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1970

College Catalog, 1970-1971, Graduate

Buffalo State College

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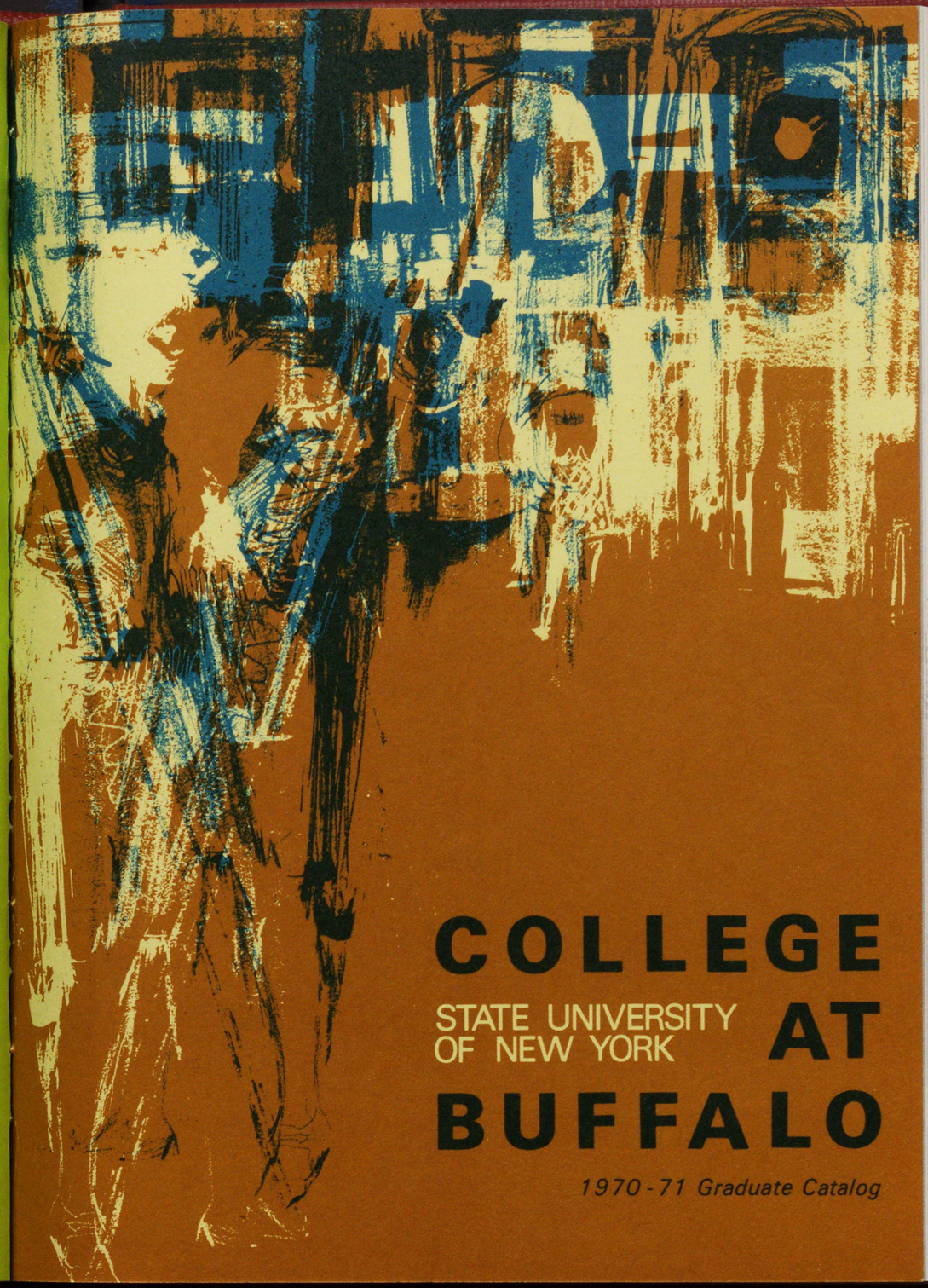
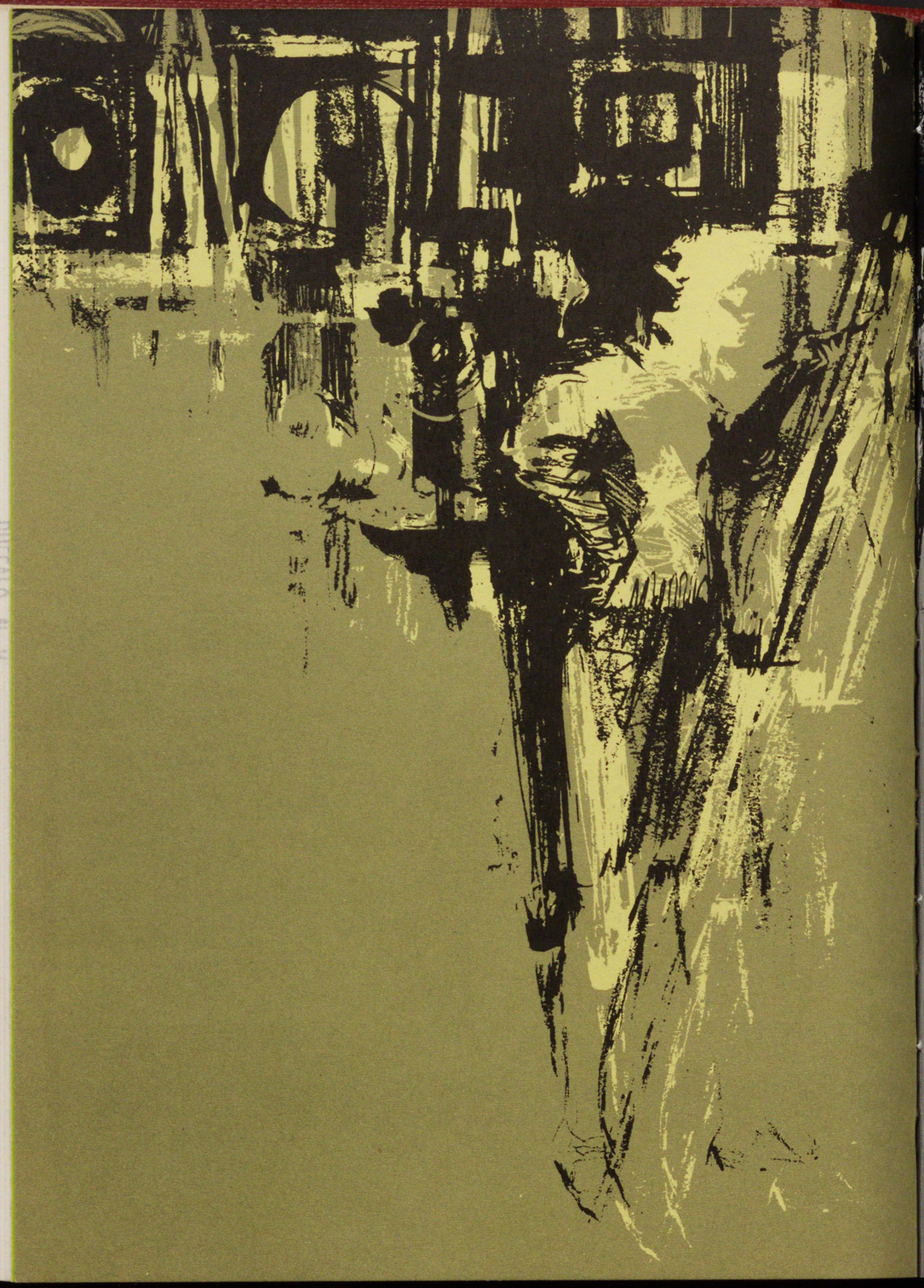


COLLEGE AT BUFFALO

STATE UNIVERSITY OF NEW YORK

1970-71 Graduate Catalog

STATE UNIVERSITY OF NEW YORK
LET EACH BECOME ALL HE IS CAPABLE OF BEING
1948



STATE UNIVERSITY
OF NEW YORK

COLLEGE AT BUFFALO

1970-71 Graduate Catalog

BUFFALO, N.Y.
STATE UNIVERSITY COLLEGE

GRADUATE CALENDAR FOR 1970 - 71

Fall Semester—1970

September 12 Saturday, Registration, Moot Hall 8:30 A.M. - 1:00 P.M.

D-G	8:30- 9:00	S	10:30-11:00
H-K	9:00- 9:30	T-Z	11:00-11:30
L-M	9:30-10:00	A-C	11:30-12:00
N-R	10:00-10:30		

September 14 Monday, Instruction Begins
November 25 Wednesday, Last Day of Classes Before Thanksgiving Recess
November 30 Monday, Classes Resume
December 23 Wednesday, Semester Ends

Spring Semester—1971

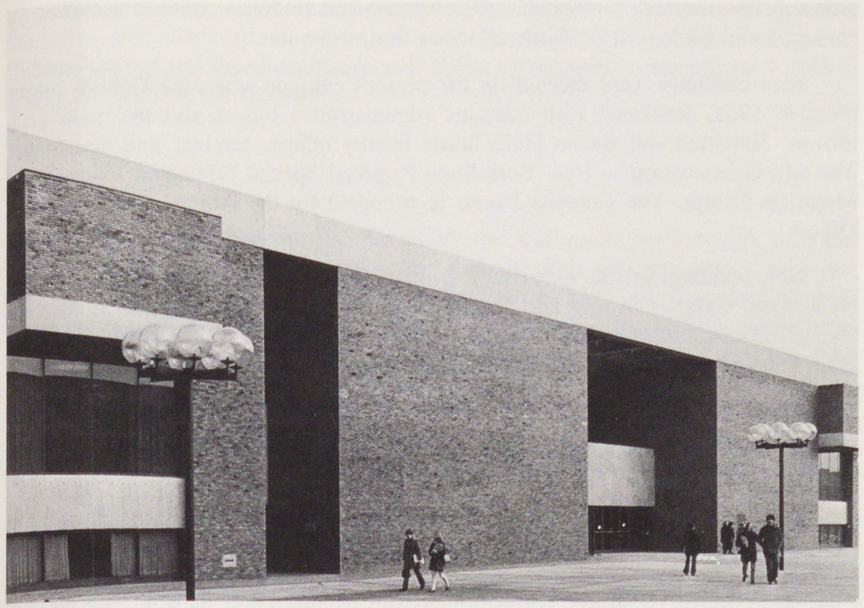
January 16 Saturday, Registration, Moot Hall 8:30 A.M. - 1:00 P.M.

