education for men and women.

FIELD OF CONCENTRATION Each student, in consultation with his adviser, must choose a field of concentration during his sophomore year. The specific courses making up the field, as well as the student's whole program for the last two years, are chosen in consultation with the chairman of the department in which the major part of the work is to be taken and must have his approval. The following restrictions must be met.

1. The field must be a well integrated whole, adapted to the student's special interests.
2. It must include a minimum of twelve semester courses totalling not less than thirty-six semester hours, at least eighteen in one subject and at least twelve in a related subject.¹
3. It must contain at least four semester courses (twelve hours) of advanced level in one subject and two related semester courses (six hours) of advanced level in another subject.¹
4. Each student must take at least one course, normally an advanced course, in his field of concentration in each semester of his junior and senior years.

B. Requirements for Concentration in Divisional Fields

LANGUAGE AND LITERATURE, OR MUSIC History (American, Ancient, Medieval, or European Civilization)² normally the first year; a second foreign language reaching the intermediate level³; a second year course in the social science division. It is strongly recommended by the language departments that students who wish to choose modern foreign language as their field of concentration complete Intermediate Latin in college unless they presented four years of Latin for entrance. The English Department considers courses in Latin to be a distinct aid to students concentrating in English.

SOCIAL SCIENCE History (American, Ancient, Medieval, or European Civilization) normally the first year; during the first two years a total of two year courses in different subjects, chosen from the following: economics, geography, philosophy, political science, psychology, religion, sociology and anthropology.

SCIENCE AND MATHEMATICS Introductory or General Chemistry (except for students concentrating in mathematics), mathematics and physics as stated in departmental requirements, and a total of at least four semester courses (twelve semester hours) in departments other than the sciences and mathematics.

C. Specific Departmental Requirements for Concentration

AREA STUDIES Economics 11-12; Geography 1-2; History 12 or 13; Political Science 11-12; Sociology 21; eighteen hours of advanced courses dealing with a selected foreign area, including six hours of advanced language and literature, six hours

1. These requirements may be modified slightly for students concentrating in an Area Studies program.
2. All students in Liberal Arts who are required to take History and who do not present for admission at least one course in European or World History, must take European History (11, 12 or the equivalent). Students planning to concentrate in a classical language may substitute Ancient or Medieval History.
3. Students concentrating in English substitute an advanced literature course in foreign language for the second foreign language.

of history, and six hours of other social science. Concentrations must be approved by the Committee on Area Studies. Areas in which students may concentrate are Canada, Latin America, Russia and Eastern Europe, and East Asia.

BOTANY Mathematics 9, 2, or 7, 8 or 11; Physics 5-6; Chemistry 131, 132; Zoology 1; Botany 1, 2, 103, and four additional semester courses.

CHEMISTRY Mathematics 12; Physics 14-15, 16 or 5-6; Chemistry 11-12, 123, 131, 132, 141-142, 144, 181-182, 183-184, and 224. No advanced related course is required. Those who wish to qualify for accreditation by the American Chemical Society must also complete 212, six additional hours in advanced courses, or senior research, and also German 11-12. Only those who so qualify will be recommended by the department as chemists.

ECONOMICS Mathematics 12 or Economics 188; Economics 11-12, 286, 293; plus twelve hours chosen from 141, 201, 203, 205, 285, or 295; plus six additional hours in Economics acceptable toward the B.A. degree. See page 72 for list of courses.

ENGLISH Seven semester courses of advanced level. The advanced related courses may be in language, music, or any course approved by the department; it is expected that this advanced related course will be taken in the senior year. An advanced literature course in a foreign language is required, but an intermediate course in a second foreign language is not required.

GEOGRAPHY Twenty-four hours which must include 1, 2, 71, and 281.

GEOLOGY Mathematics 11, 12; Physics 5-6; Chemistry 1-2 or 11-12; Geology 1-2, 11-12, 105, 106, 115 (or accredited summer field camp), 116, and 281-282.

Geology 1-2 may be waived if the student is well prepared in allied sciences and mathematics.

GERMAN Six semester courses of advanced level including 101-102. The advanced related course is normally in another foreign language or English.

GREEK 11-12 and fourteen additional hours in courses numbered above 100, including 111-112. Either 151 or 153 may be included, but not both.

HISTORY Twenty-four hours which must include 12 or 13, at least six hours in American history, and at least six hours in courses numbered above 200.

LATIN Twenty-three hours in courses numbered above 100 including 111-112. Either 152 or 154 may be included, but not both. Courses in Greek are strongly recommended, particularly to those who contemplate graduate work in classics.

MATHEMATICS Physics 5-6 or 14-15; Mathematics 21, 24, 102, and five additional semester courses numbered above 100.

MUSIC Music 1, 2, 5, 6, 105-106, 221, 222, and six hours of applied music including piano. It is recommended that the related course be an advanced course in a foreign language. Those who wish to qualify for recommendations for teaching positions or graduate study will also complete one of the following combinations:

- (a) 203, 205, 223, 224, 225, and 226
- (b) 203, 205, 208, 215, and two advanced courses in music literature
- (c) 208, one advanced course in music literature, and twelve additional hours of applied music.

Candidates for honors may complete 281, 282 in lieu of two courses subject to approval by the department.

PHILOSOPHY Twenty-four hours including 1, 2, 3, 4, 107, 108, and 214.

PHYSICS Six semester courses numbered above 100 including 101, 116, and 271; one semester of mathematics beyond Mathematics 21; two semesters of chemistry. A student planning a concentration should take Mathematics 11, 12 and Physics 14 in the freshman year, postponing his language. German, French or Russian is recommended. A preprofessional program leading to the B.S. degree and requiring an intensive concentration in physics courses is available in the College of Technology for interested students.

POLITICAL SCIENCE Twenty-four hours including at least six hours in courses numbered above 200.

PSYCHOLOGY Twenty-six hours including 1, 5, 109, 110, 123, and two courses numbered above 200 (225-226 is considered a single course).

RELIGION Religion 1, 2, 101, 112, 122, 201, and two additional semester courses numbered above 200.

ROMANCE LANGUAGES Twenty-four hours of advanced level courses in French or Spanish, of which at least twelve must be in literature and at least twelve must be in courses numbered above 200.

SOCIOLOGY AND ANTHROPOLOGY Sociology 21, 101, and 251, and at least five additional semester courses in sociology.

SPEECH Nine semester courses: 1, 11; a semester course in three of the following five areas—public speaking (other than 11), oral interpretation, drama, radio, and speech correction; and four semesters of advanced courses in no more than three areas. Those whose advanced related course is in the Social Sciences meet the distribution requirements (B, page 69) of that area; those whose advanced related course is in Language, Literature or Music meet the requirements (B, page 69) of that area, but may, in place of a second foreign language, substitute (a) an advanced literature course in foreign language or (b) twelve hours of course work in Fine Arts.

ZOOLOGY Mathematics 11 or 7 and 8 (Mathematics 7 and 8 should be chosen only by students certain that they will not wish to study branches of zoology in which mathematics is an important tool); Physics 5-6; Botany 1; thirty hours in zoology, of which at least eighteen must be in courses numbered above 100, and including 1, 41, and 150. The seminar (281, 282) is required of all students doing research. The advanced related course may be in one of the other sciences or in psychology. A student concentrating in zoology must attain an over-all average of 1.7 or above in the courses in mathematics and science required for concentration in the department.

Special Provisions Concerning Credit

Courses Offered in Other Colleges Acceptable for Full Credit Toward the B.A. Degree¹

Agricultural Biochemistry 201: General Biochemistry.
 Agricultural Biochemistry 253: Microbial Biochemistry
 Botany: all courses
 Chemistry: all courses
 Education 145-146: Learning and Human Development
 Education 202: Philosophy of Education
 Education 205: History of American Education
 Family Living, H. E. 163: Dynamics of Family Development
 Forestry 208: Biological Statistics
 Mathematics: all courses
 Physical Education 50: Dance Technique and Analysis
 Related Art, H. E. 21: Design
 Related Art, H. E. 120: History of Costume
 Secondary Education 255: The School as a Social Institution

Courses in Economics Acceptable Toward the B.A. Degree

Economics 1-2, 11-12, 13-14, 15, 16, 121, 141, 181, 183, 187, 188, 201, 203, 204, 205, 216, 238, 242, 243, 256, 258, 277, 278, 285, 286, 290, 291, 292, 293-294, 295, 296, 297, 298.

Other Courses Acceptable Toward the B.A. Degree

A given student may elect not more than fourteen semester hours from other University courses in commerce and economics or courses outside the College of Arts and Sciences. Only courses carrying at least three credits each are acceptable under this provision.

The Commerce and Economics Curriculum

The Department of Commerce and Economics offers a specialized curriculum leading to the degree of Bachelor of Science in Commerce and Economics. This program is recommended for those who are preparing for a business career. Students who desire a less specialized business orientation may take the liberal arts curriculum and receive the Bachelor of Arts degree.

The commerce curriculum is intended to provide a sound basic training in the various phases of business activity. The several areas of concentration enable students to emphasize such specialized studies as accounting, banking, industrial management, and marketing management. The Department of Commerce and Economics cooperates with the Department of Mechanical Engineering in offering courses in the Management Engineering Curriculum. This curriculum is administered by the Department of Mechanical Engineering and is described in the section on engineering curricula.

The accounting option is registered with the University of the State of New York, The State Education Department, in Albany, N. Y. Students completing the requirements of the accounting option will thus be eligible for admission to the New York State licensing examination in Certified Public Accountancy.

A minimum of 126 approved semester hours is required for the Bachelor of Science

1. Other courses may be approved in individual cases by the Committee on Studies.

degree in Commerce and Economics plus required courses in physical education. The normal program for the first two years is as follows:

The Freshman Year		1st SEMESTER	2nd SEMESTER	The Sophomore Year		1st SEMESTER	2nd SEMESTER
Economic History		3	3	Sophomore Literature, 27, 28		3	3
Freshman English, Eng. 1-2		3	3	Principles of Economics, Econ. 11-12		3	3
Fundamentals of Mathematics, Math. 7, 8		3	3	Principles of Accounting, Econ. 13-14		4	4
Laboratory Science		4	4	Business Law I, Econ. 109, 110		3	3
Foreign Language ¹		3-4	3-4	Foreign Language, Mathematics, or Social Science		3	3

After the first two years a student may elect various concentrations of courses to emphasize selected aspects of business administration. The following courses, however, are required of all candidates for the Bachelor of Science degree:

	Hours
Money and Banking, Econ. 201	3
Elementary Statistics, Econ. 187, 188	6
Principles of Marketing, Econ. 121	3
Industrial Management, Econ. 143	3
Corporate Finance, Econ. 207	3
Social Science	9

In addition to the courses listed above, a minimum of 21 more hours in Commerce and Economics is required. These courses should be selected in consultation with an adviser from the department. In general, however, a student should plan on taking at least nine of these hours in his chosen area of concentration. Suggested courses by area of concentration are listed below:

Banking and Finance	Hours
Money, Income, and Prices, Econ. 293-294	6
Principles of Investment, Econ. 206	3
Economics of Life Insurance, Econ. 111	3
Property and Casualty Insurance, Econ. 112	3
International Trade and Finance, Econ. 205	3
Marketing Management and Sales Promotion	Hours
Problems in Marketing, Econ. 122	3
Sales Management and Promotion, Econ. 130	3
Fundamentals of Advertising, Econ. 132	3
Currents Marketing Developments, Econ. 228	3
Marketing Management, Econ. 229	3
Retailing Management, Econ. 126	3
Industrial Management	Hours
Labor Economics, Econ. 141	3
Collective Bargaining, Econ. 242	3
Personnel Administration, Econ. 251	3
Motion and Time Study, M.E. 175	3
Plant Organization, M.E. 176	4
Scientific Management and Labor, Econ. 254	3
Executive Decision-Making, Econ. 252	3

1. In place of the foreign language, students may choose Mathematics 11-12 (plane analytic geometry, differential and integral calculus).

Accounting

Students who wish to concentrate in accounting are required to take the basic courses for the Bachelor of Science degree plus the following additional courses:

	Hours
Intermediate Accounting, Econ. 161-162	6
Cost Accounting, Econ. 272, 273	6
Advanced Accounting, Econ. 266	3
Basic Federal Taxes, Econ. 164	3
Auditing, Econ. 271	3

Preprofessional Preparation

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

LAW American law schools, as a rule, require graduation from a four-year college with a Bachelor's degree prior to admission. There is no prescribed curriculum which is requisite for admission, but the student is advised to include in his undergraduate course substantial elections in the fields of languages, literature, history, economics, political science, and philosophy.

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

OPTOMETRY The requirements for admission to schools and colleges of Optometry vary, but typically they include courses in English, mathematics, physics, chemistry and zoology with a minimum of two years of college work.

PHARMACY Under the Regional Plan (pages 27-28) Vermont residents may prepare for pharmacy school at Connecticut or Rhode Island. This is a five-year program with two years of preprofessional work which includes English, mathematics, botany, chemistry, zoology, physics, social science, a course in fine arts, and orientation to pharmacy taken in the sophomore year.

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

Each student, in consultation with his adviser, plans a four-year program of courses which will fulfill the requirements for a Bachelor's degree. Those who wish to meet the minimum requirements for admission to medical college may follow the first three years

of the program below. By successfully completing these three years and one year in an accredited medical college, they will qualify, on application, as candidates for a Bachelor of Science degree.

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

The First Year		1st SEMESTER	2nd SEMESTER	The Second Year		1st SEMESTER	2nd SEMESTER
Freshman English, Eng. 1-2		3	3	Sophomore Literature, Eng. 27, 28		3	3
Introductory Chemistry, Chem. 1-2 or 11-12		5-4	5-4	Intermediate Foreign Language ¹		3	3
Fundamentals of Mathematics, Math. 7, 8 or Analytic Geometry and Calculus, Math. 11		3-5	3-5	Elementary Quantitative Analysis, Chem. 123		4	..
Zoology		4	or 4	Elementary Physics, or General Physics, Physics 5-6 or 14-15		3-4	4-5
Foreign Language (Elementary or Intermediate)		3-4	3-4	Electives		3-6	3-6
The Third Year		1st SEMESTER	2nd SEMESTER	The Fourth Year			
Organic Chemistry, Chem. 131-132		4	4	Courses in field of concentration and electives			
Vertebrate Anatomy, Zool. 41 ¹		4	..				
Social Science Electives		6	6				
Courses in field of concentration and electives							

The requirements for admission to colleges of dentistry vary but in all cases include at least two years of college work with at least one course each in biology, inorganic chemistry, physics, and English. Hence, the course of study advised as preparation for medicine may be used as a basis for selection by those interested in dentistry.

Special Honors

The honors program at both the junior and senior levels is designed for the superior student with unusual initiative and intellectual curiosity, and provides an opportunity to pursue a special project without the restrictions of classroom routine. Such a student enters a program of reading, research, or creation under the direction of the department of his choice. A student may take honors in either or both years.

A student in the College of Arts and Sciences who, at the end of his junior year, has an average of 3.00 or above for the work of the sophomore and junior years may become an applicant for special honors in a particular subject. His program for the senior year must be approved not later than the end of the junior year by the department in which honors are sought and by the Committee on Honors, and he must present a satisfactory written report and pass an oral examination on the field of special study.

A program called junior honors, which may be considered introductory to but distinct from special honors, is available to juniors who have a sophomore average of 3.00 or above and who have the permission of their department chairmen. The program for each junior honors candidate will be determined by the department concerned.

1. Unless already completed.

Departmental Honors

A senior whose overall average is 2.50 or above, or who has been specially recommended by the department in which he is concentrating, is eligible to take a comprehensive examination. Upon successfully completing the examination he will be granted his degree "with Departmental Honors". Some departments have instituted seminars or other programs designed to help the student gain the requisite breadth and depth of knowledge.

The Center for Area Studies

The Center for Area Studies is an inter-departmental activity of the University conducted by the Committee on Area Studies appointed by the President. The purposes of the Center are to encourage and coordinate interdisciplinary study of selected foreign areas and to promote research and interest in foreign areas among all the colleges of the University. The staff and course offerings in the Center's program are included under the various academic departments.

The Center represents a permanent continuation of the interest in non-Western areas that was developed by the Program of Non-Western Studies under a five-year grant, 1959-1964.

The Center for Area Studies administers the program of concentration in Area Studies for the A.B. degree in the College of Arts and Sciences. Undergraduates concentrating in Area Studies choose one of the areas in which the Center currently approves an interdisciplinary program of social science and foreign language: Canada, Latin America, Russia and East Europe, and East Asia. For the requirements for concentration in Area Studies see under the College of Arts and Sciences.

Undergraduates interested in taking area studies should, as early as possible in their college careers, consult the Chairman of the Committee on Area Studies or the Dean of the College of Arts and Sciences.

Junior Year Study Abroad

A University of Vermont student who wishes to attend a foreign university in his junior year and receive transfer credit should consult with the dean of his college and receive approval, in advance, of his plan and program. In general to gain approval a student will be expected:

- a) to have completed two full years (sixty semester hours) of work;
- b) to have an average of not less than 2.50;
- c) to have a valid objective, appropriate to his academic program and not available at the University of Vermont;
- d) to have a good working knowledge of the language of the country to which he proposes to go.

Definite preference will be given to programs sponsored by approved Universities and Colleges in this country.

The Government Research Center

The Government Research Center, established in 1950 as the Government Clearing House, as an activity of the Political Science department, provides research and informational services for students, state and local officials, members of civic groups, and the public. Activities include the following: developing opportunities for students to become acquainted with, and to gain practical experience in, the operation of government; maintaining liaison with state and local officials relative to the use of University resources in the study of problems in state and local government; operating a public affairs research center, conducting research projects, and publishing studies in state and local government; and preparing background materials for conferences on public questions.

Many of the activities of the Government Research Center are sponsored in cooperation with state officials, local officials, or civic groups. The annual Listers' Schools are sponsored jointly with the Governor and the Vermont State Tax Department. Many state and local officers participate in the series of one-day Town Officers Educational Conferences, which originated in the late 1930s and which are held annually in several locations throughout Vermont. A two-day conference on citizenship, in which high school juniors, high school faculty members and administrators, and University personnel participate, has become an annual event, with the cooperation of the State Department of Education and various educational associations.

A Public Affairs Library collection is maintained as a memorial to the late James P. Taylor, whose effort to expand citizen interest in effective government is well known throughout the State. The Government Research Center also sponsors the annual Taylor Town Report Contest in Vermont and cooperates with the New England Council relative to the region-wide contest.

The World Affairs Center

The World Affairs Center, located in the Old Mill on the University campus, is the focus for programs and services to further greater understanding of world affairs and responsible citizens' participation in U. S. foreign policy. The Center is staffed jointly by the University and the Vermont Council on World Affairs. A library on world affairs, national foreign policy, and international organizations is maintained at the Center and at Bailey Library for the use of Vermont citizens and University members. Advice and services for foreign students and staff as well as international visitors are part of the Center's responsibility on the University campus.

The Center cooperates with the United States Department of State, the United Nations, and many other national and local organizations in arranging speakers, programs, material for distribution, hospitality for visitors from abroad, and consultations with Vermont groups on various aspects of world affairs. The Center serves as a coordinating agent and occasionally sponsors activities such as specialized conferences, courses and contests throughout the State of Vermont.

V The School of Dental Hygiene

The School of Dental Hygiene, established in the fall of 1949 on authorization and a grant of money by the State Legislature and accredited by the Council on Dental Education of the American Dental Association, offers a two-year curriculum leading to a Certificate in Dental Hygiene. The purpose is to meet the ever-increasing need for dental health service.

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

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

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

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

Enrollment is limited to women who are high school graduates and otherwise eligible to enter the freshman class of the University. Prospective applicants are invited to write the Director of Admissions for detailed information concerning such matters as require-

ments for admission and expenses. High school subjects which are helpful prerequisites include algebra, chemistry, physics or biology. Attributes necessary for success in this curriculum are good health, emotional stability, interest in the work, and the ability to get along well with people. Since the laboratory equipment in the School of Dental Hygiene is limited, prospective students are advised to submit their application by February 1 of their senior year in high school. Applicants in this curriculum are required to take the Dental Aptitude test. Application for the test should be made to the American Dental Hygienists' Association, 304 East 45th St., New York 17, N. Y.

The Freshman Year		1st SEMESTER	2nd SEMESTER	The Sophomore Year		1st SEMESTER	2nd SEMESTER
Freshman English, Eng. 1-2		3	3	Introductory Microbiology, Bot. 55		4	..
• Dental Anatomy, 11		4	..	The Cultures of Man, Soc. and Anthropol. 21		3	..
Dental Histology and Embryology, 22		3	..	Oral Pathology, 53-54		2	2
Outline of Chemistry, Chem. 3-4		4	4	Radiology, 61-62		1	1
Orientation, 1		2	..	Public Health, 74		..	2
Instrumentation, 2		..	3	Clinic Practice, 81-82		5	5
Medical Emergencies, 31		..	1	Dental Health Education, 72		..	2
General Psychology, Psych. 1		..	3	Pharmacology and Anesthesiology, 51-52		1	1
Mammalian Anatomy and Physiology, Zool. 5-6		3	3	Assisting, Materials, Ethics and Office Management, 91-92		1	1
				Public Speaking, Speech 11		..	3
				Home Economics, F & N 87		3	..
				Periodontics, 55		1	..

The College of Education and Nursing

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

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

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

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

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

The Department of Education, in cooperation with an All-University Coordinating Committee for Teacher Education, has the responsibility for maintenance of standards approved by the National Council for the Accreditation of Teacher Education. Official admission to teacher education is made during the sophomore year, and all students enrolled in the College of Education and Nursing or in other colleges are to make application for admission to specific curricula before the beginning of the junior year. Special tests in communication skills and other screening measures are administered during freshman and sophomore years. Official forms for application may be obtained from the office of the Dean of the College of Education and Nursing. Accepted students

must meet personal, academic, and professional criteria established for teacher education candidates.

Fifth-Year Certificate in Education

A special fifth-year program culminating in a certificate of advanced study is offered for students who wish to work beyond the bachelor's degree but who need or desire more flexibility than is possible in any of the standard programs for master's degrees.

The certificate program is especially designed to meet the needs of teachers who are developing new teaching fields, for advanced students who are meeting requirements for state certification, and for experienced teachers who desire flexibility in choice of courses at both graduate and undergraduate levels.

Each certificate program is individualized to fit the qualifications and the professional objectives of the candidate. Undergraduate courses may be approved for the program when such courses appropriately support the candidate's professional objectives.

The program for the *Fifth-Year Certificate* is governed by the following regulations:

- (1) Candidates must hold a bachelor's degree.
- (2) Candidates must make written application on forms obtained from the Office of the Dean of the College of Education and Nursing.
- (3) Candidates are admitted to the program by action of a faculty committee.
- (4) A maximum of twelve credits may be applied to the program at the time of admission.
- (5) A maximum of nine credits may be transferred from other institutions.
- (6) Credits for the program may be earned in the regular academic year, the Summer Session, and the Evening Division.
- (7) The program for each candidate must include a minimum of thirty credits approved by a faculty adviser.
- (8) A minimum mark of C must be made in any course which is to be included in the program.
- (9) No comprehensive examination or formal thesis is required for completion of the program, but the candidate will submit a culminating paper under the direction of his faculty adviser.
- (10) The program must be completed within seven years after the time of admission.

In addition to the planned program leading to the *Fifth-Year Certificate*, the Department of Education will arrange for college graduates special programs leading to qualification for teaching certificates in either elementary or secondary education. To be accepted for these special programs, candidates must have included appropriate academic courses in their degree curricula, and they must satisfy the Department of Education that they have desirable personal qualifications for teaching.

Requests for further information about fifth-year programs should be directed to the Dean of the College of Education and Nursing.

Elementary Education

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

The elementary education curriculum includes a base of required academic courses, a planned sequence of professional courses, laboratory experiences, and elective academic courses. The student must use electives during the four years to build an academic major

of twenty-four to thirty-three credits. Specific information about majors may be obtained from the Dean's office.

The foundation in general education includes required courses in the social sciences, in mathematics, in laboratory science, in English and literature, in psychology and in speech. Courses in fine arts and in languages may be elected.

The professional program begins with the introduction of the student to education as a field of study during his freshman year. Each student is made aware of the social foundations and relationships of education, introduced to the extensive resources available to him for learning about the field in depth, and impressed with the developmental need for his delving into the literature and research as a basis for making critical judgments concerning education. The characteristics of teaching as a profession are also stressed.

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

The junior year emphasizes professional course work and special content courses for elementary teaching. Professional courses include classroom observation and participation in local elementary schools.

The senior year continues the professional methods courses and includes seven full weeks of student teaching in the elementary schools of Burlington, South Burlington, Winooski, and Essex Junction.

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

	1st	2nd		1st	2nd
	SEMESTER			SEMESTER	
The Freshman Year			The Sophomore Year		
Foundations of Education	2	or 2	Child and Community	1	or 1
Speech	3	3	Psychology	3	or 3
Science	4	4	World Geography	3	or 3
English 1, 2	3	3	Literature	3	3
Approved Electives ¹	3-6	3-6	American History	3	3
			Music	3	3
			Approved Electives ¹	6	6
	1st	2nd		1st	2nd
	SEMESTER			SEMESTER	
The Junior Year			The Senior Year		
Art for Elementary Schools	3	..	Methods and Materials	3	..
Learning and Human Development	3	3	Music Methods	3	..
Children's Literature	3	..	Physical Education for Elementary Schools	2	or 2
Methods and Materials	..	3	Student Teaching	7	..
Teaching Reading	..	3	History of Educational Thought	..	3
Mathematics	3	3	Health Education	2	or 2
Approved Electives ¹	6	6	Approved Electives ¹	..	12

A minimum of 125 approved semester hours, plus credit in required courses in physical education, is required for the degree.

Secondary Education

The secondary education program is intended to prepare teachers for junior and senior

1. A political science course, preferably in local and state government, must be included during the four-year curriculum. Some of the electives must be concentrated in an academic major.

high schools in Vermont and other states. The degree of Bachelor of Science in Education is awarded upon satisfactory completion of an approved program.

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

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

TEACHING MAJORS AND MINORS Candidates for the degree in secondary education are required to complete approved courses in two teaching fields common to secondary schools, or in one of two broad fields combining either natural sciences or social sciences. Broad field majors include approximately fifty semester hours in related courses, single subject majors include thirty semester hours, and minors include at least eighteen semester hours. The major-minor program must include credits in advanced courses.

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

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

EXPERIENCES IN PUBLIC SCHOOLS Students in secondary education have direct experiences in public schools at two points in the four-year curriculum. During the sophomore year students observe and participate as teacher assistants in local junior and senior high schools. During the senior year students devote seven continuous weeks to full-time teaching in public secondary schools. In most cases students must arrange to live off campus during the student teaching assignment.

Applications for all field experiences must be made well in advance of assignments, and the student must assume responsibility for meeting deadlines. Information about application and assignment procedures may be obtained from the dean's office.

	1st	2nd		1st	2nd
	SEMESTER			SEMESTER	
The Freshman Year			The Sophomore Year		
Foundations of Education	2	or 2	Literature	3	3
Laboratory Science	4	4	Psychology	3	or 3
English 1, 2	3	3	Participation	2	or 2
Foreign Language	3-4	3-4	Foreign Language ³	3	3
History or Political Science ¹	3	3	Approved Electives ⁴	6-9	6-9
Elective ²	3	3			

1. If History is chosen, European Civilization is recommended.
2. If recommended by adviser.
3. An approved elective if intermediate language has been completed.
4. A course in speech is required and should be taken during the first three semesters.

	1st SEMESTER	2nd SEMESTER		1st SEMESTER	2nd SEMESTER
The Junior Year			The Senior Year		
Learning and Human Development	3	3	Secondary Education Methods	3	3-4
Approved Electives in Teaching Fields	12-15	12-15	History of Educational Thought	3	3
			Student Teaching	..	6
			Approved Electives	12-15	3-6

A minimum of 122 approved semester hours, plus credit in required courses in physical education is required for the degree.

Business Education

The curriculum in Business Education is to be terminated with the class of 1968. The curriculum is outlined below for the guidance of students who are now completing the program.

	1st SEMESTER	2nd SEMESTER		1st SEMESTER	2nd SEMESTER
The Freshman Year			The Sophomore Year		
Foundations of Education	2	2 or 2	Literature	3	3
English 1, 2	3	3	Principles of Economics	3	3
Social Science ¹	3	3	Principles of Accounting	4	4
Mathematics (including Math. of Finance)	3	3	General Psychology	3	3 or 3
Science or Elective ²	3-4	3-4	Science if not completed in freshman year and/or courses in second teaching field	3-7	3-7
Speech or Elective ³	3	3			
The Junior Year	1st SEMESTER	2nd SEMESTER	The Senior Year	1st SEMESTER	2nd SEMESTER
Learning and Human Development	3	3	Typing II	3	..
Business Law	3	3	Shorthand II	3	..
Business Communications	3	..	Office and Secretarial Practice	3	..
Typing I	..	3	Business Education Curriculum	2	..
Shorthand I	..	3	Second Teaching Field	6	..
Participation	..	2	Student Teaching	..	6
Second Teaching Field and Electives	6-9	3-6	History of Educational Thought	..	3
			Transcription	..	3
			Teaching Business Subjects	..	2
			Guidance or Elective	..	3

A minimum of 125 approved semester hours, plus credit in required physical education, is required for the degree.

Music Education

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

1. European Civilization is recommended.
2. All students must complete a year of laboratory science.
3. All students must complete a course in speech (Public Speaking is recommended).

	1st	2nd		1st	2nd
	SEMESTER			SEMESTER	
The Freshman Year			The Sophomore Year		
Theory I	3	3	Theory II	3	3
Survey of Musical Literature	3	3	Literature ²	3	3
English 1, 2	3	3	Social Science ³	3	3
Foreign Language (Intermediate)	3	3	Applied Music: Major, piano, voice and woodwind class	4	4
Applied Music: Major, piano ¹ , and string class	3	3	Ensembles: Major, secondary, and chamber music ⁴	3	3
Major Ensemble	1	1	Participation	2	or 2
Foundations of Education	2	or 2			
	1st	2nd		1st	2nd
	SEMESTER			SEMESTER	
The Junior Year			The Senior Year		
Orchestration	3	..	Practice Teaching in Music	7	..
Counterpoint	3	..	Elementary and Secondary Music Methods	5	..
Conducting	..	3	History of Educational Thought	..	3
History of Music	3	3	Applied Music: Major, recital, percussion and repair class	..	4
Laboratory Science	..	4	Ensembles: Major, secondary, or chamber music ⁴	..	2
Learning and Human Development	3	3	Electives	..	6
Applied Music: Major, brass class	3	3	Applied Music	1	..
Ensembles: Major, secondary, and chamber music ⁴	2	2	Form and Analysis	..	3

A minimum of 130 approved semester hours, plus credit in required courses in physical education, is required for the degree.

Physical Education

The teaching major in physical education, open to men and women, qualifies candidates to teach and direct physical education in both elementary and secondary schools. Satisfactory completion of the program earns a Bachelor of Science degree in Education.

The curriculum includes a general education base, a planned sequence of professional courses, laboratory experiences, and a second teaching major of at least twenty-four credits.

Candidates will include thirty to thirty-six credits in physical education courses and may be required to take additional non-credit courses to develop competency in an acceptable range of physical skills.

A minor of eighteen to twenty credits in physical education may be elected by students who are enrolled in the secondary education curriculum. Courses for the minor must be approved by enrollment advisers in accord with outlines available from the dean's office.

Physical education courses are open only to majors and minors in physical education or by permission of the chairmen of the physical education departments. All regulations governing academic achievement, admission to teacher education, and retention in teacher education apply to the program in physical education.

1. Until functional piano facility achieved (see Applied Music, page 184).
2. English 27, 28 (Sophomore Literature) recommended.
3. History 11, 12 (European Civilization) recommended.
4. A second applied field may be substituted for one ensemble.

	1st	2nd		1st	2nd
	SEMESTER			SEMESTER	
The Freshman Year			The Sophomore Year		
Foundations of Education	2	or 2	Foundations of P.E.	3	..
Anatomy and Physiology	3	3	Development of Motor Skills	..	3
English 1, 2	3	3	Literature	3	3
Foreign Language	3-4	3-4	Psychology	3	or 3
Social Science ¹	3	3	Participation	2	or 2
Electives ²	3	3	Foreign Language ³	3	3
			Electives and courses in second teaching field ⁴	3-9	3-9
	1st	2nd		1st	2nd
	SEMESTER			SEMESTER	
The Junior Year			The Senior Year		
Learning and Human Development	3	3	Physical Education in the Elementary School	3	..
Kinesiology	3	..	Electives and courses in second teaching field	9-12	..
Curriculum in P.E.	3	..	Physical Education in Secondary Schools	..	3
Physiology of Muscular Activity	..	3	History of Educational Thought	..	3
Tests and Measurements in P.E.	..	3	Student Teaching	..	6
Courses in second teaching field	6-9	6-9	Elective	..	3

A minimum of 122 approved semester hours, plus credit in required courses in freshman and sophomore physical education, is required for the degree.

The Nursing Curriculum

The faculty of the Department of Nursing believes that nursing is a profession which has increasing responsibilities and contributions to make in meeting the health needs of a changing society. In accordance with this belief, the educational program is designed to stimulate the optimum growth of each student as an individual, a professional person, and a contributing member of society. It is believed that this can best be realized in an environment which recognizes the individuality of each student and which provides guidance towards achievement of independent thought, critical judgment, and effective behavior.

The purposes of the program are to provide the opportunity for qualified individuals to prepare for professional practice in beginning positions, to acquire a foundation for continued formal study in nursing, and to enhance growth toward maturity as individuals, professional persons, and citizens. The graduates of this program receive the degree of Bachelor of Science in Nursing, are qualified for state licensure examination, and may advance without further formal education to positions which require beginning administrative skills.

The program objectives are designed to encourage the student in nursing to achieve progressively higher levels in the development of knowledge, skills, and understandings necessary to meet the physical, emotional, spiritual, and social needs of people; in the development of skill in establishing effective relationships by the understanding of behavior and its effect on interpersonal relations; in the development of an understanding of the responsibilities inherent in the professional practice of nursing and the profession's role in meeting the health needs of a changing society; and in the development of an

1. If history is chosen, European Civilization is recommended.
2. If recommended by adviser.
3. An approved elective if intermediate language has been completed.
4. A course in speech is required and should be taken during the first three semesters.

appreciation of the thought and achievement of man as a basis for enrichment of personal life.

The curriculum, conducted in four academic years, provides an approximate balance in general and professional education. Courses in the humanities and sciences—biological, physical and social—serve as a foundation for the professional nursing courses which are begun in the second year with concentration in the third and fourth years. Faculty guided experience in the care of patients and families is secured through the facilities of the Mary Fletcher Hospital, adjoining the campus, the Burlington Visiting Nurse Association, Inc., the Vermont State Hospital, Waterbury, and other selected community resources.

The program is approved by the Vermont Board of Nursing and is fully accredited by the National League for Nursing, Inc. Applicants must satisfy the general admission requirements for the University. High School courses in biology, chemistry, and physics are highly desirable.

The Freshman Year		1st SEMESTER	2nd SEMESTER	The Sophomore Year		1st SEMESTER	2nd SEMESTER
Freshman English, Eng. 1-2		3	3	Sophomore Literature Eng. 27, 28		3	3
Mammalian Anatomy and Physiology, Zool. 5-6		3	3	Introductory Microbiology, Bot. 55		4	..
Outline of Chemistry, Chem. 3-4		4	4	Home Economics, F & N 87		3	..
Basic Speech or Public Speaking, Speech 1 or 11		3	..	General Psychology, Psych. 1		..	3
The Cultures of Man, Soc. and Anthropol. 21		..	3	Nursing 21-22		4	6
Nursing 1, 2		1	2	Nursing 26		..	3
Elective		3	3	Physical Education		1	1
Physical Education		1	1				
The Junior Year		1st SEMESTER	2nd SEMESTER	The Senior Year		1st SEMESTER	2nd SEMESTER
Nursing 121, 122		9	9	Nursing 156		6	..
Human Development and Personality, Home Ec. 63		3	..	Nursing 166		6	..
Elective		3	6	Nursing 176		..	6
				Nursing 186		..	3
				Electives		3	6

In addition to the general education courses found in the curriculum outlined above, specific courses in general education are required and additional courses are elected in accordance with individual need and interest and in consultation with the faculty adviser. These are:

Philosophy 1, or 214	3	History, Political Science,	
Fine Arts	3	Economics or Geography	6
		Electives	12

Students are encouraged to pursue the study of a foreign language if able to enter the intermediate level of instruction. Students desiring to learn a new foreign language will need to plan on summer sessions.

To be eligible for the Bachelor of Science in Nursing a candidate must have completed a minimum of 124 approved semester hours plus required courses in physical education, and must have obtained a grade of C (2.0) in each nursing course involving clinical practice. Grades in nursing courses are based on achievement in theory and in laboratory practice, both of which must be satisfactory to receive the minimum grade of C. The Department of Nursing reserves the right to require the withdrawal from the nursing

curriculum of any student whose health, academic record or performance and behavior in nursing is judged unsatisfactory.

EXPENSES The cost of the program in nursing is approximately the same as for other students in the University (see also pages 49-50) with the following exceptions:

1. Effective by October 1 of the second year all students in nursing are required to carry Blue-Cross and Blue-Shield insurance, or its equivalent, at not less than the maximum daily rate issued by Blue-Cross.
2. At the beginning of the second year all students in nursing are required to purchase uniforms and other items of special equipment and to assume the cost of laundering uniforms.

Financial aid is available in the form of scholarships, loans, prizes and employment (see page 50). Of special interest to students in nursing is the Nursing Student Loan Program. Anyone interested should make application for financial aid by March 1.

In addition to funds handled through the University, students may apply for appointments in the Army Student Nurse Program or the Navy Nurse Corps Candidate Program at the beginning of their junior year. The appointments carry generous financial allowances. A student who participates twelve months or less serves on active duty in the respective service for twenty-four months. If two years of financial support have been received, thirty-six months of service are required.

PROFESSIONAL PERSONNEL IN COOPERATIVE AGENCIES

Robert B. Aiken, M.D., Commissioner of Health, Vermont State Department of Health
Grace Buttolph, R.N., Director, School of Nursing, Mary Fletcher Hospital
Sally Sample, R.N., Director, Nursing Service, Mary Fletcher Hospital
Betsy Jones, R.N., Director, Burlington Visiting Nurse Association, Inc.

The College of Technology

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

The Chemistry Curriculum

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

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

	1st	2nd		1st	2nd
	SEMESTER			SEMESTER	
The Freshman Year			The Sophomore Year		
General Chemistry 11-12	5	5	Organic Chemistry 131, 132	5	5
Freshman English, Eng. 1-2	3	3	Sophomore Literature, Eng. 27, 28	3	3
Algebra, Trigonometry, Analytical Geometry ¹	5	5	Calculus ³	3	3
Elective ² (not in chemistry)	3	..	German or Elective ⁴	4-3	4-3
General Physics, Physics 14	..	3	General Physics, Physics 15, 16	4	5
	—	—		—	—
	16	16		19-18	20-19
	1st	2nd		1st	2nd
	SEMESTER			SEMESTER	
The Junior Year			The Senior Year		
Physical Chemistry 141-142	3	3	Molecular Structure 143	3	..
Physical Chemistry Lab 144	..	2	Advanced Physical Chemistry Lab 145	2	..
Science or Mathematics Electives ⁵	3	3	Identity of Organic Compounds 237	5	..
German or Elective ⁴	3	3	Advanced Chemistry Elective ⁶	3	6
Electives ² (not in chemistry)	6	6	Instrumental Analysis 224	..	4
Junior Seminar 181-182	1	1	Senior Research 197-198	2	4
	—	—	Senior Seminar 183-184	1	1
	16	18		—	—
				16	15

A minimum of 134 approved semester hours is required for the degree in this curriculum, plus required courses in physical education.

The Engineering Curricula

The engineering curricula are designed to help students learn to approach and deal in a professional manner with problems and situations they will meet as engineers, citizens and individuals. From this basic preparation they should continue to learn from experience and to grow in stature throughout their professional life.

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

The required courses in each curriculum are shown arranged for a four-year program. These courses may be arranged in a five-year sequence if desired. Also, the courses can be arranged to accommodate transfer from other curricula. Two years of physical education are normally required of all students.

All junior engineering students visit Northeastern industrial centers during spring

1. See footnote under course offerings in Department of Mathematics.
2. To be certified as a chemist, a student must complete twelve hours of courses in the humanities and social studies in addition to the English and foreign language requirements.
3. Those students who must enroll in Mathematics 9 will be required to take Mathematics 11 and 12. They will not be required to take Mathematics 21.
4. German through the intermediate level (11-12) is required. Russian or French is advised as a second language for students proficient in German.
5. Electives in mathematics or a field of science *other than chemistry* are acceptable for this item. Advanced mathematics, physics, or life science are recommended.
6. Advanced inorganic chemistry is required for certification as a chemist. Courses in biochemistry are acceptable as advanced chemistry electives.

vacation. This plant inspection trip is required for graduation. The expense for the trip of several days is borne by the student.

Students enrolled in the civil, electrical, and mechanical engineering curricula may become affiliated with their respective national professional engineering societies, the American Society of Civil Engineers, the Institute of Electrical and Electronics Engineers, and the American Society of Mechanical Engineers, as each organization has authorized a student chapter at The University of Vermont. Engineering students demonstrating high scholarship attainment combined with exemplary character are recognized by membership in the Vermont Alpha Chapter of Tau Beta Pi, the national engineering honor society. These student organizations' meetings present opportunities for students to conduct activities similar to those of the national societies. These include: technical papers presented by students and engineers actively engaged in their profession; attendance at conventions; and inspection trips. These provide helpful contacts with engineering practice and assist in the development of leadership qualities essential to success in the engineering profession.

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

HUMANISTIC-SOCIAL STUDIES FOR ENGINEERING STUDENTS The objective of the program in humanities and social studies is to broaden the engineering student's understanding of man and the relationships in human society. Each student should plan, in consultation with his adviser in the second semester of his freshman year, an integrated sequence of courses to meet this objective.

A minimum of twenty-four credit hours¹ is required in humanistic-social studies. To meet this requirement each student must satisfy the following distribution.

Required of all students	Minimum credit hours
1. English, 1-2 (must be taken the Freshman year)	6
2. Sophomore Literature, 27, 28 ¹	3
3. Principles of Economics, 11-12	6
4. A course from any Elective Area ¹	3
5. Courses from one Elective Area ²	6
	—
Minimum total	24

Elective Areas

Geography	Intermediate Classical Languages
History	Intermediate Romance Languages
Philosophy	Intermediate German
Religion	Intermediate Russian
Political Science	Advanced Literature courses
Psychology	Art (history courses only)
Sociology	Music (history and Survey courses only)
World Problems	Economics (history and theory courses only)
	Speech (history and literature courses only)

1. Management engineering students will take English 27 or 28 and omit Item No. 4.
2. These six hours may be taken from two of the Elective Areas listed if the student has completed six credit hours in Item No. 2.

The Freshman Year for All Curricula

	1st SEMESTER	2nd SEMESTER
Mathematics ¹ , 11, 12	5	5
Chemistry, 1-2	4	4
Drawing, M.E. 1-2	2	2
English, 1-2	3	3
Engineering Problems, M.E. 3	1	..
General Physics, 14-	..	3
	<hr/>	<hr/>
	15	17

Civil Engineering

The Sophomore Year		1st SEMESTER	2nd SEMESTER	The Junior Year		1st SEMESTER	2nd SEMESTER
Calculus, Math. 21, 24		3	3	Differential Equations, Math. 211		3	..
General Physics, -15, 16		4	5	Mech. of Materials, C.E. 131		3	..
Surveying, C.E. 51-52		4	4	Engineering Geology, Geol. 21		3	..
Humanistic-Social Studies ²		3	3	Electrical Engineering Principles E.E. 101		4	..
Statics, C.E. 24		3	..	Thermodynamics and Heat Transfer, M.E. 113		3	..
Dynamics, C.E. 130		..	3	Humanistic-Social Studies ²		3	6
		<hr/>	<hr/>	Mech. of Materials Lab., C.E. 114		..	1
		17	18	Eng. Contracts, C.E. 151		..	2
				Hydraulics, C.E. 162		..	3
				Hydraulics Lab., C.E. 168		..	1
				Statically Determinate Struct., C.E. 140		..	4
						<hr/>	<hr/>
						19	17
The Senior Year		1st SEMESTER	2nd SEMESTER	The Senior Year		1st SEMESTER	2nd SEMESTER
Concrete and Bituminous Lab., C.E. 113		1	..	Substructure Design, C.E. 158		..	4
Reinforced Concrete, C.E. 155		3	..	Sanitary Eng. II, C.E. 166		..	3
Sanitary Eng. I, C.E. 165		3	..	Adv. Struc. Design, C.E. 176		..	4
Soil Mechanics, C.E. 173		3	..	Mechanics of Materials II, C.E. 231		..	3
Indet. Structures, C.E. 175		3	..	Elective		..	3
Transportation Eng., C.E. 174		3	..	Public Speaking, Speech 11		..	3
Humanistic-Social Studies ²		3	..			<hr/>	<hr/>
		<hr/>	<hr/>			19	20
		19					

A minimum of 142 approved semester hours is required for the degree in this curriculum, plus required courses in physical education.

1. See footnote under course offerings of the Department of Mathematics.
2. See distribution of Humanistic-Social Studies on page 91.

Mechanical Engineering

		1st	2nd		
		SEMESTER			
The Sophomore Year					
	Calculus, Math. 21, 24		3		3
	General Physics, Phys. -15, 16		4		5
	Manufacturing Processes, M.E. 51, 52		2		2
	Sophomore Literature, Eng. 27 or 28		3	or	3
	Statics, C.E. 24		3		..
	Public Speaking, Speech 11		3		..
	Dynamics, C.E. 130		..		3
	Thermodynamics I, M.E. 92		..		2
	Mechanical Instrumentation, M.E. 84		..		1
			—		—
			18		16
			or 15		or 19
		1st	2nd		
		SEMESTER			
The Junior Year				The Senior Year	
	Heat Transfer, M.E. 266	..	3	Adv. Heat Power Engineering, M.E. 262	.. 4
	Mech. of Materials, C.E. 131	3	..	Industrial Materials, I, M.E. 271	3 ..
	Materials Lab., C.E. 114	..	1	Adv. Fluid Mechanics, M.E. 243	4 ..
	Kinematics, M.E. 132	..	4	Machine Design I, II, M.E. 135, 252	3 4
	Thermodynamics II, M.E. 111	4	..	Thesis, M.E. 191 or Technical Elective ¹	3 ..
	Differential Equations, Math. 211	3	..	Thesis, M.E. 192 or Elective ²	.. 3
	Mech. Engineering Laboratory, M.E. 117	1	..	Advanced Mathematics ³	.. 3
	Electrical Engineering Principles, E.E. 101, 102	4	4	Engineering Analysis, M.E. 294	.. 1
	Fluid Mechanics, M.E. 142	..	3	Humanistic-Social Studies ⁴	6 3
	Principles of Economics 11-12	3	3		— —
		—	—		19 18
		18	18		

A minimum of 139 approved semester hours is required for the degree in this curriculum, plus required courses in physical education.

Electrical Engineering

		1st	2nd
		SEMESTER	
The Sophomore Year			
	Calculus, Math. 21, 24	3	3
	General Physics, Phys. -15, 16	4	5
	Statics, C.E. 24	3	..
	Dynamics, C.E. 130	..	3
	Electrical Circuits I, E.E. 25-26	4	4
	Humanistic-Social Studies ⁴	3	3
		—	—
		17	18

1. Technical Electives will be chosen from the departments of Chemistry, Physics, Engineering or Mathematics with the approval of the Mechanical Engineering Department faculty.
2. Elective may be chosen from any area.
3. A course at the "200" level with approval of the Mechanical Engineering Department.
4. See distribution of Humanistic-Social Studies on page 91.

	1st SEMESTER	2nd SEMESTER		1st SEMESTER	2nd SEMESTER
The Junior Year			The Senior Year		
Public Speaking, Speech 11	..	3	Circuits and Fields II, E.E. 225-6	3	3
Differential Equations, Math. 211	3	..	Electrical Machines, E.E. 117	..	4
Mech. of Materials, C.E. 131	3	..	Control Systems, E.E. 210	3	..
Thermodynamics, M.E. 113	3	..	Electronics II, E.E. 123	4	..
Electrical Circuits II, E.E. 125	4	..	Solid State, E.E. 260	..	3
Electromechanical Analogies E.E. 126	..	3	Information-Transmission, E.E. 270	..	3
Electrical Machines, E.E. 116	..	4	Seminar 281, 282	1	1
Electronics I, E.E. 109, 110	3	4	Humanistic-Social Studies	3	3
Humanistic-Social Studies ¹	3	3	Approved Elective	3-4	3-4
Fluid Mechanics, M.E. 142	..	3		—	—
	—	—		17	20
	19	20		or 18	or 21

A minimum of 143 approved semester hours is required for the degree in this curriculum, plus required courses in physical education.

Management Engineering

	1st SEMESTER	2nd SEMESTER
The Sophomore Year		
Calculus, Math. 21, 24	3	3
General Physics, Phys. -15, 16	4	5
Principles of Economics, Econ. 11-12	3	3
Manufacturing Processes, M.E. 51, 52	2	2
Statics, C.E. 24	3	..
Dynamics, C.E. 130	..	3
Public Speaking, Speech 11	3	..
	—	—
	18	16

	1st SEMESTER	2nd SEMESTER		1st SEMESTER	2nd SEMESTER
The Junior Year			The Senior Year		
Prin. of Accounting, Ec. 13-14	4	4	Methods Engineering, M.E. 175	3	..
Differential Equations, Math. 211	3	..	Plant Organization, M.E. 176	..	4
General Psychology, Psych. 1	3	..	Industrial Materials, I, M.E. 271	3	..
Thermodynamics and Heat Transfer, M.E. 113	3	..	Corporation Finance, Econ. 207	..	3
Kinematics, M.E. 132	..	4	Business Law, Econ. 109-110	3	3
Electrical Engineering Principles, E.E. 101-102	4	4	Labor Economics, Econ. 141	3	..
Fluid Mechanics, M.E. 142	..	3	Statistics, Econ. 187-188	3	3
Mech. of Materials, C.E. 131	3	..	Collective Bargaining, Econ. 242	..	3
Soph. Literature, Engl. 27 or 28	3 or	3	Humanistic-Social Studies ¹	3	3
	—	—		—	—
	20	18		18	19
	or 23	or 15			

A minimum of 141 approved semester hours is required for the degree in this curriculum, plus required courses in physical education.

Agricultural Engineering

For the Agricultural Curriculum see page 58.

1. See distribution of Humanistic-Social Studies on page 91.

The Mathematics Curriculum

This curriculum is designed to provide sound basic training in mathematics, to prepare the student for a position in an area in which mathematicians are sought, and to qualify him for advanced study in graduate school. Students in the College of Arts and Sciences may also concentrate in mathematics and will receive the Bachelor of Arts degree. An adviser from the department will assist students in the determination of a program best suited to their individual needs and plans.

	1st	2nd		1st	2nd
	SEMESTER			SEMESTER	
The Freshman Year			The Sophomore Year		
English, 1-2	3	3	Sophomore Literature	3	3
Mathematics ¹ , 11, 12	5	5	Mathematics, 21, 24	3	3
Laboratory Science ²	4-5	4-5	Mathematics, 102	..	3
Approved Elective	3	..	German, French or Russian	4	4
General Physics, 14-	..	3	General Physics, -15, 16	4	5
	—	—	Approved Electives	3	..
	15	15		—	—
	or 16	or 16		17	18
	1st	2nd		1st	2nd
	SEMESTER			SEMESTER	
The Junior Year			The Senior Year		
German, French or Russian ³	3	3	Mathematics Electives ⁴	9	9
Mathematics Electives ⁴	6	6	Advanced Science ⁵	3-4	3-4
Advanced Science ⁵	3-4	3-4	Approved Electives	3	3
Approved Electives	6	6		—	—
	—	—		15	15
	18	18		or 16	or 16
	or 19	or 19			

A minimum of 129 approved semester hours is required for the degree in this curriculum, plus required courses in physical education.

The Medical Technology Curriculum

The curriculum is divided into two parts, a three-year preclinical period and a final clinical year of twelve months which is under the supervision of members of the faculty of the College of Medicine.

The program of the preclinical period is designed to provide the student with a background in fundamentals essential for the professional work of the clinical year. During the first three years the Council on Medical Education and Hospitals of the American Medical Association requires a minimum of sixteen semester hours of chemistry, sixteen semester hours in biological sciences and one semester of college mathematics. The clinical year includes didactic courses in the College of Medicine and practical laboratory experience, primarily in the laboratories of the Mary Fletcher Hospital but also in other local health facilities.

After graduation an additional two and one-half months of practical supervised experience in the affiliated laboratories is required. At the end of this additional period, those

1. See footnote under course offerings of the Department of Mathematics.
2. Students desiring to take a foreign language during the freshman year may defer the laboratory science until after the language requirement has been met.
3. If an intermediate language is taken initially, an elective may be substituted.
4. Beyond mathematics 102.
5. Physical science or engineering courses beyond the sophomore level, to constitute a minor specialization.

satisfactorily completing the program will be recommended to the Registry of Medical Technologists as eligible to take the examination for certification as Medical Technologists ASCP.

The Freshman Year		1st SEMESTER	2nd SEMESTER	The Sophomore Year		1st SEMESTER	2nd SEMESTER
Freshman English, Eng. 1, 2		3	3	Sophomore Literature, Eng. 27, 28		3	3
Introductory Chemistry, Chem. 1-2		4	4	Quantitative Analysis, Chem. 123		4	..
Introductory Zoology, Zool. 1		4	..	Mammalian Anatomy and Physiology ¹ , Zool. 5-6 or Comparative Vertebrate Anatomy, Zool. 41, 42		3-4	3-4
Mathematics, Algebra and Trigonometry		3	3	Approved Electives ²		6	9
Introduction to Medical Technology		1	..			—	—
Introductory Botany, Bot. 1, or Principles of Evolution, Zool. 2		..	4			16	15
Approved Electives		..	3			or 17	or 16
		—	—				
		15	17				
The Junior Year		1st SEMESTER	2nd SEMESTER	The Senior Year		1st SEMESTER	2nd SEMESTER
Organic Chemistry, Chem. 131		4	..	Biochemistry for Medical Technologists, 111-112		4	4
Elementary Physics, Physics 5-6		4	4	Medical Bacteriology, 201		7	..
Approved Electives		9	13	Basic Techniques, 101-102		6	3
		—	—	Clinical Pathology, 103		..	2
		17	17	Hospital Assignments		..	6
						—	—
						17	15

A minimum of 128 approved semester hours is required for the degree in this curriculum, plus required courses in physical education.

The Physics Curriculum

The Department of Physics offers a pre-professional curriculum leading to the degree of Bachelor of Science in Physics. This program is designed to give a strong background for future professional education in industry or graduate school. Students in the College of Arts and Sciences may also concentrate in physics and receive a Bachelor of Arts degree.

1. If zoology 5-6 are elected then zoology 115 or botany 55 is required.
2. Recommended approved electives include chemistry 132.

The Graduate College

The purpose of the Graduate College is to serve the needs of college graduates who desire a broader and more thorough knowledge of scholarship and research in their chosen fields. At present the College offers fifty-five different programs leading to the master's degree and nine programs leading to the degree of Doctor of Philosophy. Each student is expected to be familiar with the general regulations and procedures of the Graduate College, and with the specific degree requirements in his chosen field of study.

Attention is also drawn to the special fifth-year program offered by the College of Education and Nursing leading to a certificate of advanced study in Education.

Master of Education

Programs are designed to prepare qualified candidates for school positions in guidance, supervision, and administration, or to give classroom teachers a more complete understanding of professional education as applied to teaching and to membership in the profession. Programs are planned on an individual basis and may include courses in areas outside professional education.

Master of Arts in Teaching

This degree is appropriate for teachers who are interested primarily in increasing their knowledge of their subject matter field and thereby the effectiveness of their classroom instruction. Programs are offered in the following fields:

Agriculture	Geology	Latin
Botany	German	Mathematics
Chemistry	Greek	Music
English	History	Physics
French	Home Economics	Zoology

Master of Extension Education

This degree is designed to meet the needs of county agricultural agents, home demonstration agents, 4-H Club agents, extension specialists, professional cooperative and agricultural business leaders.

Master of Science

Programs are offered in the following fields:

Agricultural Biochemistry
 Agricultural Economics
 Anatomy
 Animal and Dairy
 Science
 Animal Pathology
 Biochemistry
 Botany
 Chemistry

Civil Engineering
 Commerce
 Electrical Biophysics
 Electrical Engineering
 Forestry
 Geology
 Home Economics
 Mechanical Engineering
 Biomedical Engineering

Medical Microbiology
 Microbiology
 Pathology
 Pharmacology
 Physics
 Physiology and Biophysics
 Plant and Soil Science
 Poultry Science
 Speech Pathology
 Zoology

Master of Arts

Programs are offered in the following fields:

Economics
 English
 French
 German

Greek
 History
 Latin
 Mathematics

Music
 Political Science
 Psychology

Doctor of Philosophy

Doctoral programs are offered for qualified students in the fields of biochemistry, botany, chemistry, electrical engineering, microbiology, pharmacology, physics, physiology and biophysics, psychology and zoology.

Admission

Students who, prior to the date of their first enrollment, will hold a baccalaureate degree or will have completed work equivalent to that required for a baccalaureate, and whose undergraduate records indicate that they are capable of successful study at the graduate level may apply for admission to the Graduate College. Graduates of unaccredited institutions must support their applications with satisfactory scores on the Graduate Record Examinations. Foreign students, see special instructions, p. 100.

Admission is limited to students who intend to become candidates for advanced degrees, other than Doctor of Medicine, and students whose enrollment will consist of courses to be taken for graduate credit. Students who hold bachelors' degrees but whose entire enrollment will be in undergraduate courses should seek admission as non-matriculated students in the appropriate undergraduate college.

Only applicants who desire to work along lines in which the University offers graduate programs will be admitted to the Graduate College. Students in the Graduate College therefore fall into three categories: (1) duly admitted students accepted to candidacy, (2) degree candidates at other institutions who study at The University of Vermont for transfer of credit, (3) duly admitted students not yet accepted to candidacy.

Students seeking admission to the Graduate College must make application on an official form which can be obtained from the Office of the Graduate College. All applications must be supported by official transcripts from each college or university attended and by three letters of recommendation from persons qualified to assess the applicant's capacity for graduate work. For submission of necessary test scores, see Aptitude and Achievement Tests.

The deadline for applications for admission in the fall semester is May 15. It is not always possible to admit additional students at midyear in all departments. Such applications should be initiated well in advance of the date study is to begin. Students who wish to be considered for fellowships as well as admission should complete the appropriate section on the application form. Such applications, with supporting materials, must be

filed by March 15 of the academic year preceding that for which the application is made.