H-K	8:30- 9:00	T-Z	10:30-11:00
L-M	9:00- 9:30	A-C	11:00-11:30
N-R	9:30-10:00	D-G	11:30-12:00
S	10:00-10:30		

January 17 Sunday, Midyear Commencement
January 18 Monday, Classes Begin
April 8 Thursday, Last Day of Classes Before Spring Recess
April 19 Monday, Classes Resume
May 8 Saturday, Semester Ends
May 16 Sunday, Commencement

Summer Session—1971 Day and Evening Classes

First Session Monday, June 7—Friday, July 16
Middle Session Monday, June 28—Friday, August 6
Last Session Monday, July 19—Friday, August 27
Post Session Monday, August 9—Friday, August 27



THE COLLEGE

The State University of New York College at Buffalo, established and maintained by the State of New York, is under the jurisdiction and control of the State University Board of Trustees, the Chancellor of the State University, and the Local Council of the College.

The Campus and Buildings

The College has an urban setting of 110 acres on Elmwood Avenue in the Delaware Park area of the second largest city in the Empire State. This location, at the hub of a varied complex of arterial expressways leading to all sections of Buffalo, nearby counties and other areas of the State, gives ready access to the cultural, historical and scientific facilities which surround the campus.

In addition to the campus site on Elmwood Avenue, the College also operates the Great Lakes Laboratory on a nine acre site at the foot of Porter Avenue. The Laboratory is less than seven minutes from the State College Campus via the

Niagara Thruway. A renovated 2,200 square foot building contains facilities for chemical and biological analyses of water and sediments.

Five buildings were erected on the present campus when the College moved there in 1931. Rockwell Hall contains administrative offices and the main auditorium. Ketchum and Bacon Halls house faculty offices, seminar and classrooms. The Old Gym contains a New York State Regional Special Education Instructional Materials Center. The Campus House is occupied by the Alumni and Placement Offices.

New buildings are the Edward H. Butler Library, Student Union, New Science, New Gym, Campus School and Communication Center. Caudell Hall houses the Caudell Division; Upton Hall contains the Arts and Industrial Arts Divisions; Moot Hall houses dining facilities and Albright Hall houses the Music Department.

Chase, Cassety and Perry Halls contain faculty offices. Bishop and Neumann Halls, High Rise, North Wing, South Wing, Scajaquada Halls and Towers, furnish resident accommodations for men and women.

Library

The new Edward H. Butler Library opened in August 1969. It is air-conditioned, covers 450,000 square feet, has open stacks for 500,000 volumes, and can seat 1,400 readers.

At present the collection numbers 250,000 books and bound periodicals, 2,500 current periodical-titles, 8 U.S. and 13 foreign newspapers. In addition, there are newspapers for primary research: 10 titles on microcards and 18 titles on microfilm, with a few complete to date, e.g. *New York Times* from 1851 to the present.

The Library owns a complete set of ERIC microfiche, with indexes, and Early American Imprints, indexed in Evans, *American Bibliography*.

There is a Curriculum Laboratory on Floor II which contains a special college collection for scholarly research in children's literature. The Lois Lenski collection is the second largest of six major collections in the United States.

The Music Room on Floor II is equipped with listening facilities for music, language and literature, and tapes of academic interest.

The Dr. F. E. Fronczak Room on Floor II is a depository of documents and materials on Polish immigration and Polish history. A cultural exhibit will be on permanent display.

The Creative Studies Library, containing books, course outlines, articles and pamphlets, and dissertations on microfilm in the areas of creativity, intelligence, problem-solving and the thought process, is one of the most comprehensive collections in America on the subject.

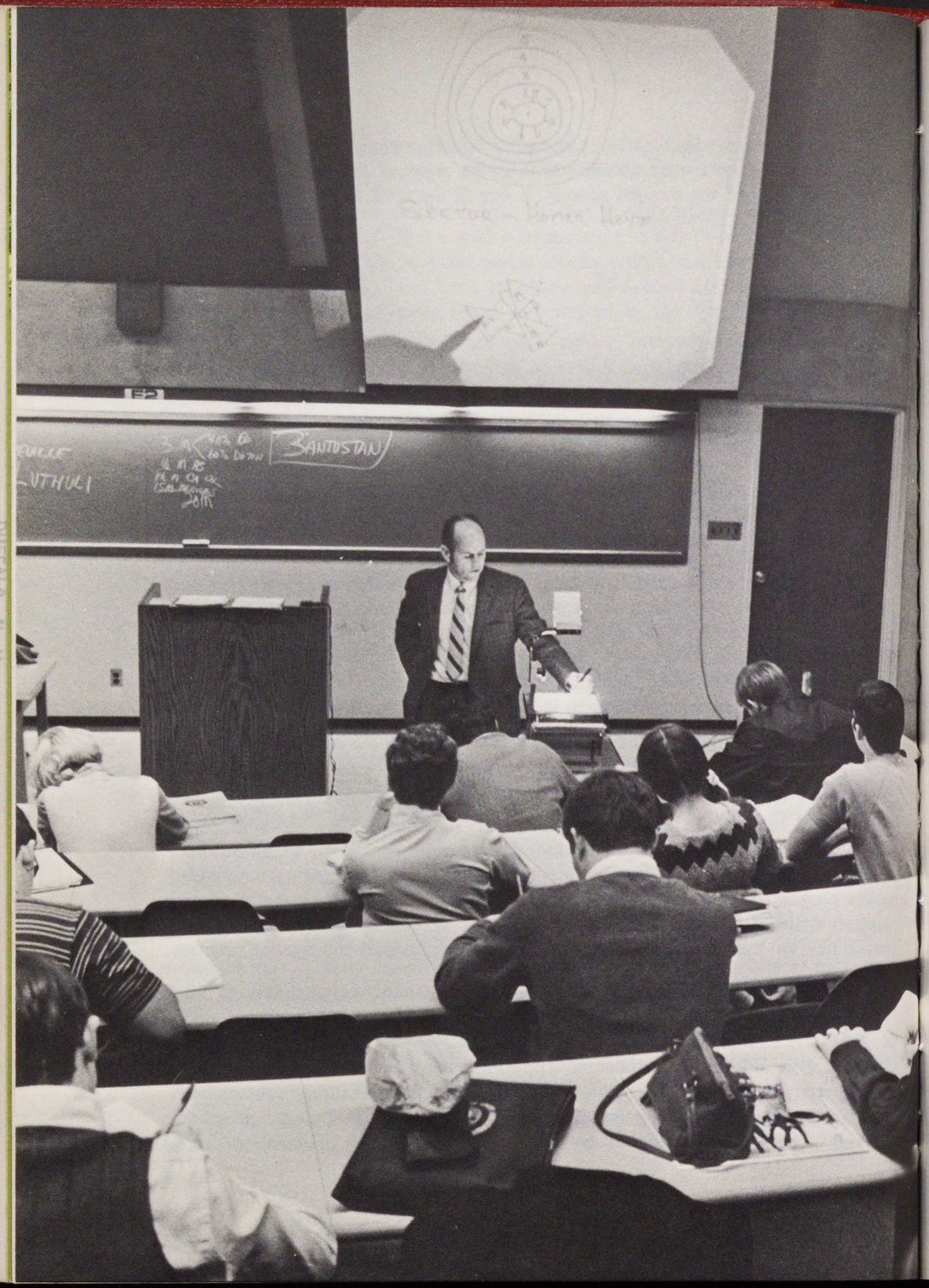
Creative Studies

The Creative Studies program is offered by the College in conjunction with the Creative Education Foundation offices on campus. It is concerned with an interdisciplinary, inter-institutional effort to conduct basic and applied research regarding the nature and nurture of creative behavior, to translate the findings into educational programs, and to field-test and disseminate the resultant materials. The purpose of the program and the Foundation is thus to increase the degree to which education cultivates creative potential in our society. It is concerned with the problem of helping people to interrelate the diverse knowledge they acquire so as to discover greater meaning and potential use for it.

As programs and materials growing out of the research are developed and substantiated, they are disseminated on a nationwide basis. Demonstrations are provided on the details of the educational programs which prove most successful. Demonstration classes, workshops, seminars and other formal instruction relating to the programs are offered, including two inter-departmental graduate courses during the summer session: Workshop in Nurturing Creative Behavior and Seminar in Creative Studies. In addition, a one-week Creative Problem-Solving Institute is offered each June.

The programs are designed for those concerned with nurturing creative thought and behavior in their classrooms or organizations. They are appropriate for all levels of educators, training and development personnel, administrators, managers and supervisors. Appropriate sub-sections and groupings are provided within program sections. Programs bring to the educator or manager the latest research findings and developments in the study of creative behavior, and help enable him to translate these findings into educational and managerial practice.