Admission to the Graduate College does not mean that a student is automatically accepted as a candidate for an advanced degree.

FOREIGN STUDENTS Applications from foreign students, other than those of the United Kingdom, Canada, Australia and New Zealand, and those studying in the United States at the time of application, will be accepted only through the Institute of International Education.

Foreign students should make application a year in advance through the Institute. For information write to Institute of International Education, 809 United Nations Plaza, New York, N. Y. 10017.

APTITUDE AND ACHIEVEMENT TESTS Applicants for admission to graduate programs in some departments must submit scores on the Graduate Record Examination and the Miller Analogies Tests (see under department). Information on the Miller Analogies Test may be obtained from the Testing Office, University of Vermont or from any college testing office. Information on the Graduate Record Examination may be obtained from the Educational Testing Service, Box 592, Princeton, N. J.

DEPOSIT A deposit of \$35 is required of each applicant upon notification of admission into the Graduate College. The deposit will cover the advanced degree fee of \$25 (see p. 49). Any residue from this deposit will be returned to the student upon graduation or upon withdrawal from the college.

Credentials submitted by the student, such as transcripts and letters of recommendation become the property of the Graduate College and may not be returned.

Dismissal

A graduate student whose work or deportment is unsatisfactory may be requested at any time by the Dean or the department concerned to withdraw from the Graduate College.

General Requirements

ACCEPTANCE TO CANDIDACY A student will be accepted to candidacy upon approval of both the Dean and the department or departments concerned. Acceptance to candidacy can be granted only in cases where a student has fully met all undergraduate prerequisites for the courses that are required in his degree program. A year of graduate study in residence at The University of Vermont is a prerequisite for acceptance to candidacy for the doctoral degree.

MINIMUM RESIDENCE REQUIREMENTS Each candidate for the master's degree must satisfactorily complete at least twenty hours of graduate credit while in residence on The University of Vermont campus, either in the regular academic year, in summer sessions, or at the off-campus centers established at Lyndon and Castleton. Each candidate for the doctoral degree must satisfactorily complete at least thirty hours of graduate credit in residence on The University of Vermont campus; ordinarily a minimum total of fifty hours in residence will be required.

TEACHING REQUIREMENT Each degree candidate must acquire appropriate teaching experience in his chosen field prior to the award of his degree. The nature and the amount of this teaching, for which no academic credit is allowed by the Graduate College, will be determined by the department concerned.

GRADUATE CREDIT Courses numbered 400 and above are open to doctoral students only. Courses numbered 300 to 399 are open to graduate students only. Courses numbered between 200 and 299 are also offered for graduate credit, and, if taken by graduate students, must be taken for graduate credit.

Courses numbered between 100 and 199 are normally courses for undergraduates. No degree program can include more than ten hours graduate credit for courses numbered between 100 and 199 and most programs include none. Graduate credit can be allowed for some courses so numbered only (1) if the student has already been accepted to candidacy, and (2) has obtained *in advance* the approval of his department and the Dean for inclusion of this particular course in his degree program.

Under no circumstances will graduate credit be allowed for a course numbered below 100.

GRADE REQUIREMENTS Courses taken for graduate credit are given the letter grades of A (excellent), B (good), C (fair), and F (failure). Graduate credit is given for letter grades A, B, and C. This grading system differs somewhat from that for undergraduate level courses in that there is no letter grade of D.

A candidate for a graduate degree must complete his program with a minimum overall quality point average of 3.0 (B).

Designations of S, satisfactory and U, unsatisfactory are used to indicate levels of performance for credits received in Thesis Research and Seminar.

MAXIMUM TIME LIMITS A program leading to the master's degree must be completed within a span of three years if it is pursued on a full-time basis during the regular academic year; if it is pursued on a part-time basis or in summer sessions, it may be completed within a span of seven years. A doctoral program must be completed within a span of nine years. Only in special cases will credits earned outside these time limits be re-evaluated and re-instated; requests for such re-evaluation must be addressed to the Dean and must be accompanied by a full statement of the extenuating circumstances. This time limit applies both to study at The University of Vermont and to courses presented for transfer of credit. Individual departments may set deadlines within these time limits.

TRANSFER OF CREDIT A maximum of eight hours credit in the case of master's candidates and twenty-five hours in the case of doctoral candidates may be accepted in transfer for appropriate courses completed in residence in other institutions. Such courses must have been taken in a fully accredited college or university which offers graduate study and must be acceptable at that institution in partial fulfillment of its requirements for an advanced degree. Credit cannot be transferred for (1) courses which would not, if taken at The University of Vermont, receive graduate credit, (2) courses in which a grade lower than B— (80) was received, (3) extension courses, (4) correspondence courses, (5) courses which are inappropriate for inclusion in any degree program offered by the Graduate College, (6) courses which were taken more than seven years prior to the completion of a degree program, (7) thesis credits received at another university. No transfer of credit is possible prior to a student's acceptance to candidacy.

EXTENSION COURSES Not more than eight semester hours of credit toward the master's degree may be earned by taking extension courses offered by The University of Vermont. A maximum of three hours of graduate credit per semester is permissible for master's candidates who are full-time teachers in public schools. No credit for extension courses is allowable in a doctoral program.

Requirements for Master's Degree

All master's programs require a minimum of thirty semester hours of graduate credit. In programs that require a thesis, the number of credit hours to be earned in thesis research may vary between six (minimum) and fifteen (maximum); these credits are included in the minimum of thirty required for the degree.

Master of Education

Before acceptance to candidacy for the degree of Master of Education, the student must present a satisfactory score in the Miller Analogies Test, and must demonstrate satisfactory proficiency in written composition. Before the degree is awarded, the candidate must have completed one year of successful teaching experience or other educational service.

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

In order to insure effective planning of a graduate program for the degree of Master of Education, not more than twelve hours credit (fourteen if the maximum eight hours of transfer credit is offered) will be accepted in partial fulfillment of degree requirements for courses taken prior to acceptance to candidacy. A prospective candidate should therefore make application for acceptance to candidacy before his first semester of residence, or, if he has been a student in Summer Session, prior to his second summer in residence. Candidates must expect to earn on The University of Vermont campus a part of the credit to be applied to a graduate degree. In most cases candidates who are in residence during the regular academic year must also attend one or two summer sessions in order to have a suitable selection of available courses.

Master of Arts in Teaching

The program leading to the degree of Master of Arts in Teaching is designed primarily for teachers with the purpose of enhancing their teaching ability and strengthening their background in their subject matter field.

A minimum of thirty semester hours is required in courses numbered above 200, of which not less than six semester hours shall be in Education. No thesis is allowable in this degree program; a student must complete at least twenty hours, and usually twenty-four, in a single department offering courses for graduate credit or in any acceptable combination of such departments. In order to be accepted to candidacy for this degree, a student must have completed an undergraduate major within the area of his specialization, have submitted a satisfactory score on the Miller Analogies Test, and must be acceptable to the department or departments concerned.

In his undergraduate program, a candidate is expected to have completed the necessary courses in education to meet minimum requirements for a teaching certificate. If candidates have not qualified for teaching certification, they cannot expect to complete the degree in one academic year. To qualify for the degree of Master of Arts in Teaching, the

candidate must present at least eighteen semester hours in education in his combined undergraduate and graduate program.

Master of Extension Education

A minimum of thirty hours is required in courses numbered above 200. Nine semester hours are required as follows: Political Science 241, Philosophy 214, Economics 204 (courses equivalent to Political Science 241 and Economics 204 may be substituted); a minimum of twelve semester hours of course credit in Agriculture and/or Home Economics or related basic courses; and a minimum of six semester hours of course credit in Agricultural Education, Extension Education, and/or Home Economics Education.

The candidate must have completed one year of successful professional experience before the degree is granted.

The candidate is at liberty to select the manner in which he or she will complete the requirements for the degree from the alternatives of: (1) a combination of three-week and six-week summer sessions, (2) a combination of summer session and extension course offerings in the State, (3) full-time residence on the campus, and (4) a combination of one term of residence and summer sessions.

Master of Arts and Master of Science

FIELD OF SPECIALIZATION At least twenty hours of graduate credit, including credit for the thesis and research leading to the thesis, must be earned in the field of specialization. All course credits included in these twenty hours must have been earned in courses which are numbered above 200.

RELATED STUDY A graduate program may include advanced courses outside the field of specialization. In order to be included as part of the master's program, these courses must be approved in advance by the department in which the student is specializing.

STUDIES COMMITTEE A Studies Committee will be appointed by the Department Chairman for each candidate for the master's degree. It shall be the responsibility of this committee to supervise the student's program and review his progress at regular intervals.

THESIS Each candidate will undertake a problem of original research under the direction of a member of the department in which he is specializing. At the conclusion of the investigation the student must present a thesis which embodies the results of his work and which demonstrates his capability for independent research. For information regarding submission of the thesis, refer to Graduate College Bulletin.

Final Examinations

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

I. *For the Degree of Master of Education:*

- a. A written comprehensive examination (three-hour minimum) in the field of Education.
- b. A comprehensive oral examination (one-hour minimum) in the field of Education.

- II. *For the Degree of Master of Arts in Teaching:*
- a. A written comprehensive examination (two-hour minimum) in the field of Education.
 - b. A written comprehensive examination (two-hour minimum) or a comprehensive oral examination (one-hour minimum) in the field of specialization. The choice between written and oral examination is to be determined by the department after consultation with the candidate. All examinations are taken on the University campus in Burlington.
- III. *For the Degree of Master of Extension Education:*
- a. A written comprehensive examination (two-hour minimum) in the technical and social science areas.
 - b. A comprehensive oral examination (one-hour minimum) in the field of specialization.
- IV. *For the Degrees of Master of Arts and Master of Science:*
- a. A written comprehensive examination (two-hour minimum) in the field of specialization.
 - b. An oral examination (one-hour minimum) in defense of the thesis.

Success in the written examinations is prerequisite to taking the oral examination. One re-examination only is permitted for any final comprehensive examination.

Requirements for the Degree of Doctor of Philosophy

The degree of Doctor of Philosophy requires of candidates a minimum of seventy-five credit hours to be earned in courses and in thesis research.

STUDIES COMMITTEE Upon admission to the Graduate College, the prospective candidate for the Ph.D. degree will be assigned an interdepartmental Studies Committee by the Dean. This committee will meet at least once a semester with the candidate to advise him and to help plan his program of study. All courses taken in the program must be approved by this committee, the department chairman concerned, and the Dean of the Graduate College. The committee will also be responsible for administering and evaluating language examinations.

COURSES At least forty hours must be earned in courses and seminars. The first year of each doctoral program consists almost entirely of required courses; in the following years appropriate courses are selected by the Studies Committee in consultation with the candidate. Details of each program can be obtained from the appropriate department chairman or from the Dean.

LANGUAGE REQUIREMENTS In order to satisfy the language requirements, each candidate must be able to comprehend the literature of his field in at least two foreign languages appropriate to his field in addition to English, or demonstrate fluent command (ability to read, write and converse) of one foreign language appropriate to his field in addition to English. The choice of the language is to be determined by the candidate's department, and the testing of the candidate is to be the joint responsibility of the candidate's department and the language departments involved. The examinations will be given only during the period September 15–October 15 and the month of March.

The language requirements must be completed before the comprehensive examination is taken.

RESEARCH AND THESIS Each candidate, while in residence at The University of Vermont, must complete an acceptable original research project which contributes new knowledge or techniques in his academic field. A minimum of twenty credits will be allowed for thesis research. For information regarding submission of the thesis, refer to the Graduate College Bulletin.

THESIS EXAMINING COMMITTEE Upon submission of the completed thesis, the Dean of the Graduate College will appoint a Thesis Committee for the oral examination of the candidate. The Committee shall consist of the Dean, the members of the Studies Committee, and at least two other faculty members nominated by the chairman of the department concerned. The acceptability of the thesis will be determined by the Thesis Committee.

EXAMINATIONS

- (a) A comprehensive written examination in the field of study must be passed by the candidate at least six months before the thesis is submitted. This examination will be prepared by the department concerned, in consultation with the candidate's Studies Committee. One re-examination only will be permitted.
- (b) An oral examination, in which the candidate will be expected to defend his thesis, will be scheduled no sooner than one month after the thesis has been submitted to the Department. One re-examination only will be permitted.

Financial Aids

Students who wish to be considered for fellowships as well as admission must submit applications, with supporting material, by March 15 of the academic year preceding that for which application is made. Application for fellowships should be made by completion of the appropriate section on the application form, except as otherwise indicated.

GRADUATE FELLOWSHIPS The Graduate College offered five Graduate Fellowships in 1965-66, each of \$1,000 plus a full tuition scholarship. These fellowships are open to applicants in any field in which the University offers a graduate degree program. Holders of Graduate Fellowships are expected to carry a full-time graduate program towards an advanced degree.

GRADUATE TEACHING FELLOWSHIPS AND GRADUATE RESEARCH FELLOWSHIPS Approximately eighty-five Graduate Teaching and Research Fellowships are awarded in departments offering graduate work. Graduate Teaching Fellows are usually appointed for nine months with an initial stipend of \$2,200; Graduate Research Fellows for eleven months with an initial stipend of \$2,640. Teaching and Research Fellows may enroll for a maximum of twelve hours per semester; they are eligible for reappointment. Fellowship award includes tuition scholarship.

A maximum of half-time assistance in the department is expected of Graduate Teaching Fellows and Graduate Research Fellows, and they must expect that more than one academic year will be necessary to complete the requirements for the master's degree. If a Teaching Fellow or Research Fellow is a candidate for the doctoral degree, he must expect to spend at least four calendar years before his academic program can be completed. While it is customary, it is not obligatory that Fellows select their fields of concentration in the departments in which they are appointed; for example, foreign-born students appointed Graduate Teaching Fellows in the Department of Romance Languages may be accepted as degree candidates by the Department of English.

Appointments will be announced on or before April 1.

RESIDENCE HALL COUNSELORSHIPS Graduate students, male and female, are eligible for appointment as residence hall counselors. Residence hall counselorships afford graduate students opportunity to obtain practical experience in hall activities, human relationships, government and administration while pursuing an advanced degree in their chosen field of study. Residence hall counselorships are open to either married or single students who qualify for graduate work at The University of Vermont. Leadership experiences are desirable. Selection is based on character, academic record, recommendations and a personal interview. Residence hall counselors receive for the first year a stipend of \$2,200 plus a tuition scholarship for a nine-month period. Room and board will be deducted from this stipend. Requests for applications and additional information should be addressed to the Dean of Men or the Dean of Women, respectively. Applications should be filed not later than March 15 of the academic year preceding that for which application is made.

GEORGE H. WALKER DAIRY FELLOWSHIP The George H. Walker Dairy Fellowship which is awarded periodically, provides a stipend plus a full tuition scholarship. It is available to graduate students who, during their undergraduate courses, have studied "agriculture, chemistry, and bacteriology" and who desire to study the problems relating to the production of a sanitary milk supply on comparatively small plants and farms. Applications should be addressed to the Chairman of the Department of Animal and Dairy Science.

NATIONAL DEFENSE EDUCATION ACT FELLOWSHIPS The U. S. Department of Education supported fellows in several departments during the academic year 1965-66 under provisions of Title IV of the National Defense Education Act. Additional fellowships will be available in the departments of botany, chemistry, electrical engineering, psychology, and zoology during the academic year 1966-67. These awards are made to predoctoral students who are U.S. citizens or nationals. They carry stipends plus a dependency allowance and include payment of tuition and nonrefundable fees. Requests for NDEA Fellowships should be indicated on the application for admission.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION TRAINEESHIPS The National Aeronautics and Space Administration has supported twelve graduate traineeships in the departments of chemistry, physics and zoology during the academic year 1965-66. Additional NASA Traineeships may be available in other departments during the academic year 1966-67. These awards, which are available to U.S. citizens and nationals, carry stipends plus a dependency allowance and cover payment of tuition and nonrefundable fees. Requests for these traineeships should be indicated on the application for admission.

NATIONAL SCIENCE FOUNDATION TRAINEESHIPS The University of Vermont participates in the graduate traineeship program of the National Science Foundation. These traineeships are open to graduate students in the natural sciences, engineering and the quantitative social sciences who are U.S. citizens or nationals. They carry a stipend plus a dependency allowance, and include payment of tuition and nonrefundable fees. Requests for these traineeships should be indicated on the application for admission.

GRADUATE TRAINEESHIPS Graduate traineeships have been made available to certain departments through grants from various divisions of the

U. S. Public Health Service. Traineeships were awarded to graduate students enrolled in the following departments during the academic year 1965-66: biochemistry, pharmacology, and physiology and biophysics, and speech. These traineeships generally carry stipends of \$2,400 upwards plus payment of tuition. The chairman of the department concerned should be contacted for information on the availability of these awards.

OTHER SOURCES Students undertaking graduate work at The University of Vermont may apply for other awards such as the National Science Foundation Graduate Fellowships and National Institutes of Health Predoctoral Fellowships. Further information concerning these programs may be obtained from the respective granting agencies.

LOANS Graduate students may apply for National Defense Student Loans. Applications should be made through the Director of Financial Aid, Waterman Building, prior to April 1 for September enrollment.

Graduate students, after they have successfully completed one semester, are also eligible for university loans on the same basis as undergraduates. Details may be obtained from the Financial Aid Office.

The College of Medicine

Requirements for Admission

The College of Medicine requires that an applicant hold a Bachelor's degree, and that his four years of college work be taken in an institution listed among the "Accredited Institutions of Higher Education," compiled and published by the National Committee of Regional Accrediting Agencies of the United States. The College of Medicine requires one year each of: biology; English; physics, including laboratory; general chemistry; organic chemistry; a satisfactory one-semester course in quantitative chemistry or physical chemistry including laboratory work or equivalent; and fundamental mathematical principles at the college level.

The College strongly recommends that the applicant, while in college, study in depth one or more fields of interest to him.

Students must complete satisfactorily all requirements for admission to the College of Medicine in any given year by July 1 preceding the September admission. Ordinarily courses taken in other than a liberal arts college will not meet our admission requirements.

Eligibility of an applicant for admission to the College of Medicine is determined by the Admissions Committee of the College of Medicine on the basis of the following:

1. The scholastic record of the applicant in his premedical work.
2. Personality and general fitness of the applicant for the study and practice of medicine as determined by recommendations of the applicant's college teachers and others, and by personal interview with the Admissions Committee.
3. The applicant's scores on the Medical College Admission Test. Such scores are taken into consideration but are not used as a final determinant in accepting students. If a majority (all but one or two) of the required courses have been or will be completed by the end of the third year in college, applicants are urged to take the Medical College Admission Test in May of that year.
4. All applicants are required to submit a health report completed by their college or university health service and not by their personal physician.

A maximum of fifty students is admitted to the entering class. Preference for admission is according to the following priorities:

1. Qualified residents of Vermont.
2. Qualified residents of other New England states having contractual arrangements with the College of Medicine through the New England Board of Higher Education. Contracts are presently in force with the states of Maine, New Hampshire, Massachusetts and Rhode Island.
3. Qualified residents of other areas.

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

Applications for admission to the class entering in September of any year will close January 1 preceding the September admission. Application blanks should be in by December 1 for early consideration.

An application fee of ten dollars, payable to The University of Vermont, must accompany all applications and is not refundable.

When an applicant who is not a Vermont resident is offered admission to the College of Medicine and wishes to accept this admission, a deposit of \$100 must be paid not later than two weeks following notice of acceptance in order to reserve a place in the entering class. This deposit is refundable up to January 15 preceding admission, should the student release his place in the class. The deposit is applied toward the student's tuition in the first semester upon matriculation in the College of Medicine. Checks should be made payable to the University of Vermont and should be sent to the Admissions Office, College of Medicine, University of Vermont, Burlington, Vermont 05401.

The Curriculum

FIRST YEAR Anatomy, physiology and biochemistry are integrated in such a fashion that topics are considered simultaneously by all departments in so far as possible. Thus when the abdomen is being dissected, the physiology of the gastro-intestinal system and the biochemistry of digestion are being considered at the same time. The students are introduced to psychobiology and epidemiology and community medicine during the first year.

SECOND YEAR The curriculum is divided into three parts and correlated in time.

Course A: Morphology, Physiology, and Chemistry of the Abnormal; runs throughout the entire year and includes pharmacology, pathology, clinical pathology, medical microbiology, psychopathology, and epidemiology and community medicine.

Course B: Elicitation of Data; includes history taking and examination which are taught cooperatively by the various specialists under the general supervision of an internist.

Course C: Introduction to Clinical Medicine; consists of didactic lectures and case presentations covering elementary medicine, pediatrics, surgery, obstetrics, gynecology and oral medicine.

The schedule varies from week to week because the subject material presented by the different departments is correlated.

THIRD AND FOURTH YEARS The third and fourth years provide a continuing clinical clerkship under the direction of the major clinical departments. A one and a half-month vacation is afforded during the summer at the end of the third year. The schedule provides for clerkship experience in general and specialty hospitals, and includes the outpatient departments of the general hospitals. Up to three months of elective time is provided for the student to pursue in depth an area of his interest.

Teaching Facilities

The College of Medicine Building, the College of Medicine Annex, Mansfield House, Phase I and Phase II of the new College of Medicine building contain offices, lecture rooms, medical library, student and research laboratories. Clinical facilities for teaching in the third and fourth years include the two Burlington hospitals with a total of 611 beds (not including bassinets) and 167,055 patient days.

In Burlington there are two outpatient departments with 33,354 patient visits annually. Elective preceptorships with general practitioners are available.

STATE SCHOLARSHIPS

There are a limited number of state scholarships of \$200.00 a year each available to Vermont residents enrolled in the College of Medicine.

The scholarships available to students in the College of Medicine are listed on pages 241 and 242, and information on loan programs may be obtained from the Director of Financial Aid.

V University Extension

The University through its extension services aims to broaden the horizon of those who have not attended college, to afford an opportunity for those who have attended college and subsequently wish to keep in touch with academic thought in their favorite fields or to gain information about subjects which were not studied in college, and to provide undergraduates opportunities in addition to the regular classroom experience.

The Summer Session

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

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

It is recommended that any regularly matriculated student at The University of Vermont obtain prior approval from his academic dean for any courses to be taken in the Summer Session. The purpose of this recommendation is to insure such courses are appropriate for the degree for which the student is working.

Through work in the Summer Session it is possible to earn the degrees of Master of Arts, Master of Science, Master of Arts in Teaching, and Master of Education. All persons desiring graduate credit must secure the approval of the Dean of the Graduate College. A special bulletin giving a full description of courses will be sent upon application to the Director of the Summer Session.

Evening Division

Continuing education for adults in the State of Vermont is provided under the Evening Division Program offered by the University. Members of the faculty at the University and others, working under temporary appointment, offer evening or extension

courses in arts and sciences and education. A variety of courses is presented in evening sessions on campus throughout the college year. Some of these may be taken for credit while others are non-credit and are designed for the adult who is interested in continuing his education for the pleasure of self-improvement.

Courses are given in towns and cities throughout the state wherever a group of ten or more individuals register for a course.

Arrangements for Evening Division courses are made through the Evening Division, Waterman Building. Length of courses varies from ten to fifteen weeks.

It is recommended that any regularly matriculated student at the University of Vermont obtain prior approval from his academic dean for any courses to be taken in the Evening Division. The purpose of this recommendation is to insure such courses are appropriate for the degree for which the student is working. All persons desiring graduate credit must secure the approval of the Dean of the Graduate College.

Conferences and Institutes

Conference activity is a rapidly increasing part of University life, both throughout the regular college year and during the summer, many conference groups make use not only of university classroom and auditorium facilities but also of university dormitories and dining service. Groups interested in arranging for meetings or conferences at the University should contact the Conferences and Institutes Office, Waterman Building. This office also arranges the University Lecture series which brings outstanding speakers to the campus, and coordinates the Speakers Bureau through which University personnel are made available to organizations outside the campus.

V Courses of Instruction

The University reserves the right to change these course offerings at any time.

The departments and areas of instruction are arranged alphabetically, and the college in which each is located is indicated.

A student who lacks the stated prerequisites for a course, but is otherwise qualified to take it, may be permitted to enroll by the department.

Courses numbered from 1 to 99 are elementary and intermediate courses. Those numbered from 100 to 199 are advanced undergraduate courses. Those numbered from 200 to 299 are advanced courses for undergraduates which also may be taken for graduate credit by qualified graduate students. Courses numbered from 300 to 399 are limited to graduate students. Courses numbered above 400 are limited to candidates for the degree of Doctor of Philosophy.

A separate number is used for each semester course and for each semester of a year course.

Two numbers with a comma between (17,18) indicate that the separate semester courses may be taken independently for credit.

Two hyphenated numbers (17-18) indicate that the semester courses may not be taken independently for credit and, unless otherwise stated, they must be taken in the sequence indicated.

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

The letter "A" preceding the course number indicates the course is offered normally in the Evening Division program.

The letter "I" preceding the course number indicates the offering is made up of more than one component and is presented as an Institute.

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

Odd-numbered courses are offered the first semester; even-numbered courses the second semester, unless otherwise indicated by the Roman numeral I for the first semester or II for the second semester.

The form (2-3) immediately following the course title indicates the number of class hours respectively of lecture and of laboratory.

Agricultural Biochemistry

COLLEGE OF AGRICULTURE AND HOME ECONOMICS

Professor Johnstone (Chairman); Associate Professors Foote and Racusen

197, 198 SENIOR RESEARCH Work on a research problem under the direction of a qualified staff member. Findings submitted in written form as prescribed by the department. *Prerequisite:* senior standing. Three hours. Staff.

201 GENERAL BIOCHEMISTRY (3-4) Broad coverage of fundamentals of biochemistry for science students, including the chemistry of carbohydrates, proteins, lipids, vitamins, enzymes, and hormones and their relation to processes of biological significance. Basic principles of analytical procedures involved in biochemical methods. *Prerequisite:* chemistry 131. Five hours. Mr. Foote.

250 ADVANCED BIOCHEMISTRY (4-2) An advanced study of biochemical systems with emphasis on research methods and plant biochemistry. Laboratory sessions include the use of radioisotopes and chromatographic techniques. This course augments agricultural biochemistry 201 (general biochemistry), the combined sequence providing a base for graduate research in biochemistry and related fields. *Prerequisite:* 201 or medical biochemistry 301. Five hours. Mr. Racusen.

253 MICROBIAL BIOCHEMISTRY (2-3) The chemical composition, energy utilization and metabolism of microbial cells. *Prerequisite:* 201 or medical biochemistry 301, botany 116; and departmental permission. Three hours. Mr. Johnstone. Alternate years, 1967-68.

381, 382 GRADUATE SEMINAR Topical seminar with discussion of assigned and collateral reading. Required of departmental graduate students. One hour. Staff.

391 through 299 MASTER'S THESIS RESEARCH Investigation of a research topic under the direction of an assigned staff member, culminating in an acceptable thesis. Credit as arranged.

491 through 499 DOCTOR'S THESIS RESEARCH Investigation of a research topic under the direction of an assigned staff member, culminating in an acceptable thesis. Credit as arranged.

Agricultural Economics

COLLEGE OF AGRICULTURE AND HOME ECONOMICS

Professors Samenfink, Sargent, (Chairman), Sinclair and Webster; Associate Professor Tremblay; Assistant Professor Devino

2 WORLD FOOD AND AGRICULTURE Historical development and pattern of agriculture to the present. Emphasis on the adjustment of agriculture to natural and economic phenomena. Present pattern of crop and livestock production, trade, and consumption in Vermont, the United States, and the world. Three hours. Mr. Tremblay.

51 AGRICULTURAL FINANCE Capital requirements of American agriculture; analysis of the financial problems of farmers; types and sources of credit and the lending problems and practices of farm credit institutions. *Prerequisite:* sophomore standing. Three hours. Mr. Sinclair. Alternate years 1966-67.

62 ECONOMICS OF AMERICAN AGRICULTURE The role of agriculture in the American economy; an introductory analysis to microeconomics and social problems of the agricultural and the rural sector. *Prerequisite:* sophomore standing. Three hours.

66 AGRICULTURAL BUSINESS Management problems of rural business firms including agricultural cooperatives, especially those handling farm produce and supplies. Theoretical and practical considerations in the organization and operation of agricultural businesses with emphasis on financial and legal organization, accounting and budgeting procedures, and tax policies. *Prerequisite:* sophomore standing. Three hours. Mr. Devino.

103 RURAL SOCIOLOGY The origin, characteristics, forms of organization, levels of living, mobility, and geographic distribution of rural people, and their relationship to urban society. *Prerequisite:* junior standing. Three hours. Mr. Samenfink.

197, 198 SENIOR RESEARCH Work on a research problem under the direction of a qualified staff member. Findings submitted in written form as prescribed by the department. *Prerequisite:* senior standing. Three hours. Staff.

201 FARM MANAGEMENT (3-2) Organization and operation of a successful farm business. *Prerequisite:* economics 11-12 or concurrent enrollment, or agricultural economics 62; junior standing. Four hours. Mr. Tremblay.

203¹ LAND ECONOMICS The field of land economics, benefit-cost analysis, economic appraisal of public resource development investments, water problems, the legal framework of resource development, economics of recreational land use, economic aspects of rural development, land classification, rural zoning, land use planning. *Prerequisite:* economics 11-12, or agricultural economics 62. Three hours. Mr. Sargent.

207 AGRICULTURAL MARKETING AND PRICES (2-2) Market structure, prices, and economic forces involved in the movement of farm products from producers to consumers. Emphasis on the New England situation. *Prerequisite:* economics 11-12, or agricultural economics 62. Three hours. Mr. Webster.

1. Approval for graduate credit pending.

208 **AGRICULTURAL POLICY** The role of government, farm organizations, and other institutions in the development of agricultural policy. An economic analysis of the price and income problems of American agriculture and alternatives to their solution. *Prerequisite:* economics 11-12, or agricultural economics 62. Three hours. Mr. Sinclair.

253 **THEORY OF AGRICULTURAL PRODUCTION ECONOMICS** Application of the theory of the firm to agricultural production units. Emphasis on resource allocation and production efficiency. Principles of marginal analysis applied to production problems in a static and dynamic economy. *Prerequisite:* twelve hours in agricultural economics and economics, senior standing, and departmental permission. Three hours. I or II. Mr. Sinclair.

255, 256 **SPECIAL TOPICS IN AGRICULTURAL ECONOMICS** Readings and discussion of specific topics in agricultural economics at advanced level. *Prerequisite:* departmental permission. Credit as arranged. Staff.

270 **AGRICULTURAL DEVELOPMENT** Problems of economic development of underdeveloped countries. Levels of economic development, prerequisites to development, land reform, theories of development, investment priorities, terms of trade, and national development programs. *Prerequisite:* twelve hours in economics and/or agricultural economics. Two hours. Mr. Sargent.

351 **RESEARCH METHODS** The scientific method, statistical methods, sampling methods, use of electronic computers, linear programming, reporting research results. *Prerequisite:* three hours of statistics. Three hours. I or II. Mr. Webster.

381, 382 **AGRICULTURAL ECONOMICS SEMINAR** Discussion of problems and research in agricultural economics and other social sciences. One hour. Staff.

391 through 399 **MASTER'S THESIS RESEARCH** Investigation of a research topic under the direction of an assigned staff member, culminating in an acceptable thesis. Credit as arranged.

Agricultural Education

COLLEGE OF AGRICULTURE AND HOME ECONOMICS

Associate Professor Gaylord (Chairman); Mr. Davison, Mr. Bice

102 EXTENSION METHODS (1-2) Methods and techniques of extension teaching. *Prerequisite:* junior standing. Two hours. Mr. Davison. Alternate years, 1967-68.

104 LEADERSHIP TRAINING AND ORGANIZATION METHODS (2-2) Methods and techniques by which officers, group members and administrators may increase the effectiveness of organizations. Practice in applying the methods treated. *Prerequisite:* junior standing. Three hours. Mr. Gaylord.

152 INTRODUCTION TO TEACHING VOCATIONAL AGRICULTURE (1-2) Introduction to the vocational education acts and major program objectives; the determination of instructional needs, and development of farming programs for high school students. Development of the philosophy of problem solving in agricultural education, and a general orientation to the work of the teacher of vocational agriculture. *Prerequisite:* junior standing. Two hours. Mr. Bice.

155 DIRECTED PRACTICE TEACHING IN VOCATIONAL AGRICULTURE Ten weeks of practice teaching in high school departments of vocational agriculture under guidance of experienced teachers and the teacher trainer. One week of home visits to supervised farming programs during the summer, and the first week of high school. *Prerequisite:* 251 and 253. Eight hours. Mr. Gaylord.

197, 198 SENIOR RESEARCH Work on a research problem under the direction of a staff member. Findings submitted in written form as prescribed by the department. *Prerequisite:* senior standing. Three hours. Staff.

251 METHODS OF TEACHING VOCATIONAL AGRICULTURE (2-2) Making farm surveys, analyzing farm businesses, developing a course of study and farming programs. Developing teaching plans; techniques and visual aids; advising the FFA chapter; evaluating student progress; providing counseling; guidance and maintaining discipline. *Prerequisite:* senior standing. 104 and 152. Three hours. Mr. Gaylord.

253 METHODS OF TEACHING YOUNG AND ADULT FARMER CLASSES IN VOCATIONAL AGRICULTURE (2-2) Determining needs, problems and objectives for education of young and adult farmers; selecting positions, planning courses, and developing teaching plans; use of on-farm instructions; demonstrations and other suitable methods, techniques and instructional materials; use of advisory groups; progress evaluation; role of young farmer associations. *Prerequisite:* 104 and 152. Three hours. Mr. Gaylord.

282 SEMINAR Evaluation of student teaching experiences; in-school and out-of-school public relations; placement and follow-up of students; department management; planning and maintaining facilities; overall program; summer program and professional responsibilities. Required of agricultural education majors. *Prerequisite:* senior standing; 155. One hour. Mr. Gaylord.

301 through 304 RESEARCH IN AGRICULTURAL EDUCATION Investigation of a research topic under the direction of an assigned staff member. Credit as arranged.

Animal and Dairy Science

COLLEGE OF AGRICULTURE AND HOME ECONOMICS

Professors Atherton and Bradfield; Associate Professors Balch, Fitzsimmons and Smith (Chairman); Assistant Professors Duthie and Simmons.

1 **INTRODUCTORY DAIRY SCIENCE (2-3)** Management, feeding, selection, and breeding of dairy cattle. Three hours. Mr. Fitzsimmons.

2 **MILK AND MILK PRODUCTS (2-2)** History, development, role of products made from milk in the dairy industry, markets, and principles of processing. Three hours. Mr. Duthie.

4 **INTRODUCTORY ANIMAL SCIENCE (1-3)** Size, scope and functions of our modern livestock industry. The types and breeds of livestock of major economic importance; horses, beef cattle, sheep, and swine. Practical application of selection and management principles. Two hours. Mr. Balch.

44 **DAIRY CATTLE JUDGING (0-6)** Judging, fitting, and showing of dairy cattle. *Prerequisite:* 1. Two hours. Mr. Fitzsimmons.

95 **LIGHT HORSE PRODUCTION AND MANAGEMENT (2-3)** The problems of light horse production. Practical application of the principles of selection, management and horsemanship. Three hours. Mr. Balch. Alternate years, 1966-67.

97 **BEEF CATTLE AND SHEEP PRODUCTION (2-3)** The organization and operation of beef cattle and sheep enterprises. Theory and practical application of feeding, breeding, and management programs and principles. Three hours. Mr. Balch. Alternate years, 1967-68.

104 **DAIRY TESTING AND QUALITY CONTROL (2-2)** The composition and properties of milk. Standard methods of bacteriological and chemical analysis. General laboratory testing procedures for milk and milk products and their importance in quality control. Three hours. Mr. Atherton.

105 **FEEDS AND FEEDING (3-2)** Fundamentals of livestock feeding and evaluation of livestock rations with emphasis on ingredients and nutritive value. Four hours. Mr. Smith.

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

114 **MANUFACTURED DAIRY PRODUCTS (2-3)** Methods and technical problems in manufacturing milk products such as cheese, butter, evaporated and dry milks. *Prerequisite:* 2, junior standing. Three hours. Mr. Bradfield. Alternate years, 1967-68.

121 **SENSORY EVALUATION OF FOODS (1-4)** Employment of the senses in evaluation of foods; classification, physiology, and threshold values for taste and odor; comparison of sensory tests used in evaluation; testing consumer acceptance; practical experience in examining off-flavors in foods; and methods used in flavor identification research. Three hours. Mr. Duthie.

153 MILK PROCESSING (2-2) Technical aspects of processing fluid milk and fluid milk products. *Prerequisite:* departmental permission. Three hours. Mr. Bradfield.

197, 198 SENIOR RESEARCH Work on a research problem under the direction of a qualified staff member. Findings submitted in written form as prescribed by the department. *Prerequisite:* senior standing. Three hours. Staff.

206 ANIMAL NUTRITION Nutrients, their function and utilization, and requirements for growth, reproduction and lactation. *Prerequisite:* 105; chemistry 131. Three hours. Mr. Smith.

211 ICE CREAM AND FROZEN DAIRY PRODUCTS (2-3) Fundamentals of ice cream manufacturing, the physico-chemical and biological factors involved; calculation of formulas; sherbets and specialties; merchandising, soda fountain management and sanitary control. *Prerequisite:* 104; credit or concurrent enrollment in 109; junior standing. Three hours. Mr. Bradfield. Alternate years, 1967-68.

251 DAIRY CATTLE AND MILK PRODUCTION (2-2) Advanced principles of dairy cattle feeding and management. *Prerequisite:* 105. Three hours. Mr. Fitzsimmons.

256 DAIRY PLANT MANAGEMENT Organization and operation of milk processing and manufactured milk products plants. *Prerequisite:* 153; economics 12; junior standing. Two hours. Mr. Bradfield. Alternate years, 1966-67.

260 DAIRY CATTLE BREEDING (2-3) Theory and application of genetic principles to breeding of dairy cattle. *Prerequisite:* 1, zoology 115. Three hours. Mr. Fitzsimmons.

271 ENDOCRINOLOGY (2-2) Anatomy, physiology, glandular interrelationships, and assay methods of the endocrine glands and their hormones. *Prerequisite:* zoology 1 and departmental permission. Three hours. Mr. Simmons.

276 PHYSIOLOGY OF REPRODUCTION AND LACTATION (2-2) Fundamental principles of the physiology of reproduction and lactation with the primary emphasis on farm animals. *Prerequisite:* 271. Three hours. Mr. Simmons. Alternate years, 1966-67.

281, 282 ANIMAL AND DAIRY SCIENCE SEMINAR Reports and discussions of problems and special investigations in selected fields. One-three hours. Maximum credit 2 hours senior, 3 hours graduate. Staff.

291, 292 SPECIAL PROBLEMS IN ANIMAL AND DAIRY SCIENCE Reading, discussion, and special laboratory investigation in the field of animal and dairy science. Three hours. Staff.

294 HISTORY OF NUTRITION (See Home Economics 294). One hour. Messrs. Donovan and Smith and Miss Morse.

308 EXPERIMENTAL TECHNIQUES IN NUTRITION (0-4) Methods of conducting research in nutrition with the various animal species including humans. Physical, physiological and biochemical aspects considered. Experimental design and analyses. *Prerequisite:* a 200 level course in nutrition and in biochemistry. Two hours. Messrs. Donovan and Smith and Miss Morse.

391 through 399 MASTER'S THESIS RESEARCH Investigation of a research topic under the direction of an assigned staff member, culminating in an acceptable thesis. Credit as arranged.

Animal Pathology

COLLEGE OF AGRICULTURE AND HOME ECONOMICS

Professor Bolton (Chairman); Associate Professor Durrell

105 **ANATOMY AND PHYSIOLOGY** Structure and function of the various parts of the animal body with emphasis on cattle. *Prerequisite:* junior standing. Three hours. Dr. Durrell.

106 **ANIMAL DISEASES** Fundamentals of disease control and prevention. Special disease problems in cattle, sheep, horses, and swine with emphasis on control measures. *Prerequisite:* 105 strongly recommended; junior standing. Three hours. Dr. Durrell.

116 **POULTRY DISEASES (2-2)** Anatomy and physiology of the fowl. General principles of sanitation. Major diseases of chickens and turkeys. *Prerequisite:* botany 55. Three hours. Dr. Durrell.

197, 198 **SENIOR RESEARCH** Work on a research problem under the direction of a qualified staff member. Findings submitted in written form as prescribed by the department. *Prerequisite:* senior standing. Three hours. Staff.

391 through 399 **MASTER'S THESIS RESEARCH** Investigation of a research topic under the direction of an assigned staff member, culminating in an acceptable thesis. Credit as arranged.

Art

COLLEGE OF ARTS AND SCIENCES

Professor Colburn (Chairman); Associate Professors Davison, Janson and Mills; Instructor Aschenbach; Mr. Tuttle

1 **GREEK ART** History of art in Greek lands in ancient times, with principal emphasis on sculpture, architecture, and vase painting. *Prerequisite:* sophomore standing. Three hours. Miss Davison.

2 **RENAISSANCE ART** Architecture, sculpture and painting in Italy and Northern Europe 1400-1600. Studies of original material in the Museum collection. *Prerequisite:* sophomore standing. Three hours. I. Mr. Janson. Alternate years, 1966-67.

3 **MEDIEVAL ART** Architecture, sculpture, and painting in Western Europe from the year 1000 to the early 15th century. *Prerequisite:* sophomore standing. Three hours. II. Mr. Janson. Alternate years, 1966-67.

4 MODERN ART Painting and sculpture from the period of French Impressionism to the present time; emphasis on European influences. *Prerequisite*: junior standing. Three hours. Mrs. Mills.

5 ROCOCO AND ROMANTIC ART European architecture, sculpture, and painting, circa 1750-1850, and the origins of the modern movement. Studies of original material in the Museum collection. *Prerequisite*: sophomore standing. Three hours. II. Mr. Janson. Alternate years, 1966-67.

7 PAINTING IN AMERICA Development of painting in America from colonial times to 1900. Social and economic forces which at times channelled American artistic expression. *Prerequisite*: sophomore standing. Two hours. Mr. Colburn.

9-10 ART AND DESIGN Visual communication and order in art and design; elements of two and three-dimensional design; concepts of form and expression that distinguish key periods in the history of art. Lectures, discussions, and projects. Three hours. Staff.

11, 12 FINE METAL CRAFTS Basic creative experiences in enamels and silver jewelry to develop individual ability in design, appreciation and technical skill. Aspects of related historical and contemporary crafts. *Prerequisite*: sophomore standing. Three hours. Mrs. Mills.

13, 14 CERAMICS Design and practice in ceramics stressing technical competence and critical judgment. Hand coiled and thrown forms, firing and glazing. Studies of related aspects of historical and contemporary ceramics. *Prerequisite*: sophomore standing. Three hours. Staff.

21, 22 DRAWING AND PAINTING Composition and painting techniques. Emphasis on a clearer understanding of modern schools of painting and on individual development. By permission, the course may be taken a second time for credit. *Prerequisite*: sophomore standing; 21 for 22. Three hours. Messrs. Colburn and Tuttle.

41, 42 SCULPTURE An introductory course in sculpture, dealing with both formal and technical problems. *Prerequisite*: sophomore standing. 41 for 42; Three hours. Mr. Aschenbach.

106 MODERN ARCHITECTURE Monuments, masters and movements since 1850. Visits with architects and to modern buildings in the area. *Prerequisite*: junior standing; 9-10. Three hours. Mr. Janson. Alternate years, 1967-68.

108 AMERICAN ARCHITECTURE The Colonial period to Frank Lloyd Wright. Research projects particularly on buildings of historical interest in the area. *Prerequisite*: junior standing; 9-10. Three hours. Mr. Janson. Alternate years, 1967-68.

For courses in Art Education, see Elementary Education 170.

Botany

COLLEGE OF AGRICULTURE AND HOME ECONOMICS

Professors Dodge¹, Gershoy, Hyde (Chairman), Marvin, Sproston and Taylor; Associate Professors Raynor² and Vogelmann; Assistant Professors Cook, Fisher and Mathes

1 **INTRODUCTORY BOTANY (3-3)** Fundamental principles of biology illustrated by the morphology, physiology, and reproduction of vascular plants. Study of forms and functions, leading to an understanding of the plant as a dynamic unit. Four hours. I, II. Staff. (An equivalent course is offered in Summer Session.)

2 **THE PLANT KINGDOM (2-4)** Plant groups: their relationships to one another, based on structure and patterns of reproduction. Plant distribution in time and space. *Prerequisite:* 1. Four hours. Miss Raynor.

S10 **FIELD BOTANY (2-4)** Regular field trips conducted to areas around Lake Champlain and in the Green Mountains to study Vermont's rich native flora. Identification and classification of flowering plants. Techniques of collecting and mounting specimens. *Prerequisite:* a semester course in botany. Four hours. Mr. Vogelmann. Summer Session only.

51 **PLANTS AND MAN** The place of plants in man's affairs. The influence of plants on exploration, migration and the development of civilizations. The role of plants in the world today, with special emphasis on food, drug, fiber, and other useful plants and on the botanical features which contribute to their usefulness. *Prerequisite:* 1. Three hours. Mr. Taylor.

✓55 **INTRODUCTORY MICROBIOLOGY (2-4)** Study of microorganisms, especially bacteria, their structure, development and activities. Emphasis is placed on the basic principles and laboratory techniques. The role of microorganisms in nature and their various interrelationships with man are discussed. *Prerequisite:* eight hours of chemistry. Four hours. Mr. Fisher.

60 **PLANT ECOLOGY** Basic principles of plant ecology; climatology; analysis of the environment and its effect on organisms; interrelationships between plants; ecologic adaptations and evolution. *Prerequisite:* 1. Three hours. Mr. Vogelmann. Alternate years, 1966-67.

103 **PLANT PHYSIOLOGY (2-4)** Mechanisms of absorption, translocation, synthesis, and utilization of materials. The role of internal and external factors in growth. *Prerequisite:* 1; credit or concurrent enrollment in chemistry 131. Five hours. Mr. Mathes.

110 **TAXONOMY (1-4)** Principles of classification; phylogeny of vascular plants, the evolution of the angiosperms; the species concept; variation; development and migration of floras; modern techniques and biosystematics. *Prerequisite:* 1; junior standing. Three hours. Mr. Vogelmann. Alternate years, 1967-68.

1. Visiting professor.
2. Sabbatical leave first semester 1965-66.

113 PLANT COMMUNITIES (2-2) Structure and organization of plant communities; plant succession; formations and associations; sampling methods; field work. *Prerequisite:* 110. Three hours. Mr. Vogelmann. Alternate years, 1966-67.

117 PLANT PATHOLOGY (2-4) Diagnosis, life history, and control of plant diseases caused by fungi, viruses, bacteria, nematodes. *Prerequisite:* 1. Four hours. Mr. Sproston.

156 ADVANCED MICROBIOLOGY (3-2) Selected topics in microbiology, including further study of bacteriology, soil and food microbiology. Emphasis is placed on activities and role of microorganisms in the specialized habitats. *Prerequisite:* 55. Four hours. Mr. Fisher. Alternate years, 1966-67.

197, 198 SENIOR RESEARCH Work on a research problem under the direction of a qualified staff member. Findings submitted in written form as prescribed by department. *Prerequisite:* senior standing. Three hours. Staff.

205 MINERAL NUTRITION OF PLANTS (See Plant and Soil Science 205.) Three hours. Mr. Bartlett and botany, forestry, and plant and soil science staff. Alternate years, 1967-68.

252 PLANT ANATOMY AND HISTOLOGY (2-4) Development of the organism and accompanying integration of cellular tissues. Ontogeny of vegetative tissues; modifications of the cell wall. *Prerequisite:* 2; senior standing. Four hours. Mr. Taylor. Alternate years, 1966-67.

253 FUNGI (2-4) The reproductive processes of the common molds, yeasts, and actinomycetes and their classification. Physiological studies; antibiotics. *Prerequisite:* 103. Four hours. Mr. Sproston. Alternate years, 1967-68.

255 GENETICS AND CYTOGENETICS (2-2) Fundamental principles of genetics. Analysis of mendelian inheritance, recombination in higher plants and animals as well as microorganisms, chromosome aberrations, polyploidy. Gene action and introduction to molecular genetics. *Prerequisites:* 1 or zoology 1; zoology 115 and at least eight additional hours of botany or zoology. Three hours. Mr. Hyde.

256 CYTOLOGY (3-2) The dynamics of the protoplast; nuclear division, gamete formation and syngamy. Ultrastructure of cell organelles; nucleocytoplasmic interaction. *Prerequisite:* 255 or zoology 115; chemistry 131-132. Four hours. Mr. Hyde. Alternate years, 1966-67.

258 PLANT GROWTH (2-4) The nutrition of plant cells, growth hormones, cyclic variation of environmental factors, morphogenesis. *Prerequisite:* 103; chemistry 131, 132. Four hours. Mr. Marvin. Alternate years, 1967-68.

259 MORPHOLOGY AND EMBRYOLOGY (2-4) Comparative study of body form, ontogeny of reproductive structures and phylogenetic relationships in the embryophytes; emphasis on seed plants. *Prerequisite:* 2; senior standing. Four hours. Miss Raynor. Alternate years, 1966-67.

260 PHYCOLOGY (2-4) The morphology, classification, and general biology of the algae, with special consideration of the freshwater forms. Emphasis on the use of algae as experimental material for the investigation of general biological problems. *Prerequisite:* 2, or two courses in zoology or botany above 100. Four hours. Mr. Cook. Alternate years, 1967-68.

381, 382 **BOTANY SEMINAR** A topical seminar with discussion of assigned and collateral reading. Required of botany graduate students. One hour. Staff.

391 through 399 **MASTER'S THESIS RESEARCH** Investigation of a research topic under the direction of an assigned staff member, culminating in an acceptable thesis. Credit as arranged.

491 through 499 **DOCTORAL THESIS RESEARCH** Original research under the direction of an assigned staff member, culminating in an acceptable doctoral dissertation. Credit as arranged.

Chemistry

COLLEGE OF TECHNOLOGY

Professors Gregg and White (Chairman); Associate Professors Crooks, Flanagan, Krapcho and Whitcher; Assistant Professors Brooks, Brown, Kuehne, Waters and Wulff

Note: Credit cannot be granted for: 1-2 and also 11-12; 3-4 and also 1-2; 35 and also 131, 132; 140 and also 141-142.

1-2 **INTRODUCTORY CHEMISTRY (3-3)** General inorganic chemistry. Lectures, recitations and laboratory, including elementary qualitative analysis. Acceptable prerequisite to advanced courses. *Prerequisite:* at least one year of high school mathematics. Four hours. Messrs. Gregg, Crooks, Whitcher and Miss Brown and staff.

3-4 **OUTLINE OF CHEMISTRY (3-2)** Backgrounds of inorganic, organic, and biochemistry, primarily for students in nursing or for dental hygienists. Elective for others with the approval of the dean of their college and the chemistry department. *Prerequisite:* at least one year of high school mathematics. One year of high school chemistry or physics recommended. Four hours. Mr. Crooks and staff.

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

13, 14 **THE CHEMICAL BOND** Nature of interatomic and intermolecular forces. Stereochemistry, bond energies, and crystal structures are considered. *Prerequisite:* 1-2 or 11-12. One hour. Mr. Gregg.

123 **QUANTITATIVE ANALYSIS (3-3)** Theory and practice of gravimetric and volumetric methods of analysis. Theoretical discussion of indicators, buffers, pH, etc. *Prerequisite:* 1-2. Not open to students with credit for 11-12. Four hours. Mr. Whitcher.

131, 132 **ORGANIC CHEMISTRY (3-6)** Organic chemistry for chemistry majors, pre-medical students and those concentrating in the biological and physical sciences. *Prerequisite:*

site: 1-2 or 11-12; 21-22 recommended; 131 for 132. Five hours.^{1,2} Messrs. Krapcho and White and staff.

140 PHYSICAL CHEMISTRY FOR BIOLOGICAL SCIENCE STUDENTS Aspects of physical chemistry most pertinent to work in the biological sciences: acid-base equilibrium, theory of solutions, thermodynamics and kinetics. *Prerequisite:* 1-2, physics 5-6 or the equivalent. Three hours. Mr. Flanagan.

141-142 PHYSICAL CHEMISTRY Elementary quantum chemistry, introduction to statistical mechanics, thermodynamics, properties of solutions and chemical kinetics. *Prerequisite:* 1-2 or 11-12; physics 16; mathematics 21. Three hours. Messrs. Brooks and Wulff.

143 MOLECULAR STRUCTURE Molecular spectroscopy, scattering and resonance phenomena. *Prerequisite:* 142. Three hours. Staff.

144 PHYSICAL CHEMISTRY LABORATORY Basic physical chemistry experiments. *Prerequisite:* 11-12 or 123; 141; concurrent enrollment in 142. Two hours. Mr. Wulff.

145 ADVANCED PHYSICAL CHEMISTRY LABORATORY Experiments dealing with molecular structure; spectroscopy, x-ray diffraction, dipole moment determination, magnetic susceptibility. For chemistry majors. *Prerequisite:* 142; 144; concurrent enrollment in 143. Two hours. Staff.

Advanced Inorganic Chemistry

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

212 ADVANCED INORGANIC CHEMISTRY Chemistry of the elements; relation of structure to properties and to coordination compounds, complex ions, radioactivity, and stereoisomerism. *Prerequisite:* credit or concurrent enrollment in 141-142. Three hours. Mr. Waters.

Advanced Analytical Chemistry

224 INSTRUMENTAL ANALYSIS (2-6) Theory and practice of optical, electrometric, chromatographic, and radiochemical methods of analysis. *Prerequisite:* 11-12 or 123; 141 and credit for or concurrent enrollment in 142. Four hours. Mr. Whitcher.

Advanced Organic Chemistry

231 PHYSICAL ORGANIC CHEMISTRY—PRINCIPLES Structure-reactivity relationships, quantum organic chemistry, molecular properties and their interpretation, kinetics and catalysis. *Prerequisite:* 132 and 142 or 247. Three hours. Staff. Alternate years, 1966-67.

233 PHYSICAL ORGANIC CHEMISTRY—MECHANISMS Methods and results of investigations of mechanisms of common organic reactions. *Prerequisite:* 132 and 142 or 247. Three hours. Mr. Krapcho. Alternate years, 1967-68.

237 IDENTIFICATION OF ORGANIC COMPOUNDS AND ADVANCED TECHNIQUES IN ORGANIC CHEMISTRY (3-8) Methods, both chemical and physical, of identifying organic compounds, their separation, and the determination of their functional groups. Experi-

1. May be taken by certain students for four hours credit, with only one three-hour laboratory period.
2. May be taken without laboratory work for three hours credit by departmental permission.

ments with infrared and ultraviolet spectroscopy, vapor phase chromatography, thin layer, paper and column chromatography, selective oxidations and reductions, synthetic reactions, isolation and purification of a natural product. *Prerequisite:* 131, 132; credit or concurrent enrollment in 141-142. Five hours. Mr. Kuehne.

251, 252 **ADVANCED ORGANIC CHEMISTRY** A more detailed description of reactions encountered in basic organic chemistry. Topics include mechanisms of important classes of organic reactions, condensation reactions, synthetic methods, stereochemistry, electronic theory, tautomerism, free radicals; kinetic, radioisotope and stereochemical approaches to mechanism studies, and the application of acid-base theory to organic mechanisms. *Prerequisite:* 132; credit or concurrent enrollment in 141-142, 251 for 252. Three hours. Messrs. Kuehne and Krapcho.

332 **NATURAL PRODUCTS—THE ALKALOIDS** The major classes of alkaloids will be surveyed from a biogenetic point of view. Classical and modern degradation methods, total syntheses and biosynthetic incorporation of labeled compounds will be discussed. *Prerequisite:* 252 or concurrent enrollment, or the equivalent with departmental permission. Three hours. Mr. Kuehne. Alternate years, 1966-67.

334 **NATURAL PRODUCTS—THE TERPENES** Chemistry of mono-sequi-di and triterpenes, including degradations, structure proofs, total syntheses, rearrangements reactions and biogenesis. *Prerequisite:* as for chemistry 332. Three hours. Mr. Kuehne. Alternate years, 1967-68.

336, 338 **SPECIAL TOPICS IN ORGANIC CHEMISTRY** Advanced level discussion of specific topics in organic chemistry of current interest such as photochemistry, carbenes, bio-organic chemistry, magnetic resonance, etc. *Prerequisite:* departmental permission. Credit as arranged. Staff. 336, 1967-68; 338, 1966-67.

Advanced Physical Chemistry

247 **INTRODUCTION TO QUANTUM MECHANICS** General considerations of quantum mechanics. Development of techniques pertinent to the application of quantum mechanics to chemical problems. *Prerequisite:* 141-142 or equivalent. Three hours. Mr. Brooks.

248 **CHEMICAL THERMODYNAMICS** Systematic study of the application of thermodynamics to chemical problems. Concepts of statistical thermodynamics to be introduced. *Prerequisite:* 141-142 or equivalent. Three hours. Mr. Wulff.

249 **STATISTICAL MECHANICS** Development of statistical mechanics and its application to problems of chemical interest. *Prerequisite:* 141-142 or equivalent; 247 recommended. Three hours. Mr. Flanagan.

342 **CHEMICAL KINETICS** Fundamentals of chemical kinetics; collision theory, absolute rate theory, applications to organic and physical chemistry. *Prerequisite:* 247 and 248 or 249. Three hours. Staff. Alternate years, 1966-67.

344 **QUANTUM CHEMISTRY** Applications of quantum mechanical techniques to problems of chemical interest. *Prerequisite:* 247. Three hours. Mr. Brooks. Alternate years, 1966-67.

345, 346, 347 **SPECIAL TOPICS IN PHYSICAL CHEMISTRY** Advanced level discussion of specific topics in physical chemistry and chemical physics; group theory, solid state theory,

irreversible thermodynamics, solution theory. Credit as arranged. Staff. Offered as occasion warrants.

Seminars and Research

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

181-182 JUNIOR SEMINAR (2-0) One hour. Messrs. Brooks and Waters.

183-184 SENIOR SEMINAR (2-0) One hour. Staff.

197-198 SENIOR RESEARCH (0-6, 0-12) The student elects a field for special study in inorganic, analytical, physical or organic chemistry and works under the direction of a staff member. Findings submitted in written form and suitably bound. Required of seniors in the chemistry curriculum. Two hours. I. Four hours. II. Staff.

371, 372 METHODS OF CHEMICAL INVESTIGATION Introduction to advanced modern chemical methods. Primarily for chemistry doctoral students. *Prerequisite*: departmental permission. Two hours. Staff.

380 RESEARCH PROBLEM CONCEPTION AND SOLUTION Independent origination of research problems and the methods of their solution. Required of all doctoral candidates. *Prerequisite*: two years of graduate work and departmental permission. Three hours. Staff.

381 through 384 GRADUATE SEMINAR (2-0) One hour. Staff.

391 through 399 MASTER'S THESIS RESEARCH Investigation of a research topic under the direction of an assigned staff member, culminating in an acceptable thesis. Credit as arranged.

491 through 499 DOCTORAL THESIS RESEARCH Original research under the direction of an assigned staff member, culminating in an acceptable doctoral dissertation. Credit as arranged.