A speakers' bureau is provided. Bibliographies, reviews, and abstracts covering the nation's research and development activities on creativity (completed or in progress) are circulated via the *Journal of Creative Behavior* and other publications of the Creative Education Foundation. The comprehensive Creative Studies Library and Seminar Room in the Curriculum Laboratory of Butler Library contain book collections, microfilms of dissertations, articles, abstracts, clippings, programs, tapes and other curriculum materials.



GRADUATE CURRICULA

Graduate courses lead to the Master of Science in Education degree with majors in Art Education, Secondary Education, Elementary Education, Elementary Administration or Supervision, Exceptional Children Education, Home Economics Education, Industrial Arts Education, and Vocational Technical Education. Guidance and Student Personnel programs are being planned.

The Master of Arts degree is offered in Biology, Chemistry, English, History, Mathematics and Philosophy. It is anticipated that a Master of Arts program in Physics will be added during the year.

The Department of Chemistry at State University College has American Chemical Society Accreditation and is listed nationally as one of only 227 out of a possible 2,500 departments of chemistry in the United States to receive this honor.

Class Schedules

Graduate students may register for courses in the late afternoon, evening and Saturday morning classes, and during the Summer Session in accordance with schedules issued by the Graduate Office. Some graduate courses may be scheduled during the day session.

Admission

Admission to this College and to all other colleges of the State University of New York is based on the academic qualifications of the respective applicant, and is made without regard to the race, color, creed, or national origin of individuals.

Applicants meeting the following requirements are eligible for admission to graduate degree programs:

1. An approved baccalaureate degree, i.e., one granted by a college or university which is accredited by an appropriate regional or national accrediting agency or by a State University.
2. An acceptable academic record. An applicant must present an official transcript showing the minimum cumulative average required by the degree program. The Master of Science degree in Education requires a minimum of 2.30 on a 4.00 scale. The minimum required in the Master of Arts degree programs varies with the program and is listed with the other program requirements in the curriculum section of this catalog.

3. Applicants for admission to degree programs in Education must present an acceptable teaching or professional employment record attested by a confidential statement from the administrator of the school or other institution wherein employed and recommendations concerning academic and personal qualifications supplied by three persons in a position to make valid statements.

   Students who are not admitted to degree programs will not be permitted to register for graduate courses.

Procedure Before Registration

1. Secure an Application for Admission blank from the Director of Graduate Studies.
2. Return application, with all data required, to the Graduate Office as early in the semester preceding first registration as possible. Applications will not be accepted after July 1 for the fall semester, November 1 for the spring semester and April 1 for the summer session.
3. Furnish the Graduate Office with an official transcript from the college which granted the bachelor's degree.
4. Scores for Graduate Record Examination, General Aptitude Test and Advanced Test in the major area are required for admission to the Master of Arts programs.

Registration

Preregistration materials will be mailed out each semester to active graduate students who have been registered during the previous year and to new applicants for the next semester. The mailing list is processed by computer and change of name, address, or program, or mechanical errors may result in an omission from the mailing list. Every effort will be made to include all active graduate students but there can be no guarantee that a student will be able to preregister. All those who cannot complete preregistration by mail must register in person on the regular registration day.

Admission To Full Graduate Status

Full graduate status is dependent upon: (a) completion of all credentials required for admission to Graduate Studies, and (b) approval of the Director of Graduate Studies and of the appropriate Dean, Division Director or Department Chairman.

Appointment Of An Adviser

An adviser will be appointed after graduate status is granted. Therefore, the

student should complete credentials and secure full graduate status as soon as possible after application for admission to Graduate Studies is filed.

Admission To Candidacy

Filing an application for admission to candidacy for the master's degree is the personal responsibility of each student after he has completed a minimum of six hours. At the completion of *twelve* semester hours of graduate work, he *must* apply for candidacy *or* file with the Director of Graduate Studies a statement that he does not intend to become a candidate for a degree. If, subsequently, he decides to file for candidacy, he must, at that time, have an evaluation made of all work completed for the purpose of formulating a program leading to the master's degree. Admission to Candidacy depends upon:

1. A cumulative average of B or better in *all* courses taken for graduate credit. No work of D grade will be accepted.
2. A recommendation from the adviser of the candidate to the Director of Graduate Studies.
3. The Graduate Record Examination Aptitude Test is required at this point, if not already taken for admission. Information on the Graduate Record Examination may be secured at the Graduate Office.

Requirements For Master's Degree

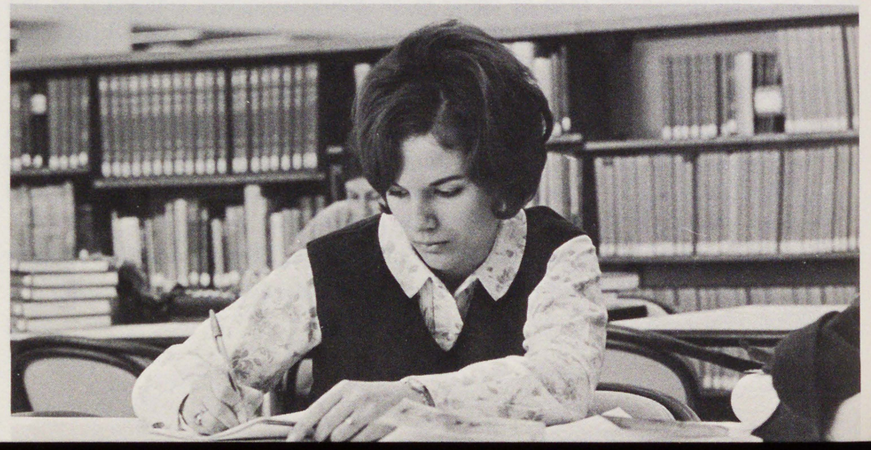
1. Completion of a thirty semester hour program of graduate courses. The master's program permits a maximum of twelve hours in 400-level courses, usually in elective areas. Requirements in major areas must be taken in 500- 600- or 700-level courses. A graduate student must consult with his division director or department chairman before registering for a 400-level course in his major area.
2. A cumulative average of B or better in *all* graduate courses completed in this College. Some programs may require a minimum average in the subject area. Not more than nine hours of C, and no work of D grade, will be accepted toward the master's degree.
3. Completion of residence requirements. A course shall satisfy the requirements for residence if it is offered on the campus, within the City of Buffalo, at the College Camp, or at a branch established by the College. Residence credit may be granted for courses completed at another unit of the State University.
   A. For a graduate of this College—a minimum of twenty hours *in residence* is required out of the total thirty.

B. For graduates of another college—a minimum of twenty-four credit hours in residence is required out of the total thirty.

4. Non-resident credit. Non-resident credit is defined as transfer credit earned at another college or university or credits earned in off-campus courses in this College. Transfer credits can be accepted for courses taken at another college:
   A. If they are evaluated as being equal in scope and content to those offered by this College.
   B. If they form a coherent part of the required program of study.
   C. If they have been completed within seven years prior to registration at this College.
   D. If they are of A or B grade. Credits earned at another college with grades of C or D are not accepted for transfer to this College. Transfer credits are not included in the cumulative average.
5. Completion of all course work within six years of registration in first course.
6. Student must file an application for the degree immediately after registration in the last course or last semester.

Maximum Student Load

A. Students holding full-time teaching positions are limited to a maximum of six credits per semester, or nine credits per academic year.
B. During Summer Session, students are permitted to earn a maximum of one credit per week of attendance, that is, two credits for a two-week program; three credits for a three-week program; six credits for a six-week program, etc.
C. Maximum load for full-time students is twelve hours per semester.
D. No credit will be granted toward a degree for work taken beyond these limits at this College or elsewhere.



GRADUATE ACADEMIC REGULATIONS

Attendance Regulations

Attendance regulations are established by each instructor for his section(s) and must be distributed to his classes at the beginning of each semester or summer session. Students are responsible for knowing and observing the regulations.

Withdrawal From Courses

Dropping a course means cancelling registration in one or more courses but short of full withdrawal from the College. A student may drop a course before the end of the first half of a course and receive a "W" for that course, provided that he has consulted with the instructor concerned. A student who drops a course after the end of the first half of a course will receive the grade of "E" for that course. If a student does not process an official drop and fails to continue with the course, his grade will be "E."

An exception may be made for unusual circumstances beyond the control of the student. In such cases the student may petition the appropriate Dean in whose division the course is being offered for permission to drop the course without penalty. After the Dean consults with the instructor involved he may or may not approve the dropping of the course. If he approves, a "W" will be entered on the record.

Grading System

A	4 quality points	E	0 quality points
B	3 quality points	I	No points, work incomplete
C	2 quality points	W	Official withdrawal
D	1 quality point		

Incompletes

1. An instructor may grant a status of "incomplete" only when:
   A. The circumstances which have led to a student's failure to complete course requirements are known to be beyond the student's control, viz., serious illness, unavailability of material, has been planned for educational reasons etc.
   B. Chairman/Director of department/division involved has received notice of granting of incomplete containing a brief description of nature of unfinished work.

2. An "incomplete" must be made up within the following semester, not including the summer session.
3. The Registrar is authorized to record a grade of E for a student who has not, within the stipulated time period, fulfilled course requirements.
4. In the event the Instructor who had granted an "incomplete" is not available to evaluate the work done by the student in fulfillment of course requirements during the stipulated time period, any recommendation for change from the "incomplete" to a letter grade may be made by the Chairman/Director of the absent Instructor.
5. Appeals from any of these regulations may be made through the Office of the Vice-President for Academic Affairs, the latter being empowered to issue waivers.