COLLEGE OF ARTS AND SCIENCES

Professors Gilleland and Kent (Chairman); Associate Professors Davison and Pooley; Assistant Professor Ambrose.

Greek

1-2 ELEMENTARY GREEK Essentials of Attic Greek. Prose compositions and selected readings from Greek authors. Four hours. Miss Davison.

11-12 INTERMEDIATE GREEK Review of syntax. Selections from Plato's dialogues, the speeches of Lysias, and Xenophon's *Hellenica*; Euripides' *Alcestis*. *Prerequisite*: 1-2 or its equivalent. Three hours. Messrs. Ambrose and Gilleland.

111-112 PROSE COMPOSITION Required of students who concentrate in Greek. *Prerequisite:* 11-12. One hour. Mr. Gilleland.

151 GREEK DRAMA IN TRANSLATION Plays of Aeschylus, Sophocles, Euripides, Aristophanes, and Menander. The historical development of dramatic techniques. *Prerequisite:* English 27, 28; six additional hours in literature and philosophy. Three hours. Mr. Gilleland. Alternate years, 1967-68.

153 GREEK HISTORIANS IN TRANSLATION Works of Herodotus, Thucydides, Xenophon, Polybius, Arrian, and others. Introduction to Greek historiography. *Prerequisite:* English 27, 28; six additional hours in literature and philosophy. Three hours. Mr. Kent. Alternate years, 1966-67.

201 GREEK ORATORS Selected speeches of Lysias and Demosthenes. *Prerequisite:* 11-12. Three hours. Mr. Kent. Alternate years, 1967-68.

202 GREEK COMEDY Two plays of Aristophanes. *Prerequisite:* 11-12. Three hours. Mr. Ambrose. Alternate years, 1966-67.

203 GREEK HISTORIANS Thucydides, Books I and II; selections from Herodotus and Xenophon's *Hellenica*. *Prerequisite:* 11-12. Three hours. Mr. Kent. Alternate years, 1966-67.

204 GREEK TRAGEDY Sophocles' *Antigone* and Euripides' *Medea*, or two equivalent plays. *Prerequisite:* 11-12. Three hours. Mr. Ambrose. Alternate years, 1967-68.

205 GREEK PHILOSOPHERS Plato, Republic, Books I and II; selections from the pre-Socratics and from Aristotle. *Prerequisite:* 11-12. Three hours. Mr. Ambrose. Alternate years, 1967-68.

252 GREEK EPIGRAPHY Introduction to Greek inscriptions, with emphasis on those of historical interest. *Prerequisite:* 201 or 203. Three hours. Mr. Kent. Alternate years, 1967-68.

381, 382 SEMINAR Graduate level study of Greek authors not read in the candidate's undergraduate program. Credit as arranged. Staff.

391 through 399 MASTER'S THESIS RESEARCH Investigation of a research topic under the direction of an assigned staff member, culminating in an acceptable thesis. Credit as arranged.

For Greek Philosophy, see Philosophy 107; for Greek Art, see Art 1.

Latin

1-2 ELEMENTARY LATIN Essentials of Ciceronian Latin. For students who present less than two years of high school Latin.¹ *Credit is allowed only if Latin 11-12 is also completed.* Four hours. Staff.

11-12 INTERMEDIATE LATIN Extensive review of Latin syntax. Selected speeches of Cicero; selections from Vergil and Ovid. *Prerequisite:* 1-2, or two years of high school Latin. Three hours. Staff.

1. Students who have completed two years of high school Latin more than two years prior to their entrance into the University must obtain departmental permission to enroll in Latin 1-2 for credit.

32 ETYMOLOGY Derivation of English words from Greek and Latin bases. Training in analysis of unfamiliar words; special attention to scientific vocabulary. No previous knowledge of Greek or Latin required. Three hours. Staff.

101, 102 SURVEY OF LATIN LITERATURE Selections from the principal Roman authors, with particular attention to Livy and Horace. The development and decline of various prose styles and poetic forms. *Prerequisite:* 11-12 or three years of high school Latin. Three hours. Staff.

111-112 LATIN PROSE COMPOSITION May be taken concurrently with Latin 101, 102. Required of students who major in Latin and of those who wish to be recommended to teach Latin. *Prerequisite:* 11-12 or three years of high school Latin. One hour. Mr. Pooley.

152 ROMAN EPIC IN TRANSLATION Latin epic poetry, from Ennius to Ausonius; its development, fruition, and decline. *Prerequisite:* English 27, 28; six additional hours in literature and philosophy. Three hours. Mr. Ambrose. Alternate years, 1967-68.

154 ROMAN SATIRE IN TRANSLATION Roman satire, in both prose and poetry, from Lucilius to Lucian, and its influence on medieval and modern literary forms. *Prerequisite:* English 27, 28; six additional hours in literature and philosophy. Three hours. Mr. Kent. Alternate years, 1966-67.

203 REPUBLICAN PROSE Reading in Caesar and Sallust, and in the speeches of Cicero. *Prerequisite:* 101, 102. Three hours. Mr. Gilleland.

204 EPIC POETS Reading in Lucretius, Vergil, Ovid, and others. *Prerequisite:* 101, 102. Three hours. Mr. Ambrose.

223 ADVANCED PROSE COMPOSITION *Prerequisite:* 111-112. Three hours. Mr. Pooley.

251 ROMAN LETTERS Selected letters of Cicero, Pliny, and Fronto. *Prerequisite:* 203, 204 or concurrent enrollment. Three hours. Mr. Pooley. Alternate years, 1967-68.

252 COMEDY Two plays of Plautus and Terence. Development of this literary form. *Prerequisite:* 203, 204 or concurrent enrollment. Three hours. Mr. Pooley. Alternate years, 1967-68.

253 ROMAN ORATORY Selections from Cicero's *De Oratore*, *Orator*, and *Brutus*, and from his speeches. Historical development of forensic and other rhetorical canons. *Prerequisite:* Latin 203, 204 or concurrent enrollment. Three hours. Mr. Gilleland. Alternate years, 1966-67.

255 HISTORIANS OF THE EMPIRE Augustus, *Res Gestae*; Tacitus, *Annals*, I-IV; selections from Suetonius and Ammianus Marcellinus. *Prerequisite:* 203, 204 or concurrent enrollment. Three hours. Mr. Pooley. Alternate years, 1966-67.

256 SATIRE Selections from Horace, Persius, and Juvenal. *Prerequisite:* 203, 204 or concurrent enrollment. Three hours. Mr. Kent. Alternate years, 1966-67.

271 SILVER LATIN Extensive reading of post-Augustan authors not included in other advanced courses. *Prerequisite:* 203, 204, and 6 additional hours in courses numbered above 200. Three hours. Mr. Gilleland. Alternate years, 1967-68.

381 through 384 SEMINAR Graduate level study of Latin authors not read in the candidate's undergraduate program. Credit as arranged. Staff.

391 through 399 **MASTER'S THESIS RESEARCH** Investigation of a research topic under the direction of an assigned staff member, culminating in an acceptable thesis. Credit as arranged.

For The Teaching of Latin, see Secondary Education 179.

Commerce and Economics

COLLEGE OF ARTS AND SCIENCES

Professors Greif, Nadworny, Nyquist, and Woodard; Associate Professors Dellin and LeSourd (Chairman); Assistant Professors Alnasrawi, Campagna, Michael, Schiller, H. Squire, M. Squire and Wass; Instructors Bloomberg, Eaton, Kelly, Saunders and Schweyer.

1-2 **WORLD ECONOMIC GEOGRAPHY** Geography as a basis for economic development; importance of resources to production, exchange, consumption, population, and national economies. Three hours. Staff.

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

13-14 **PRINCIPLES OF ACCOUNTING (2-4)** Problems of financial control of business, with laboratory practice. *Prerequisite:* sophomore standing. Four hours. Messrs. Campagna, Kelly and Michael.

15, 16 **ECONOMIC HISTORY OF THE UNITED STATES** Analysis of capitalism as first developed in Western Europe and later in the United States as a basis for understanding our modern economic systems. Three hours. Messrs. LeSourd, and Schiller, and Miss Woodard.

Banking, Finance and Insurance

109, 110 **BUSINESS LAW I** First Semester: fundamental legal concepts of the American system of law as related to business, as the law of contracts, sales, bailments, and negotiable instruments. Second semester: the legal aspects of business with reference to the law of agency, partnerships, and corporations. *Prerequisite:* 12, or concurrent enrollment. Three hours. Messrs. Bloomberg and Schweyer.

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

112 **PROPERTY AND CASUALTY INSURANCE** Principles underlying property and casualty insurance. *Prerequisite:* 12. Three hours. Staff.

201 **MONEY AND BANKING** Commercial and central banking with special attention given to the Federal Reserve System. Monetary theory and policy. *Prerequisite:* 12. Three hours. Mr. Alnasrawi.

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

204 **STATE AND LOCAL FINANCE** Revenues, expenditures, and debt management problems of state and local governments; analysis of state and local fiscal relationships. Problems, policies and practices in Vermont and neighboring states. *Prerequisite:* 12. Three hours. Mr. LeSourd.

205 **INTERNATIONAL TRADE AND FINANCE** Theory of international values, mechanism of adjustment of international balances, foreign exchange theory, international aspects of monetary and banking theory, and tariff theory. *Prerequisite:* 12, and a year of history. Three hours. Mr. Wass.

206 **PRINCIPLES OF INVESTMENTS** An analysis of the investment process, including an examination of types of financial assets, the markets in which such assets are traded, and factors affecting their values. *Prerequisite:* 12 and 14. Three hours. Mr. Wass.

207 **CORPORATE FINANCE** A study of the sources of financing and the efficient utilization of funds by corporations. Topics include capital budgeting, capital structure, dividend policy, and problems of financing new business ventures, large and small. *Prerequisite:* 12 and 14. Three hours. Messrs. Squire and Michael.

Marketing and Merchandising

121 **PRINCIPLES OF MARKETING** The place of marketing in our economy. Analysis of the marketing structure by functions, institutions, and commodities. *Prerequisite:* 12. Three hours. Mr. Greif.

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

126 **RETAILING MANAGEMENT** Retail merchandising and small store operation: finance, location, merchandising, promotion and control. The management techniques required for planning, organization, control and profitable operation. Individual project development. *Prerequisite:* 122. Three hours. Mr. Greif.

130 **SALES MANAGEMENT AND PROMOTION** Methods of selection, testing, training, compensation, and control. Principles and practices of creative selling. Sales organization analysis and the coordination of related department functions. *Prerequisite:* 122. Three hours. Mr. Greif.

132 **FUNDAMENTALS OF ADVERTISING** Advertising as an economic and social influence. Principles and techniques of copy preparation, selection of media and agency activities. Practice in preparation of advertising copy and layout. *Prerequisite:* 121. Three hours. Mr. Greif.

228 **CURRENT MARKETING DEVELOPMENTS** Modern marketing theory and practice. Topics include: the nature of consumer changes; urban and suburban trading centers; the distribution cycle; marketing legislation; functional and institutional changes. *Prerequisite:* 122. Three hours. Mr. Greif.

329 **MARKETING MANAGEMENT** Formulation of overall policies and planning strategies for marketing programs. Product planning and development; channel selection; market and sales forecasts; advertising and sales campaigns. *Prerequisite:* 228. Three hours. Mr. Greif.

Industrial and Personnel Management

For Motion and Time Study, and Plant Organization, recommended for students in this option, see Engineering, Mechanical (M.E. 175, 176).

141 **LABOR ECONOMICS** Labor as an economic factor: the labor force, wages, productivity, and income. Wage and hour legislation, social security, and unemployment insurance. History of the American labor movement. *Prerequisite:* 12. Three hours. Mr. Nadworny.

143 **INDUSTRIAL MANAGEMENT** Principles and practices employed in the direction and operation of industrial organizations. Techniques of organization and control of operations. Personnel function in an industrial structure. *Prerequisite:* 12. Three hours. Mr. Squire.

242 **COLLECTIVE BARGAINING** Subject matter, problems, and issues of union-management relationships. Structure and functions of collective bargaining in the economy. The grievance process and arbitration. Laws of collective bargaining. *Prerequisite:* 141. Three hours. Mr. Nadworny.

243 **DEVELOPMENTS IN LABOR-MANAGEMENT RELATIONS** Analysis of issues in collective bargaining: impact of long-term agreements; shifting wage and related benefits demands; impacts of shifting industrial and occupational structures on collective bargaining; interpretation of federal labor laws in relation to collective bargaining procedures; implications, and limits, of mediation and arbitration in disputes settlement. *Prerequisite:* 242. Three hours. Staff.

251 **PERSONNEL ADMINISTRATION** The field and organization of the personnel function; selecting and training employees; job analysis and evaluation; evaluating employees; wages and wage administration; problems of morale; human relations in the supervision of personnel. *Prerequisite:* 141. Three hours. Mr. Nadworny.

252 **EXECUTIVE DECISION-MAKING** Synthesis of the management and operation of a firm in terms of production, marketing, personnel, and finance. The process of decision-making, planning and execution of policies. *Prerequisite:* 121, 143, and a course in finance. Three hours. Mr. H. Squire.

254 **SCIENTIFIC MANAGEMENT AND LABOR** Development of scientific management; reactions and relationship of organized labor to it. Long-range effects of scientific management on the structure and policies of industry and organized labor. *Prerequisite:* 143. Three hours. Mr. Nadworny.

256 **AMERICAN BUSINESS HISTORY** Evolution of firms and industries from relatively small and undifferentiated establishments to large, highly complex institutions of the present day. Selected studies in textiles, machinery, transportation, steel, coal, electric machinery, insurance, communication, retail, and others. The roles of Federal and state governments and of legislation. Developments in American management. *Prerequisite:* 143. Three hours. Mr. Nadworny.

Accounting

160 INTRODUCTION TO INTEGRATED DATA PROCESSING AND COMPUTERS A study of the nature of business data processing and a general introduction to the components and characteristics of electronic digital computers available for such processing. Included is a study of programming systems, systems analysis, system design, elementary flow charting, and processing procedures. Demonstration problems are prepared for processing at the University Computer Center. *Prerequisite:* 14. Three hours. Mr. Nyquist.

161-162 INTERMEDIATE ACCOUNTING An intensive examination of accounting theory, valuation methods, and classification procedures as they pertain to balance sheet accounts. Second semester: consideration of balance sheet accounts continued; problems of single entry systems and incomplete records; financial statement analysis covering comparative analysis, ratios and measurements; funds-flow and cash-flow reporting and effects of price changes. *Prerequisite:* 14. Three hours. Mr. Michael.

164 BASIC FEDERAL TAXES The federal income tax law; regulations covering taxable income, exclusions and inclusions, allowable deductions, exemptions, gains and losses, accounting methods, and computation of tax for all classes of taxpayers; Federal payroll taxes. Assigned research problems and preparation of tax returns. *Prerequisite:* 14. Three hours. Mr. Nyquist.

266 ADVANCED ACCOUNTING Accounting for partnerships, ventures, consignments, installment sales, insurance, statement of affairs, receivers, realization and liquidation, estates, trusts, home offices and branches, and parent and subsidiary accounting. *Prerequisite:* 162. Three hours. Mr. Nyquist.

271 AUDITING Theory and practice of auditing applicable to the work of the internal and external auditor; auditor's responsibility, types of audits, and audit programs. Illustrative audit working papers, financial statements, and audit reports prepared and discussed. *Prerequisite:* 266. Three hours. Mr. Michael.

272, 273 COST ACCOUNTING The nature of manufacturing costs and conventional methods of accumulating, summarizing, and interpreting them. Special problems in job order, process and standard costs. Second semester, joint and by-product costs; problems of waste and spoilage; inventory planning, capital budgeting; accounting systems including EDP; statistical methods and operations research. *Prerequisite:* 14, 272 for 273. Three hours. Mr. Nyquist.

276 C.P.A. PROBLEMS Review of questions and problems from past C.P.A. examinations. Including: partnerships, corporations, financial statements, auditing, cost accounting, insolvencies, receiverships, liquidations, consolidations, estates, trusts, governmental and institutional accounting methods. *Prerequisite:* 266. Three hours. Mr. Nyquist.

353 BUDGET PROCEDURE AND CONTROL Principles and procedures of preparing budgets and analyzing performance under a budgetary program. Development of sales, production, materials, purchases, labor, capital additions, and cash budgets is demonstrated by coordinated problems assignment. *Prerequisite:* 161 or equivalent and 272. Three hours. Mr. Nyquist.

Economics

181 TRANSPORTATION Social and economic aspects of transportation problems as revealed by analysis of the nature, history, and problems of transportation agencies of the United States. *Prerequisite:* 12; political science 21, 22. Three hours. Staff.

183 ECONOMIC LIFE AND GOVERNMENT CONTROL Economic causes and consequences of government regulation and control of business activities. *Prerequisite:* 12; political science 21, 22. Three hours. Mr. H. Squire.

187, 188 ELEMENTARY STATISTICS (2-2) Theory and interpretation of statistics. First semester: data collection, graphical presentation, frequency distribution, measures of central tendency and dispersion, tests of significance, and analyses of variance. Second semester: index number theory and construction, time series, the fitting of linear and non-linear trend lines, and two-variable, multiple and partial correlation. *Prerequisite:* 12; mathematics 7, 8 or 11. Three hours. Mr. Saunders.

216¹ ECONOMIC DEVELOPMENT Theories of economic growth applied to underdeveloped areas of the contemporary world, including the political and social determinants of economic progress. *Prerequisite:* 11-12. Three hours. Staff.

238¹ ECONOMIC HISTORY OF MODERN EUROPE. A comparative historical study of the process of economic growth as experienced in Britain, France, Germany, and Russia since 1760. For the economic history of pre-industrial Europe see history 237. *Prerequisite:* 12 and history 12. Three hours. Mr. Schiller.

258 PROBLEMS OF COMMUNISM (cross-reference Political Science 258) A comparative study of economic and political problems of applied communism with particular emphasis on current developments in selected Communist countries. *Prerequisite:* 12 and six hours of political science or six hours of European history. Three hours. Mr. Dellin.

277¹ INTRODUCTION TO OPERATIONS RESEARCH Application of quantitative techniques to the formulation and solution of economic and business problems. Topics include demand and cost analysis, forecasting methods, linear programming, inventory and queuing theory. *Prerequisite:* 188. Three hours. Staff.

278¹ OPERATIONS RESEARCH SEMINAR Individual applied research into the application of mathematical and statistical techniques to specific business problems. Intended to follow Introduction to Operations Research or Quality Control and provide opportunities for experimentation using the methods of those courses. *Prerequisite:* 277 or 289. Three hours. Staff.

285¹ COMPARATIVE ECONOMIC SYSTEMS Major economic systems, their theoretical models, basic institutions and practical varieties, from a comparative point of view. *Prerequisite:* 11-12 and six hours in another social science. Three hours. Staff.

286 ECONOMIC ANALYSIS Analysis of consumer demand, supply, market price under competitive conditions and monopolistic influences, and the theory of income distribution. *Prerequisite:* 12 and one other semester course. Three hours. Mr. Wass.

289 QUALITY CONTROL (2-2) Application of statistical tools to industrial problems. Control charts, sampling plans, index numbers, and measurement of trends. *Prerequisite:* 187. Three hours. Mr. Saunders.

290 THE SOVIET ECONOMY Analysis of the economic development of the USSR, its structure, performance and direction. Seminar. *Prerequisite:* 12 and six hours in another social science. Three hours. Mr. Dellin.

1. Approval for graduate credit pending.

291 **ECONOMIC PATTERNS AND POLICIES OF EASTERN EUROPE** An area approach to the resources, organization, and domestic and foreign economic policies of the Communist countries of Eastern Europe, with special emphasis on recent changes. *Prerequisite:* 12 and six hours in another social science. Three hours. Mr. Dellin.

292 **INTERNATIONAL ECONOMIC PROBLEMS AND POLICIES** Important aspects of international cooperation and conflict in the economic sphere; quest for foreign markets, raw materials, investment opportunities, and population outlets. *Prerequisite:* 12. Three hours. Mr. Wass.

293 **MACROECONOMIC THEORY** Keynesian and post-Keynesian economic theories of aggregate income, employment and growth in developed economies. *Prerequisite:* 11-12. Three hours. Mr. LeSourd.

294 **MONETARY AND FISCAL POLICY** Government policies in relation to the problems of employment, stability and growth. *Prerequisite:* 201, 293. Three hours. Mr. LeSourd.

295 **HISTORY OF ECONOMIC THOUGHT** Development of economic ideas from classical antiquity to modern times. The Classical, Historical, Socialist, Optimist, Marginalist, and Neoclassical Schools. *Prerequisite:* 286 or concurrent enrollment. Three hours. Mr. Dellin.

296 **MODERN ECONOMIC THOUGHT** Survey of the leading 20th Century economists and their doctrines including: J. B. Clark, Thorstein Veblen, Alfred Marshall, W. C. Mitchell, J. A. Hobson, J. M. Keynes and J. R. Hicks. *Prerequisite:* 286 or concurrent enrollment. 293 recommended. Three hours. Mr. Dellin.

297, 298 **SEMINAR** For students concentrating in the department. Review of recent books and periodic literature; discussions of topics of contemporary interest; student reports based upon personal investigation. *Prerequisite:* senior standing; departmental permission. Three hours. Staff.

300, 301 **INDEPENDENT READING AND RESEARCH** Designed to meet the special research problems of graduate students. Departmental consent required. Hours to be arranged. Staff.

341 **MANAGERIAL ECONOMICS** Techniques used in management decision-making and forward planning. Demand and cost analysis, forecasting methods, capital management and budgetary planning. *Prerequisite:* 187, 188 or its equivalent and 286. Three hours. Mr. Campagna.

342 **OPERATIONS RESEARCH FOR MANAGERIAL ECONOMICS** Application of advanced quantitative methods to operating problems in business. Operations research techniques including programming, both linear and curvilinear, and queuing theory are presented. *Prerequisite:* 341 and mathematics 7, 8 or 11, 12. Three hours. Staff.

367 **ADVANCED ECONOMIC STATISTICS** Theories and techniques of statistical analysis; probability, sampling, design of experiments, tests of statistical hypotheses, statistical estimation, regression, correlation, statistical demand and cost functions, econometric methods and models as tools of structural analysis, economic projections and decision-making. *Prerequisite:* 187, 188 or its equivalent and mathematics 7, 8 or 11, 12. Three hours. Staff.

377 **ADVANCED ECONOMIC THEORY** Macro- and micro-economic models presented and analyzed. Advanced market structure theories; theory of games, general equilibrium, and dynamic models. *Prerequisite:* 286. Three hours. Staff.

391 through 399 **MASTER'S THESIS RESEARCH** Investigation of a research topic under the direction of an assigned staff member, culminating in an acceptable thesis. Credit as arranged.

Dental Hygiene

SCHOOL OF DENTAL HYGIENE

Assistant Professors Quinby and Sawabini (*Chairman*); *Instructors* Bannister, Faigel, Farnham, Halebian, M. C. Heining, P. L. Heining, Knight, Lampert, Montgomery, Slack and Wark.

1 **ORIENTATION TO DENTAL HYGIENE (2)** The dental hygiene movement; history, growth, status of dental hygienist, scope of operations, standards and ethics, personal qualifications and personality traits. Two hours. Miss Quinby.

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

11 **DENTAL ANATOMY (2-4)** Anatomy of head and neck; form and structure of teeth, nomenclature and relationship; calcification and eruption of teeth; drawing, carving, and identification of individual teeth. Four hours. Dr. Heining.

22 **GENERAL AND DENTAL HISTOLOGY AND EMBRYOLOGY (2-2)** Microscopic structure and development of the basic tissues of the body with emphasis on dental and oral material. Use of microscope, colored slide projections and drawings. Three hours. Dr. Wark.

31 **MEDICAL EMERGENCIES (1-0)** Basic principles of emergency aid taught to prevent and cope with emergencies that arise in the dental office. One hour. Mrs. Heining.

51-52 **PHARMACOLOGY AND ANESTHESIOLOGY (1-0) (1-0)** The reactions and uses of drugs. Anesthesia, general and local, as used in dental practice. One hour. Dr. Farnham.

53-54 **ORAL PATHOLOGY (2-2)** General pathology of the more common diseases affecting the human body. Pathology of the teeth and their supporting structures. Two hours. Dr. Faigel.

55 **PERIODONTICS (1-0)** Classification of periodontal disease, clinical picture, etiological factors, and types of treatment. Particular emphasis is placed on the role of the hygienist in patient education for the prevention of periodontal disease. One hour. Dr. Faigel.

61-62 **RADIOLOGY (1-1)** Study, demonstration, and practice of the fundamentals of intra-oral radiographic technic including electrophysics; angulation of machine; placing of films and complete processing of films. One hour. Mr. Bannister and Dr. Slack.

72 DENTAL HEALTH EDUCATION (2-0) Demonstrations and practical applications of modern methods of dental health education. Teaching methods; visual aids; surveys and statistics; materials; campaigns; school dental programs. Two hours. Mrs. Knight.

74 PUBLIC HEALTH (2-0) Public health as it applies to community sanitation; communicable disease control; organization, powers and function of health departments and voluntary health agencies; relation of dentistry to public health. Two hours. Dr. Montgomery.

81-82 DENTAL HYGIENE CLINIC PRACTICE (0-15) Clinical practice on patients from simple to more difficult cases with children and adults. Field practice at local dental clinics, hospitals and in Children's Homes. Five hours. Miss Quinby and Mrs. Knight.

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

Education

COLLEGE OF EDUCATION AND NURSING

Professors Baker (Chairman), Kent, King, Lidral, Pappoutsakis, Rippa and Steeves; Associate Professors Boller, Mills and Redmond; Assistant Professors Adams, Bryant, Christensen, Davenport, Gobin, Keene, Leggett, Mour, Petrusich, Schultz, and Weinrich; Instructors Chase, Farrell, Gardner, Greig, Lambert, Lee and McDonald.

For students who are not in teacher education, courses in education are open only by permission of the Department of Education.

2 FOUNDATIONS OF EDUCATION Social foundations of education; development of American education; education as a profession. Two hours. I or II. Staff.

7 EDUCATIONAL PSYCHOLOGY Principles of educational psychology as drawn from research, theory, and educational practice. A study of the learning process, its determining conditions, and its results. *Prerequisite:* junior standing, not open to students who take education 145-146. Three hours. Mr. Gardner.

145-146 LEARNING AND HUMAN DEVELOPMENT The developing individual; psychology of learning with particular application to human development; measurement and evaluation of learning and development. *Prerequisite:* junior standing. Three hours. Messrs. Gardner and Rippa.

190 HISTORY OF EDUCATIONAL THOUGHT Educational ideas from the seventeenth century to the present with emphasis upon the historical development of the American school. *Prerequisite:* senior standing. Three hours. Miss Boller and Mr. Rippa.

202 PHILOSOPHY OF EDUCATION Educational theory and philosophy past and present; contributions of leading educational philosophers; the interrelationships of education,

society, and philosophy. *Prerequisite*: senior standing; twelve semester hours in education and psychology. Three hours. Miss Boller.

205 HISTORY OF AMERICAN EDUCATION History of principles and practices in American education as they relate to social, economic, political, and cultural developments. *Prerequisite*: twelve hours in education and psychology, or a major in history. Three hours. Mr. Rippa.

211 EDUCATIONAL MEASUREMENTS Essential principles of measurement in education; test construction, application, and analysis. *Prerequisite*: senior standing and twelve semester hours in education and psychology. Three hours. Mr. Steeves.

222 IMPROVEMENT OF READING INSTRUCTION Practices and techniques in reading instruction. Discussion of methods of analysis, diagnostic tests and correction of reading problems. *Prerequisite*: twelve hours in education and psychology including an introductory course in reading. Three hours. Mr. Mour.

250 GUIDANCE IN EDUCATION Introduction to guidance as an organized function of education; bases of modern guidance practices; the school testing program; relationship of guidance to the curriculum; counseling techniques for classroom teachers. *Prerequisite*: senior standing and twelve semester hours in education and psychology. Three hours. Mr. Rippa.

255 THE SCHOOL AS A SOCIAL INSTITUTION Analysis of major social forces affecting elementary and secondary education; exploration of values underlying educational policy; examination of contemporary social, cultural, economic and political issues and their impact upon the school. *Prerequisite*: twelve semester hours in education and psychology or nine semester hours in sociology. Three hours. Staff.

275 ANALYSIS OF READING PROBLEMS A study of group and individual clinical measures for diagnosing reading needs. Instruction and experience in administering techniques for diagnosing reading, spelling and study skills problems and recommending corrective materials and procedures. *Prerequisite*: twelve hours in education and psychology including a course in tests and measurements and techniques in teaching of reading. Previous teaching experience is recommended. Three hours. Mr. Mour.

284 COUNSELING The process and technique of counseling with emphasis on the sociological and psychological bases. Counseling will be presented as a specialized form of teaching with consideration of its various techniques: interviews, group work, test interpretation, and analysis of case material. *Prerequisite*: graduate standing and twelve hours in education and psychology. Three hours. Staff.

285 INDIVIDUAL TESTING Specific training in the techniques of the administration, scoring, and interpretation of individual intelligence tests suitable for application from the pre-school age through adult levels. Special emphasis will be placed on the Stanford-Binet Scale, L-M, and the Wechsler Adult Intelligence Scale. *Prerequisite*: graduate standing and twelve hours in education and psychology including an introductory course in testing. Three hours. Mr. Gardner.

297, 298 PROBLEMS IN EDUCATION Individual research problem to be selected by the student in consultation with a staff member. *Prerequisite*: twelve hours in education and psychology. Endorsement by a sponsoring faculty member. Credit to be arranged. Staff.

391 through 399 **MASTER'S THESIS RESEARCH** Investigation of a research topic under the direction of an assigned staff member, culminating in an acceptable thesis. Credit as arranged.

Elementary Education

3 **CHILD AND COMMUNITY** Supervised experiences with children's groups in the community. One hour. Miss Boller.

113 **SCHOOL MUSIC** Basic principles in elementary school music teaching. *Prerequisite:* music 9-10 or 1, 2 and 5-6. Three hours. Staff.

121 **TEACHING READING** Principles underlying teaching reading; materials of instruction; reading readiness; vocabulary development; development of correct study skills; observation in elementary school. Three hours. Mrs. Adams.

134 **CHILDREN'S LITERATURE** Traditional and modern children's literature in prose and poetry; appreciation and evaluation of literature for children of all age levels; techniques of story telling. Three hours. Mrs. Adams.

140 **ART FOR THE ELEMENTARY SCHOOL** Purposes and methods of contemporary art education in the development of the child. Lectures, discussions, and direct experience in creative art for classroom teachers. Three hours. Mrs. Mills.

144 **METHODS AND MATERIALS I** Curriculum, teaching methods, materials in language arts, social studies, science, and arithmetic in the elementary school. Observations and participation in elementary schools. Three hours. Misses Boller and Petrusich and Mr. Redmond.

160 **METHODS AND MATERIALS II** Classroom management, instructional planning, and methods of teaching in all core subjects in the elementary school. Three hours. Misses Boller and Petrusich and Mr. Redmond.

161 **STUDENT TEACHING** Seven full weeks of teaching in the elementary schools of Burlington and vicinity under the guidance of cooperating teachers and college supervisors. *Prerequisite:* senior standing; approval of the supervisors of student teaching. Seven hours. Misses Boller and Petrusich and Mr. Redmond.

Secondary Education

15 **PARTICIPATION** Thirty clock hours of observation and participation in classroom work in junior and senior high schools. Discussion meetings on campus. *Prerequisite:* departmental permission. Two hours. Mr. Steeves and staff.

178 **SECONDARY METHODS AND PROCEDURES** General methods of secondary school instruction; classroom problems common to all teachers. *Prerequisite:* satisfactory completion of six hours in education; senior standing; departmental permission. Two or three hours. Taken coordinately with student teaching. Mr. Steeves.

179 **CONTENT, CURRICULUM, METHODS AND MATERIALS IN SPECIAL SUBJECT AREAS** (Latin, mathematics, Romance languages and social studies) *Prerequisite:* education 178 and acceptance in teacher education. Two hours. Staff.

181 **STUDENT TEACHING IN SECONDARY SCHOOLS** Seven weeks of teaching in the public schools of Vermont under the guidance of cooperating teachers, principals, and

college supervisors. *Prerequisite:* 15, 178 and 145-146; high achievement in professional courses and in appropriate teaching fields; departmental approval. Candidates must make written application at least one full semester in advance of the teaching assignment. Six hours. Mr. Steeves and staff.

217 SECONDARY SCHOOL CURRICULUM Principles and problems in curriculum development for secondary schools. *Prerequisite:* senior standing and twelve hours of education and psychology. Three hours. Mr. Rippa.

Business Education

104 PRINCIPLES OF BUSINESS EDUCATION Basic principles, practices, problems and trends in business education. *Prerequisite:* psychology 1. Two hours. Mr. McDonald.

105 TEACHING BUSINESS SUBJECTS Principles and techniques in the organization and the teaching of business subjects in the high school. *Prerequisite:* 104. Two hours. Mr. McDonald.

Music Education

For applied music class study see 71, 72 under Music Department.

131 MUSIC METHODS Methods and materials in the teaching of vocal and instrumental music in elementary and secondary schools. *Prerequisite:* 145-146 and senior standing in music education. Five hours. Mr. Schultz.

151 STUDENT TEACHING IN MUSIC Seven weeks of teaching in the public schools of Vermont under the guidance of cooperating teachers, principals, and college supervisors. *Prerequisite:* concurrent enrollment in 131 and departmental permission. Seven hours. Mr. Schultz.

290 BASIC CONCEPTS IN MUSIC EDUCATION Disciplinary backgrounds; historical and philosophical foundations; fundamental considerations of the functions of music in the schools; development of a personal philosophy. *Prerequisite:* senior standing as a music education major. Three hours. Mr. Keene.

291 PSYCHOLOGY OF MUSIC Psychological dimensions of tone and rhythm; the learning process in music; emotional and aesthetic response; musical ability; musical behavior and its measurement; American and European viewpoints and contributions. *Prerequisite:* 145-146 or psychology 1 and 205. Three hours. Mr. Lidral.

390 ORGANIZATION AND ADMINISTRATION OF MUSIC EDUCATION A study of the organization and administration of vocal and instrumental music in the public schools. *Prerequisite:* graduate standing in music education and teaching experience. Three hours. Mr. Schultz.

Physical Education

22 FIRST AID AND SAFETY EDUCATION (1-2) Study of safety needs at various maturity levels and in the school environment. A consideration of first aid practices for common injury situations including wounds, burns, shock, broken bones, artificial respiration, and poisoning, including techniques of bandaging and transportation. Red Cross certificate for successful completion. Two hours. Mr. Bryant.

41, 42, 43, 44, 45, 46 TECHNIQUES OF COACHING (1-2) Football; track and cross country; basketball; baseball; soccer; women's sports. Lecture and laboratory. *Prerequisite:*

demonstrated skill proficiency and sophomore standing. Credit only for students in the physical education major or minor. Two hours. Staff.

50 INTRODUCTION TO DANCE (2-2) An introduction to the field of dance. Background in the historical and educational basis of dance. Opportunities to develop skill in the types of dances commonly taught in public schools. Three hours. Miss Lee.

51 FOUNDATIONS OF PHYSICAL EDUCATION An introduction to the scope and role of school physical education; and to the opportunities and obligations associated with physical education as a profession. Three hours. Mr. Leggett.

52 DEVELOPMENT OF MOTOR SKILLS (1-2) Orientation to an understanding of the basic motor skills which form the foundation for all activity planning in the physical education program. Two hours. Miss Chase.

100 PHYSICAL EDUCATION IN THE ELEMENTARY SCHOOL Knowledge of basic skills and techniques for teaching, organizing, and administering the elementary school physical education activities program. Three hours. Staff.

116 HEALTH EDUCATION Role of the classroom teacher in the program of school and community health. Physical development and well-being of the human body. Two hours or three hours. Messrs. Gobin and Lambert.

154 INTRODUCTION TO RECREATION Recreation and recreation education; theory and practice of recreational activities for youth and adults. Two hours. Mr. Greig.

155 PHYSICAL EDUCATION IN SECONDARY SCHOOLS Practice in activity and activity teaching methods in team, individual, dual, recreational sports and other media of physical education suitable for secondary grades. Three hours. Mr. Leggett.

156 CURRICULUM IN PHYSICAL EDUCATION A study of student developmental needs and interests, objectives, and contemporary curricular designs for implementing the physical education program. Three hours. Mr. Gobin.

157 PREVENTION AND CARE OF ATHLETIC INJURIES Prevention, recognition and care of injuries related to school physical education and athletic programs. *Prerequisite:* 22 or a valid first aid certificate. Two hours. Mr. Bryant.

158 ORGANIZATION AND ADMINISTRATION OF HEALTH AND PHYSICAL EDUCATION Organization and administration of instructional programs, intramurals, interscholastic athletics, school recreational programs, schedules, personnel, budgets, equipment, records, tests, and public relations. *Prerequisite:* 156. Three hours. Mr. Christensen and Miss Davenport.

166 KINESIOLOGY (2-2) Study of joint articulation, muscular action, and basic principles of body mechanics as a foundation for the analysis of motor performance in physical education activities, athletics, and physical therapy. *Prerequisite:* zoology 5 and 6. Three hours. Staff.

167 PHYSIOLOGY OF MUSCULAR ACTIVITY (2-2) Study of physical exercise upon the circulatory, respiratory, digestive, and nervous systems. Relationship of endurance, fatigue, training and nutrition to the efficiency of physical performance. *Prerequisite:* 166. Three hours. Mr. Leggett.

168 TESTS AND MEASUREMENTS IN PHYSICAL EDUCATION (2-1) Principles and techniques in evaluation of instruction in health and physical education. Emphasis is given to test selection, administration, construction, application of statistical procedures, and development and interpretation of research data. Three hours. Mr. Gobin.

169 HISTORY AND PRINCIPLES OF PHYSICAL EDUCATION The development of physical education; functions of physical education in society; underlying principles and concepts. Three hours. Mr. Lambert.

Other Courses in Education

In addition to the courses offered during the academic year, the following courses may be offered in summer sessions and in the evening division program.

<i>Number</i>	<i>Title</i>	<i>Credit Hours</i>
S75	Driver Education Workshop, Basic	2
S109	Science Methods	3
S110	Teaching Social Studies (elementary)	3
S114	Music for the Junior High School	3
S115	Guidance of Music Activities—Grades III–VI	3
S117	Alcohol Education	3
S118	Guiding Elementary School Pupils in Music Experiences	3
S119	Elementary School Music (Music for grades I–III)	3
S122	Developmental Reading	3
S127	Science for Teachers	3
S132	Teaching Arithmetic	3
S142	Audio-Visual Materials and Methods	3
S150	Intensive Teacher Training	4
S172	The Creative Process Through Art.	3
S175	Driver Education, Advanced	2
S200	The History of Arithmetic	3
S201	Administration of the Athletic Program	3
S203	Principles of Physical Education	3
S204	History of European Education	3
S206	Comparative Education	3
S209	Workshop in the Education of Teachers of the Mentally Retarded	6
S210	Workshop in the Education of Teachers of the Mentally Retarded II	6
S212	Child Development (Adolescent Development)	3
S213	Statistical Methods in Education and Guidance	3
S214	The Slow Learner (Education of the Exceptional Child).	3
S215	The Gifted Child	3
S216	Health Education	6
S218	Workshop in Curriculum	4
S219	Workshop in Economic Education	4
S220	Personality Development and Mental Hygiene	3
S223	Reading Clinic	2-4
S225	Teaching Social Studies in the Secondary School.	3
S226	Conservation	6

S227	Teaching Science in the Secondary School	3
S228	Literature in the Junior-Senior High School Curriculum (Literary Criticism for Teachers)	3
S229	Communicative Arts in Secondary Schools (Teaching English in Secondary Schools)	3
S230	The Elementary School Principalship	3
S231	The Secondary School Principalship	3
S232	School Administration	3
S233	Elementary School Supervision	3
S234	Secondary School Supervision	3
S235	Seminar in Educational Administration (Supervision)	3
S237	Public Relations in Education	3
S241	Science Methods (Science for Elementary Schools)	3
S242	Modern Trends in Elementary Education	3
S243	Reading and Study in the Secondary School	3
S244	Social Studies in the Elementary School	3
S248	Technological Developments in Teaching	3
S255	The School as a Social Institution	3
S256	Methods and Materials in Elementary School Mathematics	3
S257	Teaching Mathematics in the Secondary Schools	3
S259	Teaching Foreign Language in the Elementary (Secondary) School	3
S260	Improvement in Teaching Bookkeeping and Basic Business Subjects	3
S261	Seminar in Business Education	3
S262	Principles, Problems, and Trends in Business Education	3
S263	Improvement in Teaching Secretarial Subjects	3
S264	Business Education Curriculum	3
S270	Kindergarten Methods and Organization	4
S271	Laboratory Experiences in Kindergarten Education	4
S275	Analysis of Reading Problems	3
S277	Seminar in Educational Psychology	3
S280	Professional Problems in Education	3
S281	Occupational Information	3
S282	Administration and Organization of the Guidance Program	3
S283	Group Testing in Guidance	3
S284	Counseling (Techniques and Group Procedures in Guidance)	3
S285	Individual Testing	3
S286	Test Interpretation for School Counselors	3
S299	Research Methods in Education	3

Engineering, Agricultural

COLLEGE OF AGRICULTURE AND HOME ECONOMICS

Professor Schneider (Chairman); Associate Professor Arnold; Assistant Professor Bornstein

1 FARM POWER, MACHINERY AND ELECTRICITY (2-2) Operation and maintenance of internal combustion engines and farm tractors; operation and the maintenance of farm machinery; electricity and the utilization of electricity and electrical equipment on the farm. Not for credit for B.S.A.E. degree candidates. Three hours. Mr. Arnold.

2 FARM STRUCTURES AND UTILITIES AND SOIL AND WATER ENGINEERING (2-2) Construction on the farm; planning and selection of materials. Operation, selection and maintenance of farm water systems and sewage disposal systems. Operation of refrigeration units used on the farm. Soil conservation practices and surveying. Not for credit for B.S.A.E. degree candidates. Three hours. Mr. Arnold.

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

115 DAIRY PRODUCTION ENGINEERING (2-2) Theory, principles, and practices in the operation and selection of milk production and handling equipment. *Prerequisite:* physics 5 or 14. Three hours. Given jointly with the Animal and Dairy Science Department. Mr. Arnold and Department of Animal and Dairy Science staff. Alternate years, 1967-68.

116 DAIRY PLANT ENGINEERING (2-2) Theory and practical problems in the operation and selection of dairy processing equipment. *Prerequisite:* 115. Three hours. Given jointly with Animal and Dairy Science Department. Messrs. Arnold and Bradfield. Alternate years, 1967-68.

151 FARM STRUCTURES (2-2) Design of farm structures, materials, structural requirements, functional requirements, insulating, heating, and ventilating. *Prerequisite:* civil engineering 131 or concurrent enrollment. Three hours. Mr. Arnold. Alternate years, 1966-67.

152 FARM UTILITIES (2-2) Water systems; plumbing; sewage disposal; refrigeration. *Prerequisite:* mechanical engineering 142 or civil engineering 162 or concurrent enrollment; physics 16. Three hours. Mr. Arnold. Alternate years, 1966-67.

154 AGRICULTURAL MACHINERY AND EQUIPMENT (2-2) Theory, design, operation and maintenance of agricultural machinery and equipment. *Prerequisite:* civil engineering 130 and 131. Three hours. Mr. Arnold. Alternate years, 1967-68.

155 SOIL AND WATER ENGINEERING (2-2) Study of hydrologic, hydraulic, and agronomic principles as related to design and installation of drainage and irrigation systems, erosion control facilities, farm and small watershed flood control reservoirs, and stream channel improvements. Philosophy of soil and water conservation. *Prerequisite:* plant and soil science 63, civil engineering 53. Three hours. Mr. Bornstein. Alternate years, 1967-68.

156 **ELECTRICITY IN AGRICULTURE (2-2)** Theory and engineering practices in the application of electricity to agriculture. *Prerequisite:* electrical engineering 101. Three hours. Mr. Arnold. Alternate years, 1966-67.

158 **FARM POWER MACHINERY (2-2)** Theory, design, operation, and maintenance of tractors and their engines. *Prerequisite:* mechanical engineering 113, civil engineering 131 or concurrent enrollment. Three hours. Mr. Arnold. Alternate years, 1967-68.

182 **JUNIOR SEMINAR (1-0)** Review and discussion of current agricultural engineering research, student reports and studies of agricultural engineering problems. *Prerequisite:* junior standing and departmental permission. One hour. Staff.

183, 184 **SENIOR SEMINAR (1-0)** Review and discussion of current agricultural engineering research, student reports and studies of agricultural engineering problems. *Prerequisite:* 182. One hour. Staff.

Engineering, Civil

COLLEGE OF TECHNOLOGY

Professor Milbank (Chairman); Associate Professors Knight, Root and Fay, Assistant Professors Ragan and Stearns; Visiting Assistant Professor Dorwart

24 **STATICS (3-0)** Fundamentals of statics; composition and resolution of forces; the analysis of force systems in two and three dimensions, centroids and moments of inertia. *Prerequisite:* mathematics 12. Three hours. I, II. Staff.

51-52 **SURVEYING (3-4)** First semester: propagation of errors; error application to measurements in surveying; selected items in plane surveying. Second semester: selected items in analytical photogrammetry; elements of photo-interpretation; control surveys; theory of curves and earthworks. *Prerequisite:* mathematics 11 for 51, mathematics 12 and 51 or 53 for 52. Four hours. Mr. Root.

53 **PLANE SURVEYING (3-4)** Fundamental surveying methods; elements of topographic surveying; special problems as presented in fields affected. For those not enrolled in civil engineering. *Prerequisite:* mathematics 9 and 2. Four hours. Mr. Root.

113 **CONCRETE AND BITUMINOUS LABORATORY (0-3)** Testing materials used in concrete and bituminous mixtures; design of mixes to obtain specified compressive and flexural strengths; investigations of durability, yield, economy, and the effect of admixtures. *Prerequisite:* 131 and 173 or concurrent enrollment. One hour. Mr. Knight.

114 **MECHANICS OF MATERIALS LABORATORY (0-3)** Experimental stress analysis methods; fundamental properties of metals, plastics, and wood; the effects of size, shape, method and speed of loading, and strain history on these properties. *Prerequisite:* 131. One hour. Staff.

130 **DYNAMICS (3-0)** Fundamentals of kinematics covering rectilinear and curvilinear motion, relative motion, Coriolis acceleration, translation, rotation, and plane motion.

Fundamentals of kinetics covering translation, rotation, and plane motion of particles and rigid bodies; work, energy, power; impulse and momentum; simple harmonic motion. *Prerequisite:* 24, also mathematics 12. Three hours. I, II. Staff.

131 **MECHANICS OF MATERIALS I (3-0)** The elastic and plastic behavior of materials; normal and shearing stresses from axial, torsional, and flexural loading combinations; deflections due to torsion and bending; applications to statically indeterminate members; analysis of plane stress and strain; failure theories, and design criteria. *Prerequisite:* 24; also mathematics 12. Three hours. I. Staff.

140 **STATICALLY DETERMINATE STRUCTURES (3-3)** Analysis and design of statically determinate structures; prefaced by consideration of function, expected loads, reactions, material choice, and layout of members. Influence lines; criteria for positioning moving loads; design of steel and timber members under combined bending and axial load; base plates; eccentric connections. Laboratory practice in the graphic statics and design computations, including use of electronic computation methods. *Prerequisite:* 131. Four hours. Mr. Knight.

151 **ENGINEERING CONTRACTS (2-0)** Contract law and engineering specifications, ethics and professional conduct. *Prerequisite:* junior standing. Two hours. II. Mr. Milbank.

155 **REINFORCED CONCRETE (3-0)** Analysis of stresses in plain and reinforced concrete members. Design of reinforced concrete structures. Theory of prestressed concrete. *Prerequisite:* concurrent enrollment in 175. Three hours. Mr. Milbank.

158 **SUBSTRUCTURE ANALYSIS AND DESIGN (3-3)** Evaluation of subsoil conditions and earth pressures; design of retaining walls, substructures for buildings and bridges, and cofferdams. *Prerequisite:* 155 and 173. Four hours. Mr. Milbank.

162 **HYDRAULICS (3-0)** Mechanics of fluids with emphasis on incompressible fluids; flow meters; flow in closed conduits; flow in open channels; elements of hydraulic machinery. *Prerequisite:* 130 and mechanical engineering 113. Three hours. Mr. Root.

165 **SANITARY ENGINEERING I (3-0)** Quantities of water and waste water; the role of the earth sciences in the development and control of surface and ground water supplies, transmission of water and waste water. *Prerequisite:* 162. Three hours. Mr. Ragan.

166 **SANITARY ENGINEERING II (2-3)** Characteristics of water and waste water; study of basic mechanisms involved in treatment, role of microbiology in waste stabilization, natural purification of streams. Laboratory pilot plant studies, chemical and biological analyses. *Prerequisite:* 162, 165, chemistry 1-2. Three hours. Mr. Ragan.

168 **HYDRAULICS LABORATORY (0-3)** Laboratory studies for illustration of the theory of mechanics of fluids; flow in closed conduits; and hydraulic machinery. *Prerequisite:* 162 or mechanical engineering 142 or concurrent enrollment in civil engineering 162. One hour. Mr. Root.

173 **SOIL MECHANICS I (2-3)** Identification, description, and physical properties of soils; subsurface exploration; engineering characteristics of natural deposits of soil. Stress distribution, consolidation of soil masses, shear strength evaluation, and stability of slopes. Laboratory practice in sampling, classification, and testing for index properties. Introduction to experimental methods in permeability, consolidation, and shear testing. *Prerequisite:* 140. Three hours. Mr. Knight.

174 **TRANSPORTATION ENGINEERING (3-0)** Analysis of the highway transportation system. Consideration of planning studies, traffic flow phenomena and geometric design of the highway. Economic analysis of engineering designs. *Prerequisite:* 52 and senior standing. Three hours. Mr. Knight.

175 **INDETERMINATE STRUCTURES I (3-0)** Analysis of statically indeterminate structures by consistent deformation, least work, slope deflection, and moment distribution; prefaced by determinations of deflections by virtual work, moment area, conjugate beam, and Williot-Mohr diagram. Continuous structures and an introduction to structural dynamics. *Prerequisite:* 140. Three hours. Mr. Stearns.

176 **ADVANCED STRUCTURAL DESIGN (3-3)** Advanced theory and design of structures with emphasis on continuous frames and trusses. Consideration of wind stress analysis, space frames, moment connections, and camber diagrams. Comparative studies of specifications for design in steel; aluminum design. Laboratory problems in design of steel building frames and continuous highway girder and truss bridges. *Prerequisite:* 175. Four hours. Mr. Knight.

180 **ENGINEERING INVESTIGATION** Independent investigation of a special topic under the guidance of a staff member. The course work may consist of library investigations, unique design problems, laboratory and field studies. Preparation of a formal report on the problem is required. *Prerequisite:* senior standing and departmental permission. Three hours. Staff.

231 **MECHANICS OF MATERIALS II (3-0)** Study of stresses and strains at a point under plane and three-dimensional loading using Mohr's circle; failure theories; energy methods; plastic design; buckling of plates and shells. *Prerequisite:* 176 or concurrent enrollment. Three hours. Mr. Fay.

232 **ADVANCED DYNAMICS (3-0)** Study of Coriolis acceleration; gyroscopic forces; dynamic measurements; vibrations, earthquakes, and blast shocks on structures. *Prerequisite:* 130, 131, mathematics 211. Three hours. Mr. Fay.

234 **ADVANCED MECHANICS OF MATERIALS (3-0)** The theory of elasticity with applications to curved beams, combined stresses, torsion of non-circular sections; relaxation procedures. *Prerequisite:* 131, mathematics 212. Three hours. Mr. Stearns.

235 **PHOTOELASTICITY (2-3)** Development of the theories of photoelastic stresses analyses; model similitude; correlation with other stress analysis techniques. Laboratory work on two-dimensional applications such as stress concentrations around holes, notches, and fillets. *Prerequisite:* 131, mathematics 211. Three hours. Staff.

250 **CIVIL ENGINEERING SYSTEMS ANALYSIS (3-0)** Applications of systems engineering techniques to civil engineering problems. Presentation of current developments. *Prerequisite:* senior or graduate standing. Three hours. Staff.

261 **HYDROLOGY (3-0)** Basic theory of precipitation, run-off infiltration and ground water; precipitation and run-off data; application of the data for use in development of natural water resources. *Prerequisite:* 162 or mechanical engineering 142. Three hours. Mr. Ragan.

262 **WATER POWER ENGINEERING (3-0)** Hydrologic, hydraulic, and geologic studies of water power sites; selection of turbines and equipment; economic considerations. *Prerequisite:* 162 or mechanical engineering 142. Three hours. Mr. Root.

263 **ADVANCED HYDROLOGY (3-0)** Application of recent developments to problems in engineering hydrology; the concept and use of the instantaneous unit hydrograph; study of models using a numerical solution of the DeSaint Venant equations; flow through porous media. *Prerequisite:* 261, mathematics 211. Three hours. Mr. Ragan.

264 **OPEN CHANNEL FLOW (3-0)** Application of the basic laws of fluid mechanics to flow in open channels; boundary layer theory; design of channels and transition structures; non-uniform flow; use of characteristics in the solution of unsteady, non-uniform, spatially varied flow problems. *Prerequisite:* 162, mathematics 211. Three hours. Mr. Ragan.

265 **WATER TREATMENT PROCESSES (3-0)** A rigorous study of the theoretical concepts involved in the operation of water and waste-water treatment processes. *Prerequisite:* 166, mathematics 211. Three hours. Mr. Ragan.

273 **SOIL MECHANICS II (3-0)** Index and engineering properties of soils with emphasis on current research problems. Critical evaluation of the theories of ground water movement, frost action, consolidation, shearing strength, and stress distribution. Case histories and comparison of failure conditions with predictions based on laboratory tests. *Prerequisite:* 173. Three hours. Mr. Knight.

274 **SOIL ENGINEERING (3-0)** Applications of soil mechanics to special problems of earth structures and foundations. Topics considered include bearing capacity evaluation, earth pressures, stabilization, effects of vibratory loading, earth dam and roadway construction. *Prerequisite:* 273. Three hours. Mr. Knight.

275 **INDETERMINATE STRUCTURES II (3-0)** Analysis of trusses with redundant members, elastic weights and column analogy methods for indeterminate frames, plastic methods for gable frames. *Prerequisite:* 175. Three hours. Staff.

276 **ULTIMATE STRENGTH DESIGN (3-3)** Development of ultimate load theory; virtual work and statical methods of analysis. Design of structural steel and reinforced concrete structures by ultimate load methods; consideration of shear, axial force, buckling, and rotation capacity. *Prerequisites:* 155-175. Four hours. Mr. Stearns.

280 **HIGHWAY AND AIRPORT PAVEMENT DESIGN (3-3)** Structural design of flexible and rigid pavements; types of steel and axle configurations; tire pressures; soil classification; compaction of soils; frost action; subsurface drainage; design of bases and subbases; soil stabilization; theory of stresses in flexible pavements; plate bearing, triaxial and CBR methods of design; mix design methods; Westergaard analysis for rigid pavements; design of joints and reinforcing steel; rigid pavement pumping; pavement evaluation; pavement selection criteria; and test roads. *Prerequisite:* 173. Four hours. Mr. Knight.

391 through 399 **MASTER'S THESIS RESEARCH** Investigation of a research topic under the direction of an assigned staff member, culminating in an acceptable thesis. Credit as arranged. Staff.

Engineering, Electrical

COLLEGE OF TECHNOLOGY

Professors Essler, Roth (Chairman) and Smith, Associate Professors Hoilman, Lai, Lambert, Rush, Shorey and Taylor; Assistant Professors de la Cuesta, Dudevoir¹ and Evering

25-26 **ELECTRIC CIRCUITS I (3-3)** Basic electric circuit elements and their behavior in d-c and a-c circuits with lumped constants. Electric, magnetic circuits and electromagnetic interactions. *Prerequisite:* physics 14, concurrent enrollment in mathematics 12 and physics 15 for 25; mathematics 21 and physics 16 for 26. Four hours.

101, 102 **ELECTRICAL ENGINEERING PRINCIPLES (3-3)** Principles of electric and magnetic circuits; application of these principles to the theory and performance of selected power, control and communication equipment. *Prerequisite:* mathematics 21 and physics 15, 101 for 102. Four hours.

109, 110 **ELECTRONICS I (3-0), (3-3)** Physical principles of vacuum tubes, gas tubes and solid-state devices. Analysis and design of circuits used in communication equipment. *Prerequisite:* 26 or 102 or physics 242 and departmental permission for 109; and 125 or physics 115 and departmental permission for 110. Three hours for 109, four hours for 110.

116, 117 **ELECTRIC MACHINES (3-3)** A study of the principal types of rotating machinery from the physical and mathematical standpoint. *Prerequisite:* electrical engineering 125. Four hours.

123 **ELECTRONICS II (3-3)** Analysis and design of wave shaping, timing and logic circuitry using solid state and vacuum tube devices. *Prerequisite:* 110. Four hours.

125 **ELECTRIC CIRCUITS II (3-3)** Polyphase electric circuits, non-sinusoidal waves, coupled circuits and transformers, and applications. *Prerequisite:* 26 or physics 242 and departmental permission; concurrent enrollment in mathematics 211. Four hours.

126 **ELECTROMECHANICAL ANALOGIES (3-0)** Transient behavior of electromechanical systems. Analysis of electrical, mechanical, acoustic and hydraulic circuits by unified methods. *Prerequisite:* 125 or physics 242 and departmental permission; mathematics 211. Three hours.

140, 141 **ELECTROMAGNETIC FIELD THEORY (3-0), (3-0)** Study of basic laws and elementary applications of electromagnetic fields; electrostatics, magnetostatics, Faraday's Law, plane waves, transmission lines and wave guides. *Prerequisite:* 25 and 26, 140 for 141. Three hours.

205, 206 **NETWORK SYNTHESIS (3-0), (3-0)** Basic principles of passive electrical network synthesis; energy relations, physical realizability, two-terminal network synthesis; approximation methods; properties and synthesis of four-terminal networks. *Prerequisite:* 126. 205 for 206. Three hours.

210 **CONTROL SYSTEMS (3-0)** Theoretical background for analysis and synthesis of feedback control systems. Concepts of stability, transfer functions, performance criteria

1. On leave 1965-66.

and compensation are viewed with root-locus and frequency response methods. Analog simulation as a design tool is stressed. *Prerequisite:* 126 or mathematics 211 and departmental permission. Three hours.

211 ELECTRIC UTILITIES (3-0) Organization of the electrical utility; elementary corporate finance; economics of location, conductor size, station and line costs; rate structures; regulatory bodies. *Prerequisite:* senior standing in electrical engineering and departmental permission. Three hours.

212, 213 POWER TRANSMISSION SYSTEMS (3-0), (3-0) Line parameters for single phase, three phase, and multiple circuit lines. Current and voltage relations. Generalized circuit constants. Representation of power systems. Network equations and solutions using Matrix Algebra for digital computation. Loadflow studies. Economic operation of power systems. Symmetrical faults. Symmetrical components and unsymmetrical faults. Power system stability. *Prerequisite:* senior standing; 212 for 213. Three hours. Mr. Hoilman.

214 INDUSTRIAL POWER APPLICATION (3-0) Design and application of d-c and a-c motor drives for industrial plants; magnetic and electronic controls; duty cycles; acceleration, retardation and braking; power supplies and distribution systems. *Prerequisite:* 102 or 117, and departmental permission. Three hours.

221 TRANSISTORS (2-0) Fundamental principles of semi-conductor operation. P and N type conductivity; the PN junction; construction of the junction transistor. Circuit analysis of transistor operation in terms of hybrid parameters. Equivalent circuits for high frequency operation; oscillators and pulse switching circuits. *Prerequisite:* 110. Three hours.

230 DIGITAL COMPUTER LOGIC, CIRCUITS AND SYSTEMS (3-0) The logical design of automatic digital computers as tools of applied mathematics. Boolean algebra as an aid to circuit design. Circuits and components for the transmission, storage and modification of information and their combination into arithmetic units, memory devices, program controls and other major mechanisms. *Prerequisite:* 110 or physics 117; mathematics 211. Three hours. Staff.

232, 233 HYBRID COMPUTERS Systems design concepts and use of interconnected analog and digital computers as an engineering tool are stressed. Selected problems from mathematics, biological and physical sciences are solved on a hybrid computer. The use of logic and decision as well as analog/digital and digital/analog conversion are stressed. *Prerequisite:* 110. Three hours.

238 RADIATION ELECTRONICS (1-3) Electronic techniques for the detection and measurement of radioactivity; ionization chambers, geiger counters, proportional counters, scintillation counters, neutron counters, coincidence circuits, ratemeters, and scalers. *Prerequisite:* physics 16. Two hours.

239 TRANSIENT PHENOMENA (3-0) Study of complex variable basis of Laplace and Fourier Transforms; applications to transient behavior of lumped and distributed parameter systems, root locus, Nyquist criterion and two dimensional field problems. *Prerequisite:* 126. Three hours.

240 BOUNDARY VALUE PROBLEMS IN ELECTROMAGNETISM (3-0) Solution of classical problems of Electromagnetism using images, conformal mapping and separation of variables methods. *Prerequisite:* 141. Three hours. Mr. Rush.

242 THEORY AND APPLICATIONS OF TIME-VARYING FIELDS (3-0) Maxwell's Equations, boundary conditions for time varying systems, skin effect and internal impedance of a conductor. Propagation and reflection of electromagnetic waves, guided electromagnetic waves, resonant cavities, and microwave networks. *Prerequisite:* 240. Three hours. Staff.

260 SOLID STATE PHYSICAL ELECTRONICS Electrical conduction phenomena in semi-conductors, junction transistors and thermionic emitters. The ideas developed are applied to various solid state devices. *Prerequisite:* physics 16. Three hours.

270 INFORMATION-TRANSMISSION SYSTEMS (3-0) Introduction to information transmission; modulation and demodulation; noise and noise figures; comparison of information transmission systems; transmission lines and propagation. *Prerequisite:* 126. Three hours.

272 INFORMATION THEORY (3-0) Introduction to probability concepts of information theory; entropy of probability models; theoretical derivations of channel capacity; coding methods and theorems, sampling theorems. *Prerequisite:* mathematics 21. Three hours.

281 through 284 SEMINAR Presentation and discussion of advanced electrical engineering problems and current developments. *Prerequisite:* senior or graduate engineering enrollment. One hour.

285 CREATIVE ENGINEERING (3-0) Creative techniques and problems approach to applications of these methods to current industrial problems. *Prerequisite:* mathematics 211, at least four hours in electricity and magnetism or electrical engineering in courses numbered above 100, and departmental permission. Three hours.

287, 288 SPECIAL TOPICS (2-3) Formulation and solution of theoretical and practical problems dealing with electrical circuits, apparatus, machines or systems. *Prerequisite:* 125. Three hours.

311, 312 ADVANCED CONTROL SYSTEMS (3-0) Multiple input-output control system analysis. State space techniques, sampled-data and nonlinear control systems. Design using optimal control theory. *Prerequisite:* 210, 311 for 312. Three hours. Mr. Taylor.

314, 315 NONLINEAR SYSTEM ANALYSIS Principal methods of solving nonlinear problems. Topological, analytical, graphical, and numerical methods; the general theory of nonlinear oscillation and stability; application of theory to numerous oscillatory problems. *Prerequisite:* mathematics 211 and degree in physical sciences or engineering. Three hours.

316 POWER SYSTEMS (3-0) Machine and line transients; steady state and transient stability of power systems; relay systems; circuit breakers; lightning; fault studies; coordination of power and telephone systems. *Prerequisite:* senior standing in electrical engineering and departmental permission. Three hours.

340, 341 SPECIAL TOPICS IN ELECTROMAGNETIC FIELD THEORY For advanced students in the field of electromagnetism. Topics selected from special interests of staff with lectures and readings from current literature. Three hours. Staff.

342, 343 MILLIMETER WAVE OPTICS (3-0) Optical and microwave theory applicable to the millimeter and submillimeter region. Generation and detection of radiation; dispersion, scattering, and refraction; interference and interferometers; antennas, diffraction and diffraction gratings. Applications to lasers, diffraction anomalies, atmos-

pheric transmission and millimeter wave astronomy. *Prerequisite:* 242. Three hours. Mr. Evering.

364 LASERS AND MASERS (3-0) Conditions for operation and photon flux amplification. Modes of operation and measurement of power and beam characteristics. CW and pulsed Lasers. Light modulation and detection. *Prerequisite:* Bachelor's Degree in Engineering or Physics and departmental permission. Three hours. Mr. Lambert.

370 SIGNAL THEORY (3-0) Analysis and representation of non random signals, signal space concepts. The Fourier representation. Orthogonal functions. Analysis and representation of random signals. Random processes, correlation and power spectral density. Gaussian random process. Three hours. Mr. Lai.

391 through 399 MASTER'S THESIS RESEARCH Investigation of a research topic under the direction of an assigned staff member culminating in an acceptable thesis. Credit as arranged.

Engineering, Mechanical

COLLEGE OF TECHNOLOGY

Professors Outwater and Tuthill; Associate Professors Carpenter, Duchacek and Marshall

1 ENGINEERING GRAPHICS I (0-6) Basic geometrical constructions, freehand sketching and lettering, charts and graphs, orthographic projection and applications of orthographic principles to typical engineering problems. Introduction to descriptive geometry. Two hours.

2 ENGINEERING GRAPHICS II (0-6) A continuation of the application of orthographic principles to technical problems covering intersections and development. Axonometric projection. *Prerequisite:* 1. Two hours.

3 ENGINEERING PROBLEMS Nature of engineering and the kinds of work done in the fields of engineering. Development of skill and systematic methods in the solution of problems related to engineering. Enrollment restricted to freshman engineering students. One hour.

51, 52 MANUFACTURING PROCESSES (1-3) Theory and principles of metal machining, casting, welding forming and inspection methods including economic factors and choice of methods. Laboratory involves further study of variables, applications and limitations of some of the more common processes. *Prerequisite:* 2; 51 for 52. Two hours.

84 MECHANICAL INSTRUMENTATION (1-0) Engineering measurements; experimental error; test sequence; data analysis. *Prerequisite:* mathematics 12. One hour.

92 THERMODYNAMICS I (2-0) Engineering thermodynamics with particular emphasis on energy forms, the development of thermodynamics laws, equilibrium, fixed and variable mass systems, reversibility, and entropy. *Prerequisite:* mathematics 21, physics 15. Two hours.

111 THERMODYNAMICS II (3-3) Properties and processes of fluids; the perfect gas, and approximate relationships for real gases; application of thermodynamics principles to areas such as combustion, mixtures, power cycles, gas compression, and refrigeration. Laboratory on problems and analysis. *Prerequisite:* 92. Four hours.

113 THERMODYNAMICS AND HEAT TRANSFER (3-0) Fundamental principles of engineering thermodynamics; application of these principles to thermodynamic cycles, prime movers, compressors, heat transfer. *Prerequisite:* physics 15; mathematics 21. Three hours.

117 MECHANICAL ENGINEERING LABORATORY (0-3) Experiments using the project method to investigate thermodynamic principles, instrument capability, and the theory of experimentation. *Prerequisite:* 84 and concurrent enrollment in 111. One hour.

132 KINEMATICS (3-3) Analysis and synthesis of displacement, velocity, and acceleration in machines. Study of rolling contact, cam and gear design, flexible connectors, computing mechanisms, and miscellaneous mechanisms. *Prerequisite:* 2; civil engineering 130. Four hours.

135 MACHINE DESIGN I (3-0) Statically indeterminate members, deflection of beams, columns, connections, energy methods, theories of failure, continuous beams, thick-walled cylinders. *Prerequisite:* 132, civil engineering 131. Three hours.

142 FLUID MECHANICS (3-0) Dynamics of an ideal fluid; energy and momentum relations; similitude; flow in conduits; boundary layer mechanics; compressibility phenomena; wing theory; hydrodynamic lubrication; fluid machines and controls. *Prerequisite:* 111 or 113; civil engineering 130. Three hours.

164 ENVIRONMENTAL ENGINEERING (3-0) The principles of psychrometrics, heat transfer and fluid mechanics applied to thermal environments and their control for man, animal or process. *Prerequisite:* 111 or 113, 142. Three hours.

174 INDUSTRIAL ENGINEERING (3-0) Principles of industrial organization, plant facilities and layout, production and quality control, motion and time study, wage incentives and job evaluation. *Prerequisite:* inspection trip. Three hours.

175 METHODS ENGINEERING (2-3) Work methods analysis and design, introduction to human engineering. Work measurement including stop watch study, work sampling and predetermined data. *Prerequisite:* junior or senior standing. Three hours.

176 PLANT ORGANIZATION (2-6) Analysis of industrial plant requirements as to location, layout and materials handling; plant services and maintenance. *Prerequisite:* junior or senior standing. Four hours.

191, 192 THESIS (0-9) Investigation of a research or design project under the supervision of an assigned staff member culminating in an acceptable thesis. *Prerequisite:* senior standing and departmental permission. Three hours.

202 ADVANCED MECHANICS (3-0) Development of the foundations of mechanics leading to Hamilton's principle and LaGrange's equations; vibration and stability of systems with many degrees of freedom; gyroscopic effects in mechanical systems; systems with variable co-efficients and non-linear systems. *Prerequisite:* 252. Three hours.

211 ADVANCED MECHANICAL STRUCTURES I (3-0) The torsion problem and membrane analogy; thick cylinders and rotating discs; beams on elastic foundation and the bending of plates and shells. *Prerequisite:* 252; mathematics 211. Three hours.

222 **ADVANCED MECHANICAL STRUCTURES II (3-0)** Stress and strain at a point in three dimensions; the theory of elasticity with two-dimensional and three-dimensional examples; development of strain energy method with applications to beams, curved bars and plates; elastic bodies in contact. Photoelasticity. Plasticity; *Prerequisite:* 211. Three hours.

243 **ADVANCED FLUID MECHANICS (3-3)** Foundations of fluid dynamics; thermodynamics and concepts of compressible flow; isentropic flow; normal shock waves; flow in ducts with friction and with heating or cooling; generalized solution of combined effects. *Prerequisite:* 142 and mathematics 211. Four hours.

244 **COMPRESSIBLE FLOW (3-0)** Introduction to flow in two and three dimensions; steady irrotational flow; small perturbations; the hodograph method; the Karman-Tsien, Prandtl-Glauert, and Gothert's methods; supersonic airfoils; the method of characteristics; oblique shocks; shock waves and boundary layer interaction. *Prerequisite:* 243. Three hours.

246 **AERODYNAMICS (3-0)** Application of the principles of fluid mechanics to the design and performance of aircraft; fluid dynamics; experimental facilities; airfoil characteristics; aspect ratio and plan-form influences; viscosity phenomena as applied to boundary layer; transition and separation on various shapes; compressibility phenomena; the optimum airfoil; performance. *Prerequisite:* 142. Three hours.

252 **MACHINE DESIGN II (3-3)** A continuation of 135 with emphasis on the dynamics and vibration of machines. Design problems correlating various engineering fundamentals and considering practical limitations. *Prerequisite:* 52, 135. Four hours.

262 **ADVANCED HEAT POWER ENGINEERING (3-3)** Application of theoretical thermodynamic cycles to actual plant and machine; analysis of the elements of internal combustion engines, gas turbines, and steam power plants; investigation of nuclear and other energy sources; development of station energy balances; economic factors. *Prerequisite:* 111 or 113, 266. Four hours.

266 **HEAT TRANSFER (3-0)** Fundamental principles of heat transfer; conduction, convection, radiation; steady and unsteady state; the electric analogy; applications to heat transfer equipment. *Prerequisite:* 111 or 113 and mathematics 211. Three hours.

267 **ADVANCED THERMODYNAMICS (3-0)** A rigorous, detailed study of the laws of thermodynamics and of ideal and actual thermodynamic processes. *Prerequisite:* 111 or 113 and mathematics 211. Three hours.

271 **INDUSTRIAL MATERIALS I (3-0)** Fundamentals of ferrous and nonferrous physical metallurgy, and non-metallic materials. The correlation of the microscopic structure and physical properties of metals, alloys and plastics with their heat treatments and uses. *Prerequisite:* chemistry 2; physics 16. Some laboratory work required. Three hours.

272 **MECHANICAL BEHAVIOR OF MATERIALS (3-0)** Elastic and plastic behavior of single crystals and polycrystals; dislocations; approximate plastic analysis; anisotropic materials; hardness; residual stress; brittle, transitional and ductile fractures; fatigue; dumping; creep and surface phenomena. *Prerequisite:* 271. Three hours.

274 **INDUSTRIAL MATERIALS II (3-0)** Geometrical crystallography; packings in crystals; formation and transformations in crystals; structure of metals, semiconductors, and insulators. *Prerequisite:* 271. Three hours.

281, 282 SEMINAR (1-0) Presentation and discussion of advanced mechanical engineering problems and current developments. *Prerequisite:* senior or graduate engineering enrollment. One hour.

284 ADVANCED HEAT ENGINES (3-0) Application of engineering science to specific types of heat engines according to the interest of the students. *Prerequisite:* 111, 142, 266. Three hours.

294 ENGINEERING ANALYSIS (0-3) Application of scientific principles to the analysis of comprehensive engineering problems. Presentation of current developments. *Prerequisite:* senior standing. One hour.

295, 296 SPECIAL TOPICS (3-0) Advanced study and discussion in areas dependent on the interest of the students. *Prerequisite:* senior or graduate standing and permission of the instructor. Three hours.

301 ADVANCED MACHINE DESIGN (3-0) Advanced mechanics of materials and applications to mechanical design according to the interests of the student. *Prerequisite:* 252. Three hours. I or II.

385, 386 SPECIAL TOPICS IN MATERIALS (3-0) Lectures, reports and directed readings on advanced topics on materials. *Prerequisite:* graduate enrollment. Three hours. Staff.

387, 388 SPECIAL TOPICS IN ENERGY CONVERSION: (3-0) Lectures, reports, and directed readings on advanced topics on energy conversion. *Prerequisite:* graduate enrollment. Three hours. Staff.

391 through 399 MASTER'S THESIS RESEARCH Investigation of a research topic under the direction of an assigned staff member, culminating in an acceptable thesis. Credit as arranged.

English

COLLEGE OF ARTS AND SCIENCES

Professors Bandel, Bogorad (Chairman), Hughes, Jones, Marston,¹ Pope and Trevithick; Associate Professors Cochran and Long; Assistant Professors Caswell, Murbe, Orth, Poger, Strandberg and Woodruff; Instructors Clark, Council, Hall, Hilberg, Howe, Kimmach, King, M. E. Leonard, M. H. Leonard, McNallie, S. D. Sargent, S. H. Sargent and Shepherd

1-2 FRESHMAN ENGLISH Study and discussion of selected literary works and writing compositions related to them, to encourage reading with understanding and enjoyment and to develop clear and effective expression. Required of all freshmen. Three hours. Staff.

16 EXPOSITORY WRITING Writing and analysis of expository essays. *Prerequisite:* 1-2. Three hours. I, II. Mr. Jones.

1. Deceased, October 23, 1965.

18 CREATIVE WRITING Writing short stories, novels, poetry, plays, and imaginative essays. Instruction is guided by the particular needs and talents of the students. *Prerequisite:* 1-2. Three hours. I, II. Miss Bandel.

27, 28 SOPHOMORE LITERATURE Selected masterpieces of English, American, and World Literature. Lectures, discussions, and reports. *Prerequisite:* 1-2. Three hours. Staff.

102 MEDIEVAL LITERATURE The forms (in translation) of medieval literature and middle English texts, excluding Chaucer. Lectures, discussion, and reports. *Prerequisite:* 27, 28. Three hours. Miss Hughes.

133, 134 THE DEVELOPMENT OF AMERICAN LITERATURE The emergence and growth of a national literature, including both major and minor figures. First semester: Colonial times to the Civil War; second semester: from the Civil War to the present. *Prerequisite:* 27, 28. Three hours. Mr. Orth.

135, 136 CANADIAN LITERATURE The development of a national literature. Required of students in The Canadian Area Studies Program. *Prerequisite:* 27, 28. Three hours. Alternate years, 1966-67.

192 MAJOR CONCEPTS IN ENGLISH LITERARY HISTORY Twelve to fifteen broad studies of literary genres, trends, influences, periods, movements, and ideas. Lectures by various members of the department on the broad aspects of their special fields. Discussions, seminars, and student papers under the direction of a coordinator. Limited to seniors concentrating in English. *Prerequisite:* 27, 28. Three hours. Mr. Jones.

201 CHAUCER The principal works of Chaucer, with emphasis on Chaucer's literary scope, talents, and position in medieval literature. *Prerequisite:* 27, 28. Three hours. Miss Hughes.

206 ELIZABETHAN DRAMA Drama in England from its beginning to 1642, exclusive of Shakespeare. *Prerequisite:* 27, 28. Three hours. Mr. Long. Alternate years, 1966-67.

207-208 SHAKESPEARE Literary study and textual interpretation of most of Shakespeare's works. *Prerequisite:* 27, 28. Three hours. Miss Bandel.

209, 210 ELIZABETHAN PROSE AND POETRY The major writers of the Tudor and Stuart periods: English prose from the early humanists to the Restoration; English poetry from Wyatt and Surrey to Donne and his followers, including the development of Elizabethan lyric poetry. *Prerequisite:* 27, 28. Three hours. Mr. Long. Alternate years, 1967-68.

212 MILTON The works of Milton including *Paradise Lost*, *Paradise Regained*, *Samson Agonistes*, some of the minor poems, and selections from the prose works. Lectures, discussions, and reports. *Prerequisite:* 27, 28. Three hours. Mr. Bogorad. Alternate years, 1967-68.

217 RESTORATION AND EIGHTEENTH-CENTURY DRAMA Development of English drama from Dryden to Sheridan. The lectures, discussions, and reports consider the literary and theatrical qualities of representative plays. *Prerequisite:* 27, 28. Three hours. Mr. Bogorad. Alternate years, 1966-67.

218 RESTORATION AND EIGHTEENTH-CENTURY PROSE AND POETRY The works, including selected novels, of significant writers from Dryden to Johnson. Particular empha-

sis on the development of the essay, the satires of Pope and Swift, and the works of the Johnson-Boswell circle. *Prerequisite:* 27, 28. Three hours. Mr. Bogorad. Alternate years, 1966-67.

221, 222 THE ROMANTIC PERIOD First semester: development of the Romantic Movement through Wordsworth and Coleridge; second semester: Byron, Shelley, Keats, and other Romantic poets and prose-writers. *Prerequisite:* 27, 28. Three hours. Mr. Jones.

227, 228 ENGLISH NOVEL English fiction from its origin through the nineteenth century. Masterpieces are stressed and read critically. *Prerequisite:* 27, 28. Three hours. Mr. Woodruff.

231, 232 VICTORIAN LITERATURE A study of the lives and the works, except the novels, of the significant writers from 1832 to 1900. *Prerequisite:* 27, 28. Three hours. Mr. Long. Alternate years, 1966-67.

237 MODERN NOVEL Representative British and American novelists since 1915. Limited to seniors, except with permission of the instructor. *Prerequisite:* 27, 28. Three hours. Mr. Cochran.

238 MODERN DRAMA European and American plays which represent the principal trends in the dramatic renaissance of the late nineteenth and the twentieth centuries. *Prerequisite:* 27, 28. Three hours. Miss Bandel.

239 MODERN POETRY A study of selected English and American poets since 1885, including Yeats, Eliot, and Stevens. *Prerequisite:* 27, 28. Three hours. Mr. Caswell.

240 MODERN SHORT FICTION Short stories and novellas of outstanding modern writers; recent techniques and trends in this type of literature: Limited to seniors, except with departmental permission. *Prerequisite:* 27, 28. Three hours. Mr. Cochran.

244 MODERN IRISH LITERATURE A study of Irish literature from 1890 to the present with emphasis on Yeats and Joyce. *Prerequisite:* 27, 28. Three hours. Mr. Caswell. Alternate years, 1967-68.

251, 252 AMERICAN NOVEL Masterpieces of nineteenth-century American fiction selected on the basis of literary merit. Lectures, class discussions, oral and written reports. First semester: Hawthorne, Melville, and others; second semester: Mark Twain, Howells, James and others. *Prerequisite:* 27, 28. Three hours. Mr. Trevithick. Alternate years, 1966-67.

253 AMERICAN COLONIAL LITERATURE Intellectual and literary origins, in the seventeenth and eighteenth centuries, of American culture. Works of Edwards, Taylor, Franklin, Woolman, Hamilton and Jefferson. Lectures, discussions, oral and written reports. *Prerequisite:* 27, 28. Three hours. Mr. Trevithick. Alternate years, 1967-68.

254 EMERSON, THOREAU AND THEIR CIRCLE The essays, journals, and poetry of Emerson, and Thoreau's *Walden*. Minor writers in the group will receive briefer treatment. Lectures, discussions, oral and written reports. *Prerequisite:* 27, 28. Three hours. Mr. Trevithick. Alternate years, 1967-68.

256 LITERATURE OF THE AMERICAN FRONTIER Frontier, local-color and regional writing in America from the eighteenth century to the First World War, including Parkman,

Harte, Mark Twain, Garland and others. Lectures, discussion and reports. *Prerequisite:* 27, 28. Three hours. Mr. Cochran. Alternate years, 1967-68.

258 AMERICAN POETRY Major American poets from the eighteenth century to the First World War, including Poe, Whitman, Emily Dickinson, Robinson, Frost, and others. Lectures, discussions and reports. *Prerequisite:* 27, 28. Three hours. Alternate years, 1966-67.

259 HISTORY OF THE ENGLISH LANGUAGE The principles of historical linguistics and their application to English. *Prerequisite:* 27, 28. Three hours. Mrs. Clark. Alternate years, 1966-67.

260 STRUCTURE OF THE ENGLISH LANGUAGE Descriptive study of the structure of Modern American English. *Prerequisite:* 27, 28. Three hours. Mrs. Clark.

261 OLD ENGLISH The sounds, words and structure of Old English; simple prose texts and selected passages from *Beowulf*. *Prerequisite:* 27, 28. Three hours. Not offered 1966-67.

271 BIBLIOGRAPHY Methods of literary study, research, and scholarship. *Prerequisite:* 27, 28. Three hours. Mr. Pope.

272 HISTORY OF CRITICISM Principles and theories of criticism from Aristotle to the twentieth century. *Prerequisite:* 27, 28. Three hours. Mr. Orth. Alternate years, 1967-68.

273 TECHNIQUE AND CRITICISM OF POETRY Poetic theory with close analysis of selected poems, past and present, designed to show their organic structure, the relation between poetic effect and sense, mood, tone, imagery, stanzaic form, and meter. Lectures, discussions, reports. *Prerequisite:* 27, 28. Three hours. Mr. Bogorad.

275, 276 CONTEMPORARY CRITICISM A seminar in selected topics of contemporary critical interest (for example, myth and tragedy); discussion and criticism of selected major works both contemporary and traditional. *Prerequisite:* 27, 28. Three hours. Mr. Strandberg.

277-278 ADVANCED CREATIVE WRITING Development of extended projects in creative writing such as a novel, a group of short stories or plays, or a sequence of poems. *Prerequisite:* 27, 28, and one of the following: 16 or 18. Three hours. Mr. King.

281 SEMINAR FOR PROSPECTIVE TEACHERS OF ENGLISH Grammar and language; literary interpretation and criticism; allied problems useful to teachers of English. *Prerequisite:* 27, 28; and 260. Three hours. Miss Hughes.

302 GRADUATE SEMINAR Discussion topics vary from year to year. Recommended for all first-year graduate students in English. Three hours.

391 through 399 MASTER'S THESIS RESEARCH Investigation of a research topic under the direction of an assigned staff member, culminating in an acceptable thesis. Credit as arranged.

V Forestry

COLLEGE OF AGRICULTURE AND HOME ECONOMICS

Professor W. R. Adams (Chairman); Associate Professors Whitmore and Zai; Assistant Professors Fuller, McCormack and Post

1 INTRODUCTION TO FORESTRY (2-3) Introduction to forestry and conservation sciences. Three hours. Mr. McCormack.

3 DENDROLOGY (0-3) Field identification and characteristics of the more important forest trees. One hour. Mr. Adams.

4 DENDROLOGY (3-2) Classification and silvical characteristics of native and exotic forest trees. Twig identification. Four hours. Mr. Zai.

24 FOUNDATIONS OF SILVICULTURE (2-2) Influence of site factors upon forest characteristics, growth, and development and the influence of forest vegetation on the site. *Prerequisite:* sophomore standing. Three hours. Mr. Post.

32 FOREST FIRE CONTROL Forest fire behavior as influenced by fuels, weather, topography; causes and effects of fire; fire danger measurement; methods of prevention and controlling fires; use of fire in forest management. *Prerequisite:* sophomore standing. Two hours. Mr. Whitmore.

41 FOREST MENSURATION I (2-3) Tree measurement techniques, volume determination of standing timber and wood products; growth and yield determinations. *Prerequisite:* 4 or 103. Three hours. Mr. Zai.

42 FOREST MENSURATION II (1-3) Methods of mathematical and graphical analysis of the measurement of forest trees, stands, and products. *Prerequisite:* 41. Two hours. Mr. Zai.

100 FORESTRY PROBLEMS Forest plants and animals and their relationship to the environment. Related forestry studies. Field trips. *Prerequisite:* 4 and botany 1. Two weeks in summer camp. Two hours. Mr. Fuller.

103-104 WOODLAND MANAGEMENT (2-3), (2-0) The theory and practice of silviculture in the management of farm woodlands and small forest areas. Practices in forest management and product utilization. *Prerequisite:* junior standing. Three hours; Two hours. Mr. Adams.

122 SILVICS Environmental factors and their influence upon the development, distribution, and succession of forest trees. Basic for the practice of silviculture. *Prerequisite:* 24. Three hours. Staff.

123 SILVICULTURE (2-3) The principles and practices for governing growth and reproduction of forest stands. *Prerequisite:* 122. Three hours. Mr. Adams.

130 FOREST MANAGEMENT PLANNING Application of surveying methods to forestry practice; topographic mapping; planning and construction of forest roads. *Prerequisite:* civil engineering 53. Three weeks in summer camp. Three hours. Mr. Zai.

133 **FOREST RECREATION MANAGEMENT** The philosophies, values, economics, land use planning, design, and development of forest and wildland areas in public and private ownership for outdoor recreation. The impact upon the natural resources and the community. Coordination of timber, wildlife and water resources with forest recreation management. Two hours. Staff.

136 **FOREST MANAGEMENT (2-2)** Organization of forests for continued production, regulation of cut, rotation and cutting cycles for sustained yields. *Prerequisite:* 42, and 123. Three hours. Staff.

140 **FOREST MENSURATION III** Forest inventory. Application of sampling principles. Timber cruising. Elementary aerial photogrammetry. *Prerequisite:* 41, 42 and 130. Three weeks in summer camp. Three hours. Mr. Zai.

142 **FOREST PHOTOGRAMMETRY (2-3)** Preparation of planimetric and topographic maps from aerial photographs; vegetation and timber type mapping. Timber cruising through the use of aerial photographs. *Prerequisite:* 140. Three hours. Mr. Zai.

151 **FOREST ECONOMICS** Economics of forest production and distribution; demand for forest products and services; taxation of forest lands; use of analytical methods in forestry problems; marketing of forest products. *Prerequisites:* commerce and economics 12 and senior standing in forestry. Three hours. Mr. Whitmore.

152 **FOREST POLICY** The development and present status of forest policies, public and private, including philosophies of natural resource management as applied to public and private enterprises. *Prerequisite:* junior standing in forestry. Two hours. Staff.

161 **WOOD TECHNOLOGY (2-3)** Identification of commercial woods of the United States; basic properties and variations in relation to their uses. *Prerequisite:* botany 1. Three hours. Mr. Whitmore.

163 **TIMBER HARVESTING AND MILLING (3-3)** Methods and costs of harvesting timber under different forest conditions and silvicultural treatments; organization and costs of logging operations; equipment, methods, and costs of lumber manufacture; air seasoning and kiln drying. *Prerequisite:* 4 or 103. Four hours. Staff.

164 **FOREST PRODUCTS (2-3)** Forest products other than lumber. Wood products manufacture including veneer and plywood, pulp and paper. Wood preservation; naval stores; maple products. Forest products marketing practices. *Prerequisite:* 161. Three hours. Mr. Whitmore.

171 **PRINCIPLES OF WILDLIFE MANAGEMENT** Properties of game populations and their habitat in relation to the mechanisms and practices of game management. *Prerequisite:* senior standing and departmental permission. Three hours. Mr. Fuller.

172 **PRACTICE OF WILDLIFE MANAGEMENT (2-3)** Life history, ecology, and management of important game birds and mammals in relation to other land management objectives; techniques for research and management. *Prerequisite:* 171. Three hours. Mr. Fuller.

197, 198 **SENIOR RESEARCH** Work on a research problem under the direction of a staff member. Findings submitted in written form as prescribed by the department. *Prerequisite:* senior standing. Three hours. Staff.

205 MINERAL NUTRITION OF PLANTS (See Plant and Soil Science 205) Three hours. Mr. Bartlett and botany and forestry staff. Alternate years, 1967-68.

208 BIOLOGICAL STATISTICS Application of statistics to the analysis of biological data; interpretation of statistical analysis. *Prerequisite:* mathematics 9; senior standing. Three hours. Mr. Post.

222¹ ADVANCED SILVICULTURE Scientific bases for silvicultural practices for specific forest types. *Prerequisite:* 123. Three hours. Mr. McCormack.

252 FOREST VALUATION Principles of valuation of forest growing stock, land and other forest resources. *Prerequisite:* 151 and 136 or concurrent enrollment. Two hours. Staff.

282, 284 FORESTRY SEMINAR Review and discussion of current research literature. Required of forestry seniors and graduate students. One hour. Staff.

381, 382 SPECIAL TOPICS Advanced readings and discussion of forestry research literature. Three hours. Staff.

391 through 394 MASTER'S THESIS RESEARCH Investigation of a research topic under the direction of an assigned staff member, culminating in an acceptable thesis. Credits as arranged.

General Literature

COLLEGE OF ARTS AND SCIENCES

62 GERMAN LITERATURE IN TRANSLATION Lectures on the development of German literature; reading and discussion of representative works in English translations. No knowledge of German required. *Prerequisite:* junior standing and one year course in any literature. Three hours. Mr. Kahn.

72 ROMANCE LITERATURE IN TRANSLATION Comparative study of various literary movements in France, Spain, and Italy. *Prerequisite:* junior standing and one year course in any literature. Three hours. Mr. Parker.

Geography

COLLEGE OF ARTS AND SCIENCES

Associate Professor Miles (Chairman); Assistant Professors Barnum and Meeks.

1, 2 INTRODUCTION TO GEOGRAPHY The earth as the home of man, emphasizing the interrelationships of the physical and cultural environments; areal distribution of the

1. Approval for graduate credit pending.

various elements of the environment, the correlation and significance of the resulting global patterns. Not open to students who have taken geography 3. Three hours. Staff.

3 **WORLD GEOGRAPHY** Survey of the major regions and nations of the world, their peoples, problems, and potentialities. The physical and cultural factors which have been influential in shaping present-day economic, social and political patterns. Required of elementary education students. Not open to students who have taken geography 1 or 2. Three hours. Staff.

51 **CLIMATE** Temperature, precipitation, wind and pressure as elements of weather and climate, and the interaction of these elements with one another to produce world climate patterns. Weather instrument use and daily weather analysis to facilitate understanding of various climatic systems. *Prerequisite:* sophomore standing. Three hours. Mr. Meeks.

71 **CARTOGRAPHY** Introduction to maps and map preparation, principles of map construction, kinds of information suitable for map presentation, techniques of map drawing, methods of map reproduction, graphs and frequency distributions. *Prerequisite:* sophomore standing. Three hours. Mr. Barnum.

101 **GEOGRAPHY OF AFRICA** The significance of geographic factors in the rapid political and economic development of tropical Africa. Attention is focused on the character of the human patterns and cultural development in the various regions against the background of the physical and resource base of the continent. *Prerequisite:* twelve hours in the social sciences. Three hours. Mr. Miles.

102 **GEOGRAPHY OF CANADA** The character, origin, and development of cultural, industrial and commercial patterns of present-day Canada against the background of the physical and resource base of the country. The analysis of Canadian regions. *Prerequisite:* twelve hours in the social sciences. Three hours. Mr. Miles.

103 **GEOGRAPHY OF THE SOVIET UNION** The geographic basis of Soviet strength. The geographical development of the Soviet Union with reference to the physical patterns and their relationship to settlement, agriculture, industrial resources, economic structure and urbanization. *Prerequisite:* twelve hours in the social sciences. Three hours. Mr. Meeks.

104 **GEOGRAPHY OF ASIA** Lands and peoples of east, southeast, southwest and south Asia, with special attention to India, China, and Japan. Geographic foundations of economic activities and population problems. *Prerequisite:* twelve hours in the social sciences. Three hours. Mr. Meeks.

105 **GEOGRAPHY OF EUROPE** Regional analysis of the physical and cultural basis of European life. Similarities and differences among European nations in terms of ethnographic, linguistic, and population patterns; urban and rural settlements; economic activities and overseas possessions. The geographic basis of the Common Market and other regional economic and military groupings. *Prerequisite:* twelve hours in the social sciences. Three hours. Mr. Barnum.

106 **GEOGRAPHY OF LATIN AMERICA** Similarities and differences among Latin American geographic regions resulting from the interplay of physical, economic, historical, cultural and political forces. *Prerequisite:* twelve hours in the social sciences. Three hours. Mr. Miles.

107 **GEOGRAPHY OF THE UNITED STATES** Geographic regions of the United States in their physical, economic, and cultural aspects. *Prerequisite:* twelve hours in the social sciences. Three hours. Mr. Meeks.

201 **HISTORICAL GEOGRAPHY OF THE UNITED STATES** (Same as History 201) The physical setting of the American historical development, emphasizing the sequence of peoples and cultures which have occupied the land and their varied appreciation of its resource base. *Prerequisite:* history 23 or 28, plus nine additional hours in geography, history, or other social science. Three hours. Mr. Miles.

202¹ **HISTORICAL GEOGRAPHY OF EUROPE** (Same as History 202) European geography within a framework of past times; the historical development and distribution of settlement, economic and political patterns. *Prerequisite:* history 12 or 13, plus six additional hours in geography, history, or other social science. Three hours. Mr. Barnum.

257 **POLITICAL GEOGRAPHY** Characteristics of the political unit as a geographic area. Consideration of location, resources, and the distributional relationships of the variety of cultural and human factors as they have a bearing on the structure and functioning of the modern political unit. Relationship between geopolitics and political geography. *Prerequisite:* twelve hours in geography and political science. Three hours. Mr. Miles.

281 **DEVELOPMENT OF GEOGRAPHIC THOUGHT**¹ Nature and development of geography as a discipline and a profession. *Prerequisite:* twelve hours in geography. Three hours. Mr. Miles.

Geology

COLLEGE OF ARTS AND SCIENCES

Associate Professor Doten; Assistant Professors Grant, Hunt and Stanley (Chairman)

1-2 **INTRODUCTORY GEOLOGY (3-2)** The earth's composition and present state. The role of the sun, atmosphere, oceans, and internal forces in modifying our planet. The origin and evolution of the earth, continents, oceans, atmosphere, and life, with emphasis on methods of interpretation. Introduction to geophysics, geochemistry, geobiology, oceanography, and space geology. Two lectures, a recitation, and laboratory each week. Field trips. Four hours. Staff.

11-12 **MINERALOGY (3-3, 2-3)** Crystallographic, chemical and physical properties of minerals with emphasis on their geologic environment. Laboratory sessions will stress identification of minerals in hand specimen and by means of x-ray methods and the polarizing microscope. *Prerequisite:* 1-2. Introductory chemistry is advisable and may be taken concurrently. Four, three hours.

21 **GEOLOGY FOR ENGINEERS (2-3)** Recognition of common minerals and rocks; rock structures and their effects on engineering problems. Required of students in civil engi-

1. Approval for graduate credit pending.

neering, elective by permission to students in agricultural engineering, open to others by departmental permission. Three hours. Mr. Doten.

105, 106 **PETROLOGY (3-3)** The igneous, sedimentary, and metamorphic rocks with emphasis on geologic processes instrumental in their formation. Laboratories present various methods utilized in rock analysis. *Prerequisite:* 12 for 105, open to others by departmental permission; 105 for 106. Four hours. Staff.

115 **FIELD GEOLOGY (1-6)** Geologic mapping of a nearby area or field study of selected structural features within a 100-mile radius of the University. Methods of analysis of field data, structural features in sedimentary, metamorphic, and igneous rocks, and stratigraphic principles. *Prerequisite:* 12. Three hours. Mr. Stanley.

116 **STRUCTURAL GEOLOGY (2-3)** Behavior of rocks in different tectonic environments of the earth's crust. Laboratory studies of rock deformation, description and geometry of structural types, and the kinematic and dynamic interpretation of structural features of all sizes. *Prerequisite:* 12. Three hours. Mr. Stanley.

121 **PALEONTOLOGY (2-2)** Principles of classification, methods of interpretation, and a survey of ancient life. Consideration is given to the species concept, the fossil sample, principles of evolution, uses of fossils, and other basic topics. Laboratory includes methods of collecting, preparing, and identifying fossils. *Prerequisite:* 2 or zoology 1, or the equivalent. Three hours. Mr. Hunt.

130 **GEOLOGY OF MINERAL RESOURCES (2-3)** The origins, forms, and classifications of mineral deposits. The world location, occurrence and production of major mineral products. Field trips to typical mining operations. *Prerequisite:* 2 or 21. Three hours. Mr. Doten.

197, 198 **RESEARCH IN GEOLOGY (0-12)** Individual research supervised by a member of the staff. Discussions and readings are designed to deepen a student's knowledge in a selected field of geology. Students from the allied sciences, mathematics, and engineering who have taken several of the required courses of the geology major may elect a research problem that combines their major field of study and geology. Written and oral research reports required. *Prerequisite:* consultation with the staff. Three hours.

211 **X-RAY CRYSTALLOGRAPHY** The theory and practice of x-ray powder diffraction techniques for the identification of crystalline materials; single crystal methods and x-ray spectrography. *Prerequisite:* junior or senior standing with a concentration in a physical science, engineering or mathematics. Three hours. Mr. Grant.

215 **GEOMORPHOLOGY (2-2)** The land forms of the surface of the earth and their origins; external and internal forces modifying the earth. The physiographic provinces of North America. *Prerequisite:* 106. Three hours. Staff. Alternate years, 1966-67.

216 **GLACIAL GEOLOGY (2-3)** The origin, mechanics and effects of past and present glaciations. *Prerequisite:* 215. Three hours. Staff. Alternate years, 1966-67.

224 **STRATIGRAPHY (2-2)** Sequential development and distribution of the sedimentary rocks. *Prerequisite:* 223. Three hours. Mr. Hunt. Alternate years, 1967-68.

242 **FOREIGN REGIONAL GEOLOGY** An examination and comparison of the geology of selected portions of the world. *Prerequisite:* 106, 116. Messrs. Stanley and Doten. Alternate years. 1966-67.

251 **GEOLOGY OF ORE DEPOSITS** Special emphasis is placed upon the study of the origins and geologic associations of ore deposits. Other aspects include consideration of the application of physical and chemical methods for their discovery. Laboratory work will include thin and polished section techniques as well as chemical investigations. *Prerequisite:* 106. Mr. Doten. Alternate years, 1967-68.

281-282, 283-284 **SEMINAR IN GEOLOGY (1-0)** A synthesis of geologic processes and evolution of North America and selected portions of the world. Topics cover a wide range of subjects, with emphasis on current problems. *Prerequisite:* 106, 115, 116. One hour. Staff.

312 **ADVANCED MINERALOGY** Selected topics in mineralogy including crystal chemistry, experimental mineralogy, and current problems in mineralogy. *Prerequisite:* 211. Mr. Grant. Alternate years, 1966-67.

321 **IGNEOUS GEOLOGY** Paragenesis of igneous rocks; laboratory work on selected suites of specimens. *Prerequisite:* 106. Three hours. Mr. Doten. Alternate years, 1966-67.

324 **METAMORPHIC GEOLOGY** The origin of metamorphic rocks with emphasis on the concepts of metamorphic facies, analysis and interpretation of mineral assemblages, and the spacial relationship of metamorphism to tectogenesis. *Prerequisite:* 106, 211. Messrs. Stanley, Grant. Alternate years, 1967-68.

326 **SEDIMENTARY PETROLOGY** Origin and interpretation of sedimentary rocks. Topics include mechanics of transportation and deposition, recent depositional environments, interpretation of surface textures, methods of statistical analysis, theoretical aspects of rock classification, and sedimentary tectonics. Thin section study and individual projects. *Prerequisite:* 106. Three hours. Mr. Hunt.

335 **ADVANCED STRUCTURAL GEOLOGY** The geometric relationship and origin of various structural features in the different tectonic environments of the earth's crust. Emphasis is placed on field investigations, laboratory results, and theoretical models that provide insight into the deformational behavior of rocks in different parts of the earth's crust and the relationship between geologic structure and the dynamic configuration in which they have formed. *Prerequisite:* 116. Three hours. Mr. Stanley.

342 **ADVANCED PALEONTOLOGY** Problems in biogeology, paleoecology, and stratigraphic paleontology. The use of fossils in determining the origin, depositional environment, and age of rocks. Consideration is given to biogenic sedimentation, to taxonomic, adaptive, and biogeographic methods of paleoecological interpretation, and to geochronologic measures. *Prerequisite:* 121. Three hours. Mr. Hunt.

391 through 399 **MASTER'S THESIS RESEARCH** Investigation of a research topic under the direction of an assigned staff member, culminating in an acceptable thesis. Credit as arranged.

German

COLLEGE OF ARTS AND SCIENCES

Professor White¹ (Chairman); Associate Professor Webster; Assistant Professors Kahn and Wurthmann; Instructors Eurich and Noble.

1-2 **ELEMENTARY GERMAN** Emphasis on the spoken language of everyday use. Oral and written practice in speaking, reading, and comprehension, based on memorization of texts in the form of dialogues. Tape recordings are used in the language laboratory as aids to speaking and comprehension. *Credit is allowed only if German 11-12 is also completed.* Four hours. Staff.

11-12 **INTERMEDIATE GERMAN** Reading and discussion, as far as possible in German, of selected prose with review of grammar and practice in translating technical expository prose. Emphasis on development of facility in reading; knowledge of idioms; auditory comprehension. *Prerequisite:* 1-2 or equivalent. Three hours. Staff.

81-82 **SCIENTIFIC GERMAN** Development of ability to read accurately and efficiently original German in the field of each student's scientific interest. *Prerequisite:* 11-12 or equivalent. Three hours. Mr. Wurthmann.

101-102 **INTRODUCTION TO GERMAN LITERATURE** Selected works of Lessing, Goethe, and Schiller. Survey of the development of German literature from the beginnings to the twentieth century, with practice in hearing, writing, and speaking German. *Prerequisite:* 11-12. Three hours. Mr. Webster.

121-122 **COMPOSITION AND CONVERSATION** Guided conversation, discussion, and oral and written drill in German with emphasis on increasing oral and written command of the language. Free composition, oral reports, and translation into German are required. *Prerequisite:* 11-12 or equivalent and departmental permission. Three hours. Mr. Wurthmann.

205, 206 **GOETHE** Life and works of the poet through the Italian journey (205). Goethe in the years of his maturity: 1790-1832 (206). *Prerequisite:* 101-102 or the equivalent. Three hours. Messrs. Webster and White. Alternate years, 1967-68.

207 **NINETEENTH-CENTURY PROSE** Masterpieces of narrative prose by representative authors such as Morike, Keller, O. Ludwig, C. F. Meyer, Stifter, Raabe, and the early Thomas Mann will be read. *Prerequisite:* 101-102 or the equivalent. Three hours. Mr. White. Alternate years, 1966-67.

208 **NINETEENTH-CENTURY DRAMA** Works by Kleist, Büchner, Grillparzer, Hebbel, O. Ludwig, Wagner, and the early Hauptmann will be read. *Prerequisite:* 101-102 or the equivalent. Three hours. Mr. White. Alternate years, 1966-67.

209, 210 **THE TWENTIETH CENTURY** Selected works in poetry, prose and drama by Brecht, George, Hauptmann, Hofmannsthal, Kafka, Thomas Mann, Rilke, and others will be read. *Prerequisite:* 101-102 or the equivalent. Three hours. Mr. White. Alternate years, 1967-68.

1. Sabbatical leave 1965-66.

221-222 **ADVANCED COMPOSITION AND CONVERSATION** Guided conversation, discussion and advanced oral and written drill in German. Study of modes of expression and stylistic devices of modern German based on analysis of selected texts. Problems in translating literary and technical English prose into German. *Prerequisite:* 121-122 or equivalent. Three hours. Mr. Kahn.

232 **HISTORY OF THE GERMAN LANGUAGE** Introduction to Germanic linguistics, the comparative method, and linguistic reconstruction. The linguistic development of German from Indo-European to the present. No knowledge of the older stages of the language is presupposed or required. *Prerequisite:* 121-122 or the equivalent. Three hours. Mr. White.

235 **THE STRUCTURE OF GERMAN** Linguistic analysis of the phonological, morphological, and syntactic structure of modern German with special attention to problems useful for teachers. *Prerequisite:* 121-122 or the equivalent. Three hours. Mr. White.

281-282 **SENIOR SEMINAR** Readings and research. Required of all senior concentrators. One hour.

381, 382 **GRADUATE SEMINAR** Readings, conferences, and reports in connection with the work of candidates for the M.A. degree. Three hours.

391 through 399 **MASTER'S THESIS RESEARCH** Investigation of a research topic under the direction of an assigned staff member, culminating in an acceptable thesis. Credit as arranged.

Hebrew

COLLEGE OF ARTS AND SCIENCES

Assistant Professor Kahn

1-2 **ELEMENTARY HEBREW** The spoken language of everyday use with oral, aural and written practice in speaking, reading, and comprehension based on memorization of texts in the form of dialogues. Three hours. Mr. Kahn. Alternate years, 1967-68.

11-12 **INTERMEDIATE HEBREW** Reading, translation, and discussion in Hebrew of texts selected to show the development of Hebrew culture from Biblical times to the present. Three hours. Mr. Kahn.

V History

COLLEGE OF ARTS AND SCIENCES

Professors Daniels (Chairman), Evans and Schultz; Associate Professors Davison, Felt, King, and Pooley; Assistant Professors Hand, Newhall, Schmokel, Spinner and Stout; Instructors Berger, Briggs, and Metcalfe

All advanced courses numbered 100 or above have the prerequisite of a specific survey course. CEEB and Advanced Placement tests may in some cases be accepted instead, with the permission of the instructor concerned. Courses numbered 200 or above have the further prerequisite of six additional hours of history or other social science. The first semester of any two-semester course is prerequisite for the second semester, except by departmental permission.

Note: All students required to take a year of history for distribution in the Liberal Arts Curriculum must complete either 12 or 13, unless they offered for admission a year of European or World History. Students planning to concentrate in a classical language may substitute Ancient or Medieval History.

1 INTRODUCTION TO EUROPEAN HISTORY Survey of the principal developments, from ancient times to the present. Open only to freshmen who lack the preparation necessary for 11. This course cannot be counted toward concentration or distribution requirements in the Liberal Arts Curriculum. Three hours. Messrs. Hand and Newhall.

11, 12 EUROPEAN CIVILIZATION History of Europe, 1500 to the present. For students who satisfy the department that they have adequate preparation. 12 or 13 is required of all who concentrate in history. Three hours. Messrs. King, Metcalfe, Newhall, Schmokel, Spinner, and Stout.

13 EUROPEAN THOUGHT AND INSTITUTIONS Survey of European history, 1500 to the present, with emphasis on social and intellectual history. An accelerated course open only to freshmen with departmental permission. Freshmen who complete history 13 in the fall semester are advised to take 28 in the spring semester, if qualified to do so. The sequence of 13 and 28 satisfies the distribution requirement in history in the Liberal Arts Curriculum. Three hours. Mr. Newhall.

23, 24 HISTORY OF THE UNITED STATES American history since 1783. *Prerequisite:* sophomore standing. Three hours. Messrs. Berger, Felt, Schultz, and Stout.

28 AMERICAN THOUGHT AND INSTITUTIONS Survey of American history, 1783 to the present, with emphasis on social and intellectual history. An accelerated course open only to freshmen and sophomores with departmental permission. Three hours. Mr. Hand.

31, 32 ANCIENT HISTORY The ancient Near East, Greece, and Rome. *Prerequisite:* sophomore standing or concurrent enrollment in Latin or Greek. Three hours. Miss Davison.

33, 34 MEDIEVAL EUROPE Europe from the late Roman Empire to the Renaissance, with emphasis on political and cultural developments. *Prerequisite:* sophomore standing or concurrent enrollment in Latin. Three hours. Mr. Pooley.

40 BIOGRAPHY The biographical approach to history. *Prerequisite:* senior standing. Three hours. Mr. Schultz.

51, 52 CONTEMPORARY HISTORY Survey of recent world events: first semester, 1918-1945; second semester, 1945 to the present. *Prerequisite:* sophomore standing. Three hours. Messrs. Daniels and Schmokel.

61, 62 HISTORY OF SCIENCE Survey of the principal developments in the history of science, both physical and biological, from antiquity to the present. *Prerequisite:* junior standing and one year laboratory science. Three hours. Mr. King.

71, 72 ASIAN CIVILIZATION Survey of the history of the principal civilizations of Asia, from ancient times to the twentieth century. First semester: the Moslem world and India; second semester: the Far East and Southeast Asia. *Prerequisite:* sophomore standing. Three hours. Staff.

116 INTRODUCTION TO AFRICAN HISTORY Survey of the history of Africa south of the Sahara, from earliest times to independence. *Prerequisite:* 12 or 13; geography 101 recommended. Three hours. Mr. Schmokel.

123 AMERICAN HISTORY SINCE 1945 Survey of recent developments in the United States not covered in detail in 24 or 28. *Prerequisite:* 12, 13, 24, 28; or 52. Three hours. Mr. Hand.

130 CHINESE HISTORY Survey of Chinese civilization from earliest times to the twentieth century. *Prerequisite:* 12 or 13, or political science 175. Three hours. Mr. Briggs.

191, 192 SENIOR HONORS RESEARCH For seniors concentrating in history only; required of candidates for Special Honors in history. *Prerequisite:* six hours of advanced history courses and departmental permission. Three hours. Staff.

195 READINGS FOR DEPARTMENTAL HONORS For seniors concentrating in history only. (Candidates should consult the chairman of the Department at the time of spring enrollment. Students accepted will do their readings between November and March; official enrollment will be in the spring semester.) *Prerequisite:* an 80 average through the junior year and an 85 average in at least eighteen hours of history; completion of at least six hours of history numbered above 200. Three hours. Staff.

201 HISTORICAL GEOGRAPHY OF THE U. S. Three hours. See Geography 201.

203, 204 LATIN-AMERICAN HISTORY Political, social, and economic development. First semester, colonial period; second semester, national period. *Prerequisite:* 12 or 13. Three hours. Mr. Felt.

211 THE RENAISSANCE Political, economic, and cultural developments in Europe, c. 1250 to c. 1517, with emphasis on Italian humanism. *Prerequisite:* 12, 13 or 34. Three hours. Mr. Evans.

212 THE REFORMATION Political, economic, and cultural developments in Europe in the sixteenth century, with particular attention to the religious movements, and to the evolution of Northern European humanism. *Prerequisite:* 12 or 13. Three hours. Staff.

213, 214 CANADIAN HISTORY Canadian development from the French exploration and settlement to the present; evolution of self-government and relations with the United

States; historical foundations of the problems of biculturalism. *Prerequisite:* 12 or 13. Three hours. Mr. Metcalfe.

221 THE AMERICAN COLONIES The colonial period of American history from the earliest explorations to 1763. *Prerequisite:* 12, 13, 24 or 28. Three hours. Mr. Stout.

222 THE AMERICAN REVOLUTION History of the War for Independence, the confederation, and the making of the U. S. Constitution, 1763-1789. *Prerequisite:* 12, 13, 24 or 28. Three hours. Mr. Stout.

231, 232 FRENCH HISTORY History of France in modern times: first semester, seventeenth century to 1848; second semester, 1848 to the present. *Prerequisite:* 12 or 13. Three hours. Mr. Newhall.

233, 234 GERMAN HISTORY History of Germany in modern times: first semester, seventeenth century to 1850; second semester, 1850 to the present. *Prerequisite:* 12 or 13. Three hours. Mr. Schmokel.

237 ECONOMIC HISTORY OF PRE-INDUSTRIAL EUROPE Development of economic institutions and technology from the late Roman Empire to the eighteenth century. For the economic history of Modern Europe see economics 238. *Prerequisite:* 12 or 13, and economics 12 (one of the prerequisites may be taken concurrently). Three hours. Mr. Stout.

241, 242 ERA OF THE FRENCH REVOLUTION AND NAPOLEON French history from 1789 to 1815 with special attention to the impact of French ideas and power upon Europe. *Prerequisite:* 12 or 13, and reading knowledge of French. Three hours. Mr. Evans.

243 SOVIET RUSSIA The USSR from the Revolution of 1917 to the present. A general introduction to the study of Russia and Communism, including historical and ideological background, Soviet political and economic institutions, Soviet foreign policy, and international Communism. *Prerequisite:* 12, 13 or 52. Three hours. Mr. Daniels.

244 TSARIST RUSSIA History of Russia from the Middle Ages to the Revolution of 1917, with emphasis on the period since Peter the Great. *Prerequisite:* 12 or 13. Three hours. Mr. Daniels.

253, 254 ENGLISH HISTORY Political and social history of England and its role in world history. First semester, Middle Ages to 1715; second semester, 1715 to the present. *Prerequisite:* 12 or 13. Three hours. Mr. Spinner.

257, 258 AMERICAN STATESMEN Thought and practical politics of American statesmen. *Prerequisite:* 24 or 28. Three hours. Mr. Schultz.

261 VERMONT HISTORY *Prerequisite:* 24 or 28. Three hours. Staff.

265, 266 AMERICAN SOCIAL AND INTELLECTUAL HISTORY Selected topics in the social and intellectual history of the United States since 1783. *Prerequisite:* 24 or 28. Three hours. Mr. Felt.

277 GOVERNMENT OF THE USSR. (Same as Political Science 277.) Theoretical background, structure and development of the Soviet state and the Communist Party; economic, social, and cultural policies; comparative survey of other Communist governments; current changes. *Prerequisite:* 243, or six hours of political science including 72, and one other year course in social science. Three hours. Mr. Daniels.

278 FOREIGN POLICY OF THE USSR (Same as Political Science 278.) Theoretical background; history of Soviet foreign relations; development of the international Communist movement and the Communist bloc; factors and instruments of policy; current problems of relations between Russia and the West among the Communist countries. *Prerequisite:* 243 or six hours of political science including 51, and one other year course in social science. Three hours. Mr. Daniels.

281, 282, 283, 284 SEMINAR Research in selected topics in American, European, or Ancient History. By permission. Three hours. Staff.

391 through 399 MASTER'S THESIS RESEARCH Investigation of an individual research topic. Required of all candidates for the M.A. Normally arranged for two semesters at three hours each. Staff.

V Home Economics

COLLEGE OF AGRICULTURE AND HOME ECONOMICS

Professor Samenfink; Associate Professors Brown, Caldwell¹, Knowles, Morse and Williams (Chairman); Assistant Professors Duroe, Ellis², Powell, Smith, Wakefield, Webster and Whittlesey; Instructors Lepeschkin and Henry; Mr. Spaven

Housing and Home Management

51 HOUSING Survey of family shelter, needs and supply. Discussion of problems of site location, financing, utilization of space and materials. Three hours. Miss Knowles.

54 HOUSEHOLD EQUIPMENT (2-2) Application of scientific principles to the selection, operation and care of household equipment. Three hours. Miss Knowles.

101 PRINCIPLES OF HOME MANAGEMENT Family and individual management techniques. Application to use of time, energy and money. Introduction to consumer economics. Three hours. Miss Knowles.

105 EXPERIMENTAL EQUIPMENT (1-4) Performance measurement and rating of household equipment. *Prerequisite:* 54. Three hours. Miss Knowles.

106 HOUSE PLANNING (1-4) An advanced study of housing design to meet family requirements, application of home management principles. *Prerequisite:* 51, 101. Three hours. Miss Knowles.

153 HOME MANAGEMENT RESIDENCE Practical application of home management and group living in the Home Management Residence. A charge of \$95.00 is made to cover partial cost of board and operating expenses. Students not living on campus are charged for room rent proportional to that paid by student in University residence halls. *Prerequisite:* 101, 137. Three hours. I, II. Miss Smith.

1. Sabbatical leave first semester 1966-67.
2. Effective January, 1966.

203 HOME MANAGEMENT PROBLEMS Application of economic and sociological principles to some problems of the home and family. *Prerequisite:* 101, psychology 1. Three hours. Staff.

204 FAMILY ECONOMICS The consumer and the market. Use of credit, savings and investments, insurance and estate planning for the family. *Prerequisite:* 101, economics 12. Three hours. Miss Knowles.

206 ADVANCED HOUSING Investigation of housing data and current problems including studies of environmental factors, technological developments and governmental programs. *Prerequisite:* 51, economics 12 and sociology 21. Three hours. Miss Knowles.

301 READINGS IN FAMILY ECONOMICS Critical survey of the literature and recent research in family economics. Three or four hours. Staff.

Home Economics Education.

115 INTRODUCTION TO HOME ECONOMICS EDUCATION Homemaking education in relation to philosophy, professional contracts, and growth toward teacher competencies. Observation of secondary school problems, place of home-making in general education. *Prerequisite:* junior standing. Two hours. Miss Smith.