Cumulative Average

A cumulative average of "B" or better in *all* graduate courses completed at this College is required for the master's degree. The cumulative average is determined by dividing the total number of quality points earned by the total number of semester hours attempted. If a student has not earned a cumulative "B" average upon completion of the total semester hours required for his program, he *may* be permitted to enroll for additional courses to the maximum number of 6 semester hours to attempt to make up his deficiency.

Graduate Curricula Requirements

The present requirements for the master's degree in all divisions became effective September 1, 1969. All students who begin graduate work after that date will meet these requirements. Students who began graduate work prior to September 1, 1969 have the option of completing the requirements of the curricula in effect when they began or of completing the new requirements.

Course Numbering System

As of September 1, 1963 the course number system was revised as follows:*

400 courses—open to upper division undergraduate students and to graduate students if so designated in the catalog description or approved by Division Director or Department Chairman. Additional work is required for graduate credit.

500 courses—open to graduate students only.

*Prior to Sept. 1, 1963, all graduate courses were numbered 500 and were limited to graduate students only.

600 courses—open to graduate students only—generally limited to majors in the area or to others with sufficient preparation.

700 courses—advanced courses requiring greater preparation.

Credit and Eligibility

Credit hours for courses listed will be indicated only for special workshops and seminars or in laboratory courses. In all other cases, credit will be three semester hours in the summer session and two or three hours in fall and spring sessions. For exact credit to be earned, consult the fall, spring or summer session schedules.

Courses at the 400 level are listed only by number and title; course descriptions may be found in the general college catalog. Graduate students should consult their Division Director or Department Chairman before registering in 400 courses in their major area or in 400 courses not listed in the graduate bulletin. A maximum of twelve hours may be taken in the total master's program.

Eligibility for all graduate courses is determined by the instructor.

TUITION AND FEES

The State University of New York has authorized the collection of tuition and fees at a uniform rate. These are subject to change.

Fall and Spring Semesters

Graduate Students

Full-time Tuition	$300.00	per semester
College Fee	$ 12.50	per semester
Part-time Tuition	$ 20.00	per sem. hour
College Fee	$ .85	per sem. hour

Undergraduate Students

New York State Residents

Tuition	$ 13.50	per sem. hour
College Fee	$ .85	per sem. hour

Out-of-State Students

Tuition	$ 20.00	per sem. hour
College Fee	$ .85	per sem. hour

Summer Sessions

The schedule of tuition and fees listed above will also be in effect during the Summer Sessions plus the collection of a Student Activity Fee of $.25 per semester hour. Students whose entire summer session program will be off-campus are exempt from the Student Activity Fee.

Refunds

A student who is given permission to cancel his registration shall be liable for payment of tuition in accordance with the following schedule:

Liability During	*Semester*	*8-Week Term*	*6-Week Term*
1st Week	0	0	0
2nd Week	30%	60%	70%
3rd Week	50%	80%	100%
4th Week	70%	100%	
5th Week	100%		

FINANCIAL AIDS

A limited number of graduate assistantships are available in some of the Master of Arts programs. The applicant should write directly to the department chairman. Federal fellowships are available on a yearly basis in the Exceptional Education programs. Teacher Corps fellowships in Elementary Education are awarded on a biennial basis in even numbered years. New York State residents may be eligible for the Scholarship Incentive Awards or loans through the Higher Education Assistance Corporation.

Monsignor Bogacki Fellowship—This fellowship provides a $500 award annually for a student who has "evinced a sincere and serious interest in Polish culture or history, and who is or will become enrolled as a graduate student in Buffalo State College in a program with emphasis on Polish and East European studies and, if not then enrolled in a regular graduate program, has demonstrated an ability to handle successfully work in the areas of Polish culture and history." The fellowship will be awarded by the Committee on Soviet and East Central European Studies. Application is to be made to Dr. Walter M. Drzewieniecki, Chairman, Program in Soviet and East Central European Studies.

FACULTY OF THE ARTS

The Faculty of the Arts includes the departments of Art Education, Design, Fine Arts, Music, and Speech and Theatre Arts. The graduate degree program offered by the Faculty of the Arts is a Master of Science degree in Art Education. Graduate courses given by the Design, Fine Arts, Music, and Speech and Theatre Arts Departments may be elected to satisfy Arts and Sciences requirements in other graduate programs.

ART EDUCATION PROGRAM		*Credit Hours*
Design and Fine Arts courses		12-15
Dynamics of Teaching		3-6
Art Ed 510	Art Materials Workshop (3)	
Art Ed 601	Administration in Art Education (3)	
Art Ed 605	Seminar in Art Education (required for Master's Degree in Art Education) (3)	
Innovation Research		3-6
Art Ed 591 Design 591 Fine Arts 591	Special Research in (Specified Areas) (3-6)	
	Each candidate, after a conference with his adviser, must select one of the following requirements:	
Art Ed 602	Research Workshop in Art Education (3)	
Art Ed 690 Design 690 Fine Arts 690	Master's Project (3)	
Art Ed 695	Master's Thesis (6)	
Required Courses in Arts and Sciences		9-12
Unrestricted Electives		0-3
Total Requirements		30

Art courses at the 400 level may be taken for graduate credit under advisement.

ART EDUCATION DEPARTMENT

ART ED. 500. Art in the Elementary School
The use of art materials, processes, and procedures in the elementary school; individual experience in various media appropriate at different grade levels; consideration of the role of the classroom teacher in self-contained, supervised, or art specialist programs; related problems of the school curriculum. Elective for Elementary and Exceptional Children students.

ART ED. 501. Art for the Pre-School Child
The intellectual, emotional, physical, perceptual, and creative development of the young child from birth through the kindergarten; roles of parent and teacher in the creative growth of the child; implications for the choice of materials, processes, and procedures appropriate at the pre-school level. Elective for Elementary and Exceptional Children students.

ART ED. 510. Art Materials Workshop
Studio experiences in various materials appropriate for use with younger children under typical classroom situations; activities such as powder tempera painting, mural painting, simple screen printing, cardboard printing, clay modeling, frame weaving, stitchery, extra class studio hours. Elective for Art, Elementary, and Exceptional Children majors.

ART ED. 591. Special Research Study in Art Education
Research or investigation of a particular problem, to be planned and carried out by student; with consultation and advice from an instructor who agrees to supervise the study; aimed at making a general contribution to art as contrasted with personal improvement and understanding; reported in a document and/or exhibition. Specified area included in all college records.

ART ED. 601. Administration in Art Education
The role of the supervisor of art in relation of the community, school administration, classroom teacher, and special art teacher; functions of art consultant and special art teacher in elementary schools; preparing budgets, procuring equipment and ordering supplies; extra class reports and discussions.

ART ED. 602. Research Workshop in Art Education
Individual and group research in problems of art education; reports and discussions of current research activity in art education; techniques of research as applied to unique problems in art education and in evaluating the effects of unlike influences upon unlike individuals; extra class research problems.

ART ED. 605. Seminar in Art Education
Problems in teaching and supervising art in various types of communities and schools; contemporary philosophy, psychology, principles and practices in art and education; relationship of current research to programs, policies and procedures for the teacher and supervisor; extra class reports and discussions. Required of all Art Education majors.

ART ED. 690. Master's Project
A study undertaken by one or more individuals on a problem of special interest; aimed at making a special contribution to art education, as contrasted with normal class activity; may be presented, in part, as an exhibit of materials collected or prepared — including a major exhibit of art work related to study — with theories and findings reported to an acceptable form according to directions given by the Graduate Office.

ART ED. 695. Master's Thesis
An individual investigation of an original problem to be submitted in typewritten form according to directions given by the Graduate Division; representing a significant contribution to the literature of art or art education, acceptable to the student's adviser and chairman of the appropriate area of specialization. *Prerequisite:* Art Ed. 602.

DESIGN DEPARTMENT

DES. 511. General Crafts Workshop
Studio experience in various crafts suitable for both adult leisure-time activity and use with older children; individualized work in wood, metal, clay, textiles, leather, plastics, and other materials; designing for the crafts; visits to crafts exhibitions; extra class studio hours equal to class hours. Elective for all students, except Art majors. Art majors by advisement.

DES. 512. Design, Principles and Practices
A study of general design principles and applications for *non-art* majors; the elements of design in space organization; theoretical abstract and functional applications to individual plans and projects; tutorial relationship with instructor; extra class assignments, including studio hours equal to class hours. Elective for all students, except Art majors.

DES. 590. Special Project
Research or investigation of a particular problem, to be planned and carried out by student; with consultation and advice from instructor.

DES. 591. Special Research Study in (Specified Area) (3-6)
Research or investigation of a particular problem, to be planned and carried out by student; with consultation and advice from an instructor who agrees to supervise the study; aimed at making a general contribution to art as contrasted with personal improvement and understanding; reported in a document and/or exhibition. Specified area included in all college records.

DES. 592. Independent Studio in Design
Independent studio experience by a student, with consultation and advice from an instructor related to area of study who agrees to supervise the study; involving studio experiments and experiences not otherwise available in regular course offerings. Specified area included in all college records.

DES. 640. Graduate Studio in Design
The organization of space with paint and materials; the designed form in theoretical, abstract, and functional applications; designing for the home, commerce, industry, theater, crafts; tutorial relationship with instructor; extraclass assignments, including minimum studio hours equal to class hours.

DES. 641. Graduate Studio in Product Design
A concentrated study of product design, on an advanced level; functional and aesthetic problems in the design of useful products; experience with common and newly-developed materials; tutorial relationship with instructor; extraclass assignments, including minimum studio hours equal to class hours.