165 METHODS OF TEACHING Methods of teaching home economics in junior and senior high schools, and of general administration of home economics departments in secondary schools. *Prerequisite:* 115, psychology 1. Three hours. Miss Brown.

166, 167 SPECIAL PROBLEMS IN HOME ECONOMICS EDUCATION Individual investigation of a problem selected to meet special needs of students. *Prerequisite:* 165. Two or three hours. Misses Brown and Smith.

168 STUDENT TEACHING Supervised observation and teaching in approved secondary schools in Vermont. *Prerequisite:* 165. Seven hours. Miss Brown.

169 COMMUNICATION METHODS (2-2) Presentation of information through the media of press, radio and television, and lecture-demonstration. *Prerequisite:* junior standing. Three hours. I. Miss Williams and Mr. Spaven.

216 TEACHING ADULTS (1-2) Problems of organization and of teaching classes in home economics to meet the needs of adults; supervised experience in techniques of teaching adults. *Prerequisite:* 165; and education 145-146 or agricultural education 104, or equivalent. Two hours. Miss Brown.

297, 298 PROBLEMS IN EDUCATION (See Education 297, 298) Credit to be arranged. Staff.

Family Living-Human Development

61 THE FAMILY, COMMUNITY AND PRESCHOOL The family as a basic social unit and its interrelationships with the community and school. Three hours. Staff.

63 HUMAN DEVELOPMENT AND PERSONALITY (I) The biological, psychological, and social growth and development of the child and his relationships with his family, peers and institutions. Observation in the preschool laboratory. *Prerequisite:* sophomore standing. Three hours. I, II. Miss Henry.

65 EXPERIENCE WITH PRESCHOOL FAMILIES (2-2) Work in the laboratory preschool program to understand better the role of the teacher consultant in relationship to young children and their families. *Prerequisite:* 63. Three hours. I, II. Staff.

67 CREATIVE CURRICULUM ACTIVITIES (2-2) The theory and practice of developing a creative curriculum for preschool and kindergarten children: experimenting with art, science, and language materials and experience with preschoolers. *Prerequisite:* 63. Three hours. Mrs. Lepeschkin.

110 EARLY CHILDHOOD EDUCATION An examination of educational theories from early civilizations to modern times with emphasis on the early childhood years. The present approach to the total structuring of facilities and curriculum for the preschool child. Three hours. Mrs. Lepeschkin.

160 PRESCHOOL PRACTICUM (1-5) Supervised planning and conducting the preschool laboratory program. *Prerequisite:* 63, 65, 67 and 164. Six hours. Staff.

163 DYNAMICS OF FAMILY DEVELOPMENT Development growth of parents and children in the various stages of the family life cycle. *Prerequisite:* sociology 21. Three hours. I, II. Mr. Samenfink.

164 INTRODUCTION TO PARENT EDUCATION AND FAMILY CONSULTING Principles of parent education and family consulting; formulation and presentation of programs for preschool parents. Two hours. Mr. Samenfink. Alternate years, 1967-68.

263 SEMINAR IN FAMILY RELATIONS AND HUMAN DEVELOPMENT Theory and research on the family. *Prerequisite:* 63, 163 and sociology 51. Three hours. Mr. Samenfink. Alternate years, 1967-68.

264 THE AMERICAN WOMAN Recent literature regarding the role of women and the unique tasks they face in maintaining stability in a dynamic twentieth century world. *Prerequisite:* 163 and sociology 51. Three hours. Mr. Samenfink. Alternate years, 1966-67.

Social Work

113 SOCIAL WELFARE AS A SOCIAL INSTITUTION History, philosophy, purpose of social welfare; review of fields and processes of social work. *Prerequisite:* sociology 21, psychology 1. Three hours. I, II. Miss Whittlesey.

114 SOCIAL WELFARE AS A PROFESSION Major components of professional social work services; structure and functions of social agencies in the U.S.: basic methods of social work practice. *Prerequisite:* 113, sociology 41. Three hours. I, II. Miss Whittlesey.

162 SOCIAL WORK IN THE COMMUNITY Study and discussion of social work services in the community: field experience in community social agencies. *Prerequisite:* 114. Four hours. I, II. Miss Whittlesey.

Clothing and Textiles

20 INTRODUCTION TO TEXTILES AND CLOTHING (3-1) Fibers, their properties and manufacturing processes. Selection of clothing to meet consumer needs in relation to material, design and appropriateness. Construction techniques applied in optional laboratory. Three or four hours. Mrs. Webster.

22 CLOTHING SELECTION AND CONSTRUCTION (1-4) Selection of clothing to meet individual needs in relation to design and appropriateness of dress. Development of clothing construction techniques. Three hours. Staff.

73 PATTERN DESIGN AND ADVANCED CONSTRUCTION (0-6) Techniques of designing and altering flat patterns. Advanced construction techniques and original design. *Prerequisite*: 22. Three hours. I. Mrs. Webster.

123 TAILORING (0-6) Construction techniques with emphasis on tailoring problems. *Prerequisite*: 73. Three hours. Miss Smith.

182 ADVANCED TEXTILES (1-4) Historical and sociological background to textiles and textile design; testing techniques and recent developments in the field. *Prerequisite*: Three hours. Staff.

221 COSTUME DESIGN AND DRAPING (1-4) Draping techniques used in creative fashion design. Handling of fabrics in relation to line in dress. Original projects developed according to individual interests. *Prerequisite*: 21, 73. Three hours. Mrs. Webster.

273 CLOTHING, TEXTILES AND RELATED ART SEMINAR Theory and research in the field of Clothing, Textiles and Related Art, analysis of current problems; review and discussion of recent research, book and publication; individual studies. *Prerequisite*: departmental permission. Three hours. Staff.

Related Art

21 DESIGN (1-4) Color and design in theory and practice. Work with various media as a means of creative expression and understanding of art principles. Three hours. Miss Caldwell.

71 COSTUME DESIGN (1-4) Application of design fundamentals and principles to fashion planning. Techniques of fashion illustration. *Prerequisite*: 21. Three hours. Miss Caldwell.

120 HISTORY OF COSTUME (2-2) History of costume stressing the background philosophy and events of each period as reflected in dress. Adaptation of historic design to modern fashion. *Prerequisite*: history 12. Three hours. Miss Caldwell.

130 HOME FURNISHING I (1-4) Application of design fundamentals to the problems involved in furnishing the home. *Prerequisite*: 21. Three hours. Miss Caldwell.

230 HOME FURNISHING II (1-4) Interior design; period furnishing, its present use and influence upon modern furnishing. *Prerequisite*: 130. Three hours. Miss Caldwell.

Food and Nutrition

43 BASIC CONCEPTS OF FOOD AND NUTRITION (3-4) Food selection and preparation in relation to human growth and health. Basic principles of food selection presented through demonstration lectures. Four hours. I, II. Miss Wakefield and staff.

87 FUNDAMENTALS OF NUTRITION Basic principles of nutrition. Nutrient content of foods. Practice in recording and evaluating dietary intake of individuals. *Prerequisite*: chemistry 4, zoology 6. Three hours. Miss Powell.

89-90 DIET MODIFICATION IN DISEASE Diet modification in the treatment of disease. The role of diet in the nursing care. Laboratory work is integrated with hospital ex-

perience. For students in nursing. Integrated with Nursing Education 19-20 Medical and Surgical Nursing. One hour. Miss Powell.

135 ADVANCED FOOD PREPARATION (2-4) Scientific principles and fundamental processes underlying food preparation and preservation with practical applications. *Prerequisite*: 43, chemistry 4, or 131. Four hours. Miss Wakefield.

137 MEAL MANAGEMENT (1-5) Principles and practice in planning, preparing and serving family meals at different cost levels. *Prerequisite*: Three hours. I, II. Staff.

144 APPLIED NORMAL NUTRITION (2-2) Emphasizing nutritional needs of individuals in all stages of the life cycle. Attention is given to the social, economic and cultural factors which affect nutrient intake. Selected field experience. *Prerequisite*: 43, sociology 21, junior standing. Three hours. Miss Powell.

236 INTRODUCTION TO FOOD RESEARCH (1-4) Methods and techniques in experimental work in foods. Independent laboratory study of problems in food preparation. *Prerequisite*: 135. Three hours. Miss Wakefield.

238¹ WORLD DIETARY PROBLEMS The complex interrelationships which are responsible for the nutritional status of persons living in representative countries. A background for the understanding of the causes of malnutrition in various areas in the world and the study of the agencies and techniques working to alleviate the problems. *Prerequisite*: 144, 135, sociology 21. Three hours. Miss Williams.

243 ADVANCED NUTRITION (3-2) Human nutrition; the nutritive value of foods with application in calculating food requirements; diets for children, adults and family groups. *Prerequisite*: 135; agricultural biochemistry 201; zoology 6, or 52. Four hours. Miss Morse.

244 DIET THERAPY (2-2) Adaptations of the normal diet in conditions affected by or affecting the utilization of food. *Prerequisite*: 243. Three hours. Miss Wakefield.

246 READINGS IN FOODS Critical survey of the literature on the recent developments in food research. *Prerequisite*: senior standing; 135. Two or three hours. Staff.

248 READINGS IN NUTRITION Critical survey of the literature on recent developments in nutrition. *Prerequisite*: 243. Two or three hours. Staff.

Institutional Management

139 FOOD SERVICE MANAGEMENT (1-2) Managerial responsibility, menu planning, cost calculation and organization necessary for preparing and serving food for groups. Basic techniques of organization, management, time and motion studies and floor plans in relationship to school lunch and community feeding problems. *Prerequisite*: 137. Not open to dietetic majors. Two hours. Miss Wakefield.

186 QUANTITY FOOD PRODUCTION (1-4) Practical applications of principles, methods, and techniques used in quantity food production. *Prerequisite*: 135. Three hours. Miss Wakefield. Alternate years, 1966-67.

187 INSTITUTIONAL ADMINISTRATION Survey of the field; organization, management and personnel problems; time and motion studies; sanitation; food cost control. *Prerequisite*: 186, may be taken concurrently. Three hours. Miss Wakefield. Alternate years, 1967-68.

1. Approval for graduate credit pending.

288 INSTITUTIONAL MARKETING AND ACCOUNTING (3-2) Advanced institutional management, marketing, accounting, equipment, floor plans, layouts and related material on design and furnishing in the different types of food services. *Prerequisite:* 186, 187. Four hours. Miss Wakefield. Alternate years, 1967-68.

Home Economics Seminars and Research

1 ORIENTATION Home economics in the Land-Grant college—teaching, research, and extension. The historical development of the field, its common core of family and individual, and the professional opportunities which are available. One hour. Staff.

151 SENIOR SEMINAR Ethics and responsibilities of the professional home economist. Readings and discussion of research and progress in the field. One hour. Staff.

291, 292 SPECIAL PROBLEMS Supervised study in a field of home economics. Findings submitted in a form prescribed by the department. One to three hours. Not for graduate credit. Staff.

294 HISTORY OF NUTRITION.

307 ADVANCED CONCEPTS IN NUTRITION.

308 EXPERIMENTAL TECHNIQUES IN NUTRITION.

386, 387 GRADUATE SEMINAR Advanced study in a special field; opportunities for independent work are provided. Three hours. Staff.

391 through 399 MASTER'S THESIS RESEARCH Investigation of a research topic under the direction of an assigned staff member, culminating in an acceptable thesis. Credit as arranged. Staff.

Other Courses in Home Economics

In addition to the courses offered during the academic year the following courses may be offered in Summer Session and the Evening Division program:

S265 FAMILY LIFE EDUCATION IN SCHOOL AND COMMUNITY.

296 NUTRITION SEMINAR.

370 ADVANCED HOME ECONOMICS EDUCATION.

Mathematics

COLLEGE OF TECHNOLOGY

Professors Meserve, Riggs¹ and Schoonmaker (Chairman); Associate Professors Dwork, Izzo, Lighthall, Moser and Nicholson; Assistant Professors Bentsen, Chamberlain, Hill, Hursch, Khazanie, Lowerre, Sylwester, and Wenner; Instructors Burke, Burns, Dickson, Kwik and Marn.

1 ELEMENTARY COLLEGE ALGEBRA Review of fundamental operations and a more extensive study of fractions, exponents, radicals, linear and quadratic equations. Additional

1. Sabbatical leave 1965-66.

topics to be discussed include ratio, proportion, variation, progressions and the binomial theorem. This course covers the topics normally included in intermediate algebra in high school. Students who have satisfactorily completed two years of high school algebra, or the equivalent, will receive no credit for this course. Offered only in Summer Session. Three hours. Staff.

2 PLANE TRIGONOMETRY A study of trigonometric functions, their graphs and other properties, logarithms, solution of triangles, trigonometric equations and identities, and inverse trigonometric functions. *Prerequisite:* 1 or 9. Three hours. Staff.

4 MATHEMATICS OF FINANCE Mathematical theory of finance applied to interest and investments, annuities, and life insurance. *Prerequisite:* 1 or 9. Three hours. Staff.

5¹ PLANE ANALYTIC GEOMETRY AND CALCULUS An introduction to plane analytic geometry and calculus. This course prepares students for mathematics 12. *Prerequisite:* 2, or sufficiently high scores on the algebra and trigonometry placement tests. Three hours. Staff. Not offered in 1966-67.

7, 8 FUNDAMENTALS OF MATHEMATICS To provide an understanding of basic logical and mathematical ideas (both ancient and modern) and some of their applications to other fields of knowledge. Emphasis is on fundamental concepts and logical methods of reasoning rather than on the development of techniques. Many topics of algebra, trigonometry and analytic geometry are considered in their relation to certain basic concepts pervading all mathematics. A course for students in the arts, social sciences and others whose programs do not require further study of mathematics. Credit will not be given for both mathematics 7 and 9. *Prerequisite:* one year each of secondary school algebra and geometry, 7 for 8. Three hours.

9¹ COLLEGE ALGEBRA A study of sets, relations, and functions with particular attention to properties of algebraic, exponential, and logarithmic functions, their graphs and applications. Students who have earned credit for any higher numbered course in mathematics may not enroll in this course for credit. Credit will not be given for both mathematics 7 and 9. *Prerequisite:* two years of secondary school algebra and one year of secondary school geometry. Three hours. Staff.

11¹ PLANE ANALYTIC GEOMETRY AND CALCULUS A few topics from College Algebra and an introduction to plane analytic geometry and calculus. This course prepares students for mathematics 12. *Prerequisite:* 9 and 2 or sufficiently strong background in secondary school algebra and trigonometry. Five hours. I, 11. Staff.

12¹ ANALYTIC GEOMETRY AND CALCULUS A continuation of the study of plane analytic geometry, differential and integral calculus and their applications, vectors, and solid analytic geometry. *Prerequisite:* 5 or 11. Five hours. Staff.

1. The enrollment of students who desire eventually to take mathematics 12 will depend on their previous record and their score on a mathematics achievement test. Students not qualified to enroll in mathematics 11 will be enrolled in mathematics 9. A student who takes mathematics 9 in the fall of his freshman year and who, because of his chosen curriculum, needs to have completed mathematics 12 prior to the beginning of his sophomore year, will need to take mathematics 12 during the summer between his freshman and sophomore years. Those who are deficient in high school mathematics are urged to attend summer school prior to their first semester in college.

21 **SOPHOMORE MATHEMATICS** Partial differentiation, multiple integrals, infinite series, and elementary differential equations. *Prerequisite:* 12. Three hours. Staff.

24 **LINEAR ALGEBRA** A study of matrices, linear dependence, vector spaces, linear transformations and characteristic equations. *Prerequisite:* 12. Three hours. Staff.

102 **FUNDAMENTAL CONCEPTS OF MATHEMATICAL ANALYSIS** Sets, relations, functions, the Schroeder-Bernstein theorem, cardinal numbers, ordinal numbers, well-ordering, the Axiom of Choice, Zorn's lemma, rational numbers, fundamental sequences, real numbers, complex numbers, elementary topology of the reals and complexes. *Prerequisite:* credit or concurrent enrollment in mathematics 21. Three hours. Staff.

110 **ELEMENTARY STATISTICS** Frequency distributions, measures of central tendency, measures of variation, probability, expectation, binomial and normal distributions, sampling, estimation, tests of hypotheses, regression and correlation. Not open to mathematics majors. *Prerequisite:* 9 or the equivalent. Three hours. Mr. Izzo.

125, 126 **NUMBERS** Discussion of natural numbers, integers, fractions, decimals, and real numbers together with the fundamental operations and fundamental principles involving them. Number bases, sets, measurement and approximation, ratio, proportion, percentage, and selected topics from algebra which are a natural extension of arithmetic. Open only to students in elementary education. *Prerequisite:* junior standing; 125 for 126. Three hours. Staff.

179 **TEACHING SECONDARY SCHOOL MATHEMATICS** Contemporary secondary school mathematics curricula, their content from an advanced standpoint, unifying mathematical concepts and their implications at various levels, and the introduction of selected mathematical topics. Intended only for students with an interest in teaching secondary school mathematics. Not acceptable as part of any mathematics requirement for a degree. *Prerequisite:* six semester hours beyond mathematics 12. Two or three hours. Mr. Meserve.

181, 182 **SENIOR PROBLEM** Investigation of some area or problem, under the direction of an assigned staff member, culminating in a report. This course is available only to candidates for the Bachelor of Science degree in Mathematics. *Prerequisite:* departmental permission. Three hours. Staff.

207, 208 **ADVANCED CALCULUS** The calculus beginning with limits, continuity, differentiation, and Riemann integrals; treatment of those topics not included in the earlier course as a foundation for more advanced courses in analysis and applied mathematics. *Prerequisite:* 102; 207 for 208. Three hours. Staff.

209 **PROJECTIVE GEOMETRY** Principle of duality, perspectivity, projectivity, harmonic sets, cross ratio, the theorems, the Pascal and Brianchon, and poles and polars. *Prerequisite:* 12. Three hours. Staff. Alternate years, 1966-67.

210 **FOUNDATIONS OF GEOMETRY** Geometry as an axiomatic science, various non-Euclidean geometries, and relationships existing between Euclidean plane geometry and other geometries. The development of geometry as a science based upon invariant properties. *Prerequisite:* 12. Three hours. Staff.

211 **DIFFERENTIAL EQUATIONS** Solutions of linear ordinary differential equations, the Laplace transformation, and series solutions of differential equations. *Prerequisite:* 21. Three hours. Staff.

212 APPLIED MATHEMATICS Boundary-value problems, orthogonal functions and vector analysis. *Prerequisite:* 24 and 211. Three hours. Mr. Dwork.

213, 214 APPLIED MATHEMATICS First semester: partial differential equations, solutions of partial differential equations of mathematical physics, and functions of a complex variable. Second semester: calculus of variations, difference equations, and integral equations. *Prerequisite:* 212, 213 for 214. Three hours. Mr. Dwork.

220 VECTOR ANALYSIS Introduction to vector methods including the elements of vector algebra and vector calculus with applications to physics and mechanics. *Prerequisite:* 21. Three hours. Staff.

222 GEOMETRY FOR ELEMENTARY SCHOOL TEACHERS Informal Euclidean geometry, classical constructions, coordinate geometry, inductive and deductive reasoning, convexity, and an introduction to topology. Not open to mathematics majors. *Prerequisite:* 126. Three hours. Mr. Izzo.

225, 226 TOPOLOGY The elements of point set topology; closed sets and open sets in metric spaces, continuous mappings, connection, Peano curves, separation theorems and homotopy. *Prerequisite:* 102 or 208; 225 or 226. Three hours. Staff. Alternate years, 1966-67.

227 DIFFERENTIAL GEOMETRY Analytic metric differential geometry of curves and surfaces in ordinary three dimensional space; curvature, torsion, Frenet formulas, involutes, developable and ruled surfaces, and geodesic curves. *Prerequisite:* 21. Three hours. Staff. Alternate years, 1967-68.

228 NUMBER THEORY Divisibility, prime numbers, Diophantine equations, congruence of numbers, and methods of solving congruences. *Prerequisite:* 21. Three hours. Staff.

231, 232 FUNCTION OF A COMPLEX VARIABLE Differentiation and integration of a function of a complex variable, mapping of elementary functions, infinite series, properties of analytic functions, analytical continuation, calculus of residues, contour integration, integral functions, meromorphic functions, Riemann surfaces, and conformal representation. *Prerequisite:* 208; 231 for 232. Three hours. Staff. Alternate years, 1966-67.

233, 234 THEORY OF FUNCTIONS OF REAL VARIABLES Functions of real variables, including: point sets and measure, transfinite numbers, Riemann and Lebesgue integrals, and sequences of functions. Considerable outside reading is assigned. *Prerequisite:* 208; 233 for 234. Three hours. Staff. Alternate years, 1967-68.

235, 236, 237 SPECIAL TOPICS IN ANALYSIS For advanced students in the field of analysis. Lectures, reports and directed readings on advanced topics in analysis. *Prerequisite:* 232 or 234 and departmental permission. Credit as arranged. Offered as occasion warrants. Staff.

241, 242 MODERN HIGHER ALGEBRA Fundamental concepts of Abstract Algebra. Sets, mappings, groups, rings, integral domains, fields, homomorphisms, isomorphisms, linear transformations and vector spaces. *Prerequisite:* 12; 102 highly desirable; 241 for 242. Three hours. Staff.

243 THEORY OF GROUPS The study of the various kinds and structures of groups. *Prerequisite:* 241. Three hours. Staff. Alternate years, 1967-68.

244 GALOIS THEORY The study of Galois theory leading to the insolvability of general quintic equations by radicals and theorems on constructions with ruler and compasses. *Prerequisite:* 243. Three hours. Staff. Alternate years, 1967-68.

245, 246, 247 SPECIAL TOPICS IN ALGEBRA For advanced students in the field of algebra. Lectures, reports and directed readings on advanced topics in algebra. *Prerequisite:* 241 and departmental permission. Credit as arranged. Offered as occasion warrants. Staff.

251 THE THEORY OF DIGITAL COMPUTING MACHINES AND NUMERICAL ANALYSIS Mathematical theory underlying digital computing machines including assigned problems on the IBM 1620, and 7090 at M.I.T., including programming in machine language, symbolic and fortran languages. The last third of the course is devoted to elementary numerical analysis. *Prerequisite:* 21, 24 highly desirable. Three hours. Mr. Riggs.

252 ADVANCED NUMERICAL ANALYSIS Finite difference methods, numerical solution of differential equations, numerical solutions of systems of linear equations, linear programming and approximations of various types. Problems solved on the 1620 computer. *Prerequisite:* 251 and credit or concurrent enrollment in 24. Three hours. Mr. Riggs. Alternate years, 1966-67.

255, 256, 257 SPECIAL TOPICS IN GEOMETRY For advanced students in the field of geometry. Lectures, reports and directed readings on advanced topics in geometry. *Prerequisite:* 209 or 227 and departmental permission. Credit as arranged. Offered as occasion warrants. Staff.

265, 266, 267 SPECIAL TOPICS IN TOPOLOGY For advanced students in the field of topology. Lectures, reports and directed readings on advanced topics in topology. *Prerequisite:* 226 and departmental permission. Credit as arranged. Offered as occasion warrants. Staff.

270, 271 ORDINARY DIFFERENTIAL EQUATIONS Linear and non-linear systems, approximate solutions, existence, uniqueness, stability, asymptotic behavior of solutions. *Prerequisite:* 208. Three hours. Mr. Chamberlain.

275, 276 FUNCTIONAL ANALYSIS L^2 spaces and L^p spaces, Hilbert and Banach spaces, linear functionals and linear operators, completely continuous operators, Fredholm alternative, completely continuous symmetric operators, Hilbert-Schmidt theory, unitary operators, Bochner's Theorem, Fourier-Plancherel and Watson transforms. *Prerequisite:* 234; 275 for 276. Three hours. Staff.

281, 282, 283, 284, 285, 286 SEMINAR Members of the staff and approved students meet weekly to study contemporary advances in mathematics and for reports on current research. One hour. Staff.

291 PROBABILITY THEORY Permutations and combinations, probability, stochastic variables, discrete and continuous distribution, joint distributions, binomial, Poisson and normal distributions, moments, measures of central tendency and of variability. *Prerequisite:* 12. Three hours. Staff.

292 MATHEMATICAL STATISTICS Sampling distributions, testing hypotheses, use of chi-square, Student's t and F distributions in significance tests, point and interval estimation, regression and correlation. *Prerequisite:* 291. Three hours. Staff.

293 **ADVANCED MATHEMATICAL STATISTICS** Sampling theory, analysis of variance, regression and correlation analysis, multiple correlation, analysis of covariance, non-parametric test. *Prerequisite:* 292. Three hours. Staff.

294 **DESIGN OF STATISTICAL EXPERIMENTS** Experimental design, analysis of experimental models and decision processes. *Prerequisite:* 293. Three hours. Staff.

295 **MEASURE THEORY** Sets and classes, inner and outer measure, Lebesgue-Stieltjes measure, measurable functions, absolute continuity, Radon-Nikodym theorem, convergences, and applications in theoretical probability. *Prerequisite:* 208. Three hours. Mr. Khazanie.

298 **APPLIED STOCHASTIC PROCESSES** Random walk models, Markov chains, Poisson process, Brownian motion, probability generating functions, discrete branching processes, homogeneous birth and death processes, diffusion processes, and first passage times. *Prerequisite:* credit or concurrent enrollment in 292. Three hours. Mr. Sylwester.

341, 342 **ABSTRACT ALGEBRA** Groups, rings, integral domains, extensions of rings and fields, factorization theory, groups with operators (Jordan-Hölder theorem, Krull-Schmidt theorem), modules, chain conditions, Hilbert basis theorem, Noetherian rings, linear spaces, tensor products of modules. *Prerequisite:* 242. Three hours. Mr. Bentsen.

391 through 399 **MASTER'S THESIS RESEARCH** Investigation of a research topic under the direction of an assigned staff member, culminating in an acceptable thesis. Credit as arranged. Staff.

Medical Technology

COLLEGE OF MEDICINE

Note: All courses limited to students of Medical Technology except by permission of the Departmental Chairman.

1 **INTRODUCTION TO MEDICAL TECHNOLOGY** Orientation and explanatory lectures in each of the disciplines in Medical Technology. Fall semester. One hour. Dr. Couch and staff.

101 **MEDICAL TECHNOLOGY (3-6)** Principles, procedures, and special technics in medical technology. Includes hematology, immunohematology, serology, and urinalysis. Fall semester. Six hours. Dr. Couch and staff.

102 **MEDICAL TECHNOLOGY (1-4)** Continuation of 101; includes histologic technic, introduction to cytopathology, parasitology. Spring semester. Three hours. Dr. Coon and staff.

103 **SEMINAR IN MEDICAL TECHNOLOGY** Group discussions of technics and principles in medical technology. Spring semester. Two hours. Dr. Coon and staff.

111-112 **BIOCHEMISTRY FOR MEDICAL TECHNOLOGISTS** Human physiological chemistry; structure, metabolism and regulatory mechanisms. Laboratory: biological reactions, preparation of reagents, instrumentation. Application of sound quantitative principles to analysis of body constituents. Lectures, conferences and laboratory. Limited to students of medical technology except by permission of departmental chairman. Four hours. Mr. Melville and staff.

HOSPITAL ASSIGNMENTS Rotating assignments in various departments of hospital, medical college, and public health diagnostic laboratories to give experience in medical laboratory procedures. Spring semester. Six hours. Dr. Coon and staff.

V Military Science

Colonel Robinson (Chairman); Lieutenant Colonel Wenz; Majors Finehout, Mahoney, Peck, and Robertson; Captains Fraser, Haas, Medenbach, Rives, and Sparks.

1-2 **U. S. ARMY AND NATIONAL SECURITY (2-1)** Organization for national defense; national security program; economics of national security; role of U. S. Army in total, limited, and cold war; military technology and weapons systems; research and development; principles of marksmanship; basic tactics; leadership laboratory.

11-12 **U. S. MILITARY HISTORY; MILITARY TOPOGRAPHY (2-1)** Great Captains; the Revolutionary War; Civil War; origins of World War I; World War I; origins of World War II; World War II: Defense, North Africa, Desert Victory, Sicily, Italy, Normandy, Germany, Japan; the Korean War; military topographic and aerial photographic maps; grid reference systems; cartographic symbology, terrestrial orientation and navigation; leadership laboratory.

101-102 **ARMY TEACHING METHODS; FUNDAMENTALS OF LEADERSHIP (3-1)** Methods of instruction; U. S. Army organization, military leadership; military communications, command, and control; small unit tactics; leadership laboratory.

111-112 **MILITARY COMMAND AND MANAGEMENT (3-1)** Military administration; staff functions and organization; training management; military law; military intelligence; military transportation; logistics; role of the U. S. in world affairs; leadership laboratory.

Music

COLLEGE OF ARTS AND SCIENCES

Professors Lidral (Chairman), Bennett and Pappoutsakis; Associate Professor D. Kinsey; Assistant Professors Keene, Schultz, and Weinrich; Instructor Delgado; Part-time Instructors Auchter, Dahl and F. Kinsey

Students in all music courses are required to attend a designated portion of major ensemble concerts, faculty recitals, and formal student recitals as part of the course requirements.

Theory and Composition

5-6 **THEORY I (2-3)** Melodic and rhythmic dictation, sight singing, and elementary harmony. Three hours. Mr. Lidral.

9, 10 **INTRODUCTORY MUSIC** Required of students in elementary education, elective to others. First semester: ear training, music reading and writing, elementary theory; second semester: history and appreciation. Three hours.¹ Messrs. Pappoutsakis and Keene.

105-106 **THEORY II (2-3)** Contrapuntal and harmonic dictation, advanced harmony, and elementary counterpoint. *Prerequisite:* 5-6. Three hours. Mr. Pappoutsakis.

201, 202 **ADVANCED HARMONY AND HARMONIC ANALYSIS** Contemporary harmonic practice and sonority organizations; traditional and contemporary analysis. *Prerequisite:* 105-106; 201 for 202. Three hours. Mr. Kinsey. Alternate years, 1966-67.

203, 204 **ORCHESTRATION** First semester: characteristics of instruments, arranging for orchestra; second semester: advanced exercises in orchestral scoring. *Prerequisite:* 105-106; 203 for 204. Three hours. Mr. Pappoutsakis. 204 in alternate years, 1967-68.

205, 206 **COUNTERPOINT** First semester: tonal counterpoint; second semester: canon and fugue. *Prerequisite:* 105-106; 205 for 206. Three hours. Mr. Kinsey. 206 in alternate years, 1967-68.

207 **PEDAGOGY OF THEORY** Objectives, viewpoints, content and specific approach to the organization and teaching of theory courses. *Prerequisite:* eighteen hours in theory. Three hours. Mr. Lidral. Alternate years, 1967-68.

208 **FORM AND ANALYSIS** Creative approach to aural and sight analysis of musical construction. *Prerequisite:* 105-106 or the equivalent; 205 recommended. Three hours. Mr. Lidral.

209, 210 **ARRANGING, VOCAL AND INSTRUMENTAL** First semester: arranging for vocal ensembles of various sizes and functions including mixed groups, men's and women's glee clubs, and chamber groups. Second semester: arranging for instrumental ensembles of various sizes including marching, concert, and school bands, and chamber groups. *Prerequisite:* 203. Three hours. Messrs. Lidral and Schultz. Alternate years, 1966-67.

1. Enrollment in music 5 will cancel credit for music 9 and music 1 or 2 will cancel music 10.

215, 216 COMPOSITION Creative work in free composition with instruction according to the needs and capabilities of the individual student. *Prerequisite:* 205 and 208. Three hours. Mr. Lidral.

History and Literature

1, 2 SURVEY OF MUSICAL LITERATURE First semester: the Romantic era in songs and piano pieces, program music, the symphony and the concerto, and the opera. Second semester: the Classical era, Gregorian chant to Handel and Bach, modern music, and American music. Three hours. Mr. Kinsey and Miss Delgado.

129 CHORAL LITERATURE A study of selected masterpieces of choral literature through analysis and performance. *Prerequisite:* twelve hours or the equivalent in voice. Two hours. Mr. Weinrich.

130 VOCAL LITERATURE A study of selected masterpieces of the vocal literature through analysis and performance. *Prerequisite:* twelve hours or the equivalent in voice. Two hours. Mr. Weinrich.

221, 222 HISTORY OF MUSIC Changes in musical structure and style in relation to contemporaneous artistic, literary, religious, and social movements. First semester: Gregorian chant to the Baroque era. Second semester: Baroque to Modern *Prerequisite:* 1, 2 and 5-6. Three hours. Mr. Bennett.

223 through 228 MUSIC LITERATURE Advanced studies in the literature of music. *Prerequisite:* 105-106 and 221, 222. Three hours. Mr. Bennett.

245, 246 CHAMBER MUSIC LITERATURE A study through analysis and performance of masterworks for small groups leading to public performance. *Prerequisite:* twelve hours or the equivalent in applied field and departmental permission. One hour. Staff.

281, 282, 283, 284 INDEPENDENT STUDY Studies in theory, composition, history, or literature under the direction of an assigned staff member for advanced students and candidates for honors. Credit as arranged.

381, 382, 383, 384 SEMINAR Study of special topics appropriate to student needs. One hour. Mr. Kinsey.

391 through 399 MASTER'S THESIS RESEARCH Investigation of a research topic under the direction of an assigned staff member, culminating in an acceptable thesis. Credit as arranged.

For Music Education, see page 140.

For School Music, see Elementary Education 113.

Applied Music

For the fees for instruction, see page 48.

A senior recital in the applied major field is required of all music majors. Regular appearances in informal recitals are required of all applied music students. Appearance in one formal departmental recital a semester is required of all music majors. At the end of each semester jury examinations are given in applied music.

All music majors on any curriculum are required to pass a **FUNCTIONAL PIANO FACILITY** examination before certification for graduation. This will include:

- a. Ability to sight-read songs of the type found in a community song book.
- b. Ability to harmonize at sight; to improvise a simple piano accompaniment for songs requiring the use of I, IV, and V chords and some simple modulations; to transpose the songs and harmonizations to other keys.
- c. Ability to sight-read fairly fluently simple accompaniments, vocal or instrumental, and simple piano compositions of the type used for school rhythmic activities.

41, 42 **MAJOR ENSEMBLES (0-3)** University Band, Choir, and Orchestra. *Prerequisite:* departmental permission. One hour.¹ Messrs. Keene, Schultz, and Weinrich.

45, 46 **CHAMBER MUSIC (0-2)** Study and performance of masterworks for small groups. Outside practice required. *Prerequisite:* departmental permission. One hour.¹ Messrs. Keene, Weinrich and staff.

51, 52 **INDIVIDUAL STUDY** Private study in piano, organ, harpsichord, voice, strings, woodwinds, brass, percussion, and harp. One or two hours.¹ Staff.

71, 72 **CLASS STUDY (0-2)** Required of music education students, elective to others. Class study in applied music fields of voice, strings, woodwinds, brass, and percussion. One hour.¹ Staff.

74 **INSTRUMENT REPAIR CLASS (0-2)** A laboratory for music education students in minor repair and adjustment of string, woodwind, brass, and percussion instruments. *Prerequisite:* string, woodwind, brass, and percussion classes or concurrent enrollment and departmental permission. One hour. Mr. Schultz.

211, 212 **CONDUCTING (2-2)** First semester: technique of the baton, score reading, laboratory practice. Second semester: preparation and performance of selected scores, including score reading at the piano and rehearsal procedures. Selected students will conduct University major ensembles. *Prerequisite:* 5-6; 211 for 212. Three hours. Mr. Pappoutsakis. 212 in alternate years, 1966-67.

251, 252 **ADVANCED INDIVIDUAL STUDY** Private study in piano, organ, harpsichord, voice, strings, woodwinds, brass, percussion, and harp leading to public recital performance. *Prerequisite:* advanced standing in applied field and departmental permission. One or two hours.¹ Staff.

271, 272 **APPLIED MUSIC PEDAGOGY** Methods of teaching voice, strings, woodwinds, brass or keyboard instruments and advanced class instruction in them. Research paper required. *Prerequisite:* performing ability and teaching experience. Two hours.¹ Staff.

1. Indicated courses in applied music may be taken for several years, but no B.A. candidate may receive credit toward graduation totalling more than six semester hours in ensembles and six semester hours for individual study. One hour of credit per semester will be given for one private lesson (one-half hour) per week under a member of the department, and six hours practice per week, on condition that the instruction be accompanied or preceded by music 1, 2 or 5-6 or 9, 10 and participation in ensemble (keyboard students excepted); two hours credit will be given for two private lessons per week (one hour) and twelve hours practice per week, on the same condition.

Nursing

COLLEGE OF EDUCATION AND NURSING

Associate Professors Milligan and Woodruff (Chairman); Assistant Professors Demers, Emerson, Forgione, Lombard¹, Palmer, Phillips, Rodgers, Schwalb and Thompson; Instructors Bellerson, Farrington, Marsland, Nadon and Porter.

1, 2 **ORIENTATION TO NURSING** First semester: introduction to nursing as a profession including its historical development. Second semester: the influence of environmental factors on an individual and his health practices. 1, one hour; Miss Woodruff; 2, two hours. Miss Milligan.

7 **HOME NURSING (0-2)** Care of the family. *Prerequisite:* junior standing in home economics curriculum. One hour. Mrs. Rodgers.

21-22 **INTRODUCTORY NURSING (2-8), (3-12)** First semester: development of understandings, attitudes and skills necessary in giving basic nursing care. Laboratory study in classroom and hospital. Second semester: development of understandings, attitudes, and skills necessary in giving nursing care to people who face illnesses which have a favorable prognosis. Laboratory experience in hospital. 21, four hours; 22, six hours. Misses Milligan, Nadon, Porter and Mrs. Rodgers.

26 **INTERPERSONAL RELATIONS IN NURSING** Understanding of human relationships in the care of patients; some of the dynamic factors influencing interpersonal relations; development of approaches useful in the solution of common problems in nurse-patient relationships. Three hours. Miss Phillips.

121, 122 **INTERMEDIATE NURSING (4-20)** Development of understandings, concepts and skills necessary to provide nursing care to the family and its members. One semester: laboratory experience with mothers and children through a family centered approach. One semester: laboratory experience with adults who face illnesses which necessitate short and long term adjustments in patterns of living. Nine hours. Misses Demers, Forgione and Schwalb, and Mrs. Marsland and Mrs. Palmer.

156 **PSYCHIATRIC NURSING (4-8)** Principles of nursing care of patients with psychiatric problems in hospitals and other settings. The emphasis will be on the development of therapeutic relationships with selected patients and upon the nurse's role with patients in various treatment situations. Six hours. Misses Bellerson and Phillips.

166 **ADVANCED NURSING (3-12)** The development of understandings, concepts and skills necessary in giving nursing care that is based on the assessed needs of the critically ill patient; the concepts and procedures of the nursing team with participation as team leader; an appreciation of the leadership role of the head nurse. Six hours. Miss Thompson.

176 **NURSING IN THE COMMUNITY (4-8)** Study and discussion of the development functions and trends in official and voluntary health organizations with emphasis on the role of the nurse at the local, state, national and international level. Laboratory study provided in the community. Six hours. Misses Emerson and Farrington.

1. On leave 1965-66.

186 SURVEY OF CONTEMPORARY NURSING Influence of contemporary social, educational, political and economic developments on nursing; problems and issues in the profession today; professional organizations in nursing and responsibilities of the professional nurse. Three hours. Miss Woodruff.

Philosophy and Religion

COLLEGE OF ARTS AND SCIENCES

Professor Dykhuizen; Associate Professors Hall (Chairman) and Sadler¹; Assistant Professors Beckett, Kahn and Kim; Instructors Paden and Sobers

Philosophy

1, 2 INTRODUCTION TO PHILOSOPHY A systematic analysis of the thought of such leading philosophers as Plato, Aristotle, Descartes, Spinoza, Hume, and Kant on such topics as Theory of Knowledge, Ethics, Political Philosophy, and Theory of Art. Three hours. Staff.

3 LOGIC Principles and conditions of correct thinking with emphasis on the detection of fallacies of thought. Three hours. Mr. Beckett.

4 ETHICS Examination of the ideas underlying man's moral behavior to develop an acceptable and coherent theory of conduct. Three hours. Staff.

51 PHILOSOPHY IN LITERATURE Selected philosophical works and the literary works which they have influenced. *Prerequisite:* one course in philosophy. Three hours. Mr. Hall.

81 SYMBOLIC LOGIC Newer techniques of logical analysis; discussion of logistic systems; general inquiry into the nature of deductive logic. *Prerequisite:* one course in philosophy. Three hours. Mr. Beckett.

82 PHILOSOPHY OF SCIENCE Some philosophical problems closely associated with the scientific enterprise: scientific explanation, interpretations of the concept of probability, the justification of induction, causality, space and time, and the relation of science to ethics. Emphasis on current attempts at their solution. *Prerequisite:* a course in philosophy or a science; sophomore standing. Three hours. Mr. Beckett.

102 PHILOSOPHY OF RELIGION A critical analysis of the basic concepts and values which have emerged from man's religious experience. *Prerequisite:* 1, or religion 1, 2. Three hours. Mr. Hall.

107, 108 HISTORY OF PHILOSOPHY First semester: ancient and medieval philosophy; second semester; modern philosophy through Kant. *Prerequisite:* 1; junior standing. Three hours. Mr. Dykhuizen.

1. On leave 1965-66.

109 **AMERICAN PHILOSOPHY** The thought of such leading American philosophers as Peirce, Royce, James, Santayana, and Dewey. *Prerequisite:* two advanced courses in philosophy. Three hours. Mr. Dykhuizen.

111 **NINETEENTH-CENTURY PHILOSOPHY** A systematic analysis of the contributions to philosophical thought since Kant of such thinkers as Fichte, Schelling, Hegel, Schopenhauer, Nietzsche, Mill, Kierkegaard, and Dilthey. *Prerequisite:* two advanced courses in philosophy. Three hours. Mr. Hall.

113 **PHILOSOPHY OF THE ARTS** An analysis of some principal theories of art and the beautiful as exemplified in music, literature and painting. *Prerequisite:* 1; junior standing. Three hours. Mr. Hall.

201 **CONTEMPORARY PHILOSOPHIC THOUGHT** The philosophic ideas of such men as Russell, Dewey and Whitehead, and of such movements as pragmatism, logical empiricism and existentialism. *Prerequisite:* 1; junior standing. Three hours. Mr. Beckett.

202¹ **ANALYTIC PHILOSOPHY** The significant problems of philosophy from the standpoint of the predominant contemporary philosophic movement in England and the United States. *Prerequisite:* two advanced courses in philosophy. Three hours. Mr. Beckett.

206 **SOCIAL PHILOSOPHY** The meanings and values inherent in social life. *Prerequisite:* 1 or 4; junior standing. Three hours. Mr. Hall.

207¹ **METAPHYSICS** Current and traditional metaphysical problems such as the concept of change, the existence of God, the self, and the world. *Prerequisite:* two advanced courses in philosophy. Three hours. Mr. Sobers.

212¹ **EXISTENTIALISM** Existentialism, its sources and its relation to literature and to the arts; Heidegger, Sartre, Marcel, Jaspers, and others. *Prerequisite:* two advanced courses in philosophy. Three hours. Mr. Hall.

214 **INTELLECTUAL BACKGROUND OF MODERN LIFE** Intellectual movements which have influenced the thought and life of today. *Prerequisite:* senior standing. Three hours. Mr. Dykhuizen.

215 **PLATO** A systematic analysis of the Dialogues of Plato on the following topics: theory of knowledge, ethics and political philosophy, and fine art. *Prerequisite:* six hours in philosophy or departmental permission. Students concentrating in the classics may be admitted. Three hours. Mr. Hall.

281, 282 **READINGS IN PHILOSOPHY** Selected classics in philosophical literature. The choice of classics will be determined according to the interest of students and instructor. *Prerequisite:* six hours of advanced courses in philosophy. Three hours. Staff.

For economic philosophy, see economics 295 and 296; and for political philosophy, see political science 211, 212.

Religion

1, 2 **RELIGIONS OF THE WORLD** First semester: Confucianism, Taoism, Hinduism, Buddhism. Second semester: Judaism, Christianity, Islam. Three hours. Messrs. Kim and Paden.

1. Approval for graduate credit pending.

11 BIBLE The religious thought of selected writers of the Bible. *Prerequisite:* sophomore standing. Three hours. Mr. Kahn. Alternate years, 1966-67.

101 RELIGION AND SOCIETY A comparative study of the basic types of religious community and religious institution, within various cultural settings. *Prerequisite:* 1, 2 or sociology 101; sophomore standing. Three hours. Staff.

112 RELIGIOUS EXPERIENCE A comparative study of the ways in which the inward dimension of the religious life finds expression. *Prerequisite:* 1, 2 or sociology 21; sophomore standing. Three hours. Mr. Kim.

122 MYTH AND RITUAL A critical analysis of the understanding of myth and ritual as religious structures of expression through symbol and act. Emphasis upon modern interpretations of myth and ritual, the relationship between myth and ritual, and their historical patterns. *Prerequisite:* 1, 2 or sociology 21; sophomore standing. Three hours. Mr. Paden.

201 METHODS OF UNDERSTANDING RELIGION Investigation of some major methodological contributions to the understanding and interpretation of religion since the appearance of the writings of Tylor and Frazer, concluding with an analysis of the contemporary phenomenological movement and its contribution to the methodology of religion. *Prerequisite:* 1, 2; junior standing. Three hours. Mr. Paden.

205, 206 AREA STUDIES IN RELIGION A study in depth of religion in a particular area of the modern world, for example, the Indian sub-continent, Japan, the Middle East, Latin America. *Prerequisite:* six hours in religion. Three hours. Staff.

211 CONTEMPORARY TRENDS Significant modern developments in the world religions. *Prerequisite:* 1, 2; junior standing. Three hours. Staff.

281, 282 PROBLEMS IN THE HISTORY AND PHENOMENOLOGY OF RELIGION Topics of current concern to historians of religions. *Prerequisite:* 201 and senior standing. Three hours. Staff.

Physical Education

COLLEGE OF EDUCATION AND NURSING

Associate Professors Evans and Post; Assistant Professors Bryant, Christensen (Chairman for Men), Davenport (Chairman for Women), Gobin, Lapointe, Leggett and Strassburg; Instructors Brassard, Chase, Cochran, Farrell, Greig, Lambert, Lee, Mays, Stone and Vinton

For requirements in physical education see page 54.

26 TEACHING AQUATICS (1-2) Knowledge, skills, and methods required to demonstrate competency in the performance and teaching of aquatic skills. Satisfactory completion of the course will be recognized by the issue of a Red Cross Water Safety Instructor certificate. Two hours. Miss Farrell and Mr. Lambert.

MEN

1-2 FRESHMAN PHYSICAL EDUCATION Two hours weekly. One credit.

11-12 SOPHOMORE PHYSICAL EDUCATION *Prerequisite:* Physical Education for Men 1. Two hours weekly. One credit.

Physical education 1 is required of all freshman men and is a course devoted to: the acquisition of knowledge concerning the individual student's specific physical potentials and limitations; the development of an individual physical self-profile through an extensive program of evaluation; and a program of fitness activities. Utilizing the information gained in physical education 1, students are free to elect activities from a diversified, seasonal sports offering based upon their individual needs and interests.

The uniform required in this program consists of T-shirt, shorts, supporter, socks, sweat clothes and white tennis shoes. The T-shirts, shorts and sweat clothes *must* be obtained at the University Store. The other items of equipment may be purchased there also.

Every man enrolled in Physical Education must pay a four dollar locker-towel fee.

WOMEN

1-2 FRESHMAN PHYSICAL EDUCATION Two hours weekly. One hour.

11-12 SOPHOMORE PHYSICAL EDUCATION Two hours weekly. One hour.

A seasonal sports program with instruction in a variety of individual and dual sports, field sports, court games, swimming activities and dance forms. Emphasis is placed on the role of physical education in everyday living. The program is designed to provide a variety of activities to meet the needs and interests of women. The purposes of the program are: to develop an awareness of the physical self, to provide an opportunity to apply basic movement patterns in new sports and dance activities, and to increase proficiency in activities already learned.

The uniform required consists of regulation shorts and shirt, white rubber-soled tennis shoes, white ankle socks, black leotard and dance tights. All uniforms must be the regulation style and color.

Students electing skiing as a specialty will purchase ticket books at \$10.00 each for transportation to the slopes.

For Physical Education Teaching Major Courses, See Under Department of Education.

Physics

COLLEGE OF ARTS AND SCIENCES

Professors Crowell (Chairman), Nyborg and Walbridge; Associate Professor Juenker; Assistant Professors Foley, Krizan, Sachs and Scarfone

5-6 ELEMENTARY PHYSICS (3-2) An introduction to the principles of physics for students not concentrating in physical science or engineering. Mechanics, heat, waves,

optics, electricity, magnetism, atomic and nuclear physics. Demonstration lectures coordinated with laboratory work. *Prerequisite*: secondary school algebra and trigonometry. Four hours. Staff.

14-15 GENERAL PHYSICS (3, 3-2) For students concentrating in engineering or a physical science. Mechanics, waves, electricity and magnetism, thermodynamics, and geometric optics. *Prerequisite*: for physics 14, concurrent enrollment or credit in mathematics 11; for physics 15, 14 and concurrent enrollment or credit in mathematics 12. Three hours. Staff.

16 INTRODUCTORY MODERN PHYSICS (4-2) Physical optics and modern physics. Includes an introduction to the theory of relativity, electron and atomic physics, and the physics of the nucleus and elementary particles. *Prerequisite*: 15.¹ Five hours. Staff.

101, 102 INTERMEDIATE PHYSICS LABORATORY (1-3) Selected experiments from the fields of mechanics, heat, electricity and magnetism, and optics. Students required to formulate details of objectives and procedure and to evaluate results. Intended to be taken concurrently with physics 116 and 117 in the first semester and 118 and 212 in the second, but may be taken independently with departmental permission. *Prerequisite*: 15¹, mathematics 21; 101 for 102. Three hours.

116 MECHANICS (3-0) Mechanics of a particle, including central forces, forced and coupled vibrations; introductory rigid body motion. *Prerequisite*: 15¹; mathematics 21. Three hours. Mr. Juenker.

117 ELECTRICITY AND MAGNETISM (3-0) Fundamental principles of electricity and magnetism: charge, currents, circuits, theory of electrostatic fields, and magnetic fields of steady currents. Electrical and magnetic properties of matter and electromagnetic energy relationships. Vector analysis developed as necessary. *Prerequisite*: 15¹, mathematics 21. Three hours.

118 ELECTRICITY AND OPTICS (3-0) Introduction to time dependent electromagnetic fields. Maxwell's equations. Electromagnetic waves including visible light and wave optics. *Prerequisite*: 117. Three hours.

122 BIOLOGICAL PHYSICS (3-2) Physical laws, concepts and methods discussed with respect to their reference to biology. Mechanics of solids, liquids and non-ideal media. Electric and magnetic fields, transport of dissolved gases and ions. Properties of macromolecules, radiation biophysics. *Prerequisite*: 6, chemistry 2, mathematics 12. Four hours. Mr. Nyborg.

173 THERMAL PHYSICS (3-0) Basic concepts of thermodynamics including the characteristic functions, and their application to determination of equilibrium conditions in homogeneous and heterogeneous systems. Introduction to kinetic theory and statistical mechanics. *Prerequisite*: 15¹ and mathematics 21. Three hours. Mr. Foley. Alternate years, 1967-68.

191, 192 SENIOR RESEARCH (0-4, 0-8) The student works on a theoretical or experimental project under direction. Written and oral reports are submitted. 191, two hours; 192, four hours. Staff.

203, 204 ADVANCED PHYSICS LABORATORY (1-3) Selected experiments from the fields of modern physics: atomic nuclear and solid state physics, physics of radiation and plasmas.

1. May be replaced by physics 5-6 with departmental permission.

Students required to formulate details of objectives and procedure and to evaluate results. Intended to be taken concurrently with physics 271, 272 but may be taken independently with consent of department. *Prerequisite:* 15¹, mathematics 21; 101 for 102. Three hours.

212 **MECHANICS AND WAVE MOTION (3-0)** Continuation and developments of the principles and methods of mechanics; integration of fundamental physical principles with mathematics and with the extension of these principles to wave motion. *Prerequisite:* 116. Three hours. Mr. Sachs.

222 **ADVANCED BIOLOGICAL PHYSICS (3-2)** Sound and electromagnetic waves, the latter including light, micro-waves and x-rays; ionizing particles and radiation. Interaction of these physical agents with biological systems. Physical properties of macromolecules and their aggregates. *Prerequisite:* chemistry 2; mathematics 21; and experience in applying differential equations. Departmental permission required. Four hours. Mr. Nyborg.

225, 226, 227 **SPECIAL TOPICS IN BIOLOGICAL PHYSICS** For research students in the field of biological physics. Lectures, reports and directed readings related to the research of the department. *Prerequisite:* 122 or 222, mathematics 21 and departmental permission. Credit as arranged. Mr. Nyborg. Offered as occasion warrants.

231, 232, 233 **SPECIAL TOPICS IN ACOUSTICS** For research students in the field of acoustics. Lectures, reports and directed readings on problems of particular interest to the current research of the department. *Prerequisite:* 212 and departmental permission. Credit as arranged. Messrs. Nyborg and Sachs. Offered as occasion warrants.

251, 252, 253 **SPECIAL TOPICS IN THE PHYSICS OF SURFACES** For research students in the field of surface chemistry and physics. Background of particular interest to the current research of the department is presented and discussed. *Prerequisite:* 173, or chemistry 142, mathematics 212 and departmental permission. Credit as arranged. Mr. Crowell. Offered as occasion warrants.

271, 272 **MODERN PHYSICS** Background and concepts of relativity, quantum theory, and nuclear physics. Topics selected from relativity, electron physics, atomic structure and spectra, wave mechanics, molecular and solid state physics, x-rays, nuclear physics. *Prerequisite:* 116 or chemistry 142, 271 for 272. Three hours. Messrs. Foley and Juenker.

276 **SOLID STATE PHYSICS (3-0)** Crystal structure and classification of solids. Mechanical, thermal and electromagnetic properties of solids. Free electron model of conductors and band theory. *Prerequisite:* 212, 242, 271. Three hours. Mr. Foley. Alternate years, 1967-68.

281, 282 **SEMINAR** Members of the staff and graduate students meet weekly to study contemporary advances in physics and for reports on research being done in the department. No credit. Staff.

301, 302 **MATHEMATICAL PHYSICS** Required of all graduate students in physics. Introduction to basic mathematical methods of theoretical physics; vector and tensor analysis, partial differential equations, orthogonal functions, complex variables and variational techniques presented with appropriate physical illustrations. *Prerequisite:* 212 and 242, or mathematics 213, 301 for 302. Three hours. Mr. Krizan.

1. May be replaced by physics 5-6 with departmental permission.

311 **ADVANCED DYNAMICS (3-0)** Classical mechanics presented as the basis of the concepts and methods of modern physics. Variational methods. Lagrangian and Hamiltonian formulations, canonical transformations. *Prerequisite:* 212; mathematics 211. Three hours. Mr. Nyborg. Alternate years, 1966-67.

313 **ELECTROMAGNETIC THEORY** Development of Maxwell's theory of electromagnetism with emphasis on the unity of electric and magnetic phenomena, both in their physical basis and in the mode of mathematical description. Boundary value problems in electrostatics, multipoles, electrostatics of macroscopic media, dielectrics, magnetostatics, time varying fields, Maxwell's equations, conservation laws, gauge transformations, wave equations, Green's functions are employed throughout. *Prerequisite:* 118, mathematics 211. Three hours. Mr. Scarfone.

314 **CLASSICAL ELECTRODYNAMICS** A continuation of electromagnetic theory. Plane electromagnetic waves, wave guides and resonant cavities, simple radiating systems and diffraction, magnetohydrodynamics and plasma physics, special theory of relativity, relativistic particle kinematics and dynamics, multipole fields. *Prerequisite:* 313. Three hours. Mr. Scarfone.

361, 362 **QUANTUM MECHANICS** Mathematical and physical foundations of non-relativistic quantum mechanics are presented from the unifying point of view of Dirac which includes the matrix and wave formulations. Applications include the theory of angular momentum, perturbation theory, the theory of radiative transitions and scattering theory. The role of symmetry operations and the essential algebraic structure of quantum mechanics are emphasized. *Prerequisite:* 272, 361 for 362. Three hours. Mr. Scarfone. Alternate years, 1966-67.

363 **ADVANCED QUANTUM MECHANICS** Introduction to the mathematical and physical concepts of relativistic quantum mechanics and quantum field theory. Topics include Dirac theory of the electron, quantization of fields and its particle interpretation, invariance properties and selection rules, S-matrix theory, quantum-electrodynamics. *Prerequisite:* 362. Three hours. Mr. Scarfone. Alternate years, 1967-68.

375 **KINETIC THEORY AND STATISTICAL MECHANICS** Review of thermodynamics. Elements of kinetic theory including the Boltzmann equation, H theorem and transport phenomena. Introduction to equilibrium statistical mechanics, both quantum and classical. *Prerequisite:* 173, 272. Three hours. Mr. Krizan.

376 **STATISTICAL MECHANICS** Applications of fundamentals of statistical mechanics to quantum and classical ideal and imperfect gases. Investigations of special topics such as the Ising model, relativistic statistical mechanics, physical adsorption and phase transitions. *Prerequisite:* 375 and 361. Three hours. Mr. Krizan.

391 through 394 **MASTER'S THESIS RESEARCH** Investigation of a research topic under the direction of an assigned staff member, culminating in an acceptable thesis. Credit as arranged.

491 through 499 **DOCTORAL THESIS RESEARCH** Original research under the direction of an assigned staff member, culminating in an acceptable doctoral dissertation. Credit as arranged.

Plant and Soil Science

COLLEGE OF AGRICULTURE AND HOME ECONOMICS

Professors Wiggans (Chairman) and Hopp; Associate Professors Bartlett and Wood; Assistant Professors Flanagan, McIntosh and MacCollom; Calahan and Benoit

1 HOME AND GARDEN HORTICULTURE Enrichment of everyday home living through horticulture. Planning of the home grounds for maximum enjoyment. Selection and maintenance of plants for the home grounds, including shrub, tree and flower plantings, the home lawn, home fruit and vegetable gardens, and house plants. Designed primarily for non-agricultural students. Three hours. Mr. Wiggans and staff.

12 INTRODUCTION TO PLANT SCIENCE (2-3) Principles and practices involved in the establishment, culture, management, propagation, harvesting, storage, and utilization of economically important horticultural and agronomic crops. *Prerequisite:* botany 1. Three hours. Staff.

61 INTRODUCTION TO SOIL SCIENCE (2-3) An introductory study of the nature and properties of soils and how they serve as media for plant growth. *Prerequisite:* sophomore standing. Three hours. Mr. McIntosh.

101 NATURAL RESOURCE CONSERVATION A systematic appraisal of the extent and character of the nation's resources; including soil, water, atmosphere, forest, wildlife, mineral, and other utilitarian and recreational aspects; their past use and misuse, present conservation status, and adequacy for the future. *Prerequisite:* junior standing. Three hours. Mr. Flanagan.