DES. 642. Graduate Studio in Wood Design
The designer-craftsman approach to advanced projects in wood; hand, power and machine tool practice; aesthetic and functional considerations in design; finishing methods, care of equipment; tutorial relationship with instructor; extraclass assignments, including minimum studio hours equal to class hours.

DES. 643. Graduate Studio in Textile Design
Advanced work in textile design and processes; weaving, printing, applique; traditional and experimental techniques; individual projects and explorations; studies of work of designer-craftsmen; tutorial relationship with instructor; extraclass assignments, including minimum studio hours equal to class hours.

DES. 644. Graduate Studio in Metalsmithing
Advanced practice in metalsmithing techniques; raising, forging, welding, riveting, casting, spinning, other forming methods; parallel studies of the work of leading designer-craftsmen; tutorial relationship with instructor; extraclass assignments, including minimum studio hours equal to class hours.

DES. 645. Enameling of Metal
Preparation and firing of enamels on metal; traditional and contemporary processes; champlevé cloisonné, basse tille, limoges, plique à jour, grisaille, experimental techniques; tutorial relationship with instructor; extraclass assignments, including minimum studio hours equal to class hours.

DES. 646. Graduate Studio in Jewelry
Practical and aesthetic aspects of jewelry design and construction; advanced experience in fabrication techniques, casting, gem polishing, and stone setting according to student experience level; tutorial relationship with instructor; extraclass assignments, minimum studio hours equal to class hours.

DES. 647. Casting Techniques in Jewelry
Preparing wax models, molds, burning out, and lost-wax casting of jewelry in silver and gold; utilizing the centrifugal casting machine; related steam casting, cuttlefish casting, open-mold casting, associated techniques, extraclass assignments, including studio hours equal to class hours.

DES. 649. Graduate Studio in Pottery
Creative problems in design for market production of pottery; practice in forming clay and plaster; mold and model making; slip and solid clay production; color, glaze, kiln operation; tutorial relationship with instructor; extraclass assignments, including minimum studio hours equal to class hours.

DES. 650. Graduate Studio in Graphic Design
Developing effective communications in illustration and design; realistic, experimental, and expressive approaches; preparation for single and multicolor reproduction; planning publications; tutorial relationship with instructor; extraclass assignments, including minimum studio hours equal to class hours.

DES. 651. Home and Community Design
Functional, aesthetic, geographic, economic, social and political factors affecting the design of home, school, and community; designing and redesigning homes; planning new cities and redeveloping older communities and facilities; extraclass assignments, including minimum studio hours equal to class hours.

DES. 652. Seminar Studio in Scenography
Advanced projects in stage design, with interim seminar discussions and project reports; historical research on stage design; integration of visual design components in contemporary productions; theoretical and practical applications of original designs; problems in the construction and painting of stage sets.

DES. 653. Seminar Studio in Light Design
Advanced experiments, research, and practice in light design, with integrated seminar discussions and reports on individual projects; theoretical and practical experience in the use of light as an art form; light as an aspect of theater design; practical experience in plays under production whenever possible.

DES. 655. Seminar Studio in Stage Costume
Costume design and construction for the stage; costumes from antiquity to the present day, with emphasis on the relationship between stage costume and theatrical style; research in costume, studio experience in creating costumes for particular periods and contemporary productions; seminar discussions.

DES. 656. Seminar Studio in Technical Production
Advanced research, studio practice, and integrated seminar reports on the visual aspects of the theater; historical research on stage machinery, stage crafts, and techniques: play production problems; investigation and experiments related to contemporary production problems and creative solutions.

DES. 657. Seminar Studio in Theater Planning
Integrated seminar and studio experiences in theater planning and architecture; educational, community, and professional theater problems; research and reports relative to theater organization and management; forces affecting actor-audience spatial relationships; historical and contemporary problems.

DES. 690. Master's Project
A study undertaken by one or more individuals on a problem of special interest; aimed at making a special contribution to design as contrasted with normal class or studio activity; may be presented, in part, as an exhibit of materials collected or prepared — including a major exhibit of design related to study — with theories and findings reported to an acceptable form according to directions given by the Graduate Office.

FINE ARTS DEPARTMENT

F.A. 513. Summer Art Camp
A resident summer art camp, emphasizing landscape painting in watercolor and oil, sketching in various media; work in other media with approval of instructor; critiques, demonstrations, discussions; location, travel, food and housing arrangements, and cooperating organizations to be announced.

F.A. 590. Special Project
Research or investigation of a particular problem, to be planned and carried out by student; with consultation and advice from instructor.

F.A. 591. Special Research Study in Fine Arts
Research or investigation of a particular problem, to be planned and carried out by student; with consultation and advice from an instructor who agrees to supervise the study; aimed at making a general contribution to art as contrasted with personal improvement and understanding; reported in a document and/or exhibition. Specified area included in all college records.

F.A. 592. Independent Studio in Fine Arts
Independent studio experience by a student, with consultation and advice from an instructor related to area of study who agrees to supervise the study; involving studio experiments and experiences not otherwise available in regular course offerings. Specified area included in all college records.

F.A. 610. Graduate Studio in Drawing
Individual concentration in drawing for advanced students; emphasis on growing facility of expression, application to painting and graphic arts; tutorial relationship with instructor; use of model; related study and gallery visits; extraclass assignments, including minimum studio hours equal to class hours.

F.A. 611. Graduate Studio in Painting
Individual activities in painting for advanced students; emphasis on personal growth and mastery of chosen media; tutorial relationship with instructor; studio and outdoor problems; use of model; related study and gallery visits; extraclass assignments, including minimum studio hours equal to class hours.

F.A. 612. Outdoor Drawing and Painting
Direct drawing and painting in and out-of-doors; landscape, city and industrial themes; minimum use of studio for demonstrations and critiques or during inclement weather; daily transportation to be arranged; work in oil, watercolor, pastel, and other media with approval of instructor.

F.A. 613. Graduate Studio in Graphic Arts
Advanced work in printmaking; relief, intaglio, planographic, serigraphic processes; related drawing and design considerations; parallel studies of graphic artists; care of equipment; tutorial relationship with instructor; extraclass assignments, including minimum studio hours equal to class hours.

F.A. 614. Graphic Arts Relief Processes
A comprehensive exploration of the relief process in graphic arts; including such possibilities as linoleum and wood blocks, wood engravings, and experimental techniques in relief printing; tutorial relationship with instructor; extraclass assignments; including minimum studio hours equal to class hours.

F.A. 615. Graphic Arts Intaglio Processes
A comprehensive exploration of the intaglio process in graphic arts; including such possibilities as etching, dry point, metal engraving, and experimental techniques in intaglio printing; tutorial relationship with instructor; extraclass assignments, including minimum studio hours equal to class hours.

F.A. 616. Graphic Arts Planographic Processes
A comprehensive exploration of the planographic process in graphic arts; including such possibilities as stone and metal lithography, and experimental techniques in planographic printing; tutorial relationship with instructor; extraclass assignments, including minimum studio hours equal to class hours.

F.A. 617. Graphic Arts Serigraphic Processes
A comprehensive exploration of the serigraphic process in graphic arts; including such possibilities as silk screen and substitutes, with stencils of paper, film, lacquer, tusche-glue; tutorial relationship with instructor; extraclass assignments, including minimum studio hours equal to class hours.

F.A. 618. Advanced Life Modeling
Modeling the human figure from the life model; emphasizing sculptural discipline, expression, and interpretation; advanced practice in use of armatures, clay, plaster; casting from clay forms; tutorial relationship with instructor; extraclass assignments, including minimum studio hours equal to class hours.

F.A. 619. Graduate Studio in Sculpture
A general studio in advanced sculpture; utilizing additive, subtractive, and constructive methods; continued personal development in such media as clay, plaster, wood, stone, metal; tutorial relationship with instructor; extraclass assignments including minimum studio hours equal to class hours.

F.A. 620. Sculpture in Synthetic Materials
Casting, additive and subtractive methods in sculpture; utilizing plaster, concrete, plas-

tics, related materials; development of personal expressions and architectural problems in sculpture; tutorial relationship with instructor; extraclass assignments, including minimum studio hours equal to class hours.

F.A. 621. Stone and Wood Sculpture
Techniques and sculptural concepts in stone and wood carving; forging, tempering, sharpening stone carving tools; personal and architectural problems, related readings and gallery visits; tutorial relationship with instructor; extraclass assignments, including minimum studio hours equal to class hours.

F.A. 622. Bronze Casting and Welded Sculpture
Lost-wax investment casting; plastics and plaster model casting in sand; metal casting in other materials; foundry practice, finishing and chemical patination of bronze sculpture; oxyacetylene welding of steel and brass constructions; extraclass assignments, studio hours equal to class hours.

F.A. 623. Graduate Studio in Photography
Advanced black-and-white and color photography; as a form of expression, as illustration, as event-recording; as used in the making of teaching aids and as used in the planning of publications; tutorial relationship with instructor; extraclass assignments, including minimum studio hours equal to class hours.

F.A. 690. Master's Project
A study undertaken by one or more individuals on a problem of special interest; aimed at making a special contribution to Fine Arts, as contrasted with normal or studio activity; may be presented, in part, as an exhibit of materials collected or prepared — including a major exhibit of art work related to study — with theories and findings reported to an acceptable form according to directions given by the graduate office.

MUSIC DEPARTMENT

MUS. 500. Music in Education
Lectures, listening and reading on the history of Music Education in the United States. *Classification:* Elective.

MUS. 501. Survey of Music Literature
Survey of music from antiquity to the present; examination of scores, book reviews from texts in library on development of vocal and instrumental music. *Classification:* Elective.

MUS. 502. American Folk Music
Lectures, readings and listening experience in the various idioms of American folk music. *Classification:* Elective.

MUS. 503. Latin American Music
A survey of the ethnic and European heritage of Latin American Music from early aboriginal sources to contemporary composition. *Classification:* Elective. *Prerequisite:* Music 125 Basic Music Participation, or equivalent.

MUS. 504. Introduction to Symphonic Literature
The art of enjoying symphony orchestra music; the understanding of the masterpieces of Classic, Romantic and Contemporary composers; attendance at selected concerts. *Classification:* Elective.

SPEECH AND THEATRE ARTS DEPARTMENT

SP. & T.A. 406. Secondary School Speech Activities (g)

SP. & T.A. 418. Creative Dramatics (g)

SP. & T.A. 419. Speech Activities in the Elementary School (g)

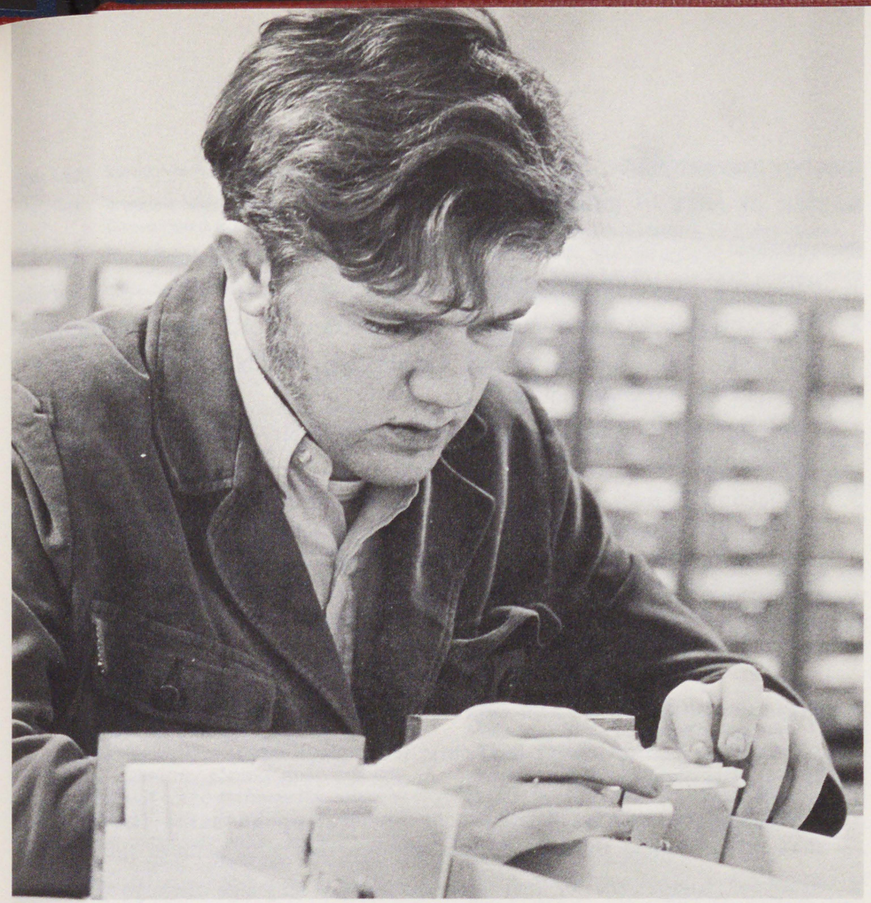
SP. & T.A. 420. Oral Interpretation of Children's Literature (g)

SP. & T.A. 426. Advanced Acting (g)

SP. & T.A. 450. Directing (g)

SP. & T.A. 485. History and Criticism of American Public Address (g)

SP. & T.A. 528. Seminar in Creative Dramatics
Philosophy, methods, and materials of informal playmaking with children; attention to special interests and creative projects. *Prerequisite:* Sp. & T.A. 418 or equivalent.



FACULTY OF ARTS AND SCIENCES

The Faculty of Arts and Sciences includes the departments of Anthropology, Biology, Chemistry, Economics, English, Foreign Languages, General Science, Geography, Geosciences, Health, Physical Education and Recreation, History, Mathematics, Philosophy, Physics, Political Science, Psychology, and Sociology. Details concerning the degree programs and courses offered in these departments are provided under the appropriate headings in this section of the catalog.

ANTHROPOLOGY DEPARTMENT

ANTH. 402. Cultural Anthropology (g)

ANTH. 403. Language and Culture (g)

ANTH. 404. Peasant (Underdeveloped) Societies (g)

ANTH. 405. History of Anthropological Thought (g)

BIOLOGY DEPARTMENT

MASTER OF ARTS IN BIOLOGY

Prerequisites:

1. Bachelor's degree, or its equivalent, from an accredited college or university.
2. An undergraduate minimum grade point average of 2.5 on a 4-point basis.
3. Acceptable scores on the verbal, quantitative, and biology sections of the Graduate Record Examination.
4. Three letters of recommendation evaluating their academic and personal qualifications.
5. A minimum of forty-eight semester hours of course work in science and mathematics. These shall include one year each of college physics, organic chemistry, and mathematics. The mathematics requirement may be satisfied by calculus or statistics, depending on the needs of the student's program. Applicants with deficiencies may be admitted with probationary status until such deficiencies are removed.

Requirements for Master of Arts Degree:

1. A minimum of thirty semester hours; these shall include six semester hours allocated as thesis credit.
2. A minimum cumulative average of 3.00 on a 4-point basis. The candidate shall take no more than thirty-eight semester hours to achieve this average.
3. Proof of competence in one modern foreign language through successful performance on the language examination provided by the Educational Testing Service of Princeton, N. J.
4. A written thesis based on the candidate's research in an area of biology.

Shortly after admission to the program, the student will be given a series of short examinations on major areas of biology; these examinations will be administered by appropriate Biology faculty. This procedure will help insure that the student begins the program having a basic familiarity with the various areas of biology.

By the end of twelve semester hours, the student shall present a thesis proposal for consideration by the Biology Department Graduate Committee. The thesis proposal shall include a review of appropriate literature.

At the end of his program, the candidate will take an oral examination in defense of his thesis and to demonstrate his knowledge of appropriate related material.

BIOL. 402. Vertebrate Physiology (g)

BIOL. 403. Economic Biology and Conservation (g)

BIOL. 404. Plant Morphology (g)

BIOL. 405. Organic Evolution (g)

BIOL. 406. Biometrics (g)

BIOL. 408. Plant Physiology (g)

BIOL. 409. Field Biology (g)

BIOL. 410. Soil Biology (g)

BIOL. 411. Parasitology (g)

BIOL. 413. Ornithology (g)

BIOL. 414. Mammalogy (g)

BIOL. 415. Radiation Biology (g)

BIOL. 416. Advanced Genetics (g)

BIOL. 417. Field Mycology (g)

BIOL. 418. Limnology (g)

BIOL. 420. Field Studies in the Conservation of Biological Resources (g)

BIOL. 521. General Ecology
The physical environment and its effects on the living organism; plant-animal relationships; interspecific and intraspecific relationships; problems in human ecology. Offered for graduate students with limited backgrounds in biology. *Prerequisite:* General Biology. *Special Note:* Not open to Biology Majors.

BIOL. 522. Human Genetics
Biological basis of human genetics; study of the incidence, nature, and understanding of various genetic conditions. *Prerequisite:* None. *Special Note:* Intended as a graduate service for non-biology majors. Not open to Biology Majors.

BIOL. 523. Basic Human Anatomy and Physiology
Study of basic anatomy and physiology of cells, tissues, and organ systems of the human body. *Prerequisite:* None. *Special Note:* Not available for credit toward M.A. in Biology.

BIOL. 590. Special Project
Research or investigation of a particular problem, to be planned and carried out by student, with consultation and guidance from instructor.

BIOL. 604. Morphogenesis in Vascular Plants
A study of the structural anatomy and morphogenesis of the vascular plants, with special emphasis on the angiosperms. Two one-hour lectures, one three-hour laboratory per week. *Prerequisite:* General Botany.

BIOL. 605. Mycology
Study of the taxonomy, morphology, reproduction, physiology, ecology, and economic importance of selected groups of fungi. *Prerequisite:* General Biology. *Credit:* Four (4) semester hours. Six hours per week including laboratory.

BIOL. 607. Biometrics II
Analysis of variance with emphasis on experimental design. Analysis of covariance, bioassay, matrices, and non-parametric methods. *Prerequisite:* Biometrics or equivalent.

BIOL. 608. Molecular Genetics
Molecular basis for genetic analysis; a study of currently accepted models for DNA self-replication, RNA and protein synthesis, genetic coding and mutation. *Prerequisites:* General Genetics and Organic Chemistry.

BIOL. 610. Protozoology
Morphology, physiology, and taxonomy of the protozoa; life cycles of selected free-living and parasitic species; importance in environmental inter-relationships and significance in human problems. Four hours per week, including laboratory. *Prerequisite:* Microbiology.

BIOL. 614. Taxonomy of Vascular Plants
Principles and techniques of vascular plant identification and classification. Major emphasis on plant families of Northeastern United States and adjacent Canada. *Prerequisites:* Genetics, Physiology and Ecology.

BIOL. 615. Advanced Bacteriology
Study of the various groups of bacteria, particularly those common in nature and affecting the health and welfare of man. Four hours per week including laboratory. *Prerequisite:* 12 Sem. Hrs. in biological sciences, including Microbiology, General Chemistry.