102 ECONOMIC ENTOMOLOGY (3-2) Survey of the major insect orders, and the relationship of structure, physiology and life history to control; material and methods for control of injurious species. *Prerequisite:* zoology 1 or botany 1. Four hours, Mr. MacCollom.

104 PEST CONTROL (2-3) Practices and principles involved in modern pest control including biological, cultural, and chemical methods for weeds, insects, and plant diseases. *Prerequisite:* eight hours of biological sciences or chemistry. Three hours. Messrs. Flanagan, MacCollom, and Fisher. Alternate years. 1967-68.

122 SMALL FRUIT CROPS (2-3) Principles of small fruit production, including propagation, culture, management, and harvesting. *Prerequisite:* 12. Three hours. Staff. Alternate years, 1967-68.

123 VEGETABLE CROPS (2-3) Origin and improvement of vegetable crops, including cultural practices and principles involved in modern vegetable production. Review of recent experimental work. *Prerequisite:* 12. Three hours. Mr. Hopp. Alternate years, 1967-68.

125 ORNAMENTAL HORTICULTURE (2-3) The identification, climatic requirements, cultural management, and use of ornamental plant materials in landscape plantings. *Prerequisite:* 12. Three hours. Staff. Alternate years, 1966-67.

138 **PLANT PROPAGATION (2-3)** The principles and practices involved in the propagation of herbaceous and woody plants by seeds, division, layering, cutting, budding, and grafting. *Prerequisite:* 12 or equivalent. Three hours. Staff. Alternate years, 1966-67.

141 **FORAGE CROPS (2-3)** Producing, improving, and managing forage and pasture crops, including a study of silage and hay making. *Prerequisite:* 12. Three hours. Mr. Wood. Alternate years, 1966-67.

144 **FIELD CROPS (2-3)** Theory and practice of producing, improving and managing field crops other than those grown for forage. *Prerequisite:* 12. Three hours. Mr. Wood. Alternate years, 1967-68.

145 **TURFGRASSES (1-3)** Principles of establishment, maintenance and utilization of turf for lawns, parks, athletic fields, airports, cemeteries, roadsides, golf courses, ski slopes and other special uses. *Prerequisite:* 12. Two hours. Mr. Wood. Alternate years, 1967-68.

162 **SOIL FERTILITY AND MANAGEMENT** The essential principles of soil management as they relate to soil fertility. A study of soil testing methods and interpretations, fertilizer manufacture and usage, and management practices which will maintain or improve soils. *Prerequisite:* 61. Three hours. Mr. McIntosh. Alternate years, 1966-67.

197, 198 **SENIOR RESEARCH** Work on a research problem under the supervision of a senior staff member. Findings submitted in written form as prescribed by the department. *Prerequisite:* senior standing. Three hours. Mr. McIntosh. Alternate years, 1966-67.

201 **MICROMETEOROLOGY** A theoretical and practical consideration of the micro-meteorological factors that affect plant growth and response. The relationship of these factors to crop selection and agricultural practices. *Prerequisite:* 12 or equivalent. Three hours. Staff. Alternate years, 1966-67.

204 **PLANT RESEARCH TECHNIQUES (2-3)** Methods of conducting research with plants. Organizing and planning of experiments. The use of field and laboratory equipment. *Prerequisite:* 12, 63, and botany 103 or equivalent. Three hours. Mr. Wiggans. Alternate years, 1967-68.

205 **MINERAL NUTRITION OF PLANTS** Classical work in solution culture; modern theories of ion accumulation. Colloidal chemistry of roots and the rhizosphere. Measurement of ion availability in relation to uptake and growth. *Prerequisite:* 12, 61, and botany 103 or equivalent. Three hours. Mr. Bartlett and botany, forestry and plant and soil science staff. Alternate years, 1967-68.

222 **ADVANCED TREE FRUIT CULTURE (2-3)** Theory and practice of modern commercial fruit science. Basic principals involved in nutrition and responses to cultural and management practices. *Prerequisite:* 12. Three hours. Mr. Calahan. Alternate years, 1966-67.

261 **SOIL FORMATION AND CLASSIFICATION** A discussion of the development of soils throughout the world as influenced by soil forming factors. Detailed study of soils occurring in Vermont. Classification of soils, including the Unified System, 7th Approximation. *Prerequisite:* 61 or a total of six hours in ecology, geology, or geography. Two hours. Mr. Bartlett. Alternate years, 1966-67.

264 **SOIL CHEMISTRY (2-3)** The chemistry and biology of soils as they affect plant growth. Colloidal properties of clays and organic matter in relation to soil acidity and availability of essential elements. Modern laboratory analysis of soils, fertilizer and plant

tissue. *Prerequisite:* 61, chemistry 1-2 or 11-12. Three hours. Mr. Bartlett. Alternate years, 1966-67.

266 SOIL PHYSICS (2-3) The physical properties of soils. The mathematical and physical principles necessary to understand the soil-water-plant interaction and its relationship to production and management. *Prerequisite:* 61, physics 5-6. Three hours. Mr. Benoit. Alternate years, 1967-68.

281 through 284 SEMINAR Presentation and discussion of papers on selected topics of current interest by students and staff. *Prerequisite:* senior standing. One hour. Staff.

381, 382 SPECIAL TOPICS Advanced readings and discussion of horticulture, agronomy, or soils research literature. Three hours. Staff.

391 through 399 MASTER'S THESIS RESEARCH Investigation of a research topic under the direction of an assigned staff member, culminating in an acceptable thesis. Credit as arranged. Staff.

Political Science

COLLEGE OF ARTS AND SCIENCES

Professors Haugen, G. T. Little¹ and Nuquist (Chairman); Associate Professors Gould, Hilberg; Assistant Professors Best, Durham, Keene, Simon, Staron and Wilson; Instructors Briggs, Eastman and Monahan

11, 12 INTRODUCTION TO POLITICAL SCIENCE First semester: elements of political science. Second semester: comparative governmental institutions. Students should not elect both 11, 12 and 21, 22. Three hours. Staff.

21, 22 AMERICAN GOVERNMENT The American governmental system. First semester: theory, principles, institutions, and political processes. Second semester: functions. *Prerequisite:* sophomore standing; 21 for 22. Three hours. Staff.

51, 52 INTERNATIONAL RELATIONS First semester: imperialism and the emergence of Afro-Asia; World War I and the rise of totalitarianism; World War II and the nuclear threat. Second semester: comparative foreign policy; the state system; international co-operation and conflict. *Prerequisite:* sophomore standing. Three hours. Messrs. Briggs, Hilberg and Staron.

161, 162 LOCAL GOVERNMENT First semester: government of counties, towns, and other rural units. Second semester: municipal government. *Prerequisite:* 21, 22 or junior standing. Three hours. Mr. Nuquist.

171, 172 EUROPEAN GOVERNMENTS Political and legal ideas, institutions, and processes in the context of national life. First semester: emphasis on the United Kingdom and

1. On leave 1965-66.

France. Second semester: emphasis on the U.S.S.R. and Germany. *Prerequisite:* 11, 12 or junior standing. Three hours. Mr. Staron.

173 CANADA AND THE COMMONWEALTH Governmental systems in the British Commonwealth and overseas territories, with particular emphasis on Canada and Commonwealth cooperation. *Prerequisite:* 11, 12 or junior standing. Three hours. Mr. Haugen. Alternate years, 1967-68.

174 GOVERNMENT OF LATIN AMERICA Analysis of the formal and informal political structure of the Latin American states with emphasis upon contemporary developments. *Prerequisite:* 11, 12 or junior standing. Three hours. Mr. Gould. Alternate years, 1966-67.

175, 176 GOVERNMENTS OF ASIA The development of political institutions and processes in the 20th century with brief historical introductions. First semester: Japan and China. Second semester: India and Southeast Asia. *Prerequisite:* 11, 12 or junior standing. Three hours. Messrs. Briggs or Little. Alternate years, 1966-67.

191, 192 HONORS OR SPECIAL READINGS Three hours. Staff.

211, 212 POLITICAL THEORY First semester: development of political theory. Second semester: recent political theory. *Prerequisite:* 11, 12 or 21, 22; one other course or one sophomore course in social science; senior standing. Three hours. Mr. Staron.

216 AMERICAN POLITICAL THOUGHT American political thought from the colonial period to recent times. *Prerequisite:* 11, 12 or 21, 22; and one other course or economics 11-12 or history 23, 24; junior standing. Three hours. Mr. Simon.

221, 222 CONSTITUTIONAL LAW First semester: historical and analytic study of judicial review, federalism, the taxing power, the commerce power, the suffrage. Second semester: historical and analytic study of the war power, the executive power, due process of law, citizenship, Bill of Rights, equal protection of the laws. *Prerequisite:* 11, 12 or 21, 22; one other course, or economics 11-12 or history 23, 24; junior standing. Three hours. Mr. Gould.

225¹ COMPARATIVE ADMINISTRATIVE LAW A comparative analysis of the administrative law systems of Great Britain, France, Germany, and Russia. *Prerequisite:* 221 or 241. Three hours. Mr. Wilson.

226 ADMINISTRATIVE LAW A study of judicial decisions affecting the actions of public officials as they relate to the functions and policies of government. *Prerequisite:* 221 or 241 or 263. Three hours. Messrs. Nuquist or Wilson.

227, 228 INTERNATIONAL LAW Principles and applications of public international law. *Prerequisite:* 51; one other year course in social science; junior standing. Three hours. Mr. Durham. Alternate years, 1966-67.

231 THE LEGISLATIVE PROCESS Congressional and parliamentary organization and procedure. *Prerequisite:* 11, 12 or 21, 22; one other course or one sophomore course in social science; junior standing. Three hours. Mr. Haugen, Alternate years, 1967-68.

232 LAWMAKING AND PUBLIC POLICY Influence of the executive and problems of congressional and parliamentary control. *Prerequisite:* 11, 12 or 21, 22; one other course
1. Approval for graduate credit pending.

or one sophomore course in social science; junior standing. Three hours. Mr. Haugen. Alternate years, 1967-68.

235¹ DEFENSE POLICY Constitutional and historical framework; intelligence, R + D, procurement, manpower and deployment: U. S.-Soviet discrepancies, developments, and dilemmas. *Prerequisite*: 12 hours of political science below the 100 level. Three hours. Mr. Hilberg.

241 PUBLIC ADMINISTRATION Introduction to the role of administration in government, theories of administrative organization and their application, the basic functions of administrative management, and problems of democratic control. *Prerequisite*: 11, 12 or 21, 22; one other course or one sophomore course in social science; junior standing. Three hours. Messrs. Nuquist and Wilson.

242 ADMINISTRATIVE PROCEDURES *Prerequisite*: 241 or 263. Three hours. Mr. Wilson.

251, 252 AMERICAN FOREIGN POLICY First semester: constitutional principles, institutional factors, and historic traditions in the formation of foreign policy. Second semester: contemporary policies toward specified countries. *Prerequisite*: twelve hours of political science below the 100 level. Three hours. Mr. Hilberg.

253, 254 WORLD POLITICS Analysis of the foreign policies of countries other than the United States; selected problems in Europe, Latin America, and the Pacific Area. *Prerequisite*: 51, 52; junior standing. Three hours. Messrs. Keene or Little. Alternate years, 1967-68.

256 INTERNATIONAL ADMINISTRATION Theory and practice in international agencies. *Prerequisite*: 51, 52; junior standing. Three hours. Mr. Durham. Alternate years, 1966-67.

257 POLITICAL GEOGRAPHY See geography 257. Three hours. Mr. Miles.

258 PROBLEMS OF COMMUNISM. See economics 258. Three hours. Mr. Dellin.

263 STATE GOVERNMENT Processes of basic policy formulation and popular control, the nation-wide effort to improve governmental systems, the theoretical basis of reform movements, and trends in the treatment of governmental problems. *Prerequisite*: 11, 12 or 21, 22; one other course or one sophomore course in social science; junior standing. Three hours. Mr. Haugen.

264 STATE ADMINISTRATION The effect of expansion in state activity, problems in policy determination, the responsibility and accountability of officers and agencies, the organization and maintenance of central services and controls, and the impact of study and investigation by legislative committees, interim commissions, councils, and citizens groups. *Prerequisite*: 263 or 241. Three hours. Mr. Wilson.

265, 266 INTERGOVERNMENTAL RELATIONS First semester: problems of the federal system. Second semester: national-state-local cooperative administration of selected public functions. *Prerequisite*: 11, 12 or 21, 22; one other course or one sophomore course in social science; junior standing. Three hours. Mr. Haugen. Alternate years, 1966-67.

271, 272 POLITICAL PARTIES AND PRESSURE GROUPS First semester: political parties. Second semester: citizen participation and interest groups. *Prerequisite*: 11, 12 or 21, 22;

1. Approval for graduate credit pending.

one other course or one sophomore course in social science; junior standing. Three hours. Mr. Best.

277 GOVERNMENT OF THE U.S.S.R. Three hours. Mr. Daniels. See history 277.

278 FOREIGN POLICY OF THE U.S.S.R. Three hours. Mr. Daniels. See history 278.

279 COMPARATIVE PUBLIC ADMINISTRATION Universal applicability of basic administrative concepts evident in the administrative systems and environments in selected countries in Europe, the Commonwealth, and elsewhere; problems and developments in established and in emergent countries. *Prerequisite:* 241. Mr. Wilson.

281, 282 SEMINAR Popular government and other selected topics; for senior and graduate students. *Prerequisite:* departmental permission. Three hours. Staff.

283¹ SCOPE AND METHODS OF POLITICAL SCIENCE Approaches, sources of information, research methods, and systematization in the study of political phenomena. Open to senior majors and graduate students only. Three hours. Staff.

291 through 294 READING AND RESEARCH For advanced undergraduates and graduate students. Three hours. Staff.

391 through 394 MASTER'S THESIS RESEARCH Investigation of a research topic under the direction of an assigned staff member, culminating in an acceptable thesis. Credit as arranged.

Poultry Science

COLLEGE OF AGRICULTURE AND HOME ECONOMICS

Associate Professors Donovan (Chairman) and Henderson

1 GENERAL POULTRY SCIENCE (2-2) Principles of poultry science and their application to the poultry industry. Three hours. Mr. Henderson.

58 INTRODUCTORY AVIAN BIOLOGY (2-2) The evolution and biology of birds. Includes development from physiological and morphological viewpoints, the endocrinology and physiology of reproduction, social behavior and mechanics of flight. Designed for students with a general interest in biology. Three hours. Messrs. Donovan and Henderson.

102 INCUBATION AND BROODING (2-4) General biology of embryonic development and hatchability; fundamental principles underlying incubation practices; theory and practice of brooding chicks and other poultry. *Prerequisite:* 1; junior standing and departmental permission. Four hours. Mr. Henderson.

103 PROCESSING AND PACKAGING POULTRY PRODUCTS (2-2) Principles of marketing of eggs and poultry meat; candling, grading, and packing eggs; preparation of poultry for market. A one-week inspection trip to the Boston market for which there is a charge

1. Approval for graduate credit pending.

of \$30.00. *Prerequisite*: junior standing. Three hours. Mr. Henderson. Alternate years, 1966-67.

190 **POULTRY TECHNOLOGY** Principles of poultry feeding, breeding, and management. Three hours. Staff. Alternate years, 1967-68.

197, 198 **SENIOR RESEARCH** Work on a research problem under the direction of a qualified staff member. Findings submitted in written form as prescribed by the department. *Prerequisite*: senior standing. Three hours. Staff.

281 through 284 **SEMINAR** Current developments and literature. Required of all poultry seniors. *Prerequisite*: 1. One hour. Staff.

294 **HISTORY OF NUTRITION** (See Home Economics 294) One hour. Miss Morse and Messrs. Donovan and Smith.

307 **ADVANCED CONCEPTS IN NUTRITION** Study of chemistry and physiology of digestion, absorption and metabolism of nutrients. Methods of estimating and meeting dietary requirements for maintenance, growth, and reproduction of several species. Genetic and nutritional interrelationships. Basic study of growth per se. *Prerequisite*: one of the following: animal and dairy science 206, home economics 243, or a 200 level course in biochemistry. Three hours. Mr. Donovan and Miss Morse. Alternate years, 1967-68.

308 **EXPERIMENTAL TECHNIQUES IN NUTRITION** (See Animal and Dairy Science 308) Two hours. Miss Morse and Messrs. Donovan and Smith.

391 through 399 **MASTER'S THESIS RESEARCH** Investigation of a research topic under the direction of an assigned staff member, culminating in an acceptable thesis. Credit as arranged.

Psychology

COLLEGE OF ARTS AND SCIENCES

Professors Ansbacher, Chaplin and Forgays (Chairman); Associate Professor Slamecka; Assistant Professors Ghei, Leitenberg, Mayhew, Patterson and Perrine.

1 **GENERAL PSYCHOLOGY** Introduction to the entire field, emphasizing the normal adult human being. Three hours. Mr. Forgays and staff.

2 **LABORATORY IN GENERAL PSYCHOLOGY** Exercises in individual differences, sensation, perception, learning, motivation, emotion, and personality. To be taken concurrently with 1; recommended to students who plan to concentrate in psychology. Enrollment limited. One hour. I, II. Mr. Mayhew.

5 **PSYCHOLOGICAL STATISTICS** Statistical technique and research design pertinent to the behavioral scientist. Topics covered include certain descriptive statistics and certain parametric and non-parametric hypothesis-testing statistics. A calculation laboratory is provided. *Prerequisite*: 1. Three hours. Mr. Ghei.

105 **CHILD PSYCHOLOGY** Development of the individual from birth to adolescence. *Prerequisite:* 1. Three hours. Staff.

106 **PERSONALITY** Individual and life problems from the field-theoretical and phenomenological approach with emphasis on Alfred Adler's viewpoint. *Prerequisite:* 1; sophomore standing. Three hours. Mr. Ansbacher.

108 **ABNORMAL PSYCHOLOGY** The more unusual mental processes; methods of observing them and interpreting them; their bearing on our understanding of the normal mind. *Prerequisite:* 1, sophomore standing. Three hours. Staff.

109 **EXPERIMENTAL PSYCHOLOGY I** Problems of experimental design and methodology, including such areas as threshold measurement, scaling, classical conditioning, verbal learning, and concept formation; laboratory exercises involving data collection and analysis; development and completion of an original experiment. *Prerequisite:* 5. Four hours. Mr. Slamecka.

110 **EXPERIMENTAL PSYCHOLOGY II** Research using animals as subjects; experiments in such areas as operant conditioning, discrimination learning, secondary reinforcement, chaining, schedules of positive reinforcement, and negative reinforcement. *Prerequisite:* 109. Four hours. Mr. Leitenberg.

121 **SOCIAL PSYCHOLOGY** A psychological approach to social phenomena with emphasis on the concepts and methods used in the study of the behavior of individuals in various social situations. Topics include: the nature, formation, and change of attitudes and norms; group dynamics; leadership; conformity; group conflict and social change; social movements; and language, symbols, and communication. *Prerequisite:* 1; sophomore standing. Three hours. Mr. Perrine.

123 **SYSTEMATIC PSYCHOLOGY** A comparative study of the leading contemporary schools of psychological thought. *Prerequisite:* 1; sophomore standing. Three hours. Mr. Chaplin.

197, 198 **SENIOR RESEARCH** Individual research under staff direction. *Prerequisites:* senior standing and departmental permission. Three or six hours. Staff.

222 **PHYSIOLOGICAL PSYCHOLOGY** Relationships between psychological processes and the functions of the nervous system and endocrine glands. Laboratory experiences will be provided and students may undertake original experiments. *Prerequisite:* 110, 123. Three hours. Mr. Patterson.

225-226 **PSYCHOLOGICAL TESTS (2-2)** Survey of important clinical tests of ability and personality; training in the administration of individual intelligence tests. *Prerequisite:* 110, 123, and permission of the instructor, who may waive the prerequisites in special cases. Three hours. Mr. Ansbacher.

230 **LEARNING** Basic laws of the learning process as revealed by controlled experiments; with emphasis upon specific phenomena and the variables which govern them. Laboratory experiences are provided and students may undertake original experiments. *Prerequisite:* 110, 123. Three hours. Mr. Slamecka.

231 **PERCEPTION** Experimental and theoretical study of the perceptual processes. Traditional problems of space, form and movement perception and consideration of the

role of social and motivational factors. Laboratory experiences are provided and students may undertake original experiments. *Prerequisite:* 110, 123. Three hours. Mr. Perrine.

232 **EXPERIMENTAL SOCIAL PSYCHOLOGY (2-2)** A laboratory course in the experimental methods and techniques typically used in social psychological research. Topics include attitude formation and change, conformity, motivation, prejudice, rumor, social perception, and suggestion. Techniques used in attitude measurement and public opinion surveys will also be examined and applied. Laboratory experiences are provided and students may undertake original experiments. *Prerequisite:* 110, 123. Three hours. Mr. Perrine.

234 **MOTIVATION AND EMOTION** Nature and development of motives, emotions and their relation to other psychological processes. *Prerequisite:* 110, 123. Three hours. Mr. Chaplin.

236 **THINKING** A critical review of the experimental investigation of thought processes. Such topics as concept formation, rule learning, plans and strategies, language and thought, and creative thinking will be discussed. *Prerequisite:* 110 and 123. Three hours. Mr. Mayhew.

281-282 **SEMINAR** Review and discussion of current psychological research. *Prerequisite:* 110, 123. One hour. Staff.

303-304¹ **ADVANCED GENERAL PSYCHOLOGY** This course serves as an overview of the field. It will emphasize empirical findings from the frontiers of the field and relate them to the body of psychology as it is developing today. Experiments will be undertaken by each student. Three hours. Mr. Chaplin.

305-306¹ **ADVANCED STATISTICAL METHODS** Study of statistical methods as aids for understanding and evaluating psychological data. Critical study of such topics as sampling theory, statistical estimation, simple and complex analysis of variance, non-parametric methods, simple and complex correlative techniques. Three hours. Mr. Ghei.

311¹ **SEMINAR IN LEARNING THEORY** An examination of selected contemporary theoretical approaches to learning and a study of recent research contributions to such problem areas as social learning, emotional learning, the physiology of learning, etc. Three hours. Mr. Mayhew.

312¹ **SEMINAR IN VERBAL LEARNING** Selected problems in verbal learning and memory will be studied by means of a detailed critical examination of the relevant literature. Current topics such as the serial position effect, remote associations, short-term memory, the stimulus in serial learning, and pre-experimental associations will be examined. Three hours. Mr. Slamecka.

314¹ **COMPARATIVE PSYCHOLOGY OF BEHAVIORAL DEVELOPMENT** An examination of the general principles underlying the development of behavior from prenatal to adult responding. Focus will be on the pertinent research literature, particularly as it concerns the influence of various kinds of experience in early life upon later functioning. Three hours. Mr. Forgays.

1. The prerequisite for this course is acceptance to the graduate psychology program which involves the satisfactory completion of undergraduate courses in experimental psychology, systematic psychology, and statistics. In special cases, these prerequisites may be waived by permission of the instructor. In addition, acceptance to Master's degree candidacy is a prerequisite.

321¹ **SENSORY PROCESSES** A study of the structure and function of the sense organs. Emphasis will be on research technique and methodology. Three hours. Mr. Patterson.

322¹ **CENTRAL PROCESSES** Basic neurophysiological psychology with emphasis on the control of behavior by the brain. Neuronal and synaptic transmission, chemical modulators of brain activity, basic organization of the nervous system. Three hours. Mr. Patterson.

326¹ **INTRODUCTION TO CLINICAL PSYCHOLOGY** Initially this course will be a study of the basic principles of interviewing, testing, assessment from life situations, and report writing. Later there will be an examination of the most common approaches to psychotherapy, such as the client-centered, habit change, cognitive change, emotional change, interpersonal relations, and group therapy approaches. Three hours. Mr. Ansbacher.

327¹ **SEMINAR IN JUDGMENTAL PHENOMENA** Survey of the basic methodological and theoretical problems involved in the process of making human judgments. Three hours. Mr. Perrine.

328¹ **SEMINAR IN SOCIAL PERCEPTION** Examination of the process through which impressions and judgments of man and other social objects are reached. Three hours. Mr. Perrine.

330¹ **SEMINAR IN OPERANT CONDITIONING** A review of current developments in this area of research. Negative and positive reinforcement; discrimination training and generalization; applications of operant techniques. Three hours. Mr. Leitenberg.

381, 382, 383, 384 **ADVANCED READINGS¹** Readings, with conferences, to provide graduate students with background and specialized knowledge relating to an area in which an appropriate course is not offered. One to three hours. Staff.

391 through 399¹ **MASTER'S THESIS RESEARCH** Investigation of a research topic under the direction of a staff member. Credit as arranged. Staff.

491 through 499 **DOCTORAL THESIS RESEARCH** Acceptance as doctoral candidate is a prerequisite. Credit as arranged. Staff.

1. See footnote #1 page 202.

V Romance Languages

COLLEGE OF ARTS AND SCIENCES

Professors Daggett (Chairman) and Johnston; Associate Professors Dennis, Julow and Parker; Assistant Professors Kohler, Towne, Ugalde and Weiger; Instructors Butler, Danielson, Edwards, Geno, Heitkamp, Lascoumes, Scheible, Schwartz, Stevenson, and Strong.

French

1-2 **ELEMENTARY FRENCH** The fundamentals of French, with emphasis on the spoken form through pattern drills, use of tapes, and study of the basic grammatical structure of

the language. For those who present less than two years of high school French. *Credit is given only if Intermediate French is also completed.* Four hours. Mr. Parker and others.

✓11-12 **INTERMEDIATE FRENCH** Re-enforcement and advancement of the four basic language skills, speaking, comprehension, reading and writing, through pattern drills in electronic laboratory, structured discussion in class of cultural and literary texts, and composition on assigned topics. Conducted chiefly in French. *Prerequisite:* 2 or two years of high school French. Three hours. Mr. Julow and others.

13-14 **ADVANCED INTERMEDIATE FRENCH** An intermediate course similar to 11-12 but designed for students with better than average preparation in French. Conducted entirely in French. Assignment by department only. Three hours. Messrs. Johnston and Lascoumes.

101-102 **FRENCH LITERATURE: 19TH CENTURY** Outstanding authors of the romantic, realistic, and naturalistic schools. This course is prerequisite for all other courses in French literature. *Prerequisite:* 12. Three hours. Messrs. Daggett, Julow and Parker.

121-122 **COMPOSITION AND CONVERSATION** Development of skills in conversation, composition and comprehension through systematic review of phonology and grammatical structure. Intensive discussions of selected literary texts. Written compositions required regularly. Required of those who wish to be recommended to teach French. *Prerequisite:* good standing in 11-12. Three hours. Mr. Lascoumes and others.

203, 204 **FRENCH LITERATURE: 20TH CENTURY** Principal movements from 1900 to the present, with emphasis on outstanding works in the novel, drama, and poetry. *Prerequisite:* 102, 203 for 204. Three hours. Mr. Johnston.

211 **FRENCH LITERATURE: 18TH CENTURY** Main currents of the literature of the century with emphasis on Montesquieu, Diderot, Voltaire, and Rousseau. Lesage, Marivaux, and Beaumarchais will be studied in the drama. *Prerequisite:* 102. Three hours. Mr. Johnston. Alternate years, 1967-68.

213 **FRENCH LITERATURE OF THE BAROQUE AGE** Selected works of the period from Montaigne to Pascal with emphasis on d'Aubigné, Jean de Sponde, Malherbe, Hardy, Mairet, Rotrou, Corneille, Tristan, Saint-Amant, d'Urfé, Scudéry and Scarron. *Prerequisite:* 102. Three hours. Mr. Parker. Alternate years, 1966-67.

214 **FRENCH LITERATURE: 17TH CENTURY** Selected works of the century with emphasis on Corneille, Racine, and Molière. *Prerequisite:* 102. Three hours. Mr. Julow. Alternate years, 1966-67.

215 **FRENCH MEDIEVAL LITERATURE** A study of important works of the medieval period: Chansons de geste, romans courtois, Roman de Renart, Roman de la Rose, religious and comic theatre. Works studied in original text and in modern French versions. *Prerequisite:* 102. Three hours. Mr. Daggett. Alternate years, 1966-67.

216 **FRENCH LITERATURE: 16TH CENTURY** Selected works of the period with emphasis on Rabelais, Montaigne and the Pléiade. *Prerequisite:* 102. Three hours. Mr. Daggett. Alternate years, 1966-67.

217 **SPECIAL STUDIES ON FRENCH LITERATURE** Selected authors and themes, representative of French thought and literary merit. Three hours. Mr. Johnston. Alternate years, 1967-68.

220 THE NOVEL FROM 1850 TO 1900 Study of theory and practice in the realistic-naturalistic novel in France from midnineteenth century to approximately 1900, with emphasis on Flaubert, the Frères Goncourt, Zola, Maupassant, Daudet. *Prerequisite*: 102. Three hours. Mr. Julow. Alternate years, 1967-68.

223-224 ADVANCED COMPOSITION AND CONVERSATION Translation into French of difficult English prose, free composition, and discussion of questions of style. Advanced conversation. Required of those who wish to be recommended to teach French. *Prerequisite*: 122. Three hours. Messrs. Daggett and Kohler.

227, 228 LINGUISTIC STRUCTURE OF FRENCH An analysis of present day French, with emphasis on phonetics, phonemics, morphology, and syntax of the language. Considerable language laboratory practice is expected. Required for all who seek certification for teaching. *Prerequisite*: 122 and junior standing; 227 for 228. Three hours. Mr. Dennis.

281-282 SENIOR SEMINAR Special readings and research. Required of all senior concentrators. One hour. Staff.

381, 382 GRADUATE SEMINAR Offered for resident candidates for the Master of Arts degree; opportunities for independent work are provided. Three hours. Staff.

391 through 394 MASTER'S THESIS RESEARCH Investigation of a research topic under the direction of an assigned staff member, culminating in an acceptable thesis. Credit as arranged.

Italian

1-2 ELEMENTARY ITALIAN Study of basic grammar through learning of dialogues, pattern drills in class and in electronic laboratory; reading. Credit for 1-2 granted only if language requirement already satisfied in some other language. Three hours. Mr. Julow.

11-12 INTERMEDIATE ITALIAN Conversation grammar reviews, and readings in modern Italian. The spoken language is stressed. *Prerequisite*: 2 or its equivalent. Three hours. Mr. Johnston.

Spanish

1-2 ELEMENTARY SPANISH The fundamentals of Spanish, with emphasis on the spoken form through pattern drills, use of tapes, and study of the basic grammatical structure of the language. For those who present less than two years of high school Spanish. *Credit is given only if Intermediate Spanish is also completed*. Four hours. Mr. Ugalde and others.

11-12 INTERMEDIATE SPANISH Review of the fundamentals of grammar. Readings from selected authors. Conducted chiefly in Spanish. *Prerequisite*: 2 or two years of high school Spanish. Three hours. Mr. Weiger and others.

13-14 ADVANCED INTERMEDIATE SPANISH An intermediate course similar to 11-12 but designed for students with better than average preparation in Spanish. Review of grammar, special emphasis on reading, oral practice, and composition. Conducted entirely in Spanish. Assignment by department only. Three hours. Mr. Scheible.

101 SPANISH LITERATURE: 19TH CENTURY Principal literary currents of the 19th Century, from Romanticism to the "Generation of 1898". Representative readings from

the poetry, drama, and novel of the period. *Prerequisite*: 12 or departmental permission. Three hours. Mr. Ugalde.

102 SPANISH LITERATURE: 20TH CENTURY Origins and main aspects of the intellectual conflicts in modern Spain, as reflected in the literary works from the "Generation of 1898" to the present. *Prerequisite*: 101. Three hours. Mr. Ugalde.

105 READINGS IN SPANISH AMERICAN LITERATURE: NINETEENTH CENTURY Outstanding works from the Colonial Period to modernismo. *Prerequisite*: 12. Three hours. Mr. Strong.

106 READINGS IN SPANISH AMERICAN LITERATURE: CONTEMPORARY PERIOD Outstanding works of the 20th Century with emphasis on the novel. *Prerequisite*: 12. Three hours. Mr. Strong.

121-122 CONVERSATION AND COMPOSITION Phonology of the Spanish language. Drills on rhythm and intonation. Comparison of the phonemic structures of English and Spanish. Written compositions and practice in conversation. Development of vocabulary. Required of those who wish to be recommended to teach Spanish. *Prerequisite*. good standing in 11-12. Three hours. Mr. Weiger.

201 SPANISH SYNTAX Theory of grammar and analysis of the structure of the language. Recommended for those who plan to teach Spanish. *Prerequisite*: 121-122. Three hours.

202 MEDIEVAL SPANISH LITERATURE Outstanding works from *El cantar de Mio Cid* to *La Celestina*. *Prerequisite*: 102 or 106. Three hours.

213, 214 SPANISH LITERATURE: GOLDEN AGE The picaresque novel, the drama and poetry of the 16th and 17th centuries, with emphasis on Lope de Vega, Calderón, Quevedo, Tirso de Molina. *Prerequisite*: any Spanish literature course numbered 100 or above; 213 for 214. Three hours. Mr. Weiger. Alternate years, 1966-67.

215-216 SPANISH LITERATURE: CERVANTES Don Quijote, the *Novelas Ejemplares*, and the theater of Cervantes. *Prerequisite*: any Spanish literature course numbered 100 or above. Three hours. Mr. Weiger. Alternate years, 1967-68.

223-224 ADVANCED COMPOSITION AND CONVERSATION Composition, conversation, stylistics, panel discussions, translation into Spanish of difficult English prose. Required of those who wish to be recommended to teach Spanish. *Prerequisite*: 122. Three hours. Mr. Ugalde.

281-282 SENIOR SEMINAR Special readings and research. Required of all senior concentrators. One hour. Staff.

Russian

COLLEGE OF ARTS AND SCIENCES

Assistant Professor Paganuzzi

1-2 **ELEMENTARY RUSSIAN** Spoken and written Russian. Training in modern Russian, designed to help the student gain assurance in self-expression in the language. Practice in pronunciation and aural comprehension in class and through tape recordings. *Credit is given only if Intermediate Russian is also completed.* Four hours.

11-12 **INTERMEDIATE RUSSIAN** Rapid and systematic review of basic Russian. Increased stress on pronunciation, conversation, and reading. Readings in works by Pushkin, Lermontov, Tolstoi, Chekov, and others. *Prerequisite: 1-2.* Three hours.

101-102 **INTRODUCTION TO RUSSIAN LITERATURE** Outstanding authors of the nineteenth and twentieth centuries, from Pushkin to Pasternak. Practice in hearing, writing, and speaking Russian. *Prerequisite: 11-12.* Three hours.

103-104 **ADVANCED RUSSIAN** Guided conversation, discussion, and advanced oral and written drill in Russian. Lectures, readings, and reports on works by classic and modern Russian writers. *Prerequisite: 101-102.* Three hours.

Sociology and Anthropology

COLLEGE OF ARTS AND SCIENCES

Professors Hanks and Oren¹ (Chairman); Associate Professor Lewis; Assistant Professors, Haviland, Johnson, Kennedy and Maher.

✓21 **THE CULTURES OF MAN** The culture concept; its use in perceiving and understanding behavioral regularity and the diversity of social systems. The life-ways of non-Western societies of varying social complexity. Three hours. I, II. Staff.

41 **SOCIAL PROBLEMS** A study of social problems peculiar to "pre-industrial" and developing societies as a basis for understanding their counterparts in societies, such as the United States, which have already made the industrial transformation. Select problems causally associated with urban-industrialization. *Prerequisite: 21.* Three hours, I, II. Mr. Kennedy.

51 **THE FAMILY** A cross-cultural approach to the study of the family as a social institution: the American family institution; nature of the changes it is undergoing, problems generated by these changes. *Prerequisite: 21.* Three hours. Mr. Lewis.

1. On leave 1965-66. Resigned as of June 30, 1966.

54 **MINORITY GROUPS** Case histories of selected New World minority groups, treated comparatively, and with attention to their origins as minorities here, their patterns of relations with the dominant American society, changes now going on, and their distinctive contributions to the common culture. Some inclusion of African and Eurasian cases will be made too, for further comparative insight. *Prerequisite:* 21. Three hours. Mr. Johnson.

61 **PEOPLES OF THE AMERICAS** An ethnographic survey of representative Amerindian cultures. Attention will be paid to the standard culture areas and culture history, modern fusions of Amerindian and European peoples, and to the theoretical implications of American research data. *Prerequisite:* 21. Three hours. Mr. Haviland.

62 **PEOPLES OF AFRICA** A survey of representative African cultures. Emphasis is placed on the trends and schools of African anthropological research, and on socio-cultural understanding of emerging African societies. *Prerequisite:* 21. Three hours. Mr. Johnson.

63 **PEOPLES OF SOUTHEAST ASIA AND OCEANIA** A general ethnographic survey of contemporary culture types in Southeast Asia, Polynesia, Micronesia, Melanesia and Australia. Consideration is given to the traditional cultures of these areas and their place in the modern world. *Prerequisite:* 21. Three hours. Staff.

65 **PEOPLES OF JAPAN, CHINA AND INDIA** A survey of three major civilizations of east and south Asia. Consideration of their culture history, social structure, and cultural contributions to the world. Contrasts with the experience of the North Atlantic world emphasized. *Prerequisite:* 21. Three hours. Mr. Johnson.

83 **APPLIED ANTHROPOLOGY** A descriptive and analytical presentation of the place of anthropology in the modern world. Study of the human problems resulting from attempts to direct cultural change in subindustrial societies. *Prerequisite:* 21. Three hours. Mr. Johnson.

101 **SOCIOLOGICAL ANALYSIS** Major conceptual tools of sociology; approaches to their use in the analysis of contemporary social processes. *Prerequisite:* 21 or junior standing. Three hours. I, II. Staff.

205 **SMALL GROUP DYNAMICS** An analysis of the problems and the functioning of small groups and their relationship to large organizations. Attention will be given to the effect of the group on the individual, the consequences of democratic and non-democratic arrangements, factors making for group efficiency and morale, and the effects of groups on the larger organization in which they are located. Case studies include factory groups, gangs, military groups and various experimental situations. *Prerequisite:* nine hours of sociology, including 101. Three hours.

210 **POPULATION ANALYSIS** Analysis of factors affecting population growth and distribution; migration patterns, and the relationship between economic activity and population trends. Particular attention will be given to the population problems of underdeveloped areas. *Prerequisite:* nine hours of sociology, including 101. Three hours. Mr. Maher.

212 **THE COMMUNITY** Analysis of the structure and function of communities as social systems with emphasis on American communities. Ecology, social class and power structure, and social change within the community context; procedures for sociological

study of communities. *Prerequisite:* nine hours of sociology, including 101. Three hours. Mr. Lewis.

214 PUBLIC OPINION Analysis of opinion and attitude formation with the primary emphasis on the political sphere. Attention will be given to the relationship between opinions and religious, racial, class and partisan affiliations. The sources of democratic and non-democratic political tendencies will be examined. *Prerequisite:* nine hours of sociology, including 101. Three hours. Mr. Maher.

221 CULTURE AND PERSONALITY Relationship of socialization to the sociocultural milieu; the cross-cultural comparison of personality development; the problem of delineating modal personality types; variations in child-rearing situations according to "social class" in contemporary Western Civilization. *Prerequisite:* nine hours of sociology, including 101, and psychology 1. Three hours.

225 CULTURAL CHANGE The data and theories of socio-cultural dynamics: innovation, diffusion, acculturation, revitalization; theories of cultural evolution, culture circles, and the American historical school. *Prerequisite:* nine hours of sociology, including 101. Three hours. Mr. Haviland.

228 SOCIAL ORGANIZATION Evaluation of the comparative method in anthropology; its use in the formation of generalizations concerning the nature of society. *Prerequisite:* nine hours of sociology, including 21, 101, and either 61, 62, 63 or 65. Three hours. Mr. Haviland.

251 SOCIAL RESEARCH METHODS The logic and techniques of sociological inquiry. *Prerequisite:* twelve hours of sociology, and departmental permission. Three hours. Mr. Kennedy.

282 SEMINAR Readings in current sociological literature to acquaint advanced students with contemporary issues in sociology. *Prerequisite:* twelve hours of sociology, senior standing, and departmental permission. Three hours. Staff.

The following courses in Social Work are available in the Department of Home Economics:

- H.E.170 SOCIAL WELFARE AND INSTITUTIONS
- H.E.173 SOCIAL WORK AS A PROFESSION
- H.E.175 SOCIAL WELFARE IN THE COMMUNITY

Speech

COLLEGE OF ARTS AND SCIENCES

Professors Huber (Chairman), Lewis and Luse; Assistant Professors B. Carr, R. Carr, London; Instructors Baier, Dilley, and Kallstrom.

1 VOICE AND ARTICULATION Elements of speech and phonetics for the improvement of voice and articulation in communication. Class exercises and performance. Three hours. I, II. Staff.

3 PARLIAMENTARY PROCEDURE Study and practice in the fundamentals of conducting a meeting. The class meets twice a week with one hour of outside preparation. *Prerequisite:* sophomore standing. One hour. Mr. Huber.

✓11 PUBLIC SPEAKING Preliminary analysis, gathering material, organization and delivery of speeches; use of visual aids and speech to inform. Two-thirds of the time devoted to student performance. Three hours. I, II. Staff.

12 ARGUMENTATION Inductive, deductive, causal, and analogical reasoning as applied to the speaking situation; designed to develop through performance skill in logical expression of thought. *Prerequisite:* 11. Three hours. I, II. Messrs. Huber and R. Carr.

14 GROUP DISCUSSION Methods of procedure in committees, round table discussions, lecture forums, symposiums, panels, and other types of discussion; designed to develop through performance skill in the thought process involved in discussion leadership. *Prerequisite:* 11. Three hours. Mr. R. Carr.

31 ORAL INTERPRETATION OF LITERATURE Principles and techniques of oral interpretation of literature; analysis and appreciation of poetry, prose and drama through the development of ability in communicating the logical, emotional and aesthetic values of literature to an audience. *Prerequisite:* 1. Three hours. I, II. Misses Baier and Luse, and Messrs. Feidner, Huber and London.

41 ACTING Fundamentals of acting, including improvisation, character analysis, and styles of acting. Performance in short classroom acting projects required. *Prerequisite:* sophomore standing. Three hours, I, II. Mr. Feidner.

61 INTRODUCTION TO BROADCASTING Radio and television broadcasting: development, structure, and use. Laboratory in speaking for broadcast and in operation of equipment. *Prerequisite:* 1. Three hours. Messrs. Lewis and Dilley.

74 INTRODUCTION TO SPEECH CORRECTION The causes, symptoms and treatment of speech disorders. One-third devoted to articulatory problems of children. Observation of children's therapy in the Speech Clinic. *Prerequisite:* 1; sophomore standing. Three hours. Miss Luse and Mr. Kallstrom.

111 PERSUASION Human motivation, attitudes and how to change them; emotion, stereotypes, attention, and audience psychology; training in their use through student performance. *Prerequisite:* six hours, including 11. Three hours. Mr. Huber.

116 SPEECH COMPOSITION Study of speech style and rhetorical criticism by analysis of great speeches and by writing longer speeches. *Prerequisite:* six hours, including 11. Three hours. Mr. Huber. Alternate years, 1966-67.

141 ACTING Acting for those who have demonstrated some ability in speech 41. Periods and styles of acting, intensive character analysis, frequent acting projects, including at least one public performance. *Prerequisite:* 41 and departmental permission. Three hours. Mr. Feidner. Alternate years, 1966-67.

142 PLAY DIRECTING Lecture-laboratory in the problems and techniques of directing plays: staging, script analysis, production techniques, and rehearsal techniques. *Prerequisite:* six hours, including 41. Three hours. Mr. Feidner.

145, 146 **DEVELOPMENT OF WESTERN THEATRE** History of the theatre and drama in western civilization from the earliest rituals to the contemporary theatre. Plays from all major periods are read and discussed. *Prerequisite:* junior standing; English 27, 28. Three hours. Staff. Alternate years, 1966-67.

151 **STAGECRAFT AND LIGHTING** Lecture and laboratory in the physical elements of play production; analysis of theatre forms, study and application of basic elements of scenery construction and stage lighting. Three hours. Mr. Schenk.

161 **RADIO AND TELEVISION BROADCASTING** The social, psychological, historical, educational, and technical aspects of radio and television with laboratory work in announcing, interviewing, and production of various types of programs. *Prerequisite:* 61. Three hours. Messrs. Lewis and Dilley.

162 **WRITING FOR RADIO AND TELEVISION** Principles and techniques of writing for radio and television; adaptations, documentaries, and dramatic scripts. *Prerequisite:* 61. Three hours. Mr. Lewis.

163 **BROADCAST MATERIALS** A comprehensive survey and analysis of the style and content of all types of broadcast materials including selected critical and research works. Extensive use is made of source materials such as recordings, tapes, films and kinescopes. *Prerequisite:* 161. Three hours. Mr. Lewis.

197, 198 **HONORS OR SPECIAL READINGS** Three hours. Staff.

201 **PHONETICS** Analysis of English speech sounds used in the International Phonetic Alphabet. Application to standards of English pronunciation in the United States and to foreign dialects. *Prerequisite:* junior standing and nine hours of speech; or English 27, 28; or a foreign language through the intermediate level. Three hours. Miss Luse.

221 **GENERAL SEMANTICS** The theory of communication, both verbal and non-verbal, with emphasis upon the factors of interpersonal and intrapersonal communication breakdowns. *Prerequisite:* six hours of speech. Three hours. Mr. Lewis

254 **SCENE DESIGN** Lecture and laboratory. Analysis of the drama from the standpoint of its visual creation upon the stage; audience-stage relationships, styles of production. *Prerequisite:* 151. Three hours. Mr. Schenk.

271 **SPEECH PATHOLOGY I** The etiology, symptoms, and principles of habilitation for voice disorders, cleft palate; historical aspects of stuttering; problems of foreign accent. Observation and practicum required. *Prerequisite:* twelve hours of speech and psychology, including speech 74. Three hours. Miss Luse.

272 **SPEECH PATHOLOGY II** The etiology, symptoms, and treatment of retardation of speech, including congenital aphasia, aphasia in adults, and cerebral palsy. Observation and practicum required. *Prerequisite:* twelve hours of speech and psychology, including speech 74. Three hours. Mr. B. Carr.

273 **PRINCIPLES OF AUDIOLOGY** Anatomy and physiology of the ear; history of audiometry; diagnostic hearing tests. *Prerequisite:* twelve hours of speech and psychology, including 74. Mrs. Vilma Falck.

274 **SPEECH READING AND AUDITORY TRAINING** Principles of teaching speech, reading, and auditory training to the hard of hearing. *Prerequisite:* 273. Mr. B. Carr.

275, 276 **CLINICAL STUDY** Observation and practice in diagnosis and therapy of speech disorders. *Prerequisite:* 74 and 271 or 272 and departmental permission. One or two hours. May be repeated up to five credit hours. Mr. Kallstrom.

281 **VOICE SCIENCE** The anatomical, physiological, and physical factors of speech. *Prerequisite:* twelve hours of speech and psychology. Three hours. Miss Luse.

283 **CLINICAL AUDIOLOGY** Advanced audiological testing and clinical procedures. *Prerequisite:* 273. Three hours. Mrs. Falck.

294 **SEMINAR FOR PROSPECTIVE TEACHERS OF SPEECH** The resources, procedures and methods utilized in teaching the different areas of speech at the various instructional levels. *Prerequisite:* twelve hours, including 1 and 11. Three hours. Mr. London.

381, 382 **ADVANCED READINGS** Readings, with conferences, intended to contribute to the programs of graduate students in phases of speech for which formal courses are not available. *Prerequisite:* 271, 272. Credit to be arranged up to three hours each semester. Miss Luse and Mr. B. Carr.

385 **SEMINAR IN VOICE** Study of the research in voice production and speech. Application to pathological and non-pathological problems. *Prerequisite:* 271, 272. Three hours. Miss Luse.

386 **SEMINAR IN CEREBRAL PALSY** Study of the pathology, etiology, methods in diagnosis, and the rehabilitative procedures used with the various types of cerebral palsy. *Prerequisite:* 271, 272. Three hours. Miss Luse.

387 **SEMINAR IN LANGUAGE DISORDERS** Study of the different types of language disorders, examination procedures, and methods of rehabilitation. *Prerequisite:* 271, 272. Three hours.

388 **SEMINAR IN STUTTERING** Study of the research in stuttering relative to etiology and rehabilitation. *Prerequisite:* 271, 272. Three hours. Mr. B. Carr.

396 through 399 **MASTER'S THESIS RESEARCH** Investigation of a research topic under the direction of an assigned staff member, culminating in an acceptable thesis. Credit as arranged.

World Problems

COLLEGE OF ARTS AND SCIENCES

101, 102 **WORLD PROBLEMS** A different major issue of particular importance to men and women in the modern world will be presented, each semester, by various instructors from the humanities, the sciences, and the applied arts. Language and communication, evolutionary thinking, and problems of education are examples of topics recently studied. Lectures, discussion, readings and reports. Not counted toward concentration requirements. *Prerequisite:* senior standing or permission of the director. Three hours. Mr. McArthur.

Zoology

COLLEGE OF ARTS AND SCIENCES

Professors Bond, Lochhead and Moody; Associate Professors Bell, Glade (Chairman), Henson, Potash; Assistant Professors Bromley, Chipman and Rothstein; Instructor Korson.

1 INTRODUCTION TO ZOOLOGY (3-3) Fundamental life processes of animals, particularly at the cellular level, to give the general student an appreciation of these processes, and the science student a background for further study in zoology. *Prerequisite:* a course in high school chemistry is strongly recommended. Four hours. I and II. Mr. Bromley, Mrs. Korson, and staff.

2 PRINCIPLES OF EVOLUTION (3-2) Biological principles connected with the development of life on earth; evidences that evolution occurs. *Prerequisite:* 1. Four hours. Mr. Bell and staff.

5-6 MAMMALIAN ANATOMY AND PHYSIOLOGY (2-2) Structure and function of the mammalian body, with special reference to man. Dissection, primarily of the cat; physiological experiments; microscopic study of tissues. Required of students in the Nursing and Dental Hygiene curricula, elective to others.¹ Three hours. Mr. Chipman.

21 ORGANIC EVOLUTION A nonlaboratory course on the theory of evolution. For material covered see description of 2. A student may not receive credit for both 2 and 21. *Prerequisite:* sophomore standing. Three hours. Mr. Moody.

41, 42 COMPARATIVE VERTEBRATE ANATOMY (2-4) Survey of Phylum Chordata; outline of basic vertebrate body plan; functional anatomy and phylogeny of the organ systems of vertebrates, beginning with an agnathan and concluding with a mammal. *Prerequisite:* 1; 41 for 42. Four hours. Mr. Bond.

52 PHYSIOLOGY Chemical and mechanical fundamentals of animal physiology, with special reference to man. *Prerequisite:* 1, junior standing; some knowledge of chemistry. Three hours. Mr. Lochhead.

104 ANIMAL ECOLOGY (2-4) Relationships between animals and their environments; dynamics of animal populations; aspects of wildlife conservation. *Prerequisite:* 1, and an additional semester of zoology or botany; inorganic chemistry. Four hours. Mr. Potash.

108 GENERAL ENTOMOLOGY (2-4) Study of insects; morphology, physiology, and evolution. *Prerequisite:* 1, and 2 or 41. Four hours. I. Mr. Potash.

109 FIELD ZOOLOGY (2-4) Collection and identification of animals; study of local habitats, their nature, and the adaptations of animals to them; factors governing distribution of animals; methods of collecting and preparing study specimens. *Prerequisite:* 1, and an additional semester of zoology or botany. Four hours. Mr. Bell.

1. May be taken for credit in the College of Arts and Sciences but does not satisfy the requirement of a course in laboratory science for students concentrating in nonscience fields, nor the requirement of a course in biology for premedical and pre dental students. Students will not receive credit for both this course and zoology 42.

111 EMBRYOLOGY (2-4) General principles of development exemplified by typical invertebrate and vertebrate embryos. *Prerequisite*: 41, junior standing. Four hours. Mr. Glade.

112 COMPARATIVE HISTOLOGY (2-4) Microscopic anatomy of invertebrate and vertebrate tissues. Basic tissue similarities and specializations in relation to function. *Prerequisite*: 41, junior standing. Four hours. Mr. Glade. Alternate years, 1966-67.

115 HEREDITY Principles of inheritance and their physical basis. *Prerequisite*: junior standing and two semesters of courses selected from botany, psychology, and zoology. Three hours. Mr. Moody.

150 INVERTEBRATE ZOOLOGY (2-4) Anatomy, physiology, and life histories of representatives of the more important invertebrate phyla. Required of all students concentrating in zoology. *Prerequisite*: 1, and 41 or 108; junior standing. Four hours. I. Mr. Lochhead.

203 POPULATION ECOLOGY Dynamics, composition, and density regulation of animal populations. *Prerequisite*: 104. Four hours. Mr. Potash. Alternate years, 1967-68.

207 VERTEBRATES (2-4) Classification, ecology, behavior, evolution, and distribution of vertebrates other than birds. *Prerequisite*: 42, either 2 or 21, and a course in zoology numbered above 100. Four hours. Mr. Bell.

216 HUMAN GENETICS Principles of human inheritance; population genetics; interaction of heredity and environment; application of principles of heredity to human problems on both individual and social levels. *Prerequisite*: 115 or botany 255. Three hours. Mr. Moody.

222 EXPERIMENTAL EMBRYOLOGY (2-6) Theoretical approach to major problems of development based on modern research in embryology, genetics, physiology, bacteriology, and related fields. *Prerequisite*: 111 and departmental permission. Four hours. Mr. Glade. Alternate years, 1967-68.

231 CELL PHYSIOLOGY (2-4) Study of cell function, with emphasis upon experimental techniques used to elucidate chemical and physical mechanisms within living cells. *Prerequisite*: a course in zoology numbered above 100; chemistry 131, 132, and departmental permission. Four hours. Mr. Rothstein.

236 FRESH-WATER BIOLOGY (2-4) Organisms of lakes, ponds and streams; their aquatic environment and their adaptations to varying physical, chemical and biotic conditions. *Prerequisite*: a course in zoology numbered above 100, and inorganic chemistry. Four hours. Mr. Henson; Mr. Potash.

255 COMPARATIVE ANIMAL PHYSIOLOGY (2-6) General principles of function in invertebrates and vertebrates. *Prerequisite*: 104 or 150 or 236 and departmental permission; chemistry 131, 132. Four hours. II. Mr. Rothstein.

267 GENETICS OF DEVELOPMENT (2-4) Problems of differentiation and morphogenesis approached from the viewpoint of gene action and biosynthesis; influence of hereditary material during ontogeny. *Prerequisite*: 111, 115, and departmental permission. Four hours. Mr. Bromley. Alternate years, 1967-68.

270 MODERN EVOLUTIONARY THEORY Contributions of modern research in genetics, systematics, distribution, experimental embryology, serology, and related fields to prob-

lems of the means and methods of evolutionary change. *Prerequisite*: a course in evolution and one in heredity or genetics. Three hours. Mr. Moody.

271 **ADVANCED LIMNOLOGY** Analyses of current limnological concepts and problems. *Prerequisite*: 236. Four hours. Mr. Henson. Alternate years, 1966-67.

281-282 **SEMINAR** Review and discussion of current zoological research. Required of graduate students and seniors in zoological research programs; open to others by special permission only. Without credit. Staff.

381 through 386 **ADVANCED READING** Readings, with conferences or small seminar groups, intended to contribute to the programs of graduate students' advanced study in phases of zoology in which formal courses are not available. *Prerequisite*: graduate standing; an undergraduate major in zoology. Credit as arranged.

391 through 399 **MASTER'S THESIS RESEARCH** Investigation of a research topic under the direction of an assigned staff member, culminating in an acceptable thesis. Credit as arranged.

491 through 499 **DOCTORAL THESIS RESEARCH** Original research under the direction of an assigned staff member, culminating in an acceptable doctoral dissertation. Credit as arranged.

V The Alumni Council

Under an alumni reorganization plan approved at the June 1964 meeting of the Council the purposes were defined as follows: to give organization and aid of the highest efficiency to all efforts of the Alumni of the University of Vermont for the benefit of the University, and more particularly in the following respects; to act as a clearing house for alumni sentiment and the interchange of alumni ideas; to consider, recommend, and approve projects to be put forth in the alumni name; to act as the official spokesman of alumni sentiment to the administration, and as the avenue of approach by which the administration should have access to the Alumni collectively; to recommend on such undertakings, or to provide for their being carried on, as are reasonably within the province of alumni activity, and are of benefit to the University; to plan and activate programs and services for the classes and clubs.

Officers of the Council consist of a president, vice-president, secretary, and treasurer, who shall be the treasurer of the University. The president and vice-president are elected biennially, and neither office may be held by the same individual for more than one term. The secretary shall be a staff member of the University selected in conference between the Executive Committee of the Council, the Director of Alumni Relations, and the President of the University or his delegated representative.

Council membership represents clubs, classes and areas. Members-at-large are nominated by the Nominating Committee as deemed necessary, and are elected for a term of one year. Vacancies may be filled in between elections by appointment of the Council President.

The officers and membership members of the Council follow:

Honorary: The President of the University, Dr. Shannon McCune
President: Stewart P. Washburn, '51, 33 Chestnut St., Dorchester, Mass.
Vice-President: John S. Burgess, '42, 67 Main St., Brattleboro, Vt.
Council Secretary: Mrs. Constance Dena Zolotas, '32, Alumni House, University of Vermont.

Members-at-Large:

Edward L. Austin, Jr., '51, South Cove Rd., Redstone Pk., Burlington, Vt.
Alfred Beauchamp, '51, 163 No. Church St., Rutland, Vt.
William J. Cimonetti, '59, 37 Elsom Pkwy., S. Burlington, Vt.
Mrs. Dorothy Collins Cox, '31, 138 S. Willard St., Burlington, Vt.
Mrs. Florence Cudworth Holden, '45, 381 So. Union St., Burlington, Vt.
George V. Kidder, '22, 439 So. Willard St., Burlington, Vt.
Raymond G. Kinsler, '26, 200 Crestview Circle, Longmeadow, Mass.
Mrs. Catherine Durick Lull, '34, Shelburne, Vt.
Lawrence H. Marvin, '28, 11 Hillcrest Rd., Essex Jct., Vt.
Millard D. McCarthy, '36, c/o R. L. Whipple, Inc., 44 Portland St., Worcester, Mass.
Loren Frederick Palmer, '29, 308 Maple St., Burlington, Vt.
A. Bradley Soule, M.D., '28, Shelburne, Vt.

John P. Tampus, M.D., '54, 84 Ridgewood Dr., Burlington, Vt.
 Mrs. Janice Hammond Wallace, '53, 58 Page Rd., Newtonville, Mass.
 Morris R. Wilcox, '16, 105 Oakwood Rd., S. Burlington, Vt.
 Mrs. Isabelle Y. Gallup (Honorary), 530 North St., Burlington, Vt.