BIOL. 616. Topics in Animal Physiology
Special topics in animal physiology. *Prerequisites:* General Physics, Organic Chemistry, one year of physiology. Four hours per week. *Special Note:* May be taken twice since different topics will be offered.

BIOL. 617. Seminar
Investigations and discussions of topics of current interest to biologists. Topics to be announced. Two hours per week. Graduate Biology Majors may enroll with permission of the instructor. *Special Note:* May be taken twice if different topics are planned. *Credit:* One semester hour.

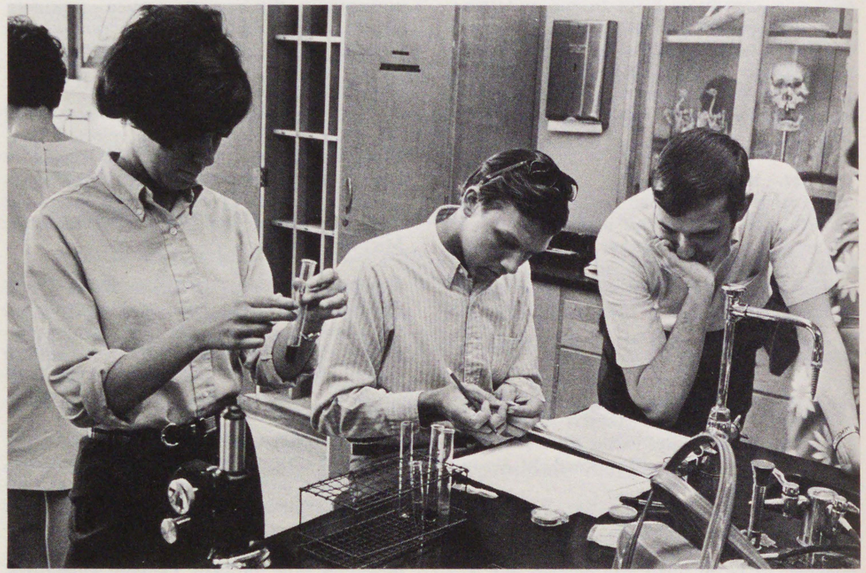
BIOL. 618. Ethology
Causation, function, and biological significance of instinctive behavior and learning in animals, and their application to ecology and evolution. Three hours per week. *Prerequisite:* Three hours of psychology.

BIOL. 619. Plant Ecology
Trophic relations of plant communities in ecosystems, environmental factors, influencing vegetation, theory and practice of sampling and analyzing data, and interpretation of the dynamics of pattern, distribution, and sequential development of plant communities. *Prerequisite:* A course in biometrics or statistics and a course in taxonomy of vascular plants. *Credit:* Three semester hours; two 1-hour lectures and one 3-hour laboratory or field session per week. Additional all-day field trips may be required.

BIOL. 665. Algology
Taxonomy, ecology, morphology, ultrastructure, physiology, and economic importance of selected species of freshwater algae. *Prerequisite:* Ecology, or the equivalent. Four hours per week including laboratory.

BIOL. 690. Research Project in Biology
A study undertaken by one or more individuals on a problem of special interest; must be submitted in acceptable form according to directions given by the Graduate Office.

BIOL. 695. Research Thesis in Biology
An individual investigation of an original problem to be submitted in typewritten form according to directions given by the Graduate Office.



CHEMISTRY DEPARTMENT

Accredited by the American Chemical Society

MASTER OF ARTS IN CHEMISTRY

Prerequisites:

1. A bachelor's degree from an accredited college or university.
2. A minimum of 24 semester hours of chemistry, including one year of physical chemistry, with a cumulative average of 2.60 on a 4.00 scale. One year of general physics and mathematics through differential and integral calculus.
3. A minimum combined score of 900 on the General Aptitude sections and a minimum score of 500 on the Advanced Chemistry section of the Graduate Record Examination.

Requirements for Master of Arts Degree:

1. A cumulative average of 3.00, on a 4.00 scale, for the courses applied toward the degree. A student receiving more than two grades of C (six semester hours) will be ineligible to receive the Master of Arts degree in chemistry.
2. Demonstrated competence in a foreign language. A computer language may be submitted in lieu of the foreign language.
3. A successful oral defense of a thesis based upon the candidate's research in chemistry.
4. *Required areas of study:*

		Credit Hours
Chemistry 604	Graduate Chemistry Seminar	1
Chemistry 605	Kinetics and Reaction Mechanisms	3
Chemistry 625	Structure Analysis I. Spectroscopic Methods	3
Chemistry 626	Structure Analysis II. Non-Spectroscopic Methods	3
Chemistry 660	Advanced Laboratory Techniques	3
Chemistry 695	Research Thesis in Chemistry	6

Electives under Advisement:

a.	A minimum of one 600-level course	3
b.	Any combination of 400, 500, and 600-level courses	8
	Total Requirements	30

CHEM. 400. Inorganic Chemistry (g)

CHEM. 401. Biochemistry (g)

CHEM. 403. Instrumental Chemistry (g)

CHEM. 405. Theoretical Chemistry (g)

CHEM. 430. Organic Chemistry III (g)

CHEM. 500. Chemistry: Its History, Philosophy and Role in Society
The historical development of chemistry as a science and an aspect of culture; its philosophy, its technological role in society. *Prerequisite:* One year of college chemistry.

CHEM. 507. Industrial Chemistry
The application of chemical principles and laboratory techniques to industrial processes, including production operations and economics. *Prerequisite:* Four semesters of college chemistry.

CHEM. 590. Special Project
Research or investigation of a particular problem, to be planned and carried out by student, with consultation and guidance from instructor.

CHEM. 604. Graduate Chemistry Seminar
Oral presentation and analysis of current research from all areas of chemistry. *Prerequisite:* Permission of the Instructor. *Credit:* One semester hour.

CHEM. 605. Kinetics and Reaction Mechanisms
A study of the methods of determining mechanisms of chemical processes. *Prerequisites:* Chemistry 202 and 306.

CHEM. 607. Chemical Thermodynamics
Theory of chemical thermodynamics with particular emphasis on measurable properties, solution and phase equilibria, phase equilibria in the critical region, transport phenomena, statistical thermodynamics, and the application of these principles to chemical problems. *Prerequisites:* Chemistry 202 and 306.

CHEM. 608. Quantum Chemistry
Quantum Mechanics and its application to chemical problems. *Prerequisite:* Chemistry 306.

CHEM. 610. Special Topics in Inorganic Chemistry
One of the following courses will be presented: Coordination chemistry; non-aqueous solvents; the representative elements and the lanthanides; synthetic inorganic chemistry. These topics are essentially independent of each other and the student may enroll more than once provided he has not received prior credit in this course for the same topics. *Prerequisite:* Chemistry 400.

CHEM. 625. Structure Analysis I Spectroscopic Methods
A study of the absorption and emission of electro-magnetic radiation. *Prerequisites:* Chemistry 202 and 306.

CHEM. 626. Structure Analysis II Non-Spectroscopic Methods
Use of non-spectroscopic physical methods such as x-ray crystallography, polarimetry, and mass spectrometry to elucidate the structures of compounds. *Prerequisites:* Chemistry 202 and 306.

CHEM. 635. Special Topics in Organic Chemistry
Advanced topics of a reasonably broad nature will be discussed in some detail with emphasis on the current state of our knowledge. These topics are essentially independent of each other and the student may enroll for this course as often as possible provided that he has not received credit in this course for the same topic. *Prerequisite:* Chemistry 202.

CHEM. 642. Biochemistry II
Selected topics in biochemistry (e.g. bioenergetics, cellular controls, intermediary metabolism, origin of life, feedback, chemical genetics). *Prerequisite:* Chemistry 401.

CHEM. 660. Advanced Laboratory Techniques
Individualized laboratory technique instruction to prepare students for graduate research. *Prerequisite:* Chemistry 403. *Credit:* Three semester hours; one 1-hour lecture and two 3-hour laboratory periods.

CHEM. 690. Research Project in Chemistry
A study undertaken by one or more individuals on a problem of special interest; must be submitted in acceptable form according to directions given by the Graduate Office.

CHEM. 695. Research Thesis in Chemistry
An individual investigation of an original problem to be submitted in typewritten form according to directions given by the Graduate Office.

ECONOMICS DEPARTMENT

ECON. 401. International Economics (g)

ECON. 403. Comparative Economic Systems (g)

ECON. 405. History of Economic Thought (g)

ECON. 407. Economics of Latin America (g)

ECON. 409. Economic Development (g)

ECON. 412. Urban Economics (g)

ECON. 502. Workshop in Economics
Considerations of economic concepts in the curriculum; American economic system; role of government in free enterprise economy; money, banking, and credit; selected group projects in areas of investments, labor-management relations, agriculture aspects of foreign policy, economy of the Niagara Frontier, and government regulatory agencies.

ECON. 508. Quantitative Methods for Behavioral Science
An introduction to decision theory and statistical techniques employed in the analysis of behavioral research data. Attention is given to electronic data processing; Planning-Programming-Budgeting systems; PERT, and similar decision-making and control techniques.

ENGLISH DEPARTMENT

MASTER OF ARTS IN ENGLISH

Credit Hours

Prerequisites 36

Bachelor's degree from accredited college or university. Undergraduate cumulative average of 2.75 and average of 3.00 in English on a 4.00 scale. Acceptable scores on the Graduate Record Examination. Thirty-six (36) semester hours in English exclusive of freshman English.