Club Areas:

Reginald H. Arnold, '30, 66 Clarendon Ave., Montpelier, Vt.
 Theodore E. Battles, '48, 2100 No. Butternut Lane, Midland, Tex.
 Alfred E. Brooks, '26, 100 Hoover Rd., Rochester, N. Y.
 John S. Burgess, '42, Brattleboro, Vt.
 James F. Burke, '17, Box 205, Dorset, Vt.
 Donald B. Carpenter, '38, 308 Rocardo Rd., Strawberry Manor, Mill Valley, Calif.
 Clarence F. Castle, '28, 1008 Telegraph Rd., Alexandria, Va.
 Max B. Davison, '24, Morrisville, Vt.
 Roland J. Delfausse, '35, 30 Baker Rd., Livingston, N. J.
 Clarence J. Douglas, '29, Winter St., Northfield, Vt.
 John A. Eliot, '30, 3 Crown St., Milford, Conn.
 John Fitzpatrick, '56, 58 Highland St., Goffstown, N. H.
 John F. Galascione, '57, 111 Taylor Ave., Somerville, N. J.
 Mrs. Dorothy Smith Hanna, '41, Appletree Pt., Burlington, Vt.
 Bingham J. Humphrey, '27, 680 Evergreen Ave., Mt. Carmel, Conn.
 Joseph C. Impallaria, '54, 95 Ardmore Rd., Needham, Mass.
 Fletcher B. Joslin, '34, Box 402, Montpelier, Vt.
 Jane E. King, '49, 10136 Palmer Dr., Sun City, Ariz.
 Richard B. Levine, '53, 53 Rockwood Dr., Larchmont, N. Y.
 Douglas L. Liston, '48, 100 Highland St., Holden, Mass.
 Elias Lyman, Jr., '38, 125 Ninth St., Wilmette, Ill.
 Roy E. McFee, '20, 14925 Rosemont, Detroit 23, Mich.
 Gladys E. Neiburg, '49, P. O. Box 1, St. Albans, Vt.
 Robert H. Nelligan, '50, 818 Chicopee St., Williamsett, Mass.
 Mrs. Marjorie Tewksbury Peach, '28, Island Pond, Vt.
 Arthur Q. Penta, M.D., '25, 1301 Union St., Schenectady 8, N. Y.
 Kenneth W. Pierce, '49, 14 Kingsley Ave., Rutland, Vt.
 Mrs. Gloria Ahrens Ravetch, '52, 20822 Keswick St., Canoga Pk., Calif.
 Mr. and Mrs. John J. Spasyk, '42, Box 98, Cabot, Vt.
 Roger D. Whitcomb, '38, Derby, Vt.
 Robert L. Williams, '41, 131 E. Beechtree Lane, Wayne, Penn.
 Ruth S. Wimet, '39, 35 East 30th St., Apt. 9E, New York, N. Y.
 Helen M. Wippich, '53, 405 East 63rd St., Apt. 5A, New York, N. Y.

Class Representatives:

John O. Baxendale, '12 (Omnibus Class), 172 Cliff St., Burlington, Vt.
 Roy R. Allen, '11, South Hero, Vt.
 Lyman C. Hunt, '12, 7 Church St., Essex Junction, Vt.
 Mrs. Cora Parkhurst Schoppe, '13, 19 Elsom Pkwy., S. Burlington, Vt.
 Harold F. Johnson, '14, 29 Crestview Circle, Longmeadow, Mass. 01106
 Harold A. Mayforth, '15, 237 Shelburne St., Burlington, Vt.
 Edward F. Crane, '16, 145 Cliff St., Burlington, Vt.
 F. Raymond Churchill, '17, P. O. Box 288, Middlebury, Vt.
 George C. Stanley, '18, 72 Fairmount St., Burlington, Vt.
 Marsh M. Byington, '19, 59 Linden Terr., Burlington, Vt.
 Noble C. Shaw, '20, Butterfly Lane, RD 4, Frederic, Md.
 Gerald H. McGreevy, '21, 1177 Shore Rd., Catumet, Mass.
 Lawrence F. Killick, '22, 1670 N.E. 52nd St., Pompano Beach, Fla.
 J. Ralph Spalding, '23, 184 Brimfield Rd., Wethersfield, Conn.
 Jesse E. Sunderland, '24, 16 Upper Weldon St., St. Albans, Vt.
 Leon D. Latham, Jr., '25, 112 Ethan Allen Pkwy., Burlington, Vt.
 George F. Ward, '26, 19 Seneca Ave., Essex Junction, Vt.
 Ellis J. Moodie, '27, 57 Wilton Rd., Huntington, N. Y.
 Col. William N. Cogswell (ret.), '28, 1 So. Main St., Warner, N. H. 03288
 Mrs. Bertha Hazen Beardsley, '29, 281 Shelburne St., Burlington, Vt.
 Herrick M. Macomber, '30, 9 Grove Ct., Exeter, N. H.

Francis E. Beer, '31, 27 Case Pkwy., Burlington, Vt.
 Dr. Samuel B. Barker, '32, 1845 Shades Crest Rd., Birmingham, Ala.
 Mrs. Mary Ward Maniatty, '33, 130 Robinson Pkwy., Burlington, Vt.
 Charles J. Libby, '34, RD, Far Hills, N. J.
 Donald C. Gregg, '35, 60 University Ter., Burlington, Vt.
 John C. Williams, '36, 38 Sheridan St., Glens Falls, N. Y.
 Feno H. Truax, '37, 520 Main St., Saco, Me.
 Albert C. Spaulding, '38, 27 Kingsland Ter., Burlington, Vt.
 Francis C. Leonard, '39, 52 So. Main St., Northfield, Vt.
 Charles W. Utter, '40, 3 George St., Westerly, R. I.
 William S. Preston, Jr., '41, 178 Summit St., Burlington, Vt.
 Robert D. Paterson, '42, 110 Summit St., Burlington, Vt.
 George E. Little, Jr., '43, 255 So. Prospect St., Burlington, Vt.
 Joseph E. Corbett, '43, 28 Overlake Pk., Burlington, Vt.
 Paul R. Walgren, Jr., '44, Down Rd., Bethany, Conn.
 Mrs. Harriet P. Grant, '45, 59 Alder Lane, Burlington, Vt.
 Mrs. Mary L. Robinson Adsit, '46, 695 So. Prospect Ext., Burlington, Vt.
 Houghton D. Pearl, '47, Thompson's Island, Boston 27, Mass.
 Philip E. Robinson, '48, 49 Nearwater Ave., Massapequa, L. I., N. Y.
 Malcolm F. Severance, '49, Colchester, Vt.
 Ellwyn J. Hayslip, '50, Rumney, N. H.
 Peter M. Haslam, '51, 24 Liberty St., Montpelier, Vt.
 Frank E. Dion, '52, 229 Loomis St., Burlington, Vt.
 Rodney S. Belden, '53, 8480 Edwood Rd., Pittsburgh 34, Pa.
 Joanne D. Atwood, '54, c/o Korea Oil Co., P. O. Box 4, Ulsan, Kyungsangnamdo, Korea
 Clinton H. Thompson, '55, RFD 2, Stowe, Vt.
 Kenneth T. Savelle, '56, Stowe, Vt.
 Edward N. Walker, '57, 400 East 17th St., Brooklyn 26, N. Y.
 Martin R. Johnson, '58, 58 Maple Ave., Morristown, N. J. 07960
 Ray W. Allen, '59, South Hero, Vt.
 Roy J. Greene, '60, 1024 Charleston West Dr., Indianapolis, Ind. 46219
 Frederick L. Lewis, '61, RFD 1, Hullcrest Rd., Burlington, Vt.
 H. Scott Johnson, '62, 700 Joyce, Woodburn, Ore. 97071
 David H. Nichols, '63, 401 East 89th St., Apt. 3A, New York 28, N. Y.
 Ronald A. Guttman, '64, 62 Nancy Blvd., Merrick, N. Y.
 Samuel Lauffer, '65, 109 Jerome Ave., Deal, N. J.

Athletic Council:

Norman H. Myers, '34, 7 Driftwood Dr., Burlington, Vt.
 Robert D. Paterson, '42, 110 Summit St., Burlington, Vt.
 Dennison D. Rice, '31, Shelburne, Vt.
 Albert C. Spaulding, Jr., '38, 27 Kingsland Terr., Burlington, Vt.

V Enrollment Statistics

Summary of Resident Enrollment

Fall Semester, 1965-66

The Undergraduate Colleges:	<i>Men</i>	<i>Women</i>	<i>Total</i>				
Arts & Sciences	1466	688	2154				
Education & Nursing	122	591	713				
Technology	432	115	547				
Agriculture & Home Economics	170	196	366				
TOTAL	2190	1590	3780				
College of Medicine	180	10	190				
Graduate College	242	65	307				
Unclassified	69	73	142				
School of Dental Hygiene	0	44	44				
TOTAL	2681	1782	4463				
Undergraduate Colleges by Classes	<i>Men</i>	<i>Women</i>	<i>Total</i>				
Senior	476	318	794				
Junior	510	317	827				
Sophomore	533	461	994				
Freshman	671	494	1165				
TOTAL	2190	1590	3780				
	<i>In-State</i>			<i>Out-of-State</i>			<i>Total</i>
	<i>M</i>	<i>F</i>	<i>T</i>	<i>M</i>	<i>F</i>	<i>T</i>	
Arts & Sciences	725	504	1229	741	184	925	2154
Technology	298	48	346	134	67	201	547
Education & Nursing	72	369	441	50	222	272	713
Agric. & Home Economics	112	108	220	58	88	146	366
Graduate	120	44	164	133	10	143	307
Medicine	53	4	57	127	6	133	190
Unclassified	60	65	125	9	8	17	142
Dental Hygiene	0	28	28	0	16	16	44
TOTAL	1440	1170	2610	1252	601	1853	4463

GRAND TOTAL—FALL SEMESTER 1965—4463

ENROLLMENT STATISTICS

Enrollment by Divisions

I. COLLEGE OF ARTS AND SCIENCES

	<i>In-State</i>			<i>Out-of-State</i>			<i>Total</i>
	<i>M</i>	<i>F</i>	<i>T</i>	<i>M</i>	<i>F</i>	<i>T</i>	<i>In & Out</i>
Class of 1966	154	81	235	211	42	253	488
Class of 1967	142	91	233	250	54	304	537
Class of 1968	196	150	346	137	52	189	535
Class of 1969	233	182	415	143	36	179	594
TOTAL	725	504	1229	741	184	925	2154

II. COLLEGE OF TECHNOLOGY

	<i>In-State</i>			<i>Out-of-State</i>			<i>Total</i>
	<i>M</i>	<i>F</i>	<i>T</i>	<i>M</i>	<i>F</i>	<i>T</i>	<i>In & Out</i>
Class of 1966	44	13	57	25	12	37	94
Class of 1967	47	9	56	25	10	35	91
Class of 1968	85	9	94	39	22	61	155
Class of 1969	122	17	139	45	23	68	207
TOTAL	298	48	346	134	67	201	547

III. COLLEGE OF EDUCATION AND NURSING

	<i>In-State</i>			<i>Out-of-State</i>			<i>Total</i>
	<i>M</i>	<i>F</i>	<i>T</i>	<i>M</i>	<i>F</i>	<i>T</i>	<i>In & Out</i>
Class of 1966	10	75	85	4	48	52	137
Class of 1967	12	71	83	5	48	53	136
Class of 1968	21	93	114	9	80	89	203
Class of 1969	29	130	159	32	46	78	237
TOTAL	72	369	441	50	222	272	713

IV. COLLEGE OF AGRICULTURE AND HOME ECONOMICS

	<i>In-State</i>			<i>Out-of-State</i>			<i>Total</i>
	<i>M</i>	<i>F</i>	<i>T</i>	<i>M</i>	<i>F</i>	<i>T</i>	<i>In & Out</i>
Class of 1966	17	27	44	11	20	31	75
Class of 1967	23	28	51	6	6	12	63
Class of 1968	27	22	49	19	33	52	101
Class of 1969	45	31	76	22	29	51	127
TOTAL	112	108	220	58	88	146	366

V. GRADUATE COLLEGE

		<i>Regular</i>	<i>Special</i>	<i>Total</i>
In-State	M	92	28	120
	F	29	15	44
	T	<u>121</u>	<u>43</u>	<u>164</u>
Out-of-State	M	113	9	122
	F	20	1	21
	T	<u>133</u>	<u>10</u>	<u>143</u>
TOTAL	M	205	37	242
	F	49	16	65
	T	<u>254</u>	<u>53</u>	<u>307</u>

VI. COLLEGE OF MEDICINE

	<i>In-State</i>			<i>Out-of-State</i>			<i>Total</i>
	<i>M</i>	<i>F</i>	<i>T</i>	<i>M</i>	<i>F</i>	<i>T</i>	<i>In & Out</i>
Class of 1966	8	1	9	35	1	36	45
Class of 1967	12	1	13	29	4	33	46
Class of 1968	19	1	20	29	0	29	49
Class of 1969	14	1	15	34	1	35	50
TOTAL	<u>53</u>	<u>4</u>	<u>57</u>	<u>127</u>	<u>6</u>	<u>133</u>	<u>190</u>

VII. UNCLASSIFIED (SPECIAL)

	<i>In-State</i>			<i>Out-of-State</i>			<i>Total</i>
	<i>M</i>	<i>F</i>	<i>T</i>	<i>M</i>	<i>F</i>	<i>T</i>	<i>In & Out</i>
Arts & Sciences	32	35	67	7	3	10	77
Education & Nursing	7	21	28	0	2	2	30
Technology	16	3	19	1	2	3	22
Agric. & Home Econ.	5	6	11	1	1	2	13
TOTAL	<u>60</u>	<u>65</u>	<u>125</u>	<u>9</u>	<u>8</u>	<u>17</u>	<u>142</u>

VIII. SCHOOL OF DENTAL HYGIENE

	<i>In-State</i>	<i>Out-of-State</i>	<i>Total</i>
Second Year	11	5	16
First Year	17	11	28
TOTAL	<u>28</u>	<u>16</u>	<u>44</u>

V Degrees Granted

MAY, 1965

School of Dental Hygiene

Suzanne Fern Campbell, Burlington
Martha Jean Carlson, Reading, Mass.
Jean Wanda Cleary, Bennington
Diane Helen Dawson, St. Johnsbury
Elizabeth Ann Dinan, Reading, Mass.
Joan Gail Jarvis, St. Albans
Sally Philena King, Alburg
Joan Elizabeth Larrow, Burlington

Betty Ann Lathrop, Bristol
Karen Elizabeth Leonard, Northfield
Susan Carol MacKinnon, Goffstown, N. H.
Charla Jean Oliver, St. Johnsbury
Donna Marie Pistolese, Attleboro, Mass.
Sally Anne Smith, Bristol
Gayle Aldene Snook, Plainsboro, N. J.
Mary Frances Trow, Newport

College of Education and Nursing

Bachelor of Science in Nursing

Doris Johnson Adams, Walpole, N. H.
Cheryl Jane Allen, Chelsea
Leslie Jean Blanchard, Wenham, Mass.
Marion Lee Bordas, Barre
Elizabeth Deen Brigden, Madison, N. J.
Ann Mason Buck, Buffalo, N. Y.
Jane Olmsted Christie, Port Washington, N. Y.
Susan Clarke, Yonkers, N. Y.
Janet Elizabeth Cochran, Livingston, N. J.
Madeline Lewis Daigneault, Naugatuck, Conn.
Susanne Alice Direnga, Chatham, N. J.
Priscilla Anne Dixon, Drexel Hill, Pa.
Janice Lee Freeman, Amesbury, Mass.
Constance Ethelwyn Frisbie, Longmeadow,
Mass.
Christina Kerr Gilbert, Northampton, Mass.
Bonnie Loraine Griesbeck, Fort Meade, Md.
Barbara Handy, Durham, N. H.
Judith Mae Heller, Pittsford, N. Y.
†Barbara Janet Isham, Brattleboro

Dolores May Keller, Burlington
Florence Amelia Khoury, Brooklyn, N. Y.
Kerana Gladstone Kraft, Burlington
Ann Elizabeth Lussier, Woodstock
Jean Marie Martinson, Brooklyn, N. Y.
Mary Ann McMahon, Rutland
Barbara Jean Merrill, Norwich
Jean Alice Paquin, Bennington
Julie Ann Pfannstiehl, Crystal Lake, Ill.
Judith Gifford Pierce, Rochester
Diane Marie Quesnel, Ferrisburg
†Barbara Holt Randall, Montpelier
Penny Ann Sheperd, Enosburg Falls
Mary Beth Sorrell, Burlington
Marko Spasyk, Cabot
Cynthia Ann Thompson, West Woodstock
Ann Godfrey Vargas, Newark, N. J.
Joan Barbara Wagener, Barre
Martha Anne Whitcomb, Derby

Bachelor of Science in Business Education

Colin Kelly Ducolon, Enosburg Falls
Barbara Jane Fahy, Baldwin, N. Y.

Linda Frances McMaster, Burlington
Susan Carol Monti, New Britain, Conn.

* As of October 3, 1964.

† As of February 27, 1965.

Bachelor of Science in Music Education

*Irving James Beams, Shelburne
Diane Slayton Bourdon, Woodstock
Christine Mary Coleman, Newfane
John Richard D'Arthenay, Montpelier

Sharon Carol Dubuque, Grand Isle
Karleen Ingrid Nie, Bayside Hills, N. Y.
Mary Katherine Ober, Saxtons River
Nancy Sue Sturzenegger, Chester, N. J.

Bachelor of Science in Education

†Alice Wilkins Angney, Burlington
Richard David Ashton, Lyndon Center
Sue Ellen Baker, South Burlington
Ruth Eleanor Baldwin, Charlotte
Alice Mary Barber, Brattleboro
Nancy Eleanor Barber, Baldwin, N. Y.
Jane Martha Belcher, East Weymouth, Mass.
Judith Ann Blaise, Montgomery, Ala.
Joseph John Bottiggi, Barre
Georgia Lynn Brown, Hackensack, N. J.
Marcy Frazier Bullock, Birmingham, Mich.
Ernest Albert Cabrera, Burlington
William Lawliss Christie, South Barre
Ann Mariette Clairmont, Burlington
Frances Marie Clark, South Burlington
*Sarah Elizabeth Clerkin, South Burlington
Gertrude Ellen Coggan, Florham Park, N. J.
Klaire Marie Cozzi, Barre
†Michael William Cronin, Richmond
Sheila Mary Cronin, Richmond
Thorne Crouter, Westport, Conn.
Susan Aune Currie, Springfield
Nancy Hope Darling, Barre
Linda Muriel Davis, Middlebury
Patricia Ann Davis, Brownsville
Pauline Frances Dimick, Brattleboro
Elizabeth Ann Duell, Chatham, N. J.
Lynne Barbara Feder, Teaneck, N. J.
Carl Peter Frattini, Barre
†Rodney Lee Gibeault, Whiting
Elsie Jean Gilman, Bethel
Lynette Ann Godsill, Woodstock
Carol Ann Greenblatt, New Britain, Conn.
Barbara Jean Grimes, West Hartford, Conn.
Susan Lee Halsted, Bedford, N. Y.
†Kathleen Hartman, Montpelier
Mordecai Hecht, Burlington
Mary Louise Hoskiewicz, Springfield
Noel Davis Induni, Richmond
Mary Martha Irish, Burlington
Roger Dean Jackson, Vergennes
Susan Alice Josselyn, Rutland
Reid Martin Knight, Barre

†Robert Harris Leavitt, Burlington
Nancy Elizabeth Lombard, Windsor
†Elizabeth Clark Low, Barre
†Carol Simpson Matt, Vergennes
*Bernier Lester Mayo, St. Johnsbury
Carol Ann Meader, Bristol
Mary Ann Modarelli, Ridgewood, N. J.
Thomas Oliver Mongeon, St. Albans
Marian Mudgett, Rupert
Sandra May Murray, Springfield
Leonard James Nadeau, Brattleboro
Janet Patricia Noreault, Winooski
†Gail Harding Ogando, Bloomfield, N. J.
Susan Kathleen O'Hagan, Winooski
Grace Aileen Page, Jewett City, Conn.
*Phyllis Rhodes Pitkin, Bristol
Pauline Rita Poirier, Ipswich, Mass.
Susan Lee Ridder, Wollaston, Mass.
Maxine Margaret Riegler, Owego, N. Y.
Dolores Ann Rioux, Barre
Meredith Patricia Rogers, Crestwood, N. Y.
Margaret Fogg Rouelle, Wilder
Judith Johnstone Rowe, Stowe
Holly Thow Russell, Barre
Patricia Joan Russell, Springfield
Cyrus William Severance, Rochester
†Linda Judith Sharfstein, Staten Island, N. Y.
Carole Grady Sicard, St. Johnsbury
Ella Rose Smead, Rochester
Ann Josephine Smith, Bennington
Eleanor Gail Smith, Bradford
Stanley Edward Spencer, North Adams, Mass.
Bonnie Lee Stearns, Rutland
Roscoe Chapin Stevenson, Burlington
John Spencer Stewart, Jr., Suffern, N. Y.
Laura Anne Strickler, *cum laude*, Winooski
Phyllis Irene Sweet, Burlington
Lilla Elsa Tewksbury, Tunbridge
Susan Verrier, Greenwich, Conn.
Nancy Anne Wearne, Atlanta, Ga.
Joanne Evelyn White, North Hartland
Rosalind Wiener, Brooklyn, N. Y.

College of Technology

Bachelor of Science in Chemistry

†Richard Lewis Becker, Bronx, N. Y.
Allain George Bouchard, Northfield
Richard Donn, Jamaica, N. Y.

Louise Helen Foley, Old Forge, N. Y.
Roger Vernon Kendall, Vergennes
Stephen James Watson, Lyndonville

* As of October 3, 1964.

† As of February 27, 1965.

Bachelor of Science in Civil Engineering

*Robert Mackay Broberg, Vernon, Conn.
 Roy William Bushey, Montpelier
 Clayton Arthur Button, Chelsea
 Stephen Harold Cowen, Orange, N. J.
 Richard Demagall, Burlington
 *William David Emberley, Morristown, N. J.
 Robert Roy Lamson, South Burlington
 Thomas Randall Morton, Burlington

Andre Robert Nadeau, Johnson
 Clifford Livingston Pelton, Jr., Waterbury
 *Claude Olton Phipps, Westfield, N. J.
 Fletcher Nicholson Platt, Jr., Ann Arbor, Mich.
 Robert Ford Shattuck, South Burlington
 Paul Eugene Toussaint, St. Johnsbury Center
 Robert Joachim Wernecke, Groton

Bachelor of Science in Electrical Engineering

1965
 Stewart Edmund Aither, Colchester
 H. Valentine Barnes, Brattleboro
 Ronald Hibbert Barrett, South Burlington
 †John Edward Bustard, San Diego, Calif.
 *James Charles Cobb, Rutland
 *Gerald Brian Collins, St. Johnsbury
 †Barry Joseph Deliduka, Livingston, N. J.
 Albert John Gregoritsch, Huntington Station,
 N. Y.

David Marshall, Milton
 John Leslie Parker, Poughkeepsie, N. Y.
 Robert Michael Piper, Rutland
 Roger Marshall Roberge, South Burlington
 Robert Stephen Roy, Burlington
 Raymond Lewis Schubnel, North Adams, Mass.
 Robert George Senk, Peekskill, N. Y.
 Randolph Phillip Waterman, West Islip, N. Y.
 *Rudy John Zimmermann, Elmhurst, N. Y.

Bachelor of Science in Management Engineering

†Robert Roy Bergman, Burlington

Arthur Thomas Hayden, Reading, Mass.

Bachelor of Science in Mathematics

Jerolyn Joyce Kudola, Stamford, Conn.

Bachelor of Science in Mechanical Engineering

Erik Vroom Anderson, Garrison, N. Y.
 Timothy Lee Brosseau, St. Albans
 Henry Richard Burton, Springfield
 Carson Lockwood Eddy, Williamstown, Mass.
 James David Gallo, Rutland

William Atwood Godette, Florence
 Robert Bruce Lee, Canaan
 Robert Paterson McCarty, Cavendish
 Thomas Corning Pickett, Schenectady, N. Y.

Bachelor of Science in Medical Technology

Barbara Mae Blair, Closter, N. J.
 Carol Ann Clarke, Burlington
 Paula Heath Ennis, Marshfield
 Evelyn Susan Greenbaum, Teaneck, N. J.
 Patricia Jean Hudson, Springfield
 *Patricia Gail Larkin, Poultney

Carolyn Lucia Manor, Jericho
 Bertha Louise Prior, Sherburne Center
 Janet Anne Pritchard, Naugatuck, Conn.
 Kathleen Thomas Shiverick, *cum laude*,
 Middlebury
 Karen Irene Siedler, Englewood, N. J.

College of Agriculture and Home Economics

Bachelor of Science in Agriculture

Stephen Wendell Abbott, White River Junction
 Brian Ray Anderson, Middletown, Conn.
 Gerald Campbell Bailey, St. Johnsbury

Robert Charles Bassett, Valley Falls, N. Y.
 Dennis Paul Cochran, Hardwick
 *Daniel Francis Collins, Rutland

* As of October 3, 1964.

† As of February 27, 1965.

†June Dianne Collins, Malone, N. Y.
 John Clement Finley, Jamestown, N. Y.
 Kirwin Ralph Flanders, Cambridge
 †Kendall Raymond Foote, Middlebury
 Robert Gillespie, South Burlington
 Stephen Alden Hilliker, Albany
 James Richard Horst, Bennington
 Richard Joseph Indrieri, New York, N. Y.
 Robert Stuart Ireland, Jr., Johnstown, N. Y.
 William Francis King, Craftsbury Common
 Roger Army Kline, Lowell, Mass.
 †Charles Fred McCosco, West Danville
 George Laurel Nichols, Enosburg Falls
 Gary George Paquet, South Barre
 Geraldine Maria Phillips, Yonkers, N. Y.

Robert James Pratt, Whiting
 Walden Jerome Rooney, Jeffersonville
 Raymond Larry Rowley, Milton
 Paul Thompson Sawyer, Woodstock
 Stephen Charles Schaubhut, Glen Ridge, N. J.
 *George Fairbanks Silver, Natick, Mass.
 Judith Anne Smith, South Newbury
 Robert Davis Taylor, Jr., Spencer, Mass.
 Arthur Conrad Urie, Craftsbury Common
 Calvin King Walker, Underhill Center
 Tom Sawyer Whittaker, Brandon
 Alan Lawrence Wilcox, Montpelier
 †Dale Edwin Wyman, Windsor
 Danny Mason Young, Irasburg

Bachelor of Science in Agricultural Engineering

Richard Jewell Croft, Chelsea

*John Leach Pillsbury, Burlington

Bachelor of Science in Home Economics

Diane Joan Abramson, Eastchester, N. Y.
 Laura E. Akin, Stowe
 †Carol Rollins Baker, Burlington
 †Judith Lee Baron, Syosset, N. Y.
 Barbara Ann Beck, New York, N. Y.
 Frances Karleen Brickman, Ramsey, N. J.
 †Cynthia Ann Brown, Woodstock
 Alice Marie Burton, Chester Depot
 Priscilla Lee Carr, Wallingford
 JoAnn Barbara Cilley, Burlington
 Alice Louise DeCesaris, South Burlington
 Renee Diane deTurk, Simsbury, Conn.
 Ann Elizabeth Dickey, Fairfield, Conn.
 Nancy Elizabeth Dixon, Syracuse, N. Y.
 Kathleen Anne Donahue, Burlington
 Theresa Isabel Duffy, Milton
 †Carolyn Ann Ellis, South Royalton
 Marie Elizabeth Forand, Vergennes
 Helen Louise Gough, Plymouth, Conn.

Nancy Hall, Eastchester, N. Y.
 Natalie Houghton, Framingham, Mass.
 Karen Shirley Howe, Tunbridge
 Ann Hamilton Lindsey, Potsdam, N. Y.
 Lillian Marie Mayer, Orchard Park, N. Y.
 Lynn Adria Parsell, Manhasset, N. Y.
 Jill Susan Paton, Bedford, Que., Canada
 Priscilla Perry, Westfield, N. J.
 Marjorie Elaine Porter, Cambridge
 Judy Eileen Ryan, Vergennes
 Meredith Dale Skinner, Springdale, Conn.
 Susan McNall Stanley, Fairfax
 Sharon Ann Stickle, Dover, N. J.
 Mary-Helen Taft, Bellows Falls
 Margo Ann Taylor, Rutland
 Elizabeth Campion Wager, *cum laude*, West
 Chester, Pa.
 Christine Ann Waite, Northfield
 Nancy Jean Walker, Mt. Vernon, N. Y.

College of Arts and Sciences

Bachelor of Science in Commerce and Economics

Kenneth Dean Bailey, Burlington
 Charles Eaton Baraw, Stowe
 Richard Joel Berliner, Kew Garden Hills, N. Y.
 Bennett Daniel Black, Dumont, N. J.
 John William Bossi, Montpelier
 Michael Dean Bottamini, Barre
 Robert Frederick Bradish, Williston
 John Edward Donnelly, Burlington
 *James Robert Douglas, Lyndonville
 Richard Young Dow, Jr., Washington, D. C.
 Hugh Nelson Dyer, III, Loudonville, N. Y.

William Lester Fleming, Jr., Burlington
 Joseph Alexander Furgal, Jr., Monson, Mass.
 Roy Ashton Gowell, North Abington, Mass.
 Paul Henry Grabowski, Poultney
 †John Huffington Greer, Plattsburgh, N. Y.
 †James Terry Hall, Rochester, N. Y.
 *Orrin Leroy Hewes, Manchester Depot
 James Lyman Higbee, Syracuse, N. Y.
 Nancy Lee Hike, Pennington, N. J.
 Edward William Hootstein, Newton Centre,
 Mass.

* As of October 3, 1964.

† As of February 27, 1965.

- †Robert George Johnson, Glendale, Ariz.
 †Lewis L. Jones, IV, Johnson
 Carolyn Emma Knight, Springfield, Mass.
 David Haxstun LaMarche, Hudson Falls, N. Y.
 †Lyn Edward Landry, Brattleboro
 †Arthur David Lawrence, Essex Junction
 John Frederick Lear, Jr., Easton, Pa.
 Thomas Joseph Locke, White River Junction
 Stephen Joseph Lozen, Rutland
 Carl Bertram Martin, III, Wilbraham, Mass.
 Paul Richard Martin, Arlington
 †David Harland Moore, South Burlington
 William Edward Newman, Jr., Port Washington, N. Y.
 Lawrence Owen Perl, West Hartford, Conn.
 William Herbert Porter, Bomoseen
 Richard Carleton Pouch, Staten Island, N. Y.
- Robert Marvin Rasmusson, Peekskill, N. Y.
 Bruce Loomis Robbins, Fairfield, Conn.
 William Nicholas Rundle, Durham, Conn.
 †Joseph Frank St. George, Burlington
 Frederick Victor Salo, Chester
 Peter Francis Sarno, Peekskill, N. Y.
 Morton Peter Schwarz, Jackson Heights, N. Y.
 Roger Dean Scoville, Glens Falls, N. Y.
 †Edmund Alan Shaw, Essex Junction
 Stephen Carstens Slack, Washington, D. C.
 *David Goodwin Soule, West Hartford, Conn.
 Charles Stribling Steward, Madison, Wis.
 Gordon Edward Terrill, Bedford, Que., Canada
 David Hale Thomas, Orwell
 *Richard Edward Upson, Batavia, N. Y.
 Kenneth Norman Wexler, Newton, Mass.
 †McKendree James Whitney, Stamford

Bachelor of Science

- †Ursel Rehding Danielson, Burlington
- †Robert Henry Israel, Meriden, Conn.

Bachelor of Arts

- John Christian Abajian, South Burlington
 Michael George Abraham, Jr., Massena, N. Y.
 Jed Allan Abrams, Rego Park, N. Y.
 John Hayward Adler, Fort Lauderdale, Fla.
 Steven David Adler, Arverne, N. Y.
 Eugene Davis Albrecht, Springfield
 Richard Loyal Alden, Andover, Mass.
 *Stephen Edward Alexander, Orleans
 Bruce Raymond Allard, Burlington
 Louise Huntington Allen, East Hardwick
 Richard Gifford Allen, Schenectady, N. Y.
 Roger Forrest Ames, Middleburgh, N. Y.
 Helen Wilma Amsden, South Royalton
 †John Alden Anderson, Hyde Park
 Kenneth Anthony Andrade, Falmouth, Mass.
 Paul Steven Arnold, Worcester, Mass.
 Marilyn Anne Austern, *cum laude*, Laurelton, N. Y.
 Kenneth S. Austin, Woodstock
 Richard Irving Badger, Jr., Bennington
 David Garvey Baker, Longmeadow, Mass.
 *Peter Rowland Barmonde, Cold Spring Harbor, N. Y.
 Stephanie Ann Barnes, Montpelier
 *James Lyman Barre, Burlington
 Gail Gertrude Barron, North Reading, Mass.
 Sandra June Bartholomew, Fair Haven
 †Barbara Myrtle Bartles, East Hartford, Conn.
 Richard Herbert Beaupre, Burlington
 Charles Harrison Bechtold, Jr., Kingston, R. I.
 Alice Jeanne Becker, Forest Hills, N. Y.
 John Oliver Beckwith, Marshfield, Mass.
 Edward Lawrence Bennett, West Haven, Conn.
 *Michael Paul Benway, Richmond
- Mark Ira Berson, Mattapan, Mass.
 Barrett G. Bertolini, Barre
 †Peter Betz, Amsterdam, N. Y.
 Barbara Dianne Black, St. Johnsbury
 Sarah Ann Blanchard, St. Albans
 Frederick George Boese, Union City, N. J.
 Barbara Jane Bogert, Westwood, N. J.
 †Norman Walter Bohn, Montclair, N. J.
 *Gretchen Giroux Bond, Northfield
 †Daniel Dow Boone, Wells
 Joel Bruce Bowers, Brooklyn, N. Y.
 Richard Hamilton Brandon, Middlesex, N. J.
 George William Bray, Albany, N. Y.
 James Morton Brennan, Teaneck, N. J.
 Donna Lee Bridges, Morrisville
 †Paul Wayland Bristol, Burlington
 Jean Louise Brotherson, Stratford, Conn.
 Michael George Broutsas, Kenmore, N. Y.
 †Levi Hilary Brown, Stamford, N. Y.
 Karen Brownell, Coventry, R. I.
 Burton Barker Bryan, Adamsville, R. I.
 Juliette Ann Bundgus, Burlington
 Sharon Ellen Call, Springfield
 Barbara Lynne Campbell, South Burlington
 Ann Ellen Candon, Proctor
 Elizabeth Jane Cantwell, Burlington
 Sandra Anne Carbine, Rutland
 Judith Ann Carlson, Florence
 Richard George Carlson, New Haven, Conn.
 Roderick Thomas Carnie, Beaver Falls, N. Y.
 Deborah Anne Carpenter, Fair Haven
 Diane Lynn Casella, Mendon
 Anthony Carle Cassani, Barre
 *Louis Thomas Castaldo, Bridgeport, Conn.

* As of October 3, 1964.

† As of February 27, 1965.

- Marc Stephen Chalkin, Brooklyn, N. Y.
 David Earl Chamberlin, Saxtons River
 Sylvia Swann Chapin, Essex Junction
 Joel Allan Chaskes, Brockton, Mass.
 Laurence Stuart Chelder, Burlington
 Jean Mary Chermak, Endicott, N. Y.
 Nels Lange Christenson, Morrisville, Pa.
 David Michael Cioffi, Rutland
 Robert Edward Clifford, Jr., Burlington
 Jamie Lynn Clinton, Rancho Santa Fe, Calif.
 Bruce Metcalf Coffin, Woodstock
 †Carlton Ronald Cole, Charlotte
 Robert Ralph Coleman, South Londonderry
 *John Anthony Collard, Buffalo, N. Y.
 †John Francis Compani, Fonda, N. Y.
 George Edwin Conly, St. Johnsbury
 Jean Ann Conner, Rutland
 †Deane George Constantine, Augusta, Me.
 Shirley Ann Cook, Ayer, Mass.
 Joseph Victor Copulsky, Brooklyn, N. Y.
 Thomas Paul Corcoran, III, Swampscott, Mass.
 David Alexander Corliss, Graniteville
 Gary Lee Corliss, Windsor
 Donald Victor Coscina, New Britain, Conn.
 Michael Watson Crane, Buffalo, N. Y.
 Carol Fain Crosswell, Greenwich, Conn.
 Wilbur Howard Cyr, Middlebury
 Ralph Patrick D'Altilia, Union City, N. J.
 John Joseph Dancoes, White River Junction
 Ervene Ann Danielson, Meriden, Conn.
 David Robert Darling, Bradford
 Richard Jay Darling, West Englewood, N. J.
 Richard Allen Davies, Fayetteville, N. Y.
 *Kathleen Anna Davis, Middlebury
 †Nancy Burdick Davis, Norwich, Conn.
 Joseph Anthony DeBonis, Poultney
 Sylvia Ruth DeJager, Ridgewood, N. J.
 John Robert DeLuca, Baldwin, N. Y.
 Colleen Patricia Denny, South River, N. J.
 Beatrice Whitcomb Nash Deri, Old Benning-
 ton
 Emil Santo DiDonato, Webster, Mass.
 Alexander R. Dimond, Brooklyn, N. Y.
 Stephen Turner Dow, Rochester, N. Y.
 Henry Roger Dubois, Middlebury
 †Norman Louis Duby, Rutland
 Paula Lorraine Dulski, Center Rutland
 Sharon Elinor Dunnell, Brattleboro
 Diane Joan Dussault, St. Albans
 James Mason Dwinell, Montpelier
 †Susan Diana Mervin Dyke, Weston
 Gregory Logan Eaton, West Bridgewater, Mass.
 Fredda Virginia Ecker, Yonkers, N. Y.
 William Irving Eckhart, Jr., Scotia, N. Y.
 Barbara Marian Epstein, Natick, Mass.
 Jeffrey Zee Erdos, Malverne, N. Y.
 Barbara Ann Ernst, Baldwin, N. Y.
 Carol Ann Evanson, Swanton
 Peter David Feingold, Malden, Mass.
 Ira Donald Feirstein, Jamaica, N. Y.
 Henry John Fisk, Jr., White River Junction
 Samuel Lewis Flaster, Little Neck, N. Y.
 Frank James Foerster, North Bergen, N. J.
 James Dean Foley, Burlington
 Edward Francis Fugit, Rutherford, N. J.
 Edward Albert Funk, Jr., Westfield, N. J.
 †Edward James Gallagher, Burlington
 Margaret Delia Galvin, Wilmington
 †David Howard Garbutt, Morrisville
 Arthur Holland Garvin, III, Westfield, N. J.
 Pamela Anne Gee, Middlebury
 Stephen William Gersten, Brooklyn, N. Y.
 George Cone Ghiorse, Braintree, Mass.
 Warren Paul Giddings, Meriden, Conn.
 Dorothy Stotesbury Githens, Bellows Falls
 John Thomas Gloetzner, Norwalk, Conn.
 Judith Crane Godbout, Cromwell, Conn.
 †John Darling Goddard, Essex Junction
 Marshall Henry Goldberg, Riverdale, N. Y.
 Helaine Lois Goldman, Brooklyn, N. Y.
 Neil Stephen Goldman, Brooklyn, N. Y.
 David Joseph Goode, Ithaca, N. Y.
 Dimitar Gospodinov, New York, N. Y.
 Elizabeth Ruth Gottlieb, Stowe
 Jeanne Ann Grasso, Toms River, N. J.
 Catherine Dumas Gray, Underhill
 Jane Ann Greenberg, Glens Falls, N. Y.
 Susan Katharine Greene, Butler, N. J.
 Marie Margaret Gross, Enosburg Falls
 Donald Steve Grossman, Brooklyn, N. Y.
 *Kenneth Albert Gunderman, Burlington
 Martin Charles Hackel, Brookline, Mass.
 Jean Margaret Hague, Union, N. J.
 William Spaulding Hall, Concord, N. H.
 Dorothy Ruth Hand, New Limerick, Me.
 Guriana Marie Hanson, Rochester, N. Y.
 David William Harris, Yonkers, N. Y.
 Rosemary Eleanor Harvey, Bennington
 Robin Royal Hassrick, Moorestown, N. J.
 David Lee Haurilick, Windsor
 Alexandra Elizabeth Hay, Wilmington
 David Peter Hebert, St. Albans
 Martin Henry Heck, East Greenbush, N. Y.
 Maurie Eileen Gilligan Heins, Burlington
 Arthur Leslie Heistein, Newark, N. J.
 †Jan David Herschaft, Riverdale, N. Y.
 Steven Herson, New Britain, Conn.
 Ronald Brian Hertel, Union City, N. J.
 Carol Lee Himmler, Plainfield, N. J.
 David Alan Hoffman, Far Rockaway, N. Y.
 Sandra Lee Hoffmann, Burlington
 Richard Theodore Holden, Chatham, N. J.
 Gary Honickman, Brooklyn, N. Y.
 Judith Louise Howland, Hartland
 †Marc Ellsworth Hull, Wilder
 Brenda Ruth Hunter, Derby Line
 Paul Edward Hurley, Jr., Boston, Mass.
 †Harold Hyams, Brooklyn, N. Y.

* As of October 3, 1964.

† As of February 27, 1965.

- Kathy Jean Irving, Montpelier
 Ronald Jay Iverson, East Aurora, N. Y.
 Joan Marcia Jackson, Chester
 Jerome Barry Jacobs, Worcester, Mass.
 James Sargent Jealous, Portland, Me.
 Carolyn Edith Jerard, Brattleboro
 Susan Abbott Jester, Williamsport, Pa.
 *Robert Wayne Johnson, Barre
 Thomas Charles Johnson, Windsor
 Stephen Dole Joslin, Waitsfield
 †Betsy Juels, Brooklyn, N. Y.
 David Herbert Kauder, Flushing, N. Y.
 David Robert Kazan, White Plains, N. Y.
 William Aloysius Kennedy, Jr., Wardsboro
 Michael Jay Kimmel, Woodmere, N. Y.
 Carl Henry Kleban, *cum laude*, Rego Park,
 N. Y.
 †Laurence Richard Klein, Jackson Heights, N. Y.
 Joan Klonsky, *cum laude*, Rockville Centre,
 N. Y.
 Janet Ruth Koch, Greenfield, Mass.
 Richard Samuel Kohn, New York, N. Y.
 Jeffrey Eden Kotkin, New Britain, Conn.
 Noell Martha Kramer, Great Neck, N. Y.
 Robert Scott Kramer, Plymouth, Mass.
 *Carol Marie Kratky, South Royalton
 Jeffrey Allen Kroock, Worcester, Mass.
 Barbara Ita Kullback, Monticello, N. Y.
 Peter Miles Kumpitch, West Hartford, Conn.
 †Michael Stuart LaBush, Brooklyn, N. Y.
 Joseph Bernard Lakovitch, Jr., Watertown,
 Conn.
 Ernest Joseph Lampron, Jr., Haverhill, Mass.
 Douglas James Lamude, Chappaqua, N. Y.
 *Ruth Cynthia Landau, Long Island City, N. Y.
 Howard Lester Lapidow, Burlington
 Samuel Jeffrey Laufer, Deal, N. J.
 Barbara Lawrence, Forest Hills, N. Y.
 †Susan Jane Lawrence, Essex Junction
 Richard William Lawson, Rumford, R. I.
 †Gardner James LePoer, Pepperell, Mass.
 Leonard Alan Levy, Roslyn, N. Y.
 Norman Richard Levy, Hollywood, Fla.
 Michael Morris Lewy, Scarsdale, N. Y.
 †Robert John Lia, Bronx, N. Y.
 Dean Linderman, Batavia, N. Y.
 Peter Joseph Linsley, Hastings-on-Hudson,
 N. Y.
 Richard Edward Lippman, Orange, N. J.
 Glenna Baker Loges, Westfield, N. J.
 Richard Joseph Lorusso, Shrewsbury, Mass.
 Robert Courier Love, Chicago, Ill.
 Joseph Walter Lovell, Jr., Springfield
 Margaret Laura Luce, Rochester, N. Y.
 Mary Frances Lund, Greensboro, N. C.
 †Susan Dora Lundvall, Glen Rock, N. J.
 Edward Phelps Lyman, *cum laude*, South
 Burlington
 Roger Charles Lyman, Burlington
 Daniel Anthony McAuliffe, Burlington
- Edward Joseph McCarthy, North Bennington
 Jean Campbell McCarthy, Spencer, Mass.
 Lyle Ferris McGinnis, Underhill
 William Thomas McGrath, Burlington
 †Peter Brown McKallagat, Lawrence, Mass.
 †Linda Sue McKernon, Hudson Falls, N. Y.
 David Donald McKnight, Plainfield
 James Brian McKnight, Proctorsville
 John Arthur McMurtree, Denver, Colo.
 Martha Helen McSwaney, Burlington
 Peter Stuart MacDonald, Bayside, N. Y.
 Bennett Irving Machanic, *cum laude*, Burlington
 Robert Michael Maestro, Norwalk, Conn.
 John Paul Maley, Burlington
 †Mary Johanna Maley, Burlington
 Frances Camp Headley Mallett, St. Albans
 Michael Louis Margolius, Albany, N. Y.
 Anthony James Marro, Rutland
 John James Martin, Wenhams, Mass.
 †Charles Vincent Masick, Middleburgh, N. Y.
 Deborah Byers Matthews, Buffalo, N. Y.
 Dewitt Edwin Mead, Cato, N. Y.
 *Susan Lee Melson, New York, N. Y.
 Hardy Fairbanks Merrill, Bellows Falls
 Barry William Messinger, New York, N. Y.
 Richard Elliot Michelman, Brattleboro
 Patricia Jean Middleton, Webster, N. Y.
 David Emanuel Miller, Bethel
 Edward Oliver Mills, Floral Park, N. Y.
 James Royal Milne, Barre
 Johanna Lee Mitchell, Chester Depot
 *Hannah Schadt Mocek, Manchester, N. H.
 †Leslie Barasch Morris, New York, N. Y.
 †David Gordon Morrison, Bristol
 †Dennis James Morrisseau, Burlington
 George Charles Morse, Cambridge, N. Y.
 Robert Leonard Morse, South Burlington
 James Edward Morton, South Orange, N. J.
 Richard Joseph Morton, Troy, N. Y.
 Marc R. Mouallem, Jamaica, N. Y.
 †William Keith Mulhern, Cedar Grove, N. J.
 Janet Munson, Darien, Conn.
 *Colette Yvonne de Loeschnigg Nasrallah,
 Fairfax
 Barbara Elaine Nawrath, Manchester Center
 Danforth Newcomb, Norwich
 Alice Marie Nollet, South Burlington
 John Kellogg Norton, Vergennes
 Charles Lee Noyes, *cum laude*, Pittsfield, Mass.
 Wouter Frans Nunnink, Burlington
 Francis Joseph O'Brien, Fairlee
 George John Oelze, Union City, N. J.
 †Lawrence Richard Opert, Worcester, Mass.
 David Wallis Orr, Burlington
 *Lee Corkran Owens, Granville, N. Y.
 Helen Christine Parker, Newport
 †Ronald R. Parks, Fairland, Md.
 David Harold Parsons, Burlington
 Alan David Perlis, Newton, Mass.
 Thomas Elliot Perras, Burlington

* As of October 3, 1964.

† As of February 27, 1965.

- Howard Francis Perry, Jr., *cum laude*, Bethel
 Barbara Eleanor Pflug, Westfield, N. J.
 William Carlisle Pinkham, Cromwell, Conn.
 Samuel Sanford Plotkin, Long Beach, N. Y.
 Denise Ellen Plunkett, Woodbury, N. Y.
 Joseph Simeon Pogar, Wilder
 David Earle Potter, Rutland
 Roger Howard Potter, Leominster, Mass.
 Albert Ira Pristaw, Brookline, Mass.
 James Carey Pritchard, Oyster Bay, N. Y.
 Sherman Milne Prouty, Brockton, Mass.
 Robert Ivan Purvee, Morrisville
 †Langdon Christie Quimby, Jr., Bingham, Me.
 †Scott Lyon Quimby, Orleans
 †Dale Ellen Railsback, *cum laude*, Detroit, Mich.
 John Edward Ranta, Jr., Peabody, Mass.
 Jane Clair Raphalion, Short Hills, N. J.
 Janet Nancy Rector, Glen Rock, N. J.
 James Philip Reuschel, Burlington
 Richard Patrick Reynolds, West New York,
 N. J.
 *William Caughey Reynolds, Denver, Colo.
 Lawrence William Rice, Saxtons River
 Morton Sumner Rickless, Northampton, Mass.
 Bonnie Lee Riggio, New Britain, Conn.
 Carol Ann Robbins, Winchester, Mass.
 Sharon Ann Roberts, Morrisville
 Regina Robicheau, Quincy, Mass.
 †Diane Gallo Rochelle, Cos Cob, Conn.
 Paul Richard Rockoff, Fairfield, Conn.
 Richard Rodbart, New York, N. Y.
 Sally Mae Root, Charlotte
 Norman Sirlin Rosenblum, Mamaroneck,
 N. Y.
 Richard Mann Rosenthal, Burlington
 David Leslie Rothschild, Brooklyn, N. Y.
 Steven James Rothschild, Worcester, Mass.
 †James Philip Russ, Burlington
 *Stephen Howard Russell, Hinesburg
 Herbert Daniel Safford, *cum laude*, Burlington
 Carol Ruth Sakoloff, Flushing, N. Y.
 Fred Charles Sallah, Winoski
 Kenneth Anthony Sausville, South Orange,
 N. J.
 Aaron Israel Schildhaus, Washington, D. C.
 †George Robin Schore, Woodside, N. Y.
 Carol Jane Mable Selig, Burlington
 Donald Joseph Selig, Jamaica, N. Y.
 Raymond Scott Severance, Granville, N. Y.
 Samuel Robert Seward, Rutland
 †Norman Saul Shapiro, Fall River, Mass.
 Michael John Sheehan, Springfield
 Kathryn Ann Sheldon, Wells
 Peter Sheridan, Scarsdale, N. Y.
 Peter Scott Sherman, Newtonville, Mass.
 †Jane Siegfried, Albany, N. Y.
 Sumner Zellick Silverman, Worcester, Mass.
 Andrew Louis Simon, New Rochelle, N. Y.
 John Peter Simses, Easton, Conn.
 Stephen Allen Sind, New Britain, Conn.
 Sandra Jane Skinner, Essex Junction
 Janet Ann Slack, East Thetford
 Alan Michael Smiley, Woodmere, N. Y.
 Gerard John Smith, Rockville Centre, N. Y.
 Jeffrey Stewart Sockol, Burlington
 William Bruce Sosnowitz, Stamford, Conn.
 Carol Lee Souther, Hyde Park
 Peter Wilson Sparks, Needham, Mass.
 *Robert Gale Spaulding, Jr., Rutland
 Peter Hal Spectre, West Falmouth, Mass.
 Jean Ethel Stamato, Clifton, N. J.
 Joan Marie Stankevich, Springfield
 Ann Louise Stebbins, Hanover, N. H.
 Peter Stern, Stowe
 Keith Conrad Stone, Hardwick
 Richard Jeffrey Stone, Holyoke, Mass.
 Randolph Ernest Suhl, Jr., Turners Falls, Mass.
 Sheila Ann Sullivan, Bristol
 William Henry Sullivan, Waltham, Mass.
 †William Lawrence Swann, Rochester, N. Y.
 Bruce Parker Swinyer, Poultney
 John Frank Tartera, Staten Island, N. Y.
 Burton David Tepfer, Great Neck, N. Y.
 Theiss English Tibbs, Windsor
 Alan Bruce Tolk, Far Rockaway, N. Y.
 Andrew George Torok, Burlington
 †Charles Lansing Pruyn Townsend, Jr., Albany,
 N. Y.
 Allen Wayne Tracy, Northfield
 Lauren Westman Van Buskirk, Rutland
 †Henry Richard Vanetti, Barre
 Robert Reynold Varo, Jr., Wellesley, Mass.
 †Charles Ferber Vennel, Florence, N. J.
 Gil Francis Verrillo, Glastonbury, Conn.
 Joan Clarke Vogel, Needham, Mass.
 Neil Allen Vopat, Malverne, N. Y.
 Linda Lectha Waddell, Miami, Fla.
 Rhoda Jane Ward, Montpelier
 Kathryn Lee Warner, Eggertsville, N. Y.
 John Battin Waterbury, Irvington, N. Y.
 Charlene Adele Webber, East Haven
 Wendy Webster, Montpelier
 Steven Weisberg, Croton, N. Y.
 Eugene Martin Weiss, Brooklyn, N. Y.
 Martin Joseph Welt, *cum laude*, Elmont, N. Y.
 Susan Andrea Wesoly, New Britain, Conn.
 Carmen Sylvia Wessner, Manchester Depot
 Martha Jeanne Wheeler, *cum laude*, West Hart-
 ford, Conn.
 Sarah Boyd Witcher, Williston
 Phillip Gregory Willcox, Jr., Reading, Mass.
 Carolyn Ruth Wilson, Asbury, N. J.
 Raymond Martin Windsor, Fairfield, Conn.
 Martin Harold Wolf, New York, N. Y.
 †Barbara Bennett Wool, Burlington
 Ann-Elizabeth Wyle, Roslyn, N. Y.
 Loretta Ann Zelanko, Burlington
 †Joseph Richard Zicherman, New York, N. Y.
 Pan Byron Zolotas, Burlington
 Michael Barry Zwerdling, Bloomfield, Conn.

* As of October 3, 1964.

† As of February 27, 1965.

Departmental Honors

Classics

Carolyn Edith Jerard, '65
Janet Ann Slack, '65

English

Bruce Metcalf Coffin, '65
Barbara Ann Ernst, '65

History

Marshall Henry Goldberg, '65
John James Martin, '65

Music

John Richard D'Arthenay, '65

Zoology

Bonnie Lee Riggio, '65

Special Honors

Classics

Jane Martha Belcher, '65

English

Richard Samuel Kohn, '65
Alan David Perlis, '65

History

Richard George Carlson, '65
Charles Lee Noyes, '65
Carol Jane Mable Selig, '65

Physics

David Emanuel Miller, '65

Political Science

Marilyn Anne Austern, '65
Danforth Newcomb, '65

Zoology

Joel Bruce Bowers, '65
Steven Herson, '65
Burton David Tepfer, '65
Susan Andrea Wesoly, '65

Graduate College

Fifth-Year Certificate in Education

Vincent Alexander Bourke, Middletown, Calif.
Richard Clare Hartt, Allegan, Mich.
Robert Wayne Johnson, Barre
Francis Thomas Kennedy, Oakville, Conn.

Leo Calvin Kimmel, Flushing, N. Y.
Patricia Mildred Stanley, Enosburg Falls
Abdulla Ali Zayir, Dhahran, Saudi Arabia

Master of Education

- *Myron Ben Brown, B.S., (Univ. of Vermont) 1956; Charlotte, *in absentia*
*Marion Rachel Phillips Clarke, B.A. (Sir George Williams Univ.) 1948; Dorval, Quebec
*James Peter Corologos, B.S. (Lyndon) 1962; Burlington, *in absentia*
*Carl Percy Jackson, B.A. (Bishop Univ.) 1956; Franklin Center, Quebec
†Glendon Norman King, B.A. (Norwich) 1943; Northfield
*Thomas Francis Lovett, B.S. (Univ. of Vermont) 1958; Bellows Falls
*Rodney Hardy McFarlin, B.S. (Lyndon) 1961; Essex Center
*Louisa Charlotte Moore, B.S. (N. J. Teachers College) 1938; Little Falls, N. J.
*Alfred Michael Persico, B.S. (Univ. of Vermont) 1950; St. Johnsbury
†Elizabeth Flandreau Schroeter, B.A. (Middlebury) 1947; Middlebury, *in absentia*
Lionel Shinder, B.A. (McGill) 1958; Montreal, Quebec

* As of October 3, 1964.

† As of February 27, 1965.

Master of Arts in Teaching

- Donald Ellis Lawliss, B.S. (Springfield) 1952; Windsor
 Mona Anna Seward Macnab, B.A. (Sir George Williams Univ.) 1960; Montreal, Quebec
 †Robert Walsh Putnam, B.A. (Univ. of Vermont) 1959; Cromwell, Conn., *in absentia*
 *Amory Carson Smith, B.S. (Univ. of Vermont) 1960; Chester

Master of Extension Education

- James Albert Edgerton, B.S. (Univ. of Vermont) 1952; Arlington, *in absentia*
 Pierre Lavigne, B.S.A. (Institut Agricole d'Oka) 1962; Montreal, Quebec
 David Paul Newton, B.S. (Univ. of Vermont) 1952; Rutland
 Lucien Demers Paquette, B.S. (Univ. of Vermont) 1940; Middlebury
 John Franklin Stephenson, B.S. (Univ. of Vermont) 1951; Middlebury

Master of Science

Agricultural Economics

- Alfred Morris Reeves, B.S. (Pennsylvania State) 1958; Villa Nova, Pa. *in absentia*
Thesis: Silage Handling on Vermont Dairy Farms.
 Arthur E. Spoerri, ing-agr (E.T.H. Zurich) 1949, Sweetsburg, Quebec
Thesis: An Evaluation of the Index of Costs in Vermont Dairy Farming.
 Frederick Shepherd Tefft, B.S. (Iowa State) 1962; Thetford Center
Thesis: Migration from Farming and Farm Consolidation in Central Vermont, 1953-63.

Agronomy

- Timothy James Simpson, B.S. (Univ. of Vermont) 1963; Burlington
Thesis: Effects of Soil Nitrate and Ammonium on the Uptake of Nutrients and the Growth of Plants.

Anatomy

- Thomas Francis Gale, B.A. (Univ. of Vermont) 1963; Southampton, N. Y.
Thesis: Electromyographic Study of the Effect of the Thenar Muscles of the Human Hand.
 Edwin George Gresczyk, B.S. (Univ. of Vermont) 1955; Winooski
Thesis: Electromyographic Study of the Effect of Leg Muscles on the Arches of the Normal and Flat Foot.
 Renzo Christopher Aubee Desamu Nylander, A.B. (Lincoln, Pa.) 1960; Sierra Leone, West Africa
Thesis: A Comparative Study of the Liver Structure of Normal and Diabetic Chinese Hamster (Cricetulus Griseus).

Animal and Dairy Science

- Carl Louis Hausler, B.S. (Univ. of Vermont) 1963; Waynesboro, Va.
Thesis: Investigation of the Bovine Corpus Luteum Cell Type Responsible for Progesterone Production.
 †Hugh Burgess Spafford, B.S. (Univ. of Vermont) 1962; North Clarendon, *in absentia*
Thesis: The Influence of Varied Levels and Ratios of Calcium and Phosphorus in the Rations of Mature Dairy Cows.

Chemistry

- Joseph Michael Diamanti, B.S. (Kings College) 1962; Wilkes-Barre, Pa., *in absentia*
Thesis: Studies on the Basic Decomposition of Tosylhydrazones in Aprotic Media.

* As of October 3, 1964.

† As of February 27, 1965.

Marilyn Joy Epstein Nadel, B.A. (Univ. of Vermont) 1962; Hamburg, N. Y., *in absentia*
Thesis: The Structure-Reactivity Relationship of Olefin Reductions with Lithium in Ethylamine.

Horticulture

*David James Beattie, B.S. (Univ. of R. I.) 1962; Riverside, R. I.
Thesis: Effect of Four Potassium Levels on Frost Hardiness in Forsythia 'Lynwood Gold' and Weigela 'Bristol Ruby'

Mechanical Engineering

Stuart Harold Burroughs, B.S. (Univ. of Vermont) 1963; Burlington
Thesis: Buckling Characteristics of Fiber Glass Filament Wound Nol Rings.

†Louis Henry Miner, B.S. (Univ. of Vermont) 1962; Burlington, *in absentia*
Thesis: On the Strength of Glass with Different Methods of Loading.

†Wallace Shakun, B.M.E. (City College) 1958; Burlington
Thesis: Mathematical Model of a Dynamic System Having Multiple Degrees of Freedom.

Charles Philip Smith, B.S. (Univ. of Vermont) 1961; Burlington
Thesis: Parametric Analysis and Design of Self Contained Pneumatic Actuator System.

Walter Allen Trevaskis, B.S. (Drexel Inst.) 1959; Burlington
Thesis: Statistical Estimation of Frangible Circuit Failure Using Probit Analysis.

Michael Robert Yendrzeski, B.S. (Univ. of Vermont) 1963; Burlington
Thesis: Diffusion as a Method of Eliminating Air Voids in Filament Wound Reinforced Composites.

Microbiology

Ann Crowther Billings Barber, B.S. (Univ. of Vermont) 1960; Burlington
Thesis: An Attempt to Classify the Lactobacilli by Serological Methods.

Ellen Ruth Picoff, B.S. (Brooklyn College) 1962; Burlington
Thesis: A Study of the Effects of Chicken Serum in Relation to Infection with Klebsiella Pneumoniae, Type II.

Rachel Gettle Saunders, B.S. (Wisconsin) 1961; Burlington
Thesis: Nutritional Study of an Auxotrophic Mutant of Chlorella Vulgaris.

Physics

Theodore Henry Ansbacher, B.S. (M.I.T.) 1960; Burlington
Thesis: Changes in the Resistance of Molybdenum Films Due to the Chemisorption of Carbon Monoxide.

Chai-Ok Chang, B.S. (Ewha Woman's Univ.) 1959; Seoul, Korea
Thesis: Interaction Energies of Some Simple Gas Molecules with Graphite and Boron Nitride.

Chan Chuongvan, B.A. (Lake Forest College) 1961; Salinas, Calif.
Thesis: Control and Analysis of Sonic Effects on Biological Suspensions.

*Benjamin C. Harms, B.S. (Iowa State) 1961; Tallahassee, Fla., *in absentia*
Thesis: Some Phenomena Affecting the Refractivity of a Plasma.

Richard Allen Paul, Jr., B.A. (Univ. of Vermont) 1962; So. Burlington, *in absentia*
Thesis: Theory and Design of a Mason Horn, A Study of its Associated Streaming Patterns.

William Edward Rowe, B.A. (Univ. of Vermont) 1963; Peacham
Thesis: The Effect of Acoustic Streaming on an Electrode Process.

Physiology and Biophysics

Leonard Schneider, B.A. (Brooklyn College) 1960; Jacksonville, *in absentia*
Thesis: Excitability Studies in Conducting and Non-Conducting Frog Striated Muscle.

* As of October 3, 1964.

† As of February 27, 1965.

Poultry Science

- *Walter Carl Gutzmann, Jr., B.S. (Univ. of Vermont) 1962; Craftsbury
Thesis: A Study of Carotenoids and Vitamin A in Chickens.

Zoology

- Donald Leslie Feldman, B.A. (Univ. of Vermont) 1964; Swampscott, Mass.
Thesis: A Test of the Inductive Capacity of Protein Extracts from Adult Axolotl Tissues Upon Undifferentiated Axolotl Ectoderm.
- Alan Wright Johnson, B.A. (Univ. of Vermont) 1964; Allentown, Pa.
Thesis: The Inductive Capacity of Axolotl Tail Muscle, Dermis, and Epidermis Upon Undifferentiated Ectoderm.
- David Ross McClay, Jr., B.S. (Pennsylvania State) 1963; State College, Pa.
*Thesis: Effects of Ribonucleoproteins on Ectodermal Explants of *Siredon Mexicanum*.*
- Sander Edward Sundberg, B.A. (Wabash) 1963; Chicago, Ill., *in absentia*
Thesis: An Investigation of the Phytoplankton of Two Bays of Lake Champlain.
- David Earle Whitney, B.S. (Univ. of Vermont) 1963; Springfield
Thesis: The Relationship Between Inorganic Nitrate and Chlorophyll Concentrations in Standing Fresh Waters.

Master of Arts

Economics

- John Winn Ryan, B.S. (Univ. of N. H.) 1949; Burlington
Thesis: The Impact of Trading Stamps as a Promotional Technique in the Greater Burlington Area.

English

- Mary Jane Smith Carlson, B.Ed. (Wisconsin State) 1960; Cabot
Thesis: Mary E. Wilkins Freeman: Artist or Lady?
- Anthony Frank Gulliver, B.A. (Sir George Williams) 1963; Montreal, Quebec
Thesis: The Form and Thought of Tristram Shandy.
- Christine Katherine Hemenway Hilberg, B.A. (Wartburg) 1963; Burlington
Thesis: Huckleberry Finn as Hell Allegory.
- Stephanie Patchen Mondzac, B.A. (Barnard) 1963; So. Burlington, *in absentia*
Thesis: The Theatrical Technique of John Millington Synge.
- Joanne Lenore Napoli, B.A. (Queens) 1964; Brooklyn, N. Y.
Thesis: The Total Quest-Myth in the Poetry of Yeats.

History

- Munro Spalding Brook, B.A. (Middlebury) 1961; Woodstock, *in absentia*
Thesis: The Moroccan Crisis: Its European Background and an Analysis of the Role Played by the United States.
- Lester Frederick Jipp, B.A. (Iowa) 1949; Vergennes
Thesis: The Progressive Party in Vermont in 1912.
- Charles Alson Morse, B.S. (Johnson) 1961; Richford
Thesis: William Slade: Congressional Career, 1831-43.
- John Alfred Neuenschwander, B.A. (Mount Union) 1963; Parma, Ohio
Thesis: Senator George D. Aiken and Federal Aid to Education 1941-1949.

Mathematics

- Anne Elizabeth Drinkwater, B.A. (Emmanuel) 1963; Dorchester, Mass.
Thesis: Equivalence of F. Riesz's Definition of Measure and M. E. Munroe's Definition of Lebesgue Measure.

* As of October 3, 1964.

James Francis Pawlowski, B.A. (St. Michael's) 1963; Portland, Conn.

Thesis: The Extension of the Fredholm Alternative and Canonical Form from Hilbert to Banach Space.

Gordon Charles Smith, B.S. (Univ. of Vermont) 1957; Lyndonville

Thesis: Linear Differential Equations: Solutions in Series.

Political Science

Frank MacLlewellyn Bryan, B.A. (St. Michael's) 1963; South Newbury, *in absentia*

Thesis: An Analysis of the Political History of Cyprus from 1923 to 1963 as It Concerns the Development of the Cypriot Communist Party.

Psychology

†R. John Huber, B.A. (Kent State) 1962; Cleveland, Ohio

Thesis: Imprinting: A Test of Innate Species Preference.

Robert John Lavalley, B.A. (Univ. of Vermont) 1963; Winooski

Thesis: The Effects of Various Visual and Motor Experiences Before Maturation on Problem-Solving at Maturity in Rats of Different Strains.

Doctor of Philosophy

Biochemistry

Vernon Nye Reinhold, B.S. 1959; M.S. 1960 (Univ. of N. H.); Essex Jct.

Thesis: *a*-N-Methylated Histidines in the Biosynthesis of Ergothioneine.

Botany

Harley Tomlinson, B.S. 1959; M.S. 1961 (Univ. of Vermont); Burlington

Thesis: Determining the Structure of Lambertellin, a Naphthoquinone from Cultures of *Lambertella Hicoriae* Whetzel, and Methods of Synthesis.

Chemistry

*Paul Stuart Huyffer, B.A. (Univ. of Pa.) 1960; Malden, Mass., *in absentia*

Thesis: A Study of the Nucleophilic Capture of Dihalocarbenes by Some Carbanionic Species and the Utilization of the Trihalomethyl Anion as a Transitory Base in Solution.

Physiology and Biophysics

George Galli Lucchina, B.S. 1955; M.D. 1958; M.S. 1959 (Univ. of Vermont); Essex Jct.

Thesis: Effects of 2, 4-Dinitrophenol on Cochlear Potentials in Cat.

College of Medicine

Doctor of Medicine

Marlene Ann Aldo, B.A., *cum laude*, Bridgeport, Conn.

Merrill Douglas Benson, B.A., Alburg

Myer Sidney Bornstein, B.S., Boston, Mass.

Mazzini Bueno, B.A., New Bedford, Mass.

Frederick Martin Burkle, Jr., A.B., Hamden, Conn.

James Fenwick Butler, III, B.A., Augusta, Me.

Philip Timothy Cole, B.A., Brighton, Mass.

Gerald Powers Corcoran, B.S., Newton Lower Falls, Mass.

Alan Frederick Crosby, B.A., Burlington

Robert Bourdon Daigneault, B.S., Marlboro, Mass.

* As of October 3, 1964.

† As of February 27, 1965.

Woolson Whitney Doane, B.A., Springfield
 Thomas Wendell Dow, B.S., Roslindale, Mass.
 Patricia Anne Fenn, B.A., St. Johnsbury
 Allan Lee Gardner, A.B., *cum laude*, Lynn, Mass.
 John Abner Mead Hinsman, Jr., B.A., Wood-
 stock
 David Ira Hirsch, A.B., Newport, N. H.
 Robert Joseph Hobbie, B.A., Cranford, N. J.
 Sharon Lee Hostler, A.B., Burlington
 Dorothy Elaine Indick, B.A., Elizabeth, N. J.
 Jamie Jay Jacobs, B.A., Colchester
 John Paul Keane, B.S., Medford, Mass.
 Robert Irving Keimowitz, B.A., *cum laude*,
 Middletown, N. Y.
 Malcolm Joseph Labell, B.S., Everett, Mass.
 Sanford Levine, B.A., Brooklyn, N. Y.
 Frederick George Lippert, III, B.S., New
 Canaan, Conn.
 George Alexiy Little, B.A., Willimantic, Conn.

James Sylvester McGinn, B.S., St. Albans Bay
 Jan Howard Mashman, B.A., *cum laude*, New
 Rochelle, N. Y.
 George Davis Noble, A.B., Dorchester, Mass.
 John Levi Ohman, Jr., B.S., Marlboro, N. H.
 David Ellis Osgood, B.S., Greenfield, Mass.
 Andrew Bowen Packard, B.A., Hanover, N. H.
 Thomas Jenkins Packard, A.B., Plymouth,
 Mass.
 David Llewellyn Perkins, B.S., St. Johnsbury
 Gordon Samuel Perlmutter, B.A., *cum laude*,
 Burlington
 Elliot Roy Singer, A.B., New Rochelle, N. Y.
 Paul Byron Stanilonis, B.S., Vergennes
 Joseph Henry Vargas, III, A.B., Rutland
 Paul Waxler, A.B., Cranston, R. I.
 William Thomas Whitney, Jr., A.B., Randolph
 Center
 Richard Wulf, A.B., Everett, Mass.

Degrees Honoris Causa

H. Ward Bedford, Doctor of Laws, Middle-
 bury, Vermont
 David Elliott Bell, Doctor of Laws, Washing-
 ton, D. C.
 Theodor Herzl Gaster, Doctor of Divinity
 Ernest N. Harmon, U. S. Army, *Ret.*, Doctor
 of Laws, Northfield, Vermont

John Emerson Lovely, Doctor of Science,
 Springfield, Vermont
 W. Arthur Simpson, Doctor of Laws, Lyndon-
 ville, Vermont
 Henry Cutler Torrey, Doctor of Science, High-
 land Park, New Jersey

Department of Military Science

Commissioned Second Lieutenant, United States Army

*Kenneth Dean Bailey, Armor
 *Frederick George Boese, Infantry
 *Arthur Holland Garvin, III, Military Police
 Corps

*Dean Linderman, Artillery
 *Richard Rodbart, Infantry
 *R. Scott Severance, Armor
 *Tom Sawyer Whittaker, Corps of Engineers

Commissioned Second Lieutenant, United States Army Reserve

*Roger Forrest Ames, Ordnance Corps
 *Kenneth Stanley Austin, Artillery
 Richard Irving Badger, Jr., Artillery
 *John William Bossi, Armor
 Michael Dean Bottamini, Quartermaster Corps
 George William Bray, Corps of Engineers
 Timothy Lee Brosseau, Armor
 *Nels L. Christenson, Artillery
 Robert Ralph Coleman, Signal Corps
 Gerald Brian Collins, Corps of Engineers
 Thomas Paul Corcoran, Ordnance Corps
 Wilbur Howard Cyr, Army Intelligence
 Richard Allen Davies, Artillery
 Richard Young Dow, Jr., Ordnance Corps
 James Mason Dwinell, Armor

Gregory Logan Eaton, Artillery
 William Irving Eckhart, Jr., Quartermaster
 Corps
 *James Dean Foley, Artillery
 Carl Peter Frattini, Artillery
 Edward Francis Fugit, Infantry
 Edward Albert Funk, Jr., Infantry
 *Warren Paul Giddings, Armor
 *David Joseph Goode, Armor
 *William Spaulding Hall, Army Intelligence
 David Lee Haurilick, Army Intelligence
 *Martin Henry Heck, Jr., Infantry
 Richard Joseph Indrieri, Medical Service Corps
 *Roger Army Kline, Artillery
 *Reid Martin Knight, Armor

* Distinguished Military Graduates.

Douglas James Lamude, Medical Service Corps	William Edward Newman, Jr., Artillery
Norman Richard Levy, Ordnance Corps	George Laurel Nichols, Corps of Engineers
Michael Morris Lewy, Signal Corps	John Kellogg Norton, Infantry
Richard Joseph Lorusso, Artillery	William Herbert Porter, II, Quartermaster Corps
Stephen Joseph Lozen, Artillery	Robert Ivan Purvee, Chemical Corps
David Marshall, Signal Corps	*Herbert Daniel Safford, Army Intelligence
William Thomas McGrath, Signal Corps	Peter Neil Sheridan, Artillery
*David Donald McKnight, Quartermaster Corps	*Gerard John Smith, Infantry
Dewitt Edwin Mead, Artillery	*Paul Eugene Toussaint, Corps of Engineers
Hardy Fairbanks Merrill, Artillery	Robert Reynold Varo, Jr., Artillery
Barry William Messinger, Artillery	Alan Lawrence Wilcox, Artillery
George Charles Morse, Infantry	Danny Mason Young, Artillery
Danforth Newcomb, Army Intelligence	

Commission of Second Lieutenant, United States Army Reserve,
Upon Completion of ROTC Camp

Roderick Thomas Carnic, Artillery	Richard Carlton Pouch, Infantry
*Ralph Patrick D'Altilia, Infantry	*Richard Patrick Reynolds, Infantry
James David Gallo, Corps of Engineers	Lawrence William Rice, Ordnance Corps
Robert Paterson McCarty, Artillery	Jeffrey Stewart Sockol, Signal Corps
John Arthur McMurtrie, Transportation Corps	*Keith Conrad Stone, Corps of Engineers
Francis Joseph O'Brien, Jr., Artillery	Martin Harold Wolf, Artillery
*George John Oelze, Infantry	

Commission of Second Lieutenant, United States Army Reserve,
Upon Completion of Summer School

Robert Wayne Van Ham, Artillery

Commissioned Second Lieutenant, United States Marine Corps Reserve

Paul Edward Hurley, Jr.

* Distinguished Military Graduates.

Sources of Financial Aid Awarded by the University

General Financial Aid

Scholarship Funds

LIZZIE P. ALLEN Founded in 1900 by Lizzie P. Allen, a descendant of Ira Allen, founder of the University.

REV. LUCIUS E. BARNARD, Class of 1853 Established by bequest in 1903.

ADA S. BLAIR Established by bequest in 1926.

ELIZABETH CHAPMAN Established by bequest in 1950.

CLASS OF 1861 Endowed and made available in 1891.

CLASS OF 1881 Endowed in 1937 by William H. Rice.

CLASS OF 1940 No restriction.

JOHN H. CONVERSE, Class of 1861 Established in 1882.

ROLLO J. FRANCISCO Established by bequest in 1951.

GENERAL SCHOLARSHIP

ALBERT T. HENDERSON Established in 1945 by a bequest from William J. Henderson in memory of his son.

FRANCIS WHELPLEY HICKOK, Class of 1871 Founded in 1902 by Mrs. Julia F. Hickok, widow of James W. Hickok, Class of 1837, in memory of their son.

HIGHER EDUCATION ACT OPPORTUNITY GRANTS, established by passage of the Higher Education Act of 1965. Provides for scholarships in the amount of \$200 to \$1,000.

DAVIS HOLLIS

CHARLES A. HOYT, Class of 1858 Established by bequest in 1904.

MORETOWN AND MIDDLESEX Founded by the Rev. E. C. Bass, Class of 1859.

C. E. AND C. C. PARKER Founded in 1880 by Rev. Charles C. Parker, D.D., Class of 1841, in memory of himself and his son, Charles Edmund Parker, Class of 1867.

MINNIE A. PICKERING Established in 1938 by gift in memory of her daughter.

LILLIAN BRYAN PROCTOR MEMORIAL SCHOLARSHIP, established in 1965 by the Vermont Federation of Women's Clubs. The income from this fund will be awarded each year to a Vermont boy or girl attending the University.

SAMUEL SIDNEY SMITH Founded in 1896 by bequest of Mrs. Eliza Smith in memory of her husband.

HATTIE LAURA WETHERBY WESTON Established by bequest in 1936.

JAMES B. WILBUR The University of Vermont Trust Fund, amounting to about two million dollars, was established by James B. Wilbur as an endowment for scholarships for Vermont students who are in need of assistance to undertake college work and who have earned entrance or college records that indicate extraordinary scholastic ability.

NORMAN WILLIAMS

GENERAL MOTORS SCHOLASTIC PROGRAM Open to any U. S. citizen entering college as a freshman. No restrictions on course of study. Awards range from \$200 to \$2,000 a year, depending upon demonstrated need.

MINNIE ADAMS SEGAR Established in 1962 by the friends of Minnie Adams Segar for worthy students, male and female.

Loan Funds

ELIZABETH CHAPMAN Established by bequest in 1950.

CLASS OF 1929 LOAN FUND.

THE CONSOLIDATED FUND Composed of the following: the Class of 1916 Fund, the Class of 1923 Fund, the Class of 1924 Fund, the Class of 1925 Fund, the Emergency Loan Fund, the Julia I. Bates Fund, the Student Loan Fund, the B. F. Taylor Fund, the New York Alumni Fund of November, 1927, the Edmund Seymour Fund, the Kidder Loan Fund, the Lydia M. Blood Loan Fund, the Charles H. Bayley Fund, the Charles S. and Etta M. Kehoe Fund, the Sealand W. Landon Fund, the Annette Fiske Mereness Fund, the Pearl E. and Iddie F. Stone Loan Fund, the Student Emergency Loan Fund, and the Emily and Thomas Telfer Fund.

DONALD DRESSER MEMORIAL FUND No restrictions.

JOSEPH LAWRENCE HILLS Established by friends of Dean Hills, who completed fifty years of service to the University in 1937.

NATIONAL DEFENSE STUDENT LOAN FUND.

NEW ENGLAND SOCIETY IN THE CITY OF NEW YORK LOAN FUND Temporary loans.

F. H. AND GRACE M. SHEPARDSON For deserving students, subject to such regulations as the Board of Trustees shall prescribe.

HENRY MARTIN STANTON AND HARRIET BABCOCK STANTON MEMORIAL LOAN FUND Established by the Estate of Eleanor Louise Stanton.

General Financial Aid for Women

Scholarship Funds

MARCIA P. BROWNE Established by bequest for women students.

EMORY N. BURRITT Established by bequest for women students.

SARAH L. BURRITT Established by bequest for women students.

GAMMA PHI BETA FOUNDATION SCHOLARSHIP FUND For a female undergraduate student of at least sophomore standing.

CELINDA A. B. LILLEY Founded in 1880 for women students.

PANHELLENIC COUNCIL Proceeds of the Panhellenic picnic or similar function are donated each year to the University to provide a scholarship for an out-of-state girl.

Loan Funds

CATHERINE ARMSTRONG LOAN FUND For women only.

MATTHEW HENRY BUCKHAM Any needy girl.

ASA FISKE Established for women students by Annette Fiske Mereness in memory of her father.

MARY GRAVES Established for women students by Annette Fiske Mereness in memory of her mother.

LADIES OF THE FACULTY For women students. Not more than fifty dollars is loaned to any one student.

MARY A. SHAW AND FANNY E. SHAW Established by Mrs. Willard Pope, daughter of Mary A. Shaw, for women students.

THE WOMEN'S STUDENT HEALTH COUNCIL FUND For women designated by the Dean of Women and the Chairman of the Department of Physical Education for Women, under special regulations as to interest and repayment.

ELLEN E. H. WOODRUFF For personal emergencies for any girl with limit of \$50.00 and approved by the Dean of Women.

General Financial Aid for Men

Scholarship Funds

LOUIS COLLINS DODD Established by bequest in 1962 for worthy and deserving male students who need financial assistance.

LOUISA H. HOWARD Founded in 1882; available for men.

CLARK AND EDWARD S. ISHAM SCHOLARSHIP FUND Established by Lois C. Isham to aid needy boys.

WILLIAM G. SHAW, Class of 1849 Originally founded in 1892 by bequest of one thousand dollars and increased by his daughter, Mrs. Willard Pope; available for men students.

CHARLES D. SIAS Established by bequest in 1943; available for men.

Loan Funds

CORNELIUS A. JEDEVINE Established by Allen E. Jeudevine as a memorial to his son to aid Vermont men in obtaining a liberal education.

Financial Aid by Geographical Areas

Scholarship Funds

ANONYMOUS Craftsbury preference.

FRANKLIN BALDWIN Established in 1915 by bequest of Mr. Baldwin for students from Putney.

SEYMOUR ISRAEL BAROWSKY Preference given to a student from Holyoke, Massachusetts.

REUBEN CLARK BENTON, Class of 1854 Established by bequest for students from Waterford and Lunenburg, Vermont, or from Minneapolis, Minnesota.

ELIZABETH F. BRIGHAM Established by bequest in 1910; preference to be given to students from Brigham Academy.

EZRA HOYT BYINGTON Founded in 1905 in memory of Mr. Byington by Mrs. Louise J. Byington for students from Hinesburg, or students bearing the name of Byington, Boynton, or Hoyt, or Wortman, or in some way related to these families.

CONE FOUNDATION SCHOLARSHIPS to be awarded to boys or girls from Windsor, Vermont and vicinity including sons and daughters of any employees of the Cone Automatic Machine Company.

CRAFTSBURY Founded in 1900 for relatives of Mr. and Mrs. Nathan S. Hill, or residents of Craftsbury or Isle La Motte.

PHILIP HENRY CREER Founded by Ex-Gov. Redfield Proctor for students from Proctor.

ISLE LA MOTTE Founded in 1884 by Nathan S. Hill; for students from Isle La Motte or from Craftsbury.

SARAH B. JACOBS Founded in 1882; available for graduates of Brigham Academy only.

ROBERT J. KIMBALL Founded in 1900 for students from Randolph. The Trustees of Randolph High School may make nominations for this scholarship.

- LYNDON INSTITUTE Endowed by George E. P. Smith, Class of 1897; awarded annually to a graduate of Lyndon Institute nominated by the faculty of that school.
- CHARLES MUNSON MARSH Established by bequest in 1893 for students from Woodstock by Charles P. Marsh in memory of his son.
- CHARLES P. MARSH Established by bequest in 1893; for men and women from Windsor County.
- EDWIN WRIGHT MARSH, 1872 Founded in 1883 by Charles P. Marsh, Class of 1839, in memory of his son; for students from the town of Weathersfield or from Windsor County.
- MARGARET PATTERSON McDANIELS Established in 1941 by a bequest of George M. McDaniels in memory of his mother; preference to be given to applicants from the towns of Craftsbury and Greensboro.
- JUSTIN S. MORRILL Founded in 1900 by Senator Justin S. Morrill; for students from Strafford.
- ARTHUR W. AND LOUISE S. PERKINS Established in their memory in 1947 by their sons and daughters. The income provides aid for students of high character and reasonably good scholarship who are graduates of a secondary school in Rutland. School authorities in Rutland are to be consulted regarding the qualifications of candidates who are not already enrolled in the University.
- SHATTUCK SCHOLARSHIP Established in 1962 by George Lysander Shattuck in memory of his wife Carolyn, for boys and girls who are natives of Bakersfield, Vermont, and graduates of Brigham Academy.
- ANNA C. SMITH SCHOLARSHIP FUND To aid deserving and needy students from the Ludlow, Vermont area.
- JOHN AND MARY WATERMAN Endowed in 1923 by Charles W. Waterman, Class of 1885, in memory of his father and mother; for residents of Waitsfield or Denver, Colorado.
- WESTFORD Founded in 1882 by Luke P. Poland; available first to students from the town of Westford.
- JOHN A. S. WHITE Established by bequest; for students from Washington County or from Vermont.
- CLAYTON J. WRIGHT Established by bequest; available first for students from the town of Williston.
- DAVID PARKER WRIGHT AND ALICE M. WRIGHT Established in 1958 for students from Westminster, Vermont.

Loan Funds

- JOHN H. AND MARY A. BLODGETT Established in 1938 by bequest of Mary A. Blodgett of Bellows Falls, preference to be given to graduates of the Kurn Hattin and Warner Memorial Homes and to residents of Rockingham.
- ELLIS EDWIN FOSTER LOAN FUND Preference to graduates of Peoples Academy of Morrisville, Vermont.
- GREATER NEW YORK CITY ALUMNI LOAN FUND Preference given to students from the greater New York area.
- LEWIS RALPH JONES AND ANNA CLARK JONES LOAN FUND Loan Fund to derive from the income of the investment of the above-named estate. To aid worthy and needy students in such manner as the trustees deem proper. Preference—students from Brookfield, Vermont.
- CHARLES D. AND CARRIE D. ORDWAY Bequeathed by Charles D. Ordway in 1933, for Vermont students.
- RIXFORD MANUFACTURING COMPANY For students from Highgate.

Financial Aid by Academic Areas

College of Agriculture and Home Economics

Scholarship Funds

- DEAN JOSEPH E. CARRIGAN Established in 1957 by the people of Vermont to honor Dean Carrigan. The income from the fund is used to provide scholarships for Vermont boys and girls attending the College of Agriculture and Home Economics.
- CHARLES M. COX Income from this trust fund provides a scholarship of \$300 for a student in Agriculture, preferably to one majoring in Dairy or Poultry Science, on the basis of need, character, and scholarship.
- RALPH J. BUGBEE SCHOLARSHIPS in Agricultural Engineering given by the Central Vermont Public Service Corporation. Four scholarships at \$200 each, annually.
- EASTERN MILK PRODUCERS ASSOCIATION SCHOLARSHIP FUND Two \$500 scholarships for students in the College of Agriculture and Home Economics with need, scholastic ability and leadership qualities. Preference given to freshmen and sons and daughters of members of the association.
- ESSO 4-H Awarded each year by the Esso Standard Oil Company of New Jersey to an incoming freshman in the College of Agriculture on the basis of need, character, and scholastic ability, plus at least three years of 4-H work. If satisfactory grades are maintained, \$200 per year will be paid the recipient for the succeeding three years.
- DR. CHARLES H. HOOD Given by the Charles H. Hood Dairy Foundation. Four full-tuition scholarships awarded to upperclass students studying milk production.
- RALSTON PURINA \$500 awarded at the beginning of the senior year to a student majoring in an area related to animal nutrition on the basis of need, scholarship, leadership and character.
- SEARS-ROEBUCK FOUNDATION Six scholarships of \$300 each awarded annually on the basis of need, scholarship and farm origin; three to entering students in agriculture, two to entering students in home economics, and one to a sophomore in agriculture.
- VERMONT HOME DEMONSTRATION COUNCIL SCHOLARSHIP Two scholarships of \$200 awarded to Vermont girls who are enrolled in and have completed at least one year of Home Economics at the University of Vermont.

Loan Funds

- THURSTON M. ADAMS MEMORIAL FUND Preference given to students in Agricultural Economics.
- AMERICAN AGRICULTURIST RESEARCH FOUNDATION For juniors and seniors in Home Economics.
- ROBERT M. CARTER Agriculture and Home Economics students.
- KENNETH J. SHELDON LOAN FUND Gift from various donors established as a loan fund for Vermont Agricultural students.
- TERRILL-HOLBROOK For women students, preference being shown to those in Home Economics.

College of Medicine

Scholarship Funds

- MOSES D. CARBEE, Class of 1873 Established by a bequest from Mrs. May D. Carbee in memory of her husband; available for medical students.
- JOHN W. AND JOHN SEELEY ESTABROOK Established by bequest in 1956; for students in the College of Medicine from Rutland County, preference being given to students from Brandon.

FEDERAL MEDICAL SCHOLARSHIP GRANTS, established by the Health Professions Educational Assistance Amendments Act of 1965.

DR. EDWARD EVERETT HAWES Established by bequest in 1946; available for medical students.

EDITH BLANCHE KIDDER Established by Joseph W. Kidder for students in the College of Medicine; preference to be given to legal residents of Barre.

ALDO LEANI MEDICAL Established in 1961 for students in the College of Medicine.

JOHN ORDRONAUX Founded in 1909; for students in the Academic and Medical Colleges.

DR. H. C. TINKHAM Established by bequest in 1956; for students in the College of Medicine.

Loan Funds

MOSES DYER CARBEE, M.D., Class of 1873 Established by Mrs. May D. Carbee in memory of her husband for students of the College of Medicine.

DR. THOMAS HARMAN DENNE MEMORIAL LOAN FUND Established in 1963 by relatives and friends of the late Dr. Thomas H. Denne, Class of 1905, the income to be used for deserving students in the College of Medicine.

G. STEDMAN HUARD MEDICAL STUDENT LOAN FUND Established by G. Stedman Huard, M.D., Class of 1946. For aid to senior medical students who are Vermont residents, preference to be given to Winooski residents.

KELLOGG FOUNDATION LOAN FUND Medical students.

DR. JOSEPH B. LUMBARD Established in 1946 by the gift of Mr. J. Edward Lumbard, Jr., for students in the College of Medicine.

MEDICAL STUDENT LOAN FUND Established in 1933 by Medical College alumni for students in the College of Medicine.

ELIZABETH D. AND CLIFFORD R. PROCTOR Established in 1953 for students in the College of Medicine.

QUARTER-OF-A-CENTURY LOAN FUND A loan fund for medical students established by the Class of 1938 and added to by the following 25-year classes.

JAMES A. SINGISER MEDICAL STUDENT LOAN FUND Established by James A. Singiser, M.D., to aid needy medical students.

UNIVERSITY OF VERMONT MEDICAL SCHOOL LOAN FUND For medical students from New Hampshire, established in 1963 by Dr. Thomas R. Plowright.

MRS. HAROLD T. WHITE MEDICAL STUDENT LOAN FUND Preference given to medical students.

College of Arts and Sciences

Scholarship Funds

LIZZIE S. CONVERSE Founded by bequest of Sarah Elizabeth Converse for students of classics.

CHARLES W. RICH, Class of 1836 Founded in 1883 for students in the College of Arts and Sciences.

SOPHIA STOW Endowed in 1937 by bequest of George L. Stow, '73, in memory of his mother; for students of classical languages.

NORMAN SARETT MEMORIAL FOUNDATION, INC. In memory of Norman Sarett. To be awarded to a sophomore student in liberal arts curriculum.

Loan Fund

STEPHEN DWIGHT AND LINDA MASON HODGE For women students in the College of Arts and Sciences.

Department of Nursing

Scholarship Fund

ELIDA N. RYALS SCHOLARSHIP FUND To be awarded annually to a student or students in the Nursing curriculum.

Loan Fund

NURSING STUDENT LOAN PROGRAM

Department of Chemistry

Scholarship Funds

NATHAN F. MERRILL SCHOLARSHIP FUND The income from this fund is used for three scholarships annually for students pursuing Chemistry as their primary study.

LELAND MASON WILLEY Preference to students majoring in Chemistry.

Department of Education

Loan Fund

MARY MAUD PATRICK Established by Epsilon Sigma as a memorial to Mary Maud Patrick for students in Elementary Education.

Department of Athletics

Scholarship Funds

ANONYMOUS ATHLETIC Restricted to students who participate in intercollegiate athletics.

GEORGE H. COOK, JR. Athletic scholarship with preference to students from Cushing Academy.

EDWARD G. NEMER. Established in 1961 from a gift in memory of the late Edward G. Nemer, for athletic scholarships.

SAGA FOOD SERVICE, INC. \$550 yearly to help defray the expense incurred in the purchase of University board contracts by two University students participating in intercollegiate athletics.

School of Dental Hygiene

Loan Fund

DENTAL MEMORIAL LOAN FUND Established by Vermont Dental Society for financial assistance to second-year Dental Hygiene students.

Department of Engineering

Scholarship Funds

ELECTRICAL MANUFACTURERS' REPRESENTATIVES CLUB OF NEW ENGLAND, INC. Scholarships totalling \$500 will be awarded to two Electrical Engineering students on the basis of need and quality of scholarship.

JOHN M. EVANS Established in 1958 in memory of himself and his wife, Mary Hickley Evans, for worthy students in Civil Engineering.

VERMONT ELECTRICAL ASSOCIATION SCHOLARSHIP FUND Awarded to a junior or senior majoring in Electrical Engineering who is a resident of Vermont.

WESTERN ELECTRIC SCHOLARSHIP FUND Awarded to an undergraduate in the Engineering Department. \$800 or the cost of tuition, books, and fees, whichever is lower. The fixed amount in no event will be less than \$400. In addition, a grant-in-aid amounting to three-quarters of the amount of the scholarship.

Loan Funds

CHESTNUT FUND For students in Mechanical Engineering upon recommendation of the department chairman.

LEONARD PERLEY DICKINSON For students in Engineering, preference to be given to those in Electrical Engineering.

HORACE E. STEVENS, Class of 1870 Established in 1926 by his relatives for students in Engineering.

Professions

Law

Loan Fund

HENRY BIGELOW SHAW, Class of 1896 Established in 1938 by Mrs. Willard Pope, in memory of her brother, for those who plan to study at Harvard University Law School.

Ministry

Scholarship Fund

DR. DANIEL WASHBURN Founded in 1853 for young men; preference to be given to those studying for the ministry.

Financial Aid With Special Restrictions

Scholarship Funds

PARKER J. BUXTON Available to a needy and deserving member of the Senior Class.

DANIEL PITKIN MINER Established by bequest in 1943; for native-born students, not over twenty-five years of age.

DR. WALTER CARPENTER Established by bequest; preference to be given to sons of clergymen and physicians.

SOLDIERS' Founded in 1913 by a group of Civil War Veterans for students who are descendants of soldiers in the Civil War.

Loan Funds

PHI BETA KAPPA Available to members of the Senior Class; preference being shown to members of the society.

REV. STEPHEN G. BARNES To provide loans or gifts for needy students to attend religious conferences.

Military

U. S. ARMY ROTC SCHOLARSHIP Established by Public Law 88-647 in 1964; for students motivated toward career as an officer in the United States Army. Full tuition, cost of books, laboratory fees, and similar educational expenses, plus \$50 a month retainer pay. Grants are made on a competitive basis for a two-year or a four-year period, but are contingent on enrollment in the four-year ROTC program. Student agrees to serve on active duty for four years.

Prizes and Awards

- ALPHA LAMBDA DELTA AWARD presented by the National Council to the senior girl who has the highest average for four years.
- ALPHA ZETA PROFICIENCY AWARD for the agricultural student who in his freshman year is deemed most proficient in scholarship, extracurricular activities, and self-support.
- AMERICAN INSTITUTE OF CHEMISTS AWARD given to a senior with high potential for advancement of chemistry as a profession, based on leadership, ability and character with high scholastic standing.
- AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS AWARD for the student member who has been most outstanding in the activities within the branch for the academic year.
- AMERICAN SOCIETY OF MECHANICAL ENGINEERS AWARD, President's Award for meritorious service and award for best technical paper.
- AMERICAN SOCIETY OF MECHANICAL ENGINEERS AWARD for outstanding effort and accomplishment in behalf of the ASME Student Section.
- THE AMERICAN LEGION AWARD to the cadet commander of the Army ROTC Company adjudged to be the most proficient during the year.
- ARMY RESERVE OFFICERS ASSOCIATION AWARD to the Army ROTC cadet in the senior class who has shown the greatest versatility and participation in the ROTC program.
- ARMY SUPERIOR CADET AWARDS to the outstanding Army ROTC cadet in military and academic proficiency in each class.
- ASSOCIATION OF THE U. S. ARMY AWARD to the Army ROTC cadet in the junior class who has contributed the most through his leadership to advancing the standing of the ROTC unit and the Military Department of the University of Vermont.
- ASSOCIATION OF THE U. S. ARMY MILITARY HISTORY PRIZE to a freshman ROTC cadet for excellence in Military History.
- ATHLETIC COUNCIL MANAGERIAL AWARD to the senior sports manager who has shown the greatest proficiency.
- WARREN R. AND MILDRED L. AUSTIN AWARD to the student who has shown the most interest and endeavor in knowledge of international organization for the principles and purposes of the United Nations.
- BENEDICT ESSAY AWARD established by Robert Dewey Benedict of the Class of 1848, to be awarded annually to the member of the senior class who presents the best essay on international arbitration.
- BENNETT ESSAY AWARD, endowed by Philo Sherman Bennett, provides an annual award for the best essay discussing the principles of free government.
- COLONEL WESTON L. BLANCHARD AWARD to the cadet commander of the ROTC Battalion adjudged to be the most proficient during the year.
- B'NAI B'RITH AWARD given annually by the Joseph Frank Lodge of Burlington to that student who has done the most to encourage interfaith cooperation and activities.
- BORDEN AGRICULTURAL AWARD to the student in the College of Agriculture who, of those who have taken two or more dairy courses, enters senior year with the highest average.
- WILLIAM EUSTIS BROWN ALUMNI PRIZE to a graduating student on the basis of broad cultural interests and loyalty to the College of Medicine.
- BURPEE AWARD IN HORTICULTURE on the basis of scholarship, practical experience, and interest in flower and vegetable growing.
- BUTLER DEBATING AWARDS, endowed by Edward Page Butler, 1870, given annually to the three women students who have shown the greatest ability in debate.
- ERNEST HIRAM BUTTLES CENTURY CLUB PRIZE awarded annually to the second-year student selected by the Department of Pathology for outstanding performance in that subject.

- CARBEE MEDICAL AWARD** established by the late Mrs. May D. Carbee in memory of her husband, Moses Dyer Carbee, M.D., of the class of 1873, to be given to the senior in the College of Medicine who has shown the greatest proficiency in the field of Obstetrics.
- CARPENTER GERMAN AWARD** in honor of Professor Fred D. Carpenter, given annually to the student who has shown the most progress and improvement in the study of German during the first two years.
- CARPENTER TENNIS AWARD** presented in appreciation of Professor Fred D. Carpenter's service as coach of the tennis team and as a member of the Athletic Council, to the member of the varsity tennis squad who has demonstrated the greatest degree of progress in tennis proficiency during the season.
- UNIVERSITY OF VERMONT CENTURY CLUB AWARD FOR SCHOLARSHIP** to the graduating student in the College of Medicine who has attained the highest scholastic rank in his class during the four years.
- UNIVERSITY OF VERMONT CENTURY CLUB AWARD FOR UNDERGRADUATE RESEARCH** for excellence in conducting an independent research project.
- CHEMICAL RUBBER COMPANY ACHIEVEMENT AWARDS** to each of the highest ranking students in the beginning courses in chemistry, mathematics and physics.
- CONVERSE AWARDS**, established by John Heman Converse, 1861, to outstanding students in the Department of Commerce and Economics.
- CORSE TRAVELING FELLOWSHIP** established by Frederick M. Corse, Class of 1888, to a Bachelor of Arts graduate having a language major and preparing for a career in college teaching.
- FAYE CRABBE AWARD** established in honor of Faye Crabbe by the alumnae and faculty of the University of Vermont School of Nursing, awarded to the senior majoring in nursing who has excelled in scholarship, nursing ability, and service to the University.
- CRAIG TROPHY** donated by Major M. E. Craig in honor of the 1936-37 Rifle Team, has each year engraved upon it the name of the man making the highest cumulative score through the year in the principal matches in which the rifle team competes.
- DAUGHTERS OF FOUNDERS AND PATRIOTS OF AMERICA AWARD** to the ROTC cadet of the junior class for outstanding ROTC academic achievement.
- EMERSON AWARD IN HISTORY**, in memory of Samuel Franklin Emerson, Professor of History for forty-two years, awarded to an undergraduate for the best essay on any topic chosen from any field of history.
- GOLDBERG AWARD** by Phi Chapter of Phi Sigma Delta Fraternity to a senior man who plans on graduate work and has excelled in scholarship, intramural athletics, and contribution to University life.
- HAMILTON WATCH COMPANY AWARD** to the senior engineer who has most successfully combined proficiency in his major field of study with notable achievements in the social studies and humanities.
- HOWARD AWARDS**, established by a bequest from Mrs. Hannah T. Howard, for students in the College of Arts and Sciences who have shown excellence in the work of the freshman year.
- ELWIN LEROY INGALLS AWARD**, established in 1934 to honor Elwin Leroy Ingalls, 1896, who had then completed twenty years of continuous service as State 4-H Club Leaders, to be given to a student outstanding in character, 4-H Club work, and scholarship.
- INTERFRATERNITY SCHOLASTIC CUP** for the fraternity having the highest scholastic average during the preceding semester.
- A. ATWATER KENT AWARD** to the student who has shown the most improvement in electrical engineering.
- LEWIS RALPH JONES AWARD** established in 1963 to be given to a student displaying outstanding proficiency in plant sciences.
- KIDDER MEDAL** established in memory of Dr. F. T. Kidder, 1880, a Trustee of the University, and supplemented by funds from the Kake Walk Dispositions Committee, to be awarded to the senior man ranking first in character, leadership, and scholarship.

- LAMB FOUNDATION ESSAY AWARDS to students in the College of Medicine showing greatest comprehension and appreciation of the doctor-patient relationship.
- ALEXANDER LAMPORT AWARD established in 1962 to be given to an outstanding student in Hebrew.
- ROBERT ASHTON LAWRENCE DEBATING AWARDS for students who exhibit the greatest proficiency in debate, established by Edwin Winship Lawrence, 1901, in memory of his brother, Robert Ashton Lawrence, 1899.
- ROBERT ASHTON LAWRENCE AND GEORGE EDWIN LAWRENCE DEBATING AWARDS to the four students of the University of Vermont and/or Middlebury College showing the greatest proficiency in a joint debate between the two institutions; these awards established by Edwin Winship Lawrence, 1901, in memory of his brother, Robert Ashton Lawrence, 1899, and his father, George Edwin Lawrence (Middlebury College, 1867).
- EDMUND F. LITTLE CUP, established by Arlington, P. Little, 1901, to the outstanding student in mechanical engineering.
- ELIZABETH C. LISMAN MEMORIAL AWARD, established in 1962 by Louis Lisman and others, in memory of his wife, to be presented annually for outstanding participation in group discussion.
- MERCK CO. INDEX AWARDS for proficiency in chemistry to be given to the outstanding junior and the outstanding senior.
- HELAINÉ MESCH MEMORIAL AWARD given annually by the Class of 1961 to the most deserving senior in the College of Medicine, to be selected by his classmates.
- MORTAR BOARD SCHOLARSHIP CUP to the women's residence hall attaining the highest scholarship average for the first semester.
- OMICRON NU CUP to the student in home economics who attains the highest scholastic average during her freshman year.
- OUTING CLUB SKI TROPHY to the member of the varsity ski team showing outstanding leadership, character, and athletic attainment in skiing during the past year.
- PANHELLENIC CUP awarded to the sorority with the highest scholastic average.
- PANHELLENIC PLAQUE awarded to the sorority whose scholastic average shows the greatest improvement in the fall semester.
- COMPANY L-12 PERSHING RIFLES TROPHY to the ROTC platoon adjudged to be the most proficient during the year.
- PHELPS AWARD established by Edward J. Phelps in memory of his son, Edward Haight Phelps, 1872, to be given annually to an outstanding senior in civil engineering.
- PHI BETA KAPPA AWARD to the student in the humanities with the highest standing at the end of the first three semesters.
- PROFESSOR OF MILITARY SCIENCE AWARD for cadets of the senior class who have made outstanding contribution to the ROTC program.
- RETIRED OFFICERS' ASSOCIATION (GREEN MOUNTAIN CHAPTER) AWARD to the sophomore cadet who has contributed the most to the ROTC program.
- INSTITUTE OF RADIO ENGINEERING AWARD to the student member who has shown the greatest professional development, accomplishment, and interest in the activities of the student branch.
- COLONEL WADSWORTH RAMSEY-SMITH AWARD to the outstanding senior cadet of the ROTC. This was established by Mrs. Ramsey-Smith in honor of her husband.
- FREEMAN M. SALTUS AWARD established in 1956 to be given to a student writing an outstanding essay on labor and/or economics.
- SEMANS TROPHY, presented by the local chapter of Tau Epsilon Phi Fraternity in memory of Henry Semans, 1924, awarded annually to a senior showing outstanding qualities of leadership, loyalty and service to the University, active participation in athletics, and winning the respect and regard of his fellow students.

- UNIVERSITY RESEARCH CLUB AWARD to the undergraduate submitting the best research paper to the Research Club.
- SERGEANT'S MEDAL to the outstanding ROTC cadet in the junior class in leadership and drill proficiency.
- SEYMOUR HORTICULTURAL AWARD established by William W. Seymour in memory of his father, Henry E. Seymour, 1835, for the senior who has done the best work in original horticultural research.
- MARY JEAN SIMPSON CUP to the senior woman who best exemplifies the character, service, and constructive influence which Dean Simpson strove to develop in undergraduate women.
- KIRBY FLOWER SMITH LATIN AWARD, established as a memorial to Kirby Flower Smith, 1884, by his wife, for the student having the highest standing in second-year college Latin.
- MASTER SERGEANT JOEL SURRELL RIFLE TEAM TROPHY for the member of the ROTC Rifle Team who has the highest average for the season.
- LA SOCIETE DES 40 HOMMES ET 8 CHEVAUX AWARD to the Army ROTC cadet in the senior class for the highest academic achievement through the advanced course and who intends to accept a Regular Army Commission.
- SONS OF THE AMERICAN REVOLUTION AWARD to the ROTC cadets of the sophomore and freshman classes for their outstanding character, conduct, leadership and practical knowledge of the year's course.
- STROH TROPHY, named for Charles Stroh, 1934, awarded annually to the member of the baseball team who achieves the highest total of runs-batted-in during scheduled games each year.
- SUNDERLAND MEMORIAL TROPHY awarded to the senior man who has best exemplified those qualities of character, leadership, and persistence in overcoming obstacles which were outstanding traits in the life of Russell O. Sunderland, 1938.
- TAU BETA PI AWARD for the sophomore in engineering who has achieved the highest scholastic average for the first three semesters.
- SOCIETY OF UVM CHEMISTS AWARDS for excellence in general freshman chemistry.
- THOMAS TROPHY for the senior student in agriculture who most closely exemplifies the character of John M. Thomas.
- UNITED BUSINESS EDUCATION ASSOCIATION AWARD for outstanding achievement in business education.
- VERMONT CERTIFIED PUBLIC ACCOUNTANTS AWARD for the outstanding student in accounting.
- VETERANS OF FOREIGN WARS AWARD to the most proficient member of the freshman ROTC class.
- DR. FREDERICK ARNOLD VINTON AWARD established in 1952, for a student displaying proficiency in Latin or Greek.
- THE GEORGE H. WALKER DAIRY AWARD established by George H. Walker, one of the founders of the Walker-Gordon Milk Company, to be awarded to an outstanding senior in dairy studies.
- WALL STREET JOURNAL AWARD to the senior who shows the greatest proficiency in the field of finance.
- WASSON ATHLETIC AWARD established by Mrs. Pearl Randall Wasson in memory of her husband, Dr. Watson L. Wasson, 1901, for the member of the senior class who has maintained the highest standard of academic scholarship and athletic attainment.
- WIRTHMORE 4-H AWARD to a freshman 4-H member who has done outstanding work in 4-H dairy or dairy feeding projects.
- WOODBURY MEDICAL AWARDS established by Mrs. Pauline S. Woodbury in memory of her husband, Dr. Urban A. Woodbury, 1859, for a senior in the College of Medicine showing the greatest proficiency in the clinical subjects in his senior year; and to a sophomore in the College of Medicine who has received the highest standing of the class in all subjects of the freshman and sophomore years.

General Index

- Academic Calendar, 252
Academic Discipline, 51
Accounting, 74, 133
Accreditation, iii
Administrative Council, 2
Administrative Personnel, 2
Admission, 44
 Graduate College, 98
 Medical College, 108
 Requirements, 44
Advanced Placement, 46
Advanced Standing, 45
Agricultural Biochemistry, 114
Agricultural Economics, 59, 115
Agricultural Education, 59, 117
Agricultural Engineering, 144
Agricultural Experiment Station Staff, 17
Agricultural Extension Service Staff, 19
Agriculture and Home Economics, College of,
 25, 57
Agronomy, See Plant and Soil Science
Aid, Financial, 37, 50, 237
Alumni Council, 216
Animal and Dairy Science, 60, 118
Animal Pathology, 120
Anthropology, 71, 207
Applied Music, 48, 184
Area Studies, 76
Art, 120
Artists Series, 33
Arts and Sciences, College of, 24, 68
Associates, List of, 15
Athletic Fee, 48
Athletics, 40
Auditing Courses, 54

Banking, 73, 130
Banking Facilities, 50
Billings Center, 39
Bills, Payment of, 49, 50
Biochemistry, Agricultural, 114
Board Charges, 48
Board of Trustees, 1
Botany, 60, 70, 122
Buildings, 28

Business Administration, 73
Business Education, 84, 140

Calendar, 252
Campus and Buildings, 28
Center for Area Studies, 76
Chemistry, 70, 89, 124
Civil Engineering, 92, 145
Class Organizations, 43
Classics, 127
Clothing and Textiles, 65, 173
College Entrance Examinations, 45
Colleges and Curricula, 24, 57, 68, 78, 80, 89, 98,
 108
Commerce and Economics, 72, 130
Commissions Conferred, 235
Committees, University, 22
Conferences, 34, 112
Correspondence, vii
Counseling, 36
County Agents, 20
Courses of Instruction, 113-215
 See entries by departments
Curricula, 24, 58, 68, 79, 82, 89, 109

Dairy Industry, 60
Dean's List, 55
Debating, 42
Deferred Payment, 49
Degrees Awarded, 222
Degree Requirements, 55
Dental Hygiene, 136
 School of, 27, 45, 78
Deposits, 47
Discipline, Academic, 51
Dining Halls, 35
Doctoral Programs, 98, 104
Dormitories, see Residence Halls
Dramatics, 42, 71

Economics, 70, 133
Economics, Agricultural, 59, 115
Economics, Commerce and, 72, 130
Education, 137
 See entries under specific headings

- Education, Agricultural, 59, 117
 Education and Nursing, College of, 26, 80
 Electrical Engineering, 93, 149
 Elementary Education, 81, 139
 Emeriti, 3
 Employment, 37
 Engineering, see special headings, 90
 Engineering Experiment Station Staff, 18
 English, 70, 155
 English, Use of, 52
 Enrollment, 45, 54
 Enrollment Statistics, 219
 Entrance Examinations, 45
 Entrance Requirements, 44
 Evening Division, 111
 Expenses, 47-49
 Experiment Station Staff, 17
 Extension Courses, 111
 Extension Education, 98, 111
 Extension Service Staff, 19

 Faculty, List of, 4
 Family Living, 66, 172
 Fees, 47-49
 Fellowships, 105
 Finance, 73, 130
 Financial Aid, 37, 50, 105, 237
 Fine Arts Festival, 42
 Fifth Year Certificate, 81, 98
 Fleming Museum, 32
 Food and Nutrition, 66, 174
 Foreign Agricultural Economics, 60
 Forest Management, 64
 Forestry, 63, 159
 Forestry Summer Program, 48, 57, 65
 Fraternities and Sororities, 41
 French, 203

 General Information, 51
 General Literature, 161
 Geography, 70, 161
 Geology, 70, 163
 German, 70, 166
 Government, 196
 Government Research Center, 77
 Grades, and Reports, 55
 Graduate College, 26, 98
 Graduate Fellowships, 105
 Graduate Record Examination, 99
 Graduates, 1965, 222
 Greek, 70, 127

 Health Insurance, 54
 Health Services, 37
 Hebrew, 167
 History, 70, 168
 Home Economics, 57, 65, 171
 Home Economics Education, 65, 172
 Home Economics Seminars and Research, 176
 Home Management, 171
 Honorary Degrees, 235

 Honorary Societies, 40
 Honors, 55, 58
 Honors, Special, 75
 Horticultural Science, See Plant and Soil Science
 Housing, 35

 Industrial Management, 73, 132
 Infirmary, 37
 Institutes, 112
 Institutional Management, 175
 Insurance, 54, 130
 Intramural Sports, 40
 Italian, 205

 Junior Year Study Abroad, 76

 Kake Walk, 41

 Lane Artists Series, 33
 Latin, 70, 128
 Liberal Arts Curriculum, 68
 Libraries, 32
 Library Fee, 48
 Library Fellows, 43
 Literature, General, 161
 Living Accommodations, see Residence Halls
 Loan Funds, 238

 Management Engineering, 94
 Marketing and Merchandising, 73, 131
 Master's Degree Program, 98, 102
 Mathematics, 70, 95, 176
 Matriculated Students, 45
 Mechanical Engineering, 93, 152
 Medical Scholarships, 110, 241
 Medical Student Fees, 49
 Medical Technology, 95, 181
 Medicine, College of, 26, 31, 108
 Men's Residences, 36
 Merchandising, 73, 131
 Military Science, 52, 182
 Museum, 32
 Music, 70, 183
 Musical Activities, 41
 Music Education, 84, 140

 Non-matriculated Students, 45
 Numbering of Courses, 113
 Nursing, 86, 186

 Officers
 of the Board, 2
 of Administration, 2, 15
 of Instruction, 3
 Optometry, 74
 Orientation Program, 46

 Payment of Bills, 49, 50
 Personnel, Management, 132
 Personnel, Student Services, 36
 Personnel, University, 1

- Pharmacy, 74
 Philosophy, 71, 187
 Philosophy and Objectives, iv
 Physical Education, 54, 85, 189
 Physics, 71, 96, 190
 Placement, 37
 Plant and Soil Science, 61, 194
 Political Science, 71, 196
 Poultry Science, 61, 199
 Predentistry, 74
 Prelaw, 74
 Preliminary Registration Program, 46
 Premedicine, 74
 Preprofessional Preparation, 74
 Pretheology, 74
 Preveterinary, 62
 Psychology, 71, 200
 Publications, Student, 42

 Radio Workshop, 42
 Reading Center, 37
 Refunds, 49
 Regional Cooperation, 27
 Related Art, 174
 Related Services Staff, 18
 Religion, 71, 187
 Religious Life, 38
 Reports, Scholastic, 55
 Residence Halls, 35
 Resident Student, 51
 Romance Languages, 71, 203
 Room and Board, 35, 48
 ROTC, 52, 182
 Russian, 207

 Scholarships, 50, 53, 110, 237
 Scholarship Funds, 237
 Secondary Education, 82, 139
 Social Work, 173
 Sociology and Anthropology, 71, 207
 Sororities, 41
 Spanish, 205
 Special Honors, 75
 Special Students, See Non-matriculated

 Speech, 71, 209
 Speech Clinic, 37
 Student Activities, 38
 Student Activity Fee, 48
 Student Association, 39
 Student Court, 39
 Student Employment, 37
 Student Life, 35
 Student Organizations, 39
 Student Personnel Services, 36
 Student Publications, 42
 Student Teaching, 83
 Study Abroad, 76
 Summer Session, 111

 Technology, College of, 26, 89
 Television, 42
 Time payment, 49
 Transcripts, 56
 Transfer Students, 45
 Trustees, 1
 Tuition, 47

 University Committees, 22
 University Extension, 111
 University Library, 32
 University Responsibility, 54
 Use of English, 52
 UVM, Meaning of, iii
 UVM Student Association, 39

 Vermont Resident Defined, 51
 Veterans Education, 37

 Wilbur Fund, 237
 Wildlife Science, 64, 160
 Women's Residences, 35
 Women's Student Government Association, 39
 World Affairs Center, 77
 World Problems, 212
 WRUV, 42

 Zoology, 71, 213

V Academic Calendar

Spring Semester 1966

January	18	Tuesday	Registration
January	19	Wednesday	Classes begin
February	25-26	Friday-Saturday	Kake Walk Recess
March	12	Saturday	Grade reports
March 21, Monday,			
through March 25, Friday			
and April 4, Monday,			
through April 15, Friday			Enrollment for Fall Semester
March	28	Monday	Spring Recess begins 8:00 a.m.
April	4	Monday	Classes resume, 8:00 a.m.
May	2	Monday	Honors' Day, no classes 10:00 a.m. to 1:00 p.m.
May	9	Monday	Examinations begin
May	17	Tuesday	Examinations end
May	22	Sunday	Commencement

Summer Session

June	20	Monday	Eight weeks session begins
July	5	Tuesday	Six weeks session begins
August	12	Friday	Eight weeks session ends
August	16	Tuesday	Six weeks session ends

Fall Semester 1966

September	6	Tuesday	Registration
September	7	Wednesday	Classes begin
October	29	Saturday	Grade Reports
October 31, Monday,			
through November 18, Friday			Enrollment for Spring Semester
November	24-26	Thursday-Saturday	Thanksgiving Recess
December	12	Monday	Examinations begin
December	20	Tuesday	Examinations end

Spring Semester 1967

January	17	Tuesday	Registration
January	18	Wednesday	Classes begin 8:00 a.m.
February	17-18	Friday-Saturday	Kake Walk Recess
March	11	Saturday	Grade Reports

March 20, Monday, through
 March 24, Friday
 and April 3, Monday,
 through April 14, Friday

March 27 Monday

April 3 Monday

May 1 Monday

May 8 Monday

May 16 Tuesday

May 21 Sunday

Enrollment for Fall Semester

Spring Recess begins, 8:00 a.m.

Classes resume, 8:00 a.m.

Honors' Day, no classes 10:00 a.m. to 1:00
 p.m.

Examinations begin

Examinations end

Commencement