Language Requirement

Demonstrated competence in one foreign language. Demonstrated competence in written and oral English. These competencies must be established prior to the completion of eighteen (18) semester hours.

Required Areas of Study 18-24

Courses to be chosen, under advisement, in the following areas so that the student will have in his combined undergraduate and graduate record *at least* one course in each area.

Linguistics or history of the English language
Chaucer or Milton
Shakespeare or Elizabethan writers
Seventeenth or eighteenth century
Nineteenth century
American literature
World literature
Twentieth century literature
Criticism
Research methods

Thesis 0-6

A student may elect, under advisement,
English 695 Thesis (6 semester hours) or
English 690 Project (4 semester hours).

Electives under advisement 6

Total requirements 30

ENG. 401. Literature of the Bible (g)
ENG. 402. The Early English Novel (g)
ENG. 403. The World Novel (g)
ENG. 404. The American Novel Before 1900 (g)
ENG. 405. Chaucer and His Age (g)
ENG. 406. The Later English Novel (g)
ENG. 407. The Modern Novel (g)
ENG. 409. Milton (g)
ENG. 411. Seventeenth Century English Poetry (g)
ENG. 413. Seminar Tour in American Literature (g)
ENG. 414. Realism in American Literature (g)
ENG. 415. Philosophy in Literature (g)
ENG. 416. Study-Tour of Western Europe (g)
ENG. 422. Victorian Poetry (g)
ENG. 423. Victorian Prose (g)
ENG. 424. Late Nineteenth Century English Literature (g)
ENG. 426. Eighteenth Century English Literature (g)
ENG. 427. Foundations of Language (g)
ENG. 430. Literature of Ireland (g)
ENG. 440. Writing for the Professions (g)
ENG. 441. Comparative Drama: Tragedy (g)

ENG. 502. Studies in American Literature
Seminar in selected aspects of literary culture in the United States from the Colonial Period to the twentieth century. Literary movements and periods, intercultural relationships, and the influence of religious and philosophic areas upon literature; focus of course upon selected areas and key figures.

ENG. 503. Regional American Literature
Literature of certain geographical and cultural areas of the United States: New England and Eastern, Southern, Western; folkways in American letters; local color and use of regional materials, particularly in fiction.

ENG. 504. Origin and Development of English Drama
Liturgical beginnings of English drama; miracle and morality plays, interludes; rise of English comedy and tragedy; forerunners and contemporaries of Shakespeare.

ENG. 505. Seventeenth and Eighteenth Century English Drama
Stuart successors of Shakespeare; Restoration comedy and tragedy; Neo-classical and sentimental drama; Webster, Dryden, Wycherley, Congreve, Sheridan, and others.

ENG. 506. Studies in Modern Drama
Renascence of drama in Europe and America; Ibsen and the play of ideas; realism, naturalism, symbolism, sociological drama.

ENG. 508. Literature of Greece and Rome
Reading in English translation and discussion of selected masterpieces; relationship to later literature in English and other modern languages.

ENG. 510. Emerson and Thoreau
Writing of Emerson and Thoreau against the background of European and American transcendentalism.

ENG. 518. Major American Poets
Nineteenth century poets of first rank and their contributions to a national literature.

ENG. 519. Literature and the World Today
Current ideas expressed through novels, plays, and critical reports; contribution of the magazine, newspaper and motion picture of the world's view of America.

ENG. 520. Shakespearean Tragedy
Esthetic and philosophic qualities of Shakespeare tragedy studied in the playwright's mature plays; readings in Shakespeare criticism.

ENG. 521. Studies in Modern English Poetry
Significant trends and figures in English poetry since 1900; close study of two or three writers from the following list: Hardy, Housman, de la Mare, Masefield, Eliot, Auden, and Thomas.

ENG. 522. Studies in Modern American Poetry
Significant trends and figures in American poetry since 1912; close study of two or three writers from the following list: Robinson, Frost, Stevens, Jeffers, Millay, Cummings, Benet, Crane, Nicholl, and Lowell.

ENG. 523. Shakespearean Comedy
Principal comedies from *Love's Labour's Lost* to *The Tempest;* backgrounds of Elizabethan comedy; Shakespeare's early and experimental work; later mature, achievements and the comic idea in farce, high comedy, bitter comedy, and idealistic romance.

ENG. 531. Studies in Comparative Romanticism
Nature of Romanticism; historical backgrounds of nineteenth century English and American Romanticism; Continental Romanticism; study of a limited number of English and American writers such as Wordsworth, Byron, Shelley, Hawthorne, Poe.

ENG. 532. Literature of Continental Europe: Seventeenth and Eighteenth Centuries
Reading in English translation of selected novels, plays, and essays illustrating neoclassical and pre-revolutionary tendencies in France, Germany, and other European countries.

ENG. 533. Literature of Continental Europe: The Middle Ages
Reading in English translation of representative works of the Middle Ages; importance of this literature as source material for later writers.

ENG. 534. Literature of Continental Europe: The Renaissance
Petrarch, Boccaccio, Machiavelli, Castiglione, Ariosto, and others in English translation and their relation to the literature of England.

ENG. 535. Literature of Continental Europe: The Nineteenth Century
Reading in English translation of selected masterpieces; Rousseau and his disciples; romantic poetry, fiction, and drama; realism, naturalism, symbolism in the various types of literature.

ENG. 536. Literature of Continental Europe: The Twentieth Century
Trends in continental literature from the turn of the century to post World War II. Particular attention to the reading in translation of French, German, Italian, and Russian works.

ENG. 545. Spenser and His Age
Survey of the non-dramatic literature of the sixteenth century, with emphasis on the works of Spenser; development of the lyric and prose styles; nature and influences of the Renaissance and Reformation.

ENG. 590. Special Project
Research or investigation of a particular problem, to be planned and carried out with guidance of instructor.

ENG. 600. Studies in the Structure and Function of Language
Fundamental principles basic to all languages; theories of the origin of language; the nature and psychology of language; phonetics and phonemics; alphabets and systems of writing; language types and families; word origins and changes in meaning; emphasis upon practical applications of linguistic principles. *Prerequisite:* Eng. 427.

ENG. 602. Literary Criticism
A survey of literary criticism past and present, with exercises in applying the student's critical skill to the study of specific works; individual student emphasis upon the study of a period, author, idea, or form.

ENG. 607. Secondary School Literature
Readings in prose and poetry appropriate to the secondary school; examination of the function of "literature for adolescents" in the secondary English program. May not be taken for credit by students who have taken Eng. 213.

ENG. 609. The English Language
Historical development of the English language; political and social influences for change; growth of grammatical science and lexicography; contemporary problems of usage; semantics; trends in American English. *Prerequisite:* Eng. 427.

ENG. 610. English Grammars
Different approaches to the analysis of the English language; brief history of the development of the English language; historical survey of the study of language; detailed study of the contemporary scientific approaches to the study of English including the Fries (word order), Chomsky (transformational-generative), Trager-Smith (aspectual), Pike (tagmemic-generative), and Lamb (stratificational) grammars. *Prerequisite:* Eng. 427.

ENG. 613. Studies in Seventeenth Century English Literature
Selected authors or literary movements of seventeenth-century England.

ENG. 614. Studies in Eighteenth Century English Literature
Selected authors or literary movements of eighteenth-century England.

ENG. 615. Seminar in Nineteenth Century English Literature
Seminar in selected literary figures or aspects of the literary culture of England in the nineteenth century. *Prerequisite:* will vary according to the specific subject of the seminar.

ENG. 630. Seminar in Comedy
Practice and theory of comedy from Aristophanes to the present. *Prerequisite:* A major or its equivalent in English, comparative literature, foreign language, or speech and theatre.

ENG. 631. The Medieval Romance
Romance literature, with special attention to the Arthurian cycle of romances and its influence on the history of English literature. *Prerequisite:* A major or its equivalent in English, folklore, comparative literature, or foreign language and literature.

ENG. 635. The Symbolist Poets: A Comparative Study
A comparative study of the symbolist movement in America and Europe, with emphasis upon such major figures as Wallace Stevens, W. B. Yeats, Charles Baudelaire, Arthur Rimbaud, Paul Verlaine, Stephane Mallarme, Rainer Marie Rilke, and Frederico Garcia Lorca.

ENG. 690. Project
Study undertaken by one or more individuals on a problem of special interest; must be submitted in acceptable form according to directions given by the Graduate Office.

ENG. 694. Research in Literature and Language
A study of the basic materials, methods, and problems relevant to research in English literature and language.

ENG. 695. Thesis
An individual investigation of an original problem to be submitted according to directions given by the Graduate Office.

Folklore

ENG. 561. Folklore and History
Relationships between history and oral tradition; folklore as an aspect of area and social studies in history; contributions of historians to folklore. *Prerequisite:* Twelve hours of undergraduate or graduate courses in literature.

ENG. 562. Folklore and Literature
Uses of folklore, in terms of both content and style, in major literary works and periods, with emphasis on English and American literature. *Prerequisite:* Twelve hours of undergraduate or graduate courses in literature.

ENG. 563. British Folklore
Collection and research in English, Scottish, and Irish folk traditions, with emphasis on developmental work in the nineteenth and twentieth centuries; relationship between British and American folklore scholarship. *Prerequisite:* Twelve hours of undergraduate or graduate courses in literature and an introductory course in folklore.

ENG. 564. Major Genres of Folklore
Major forms in which folk traditions are found: tales, ballads and songs, proverbs and riddles, customs and rituals, games; their interrelationships and universal scope. *Prerequisite:* English 340.

ENG. 620. Anglo-American Folk Lyric
Study of the forms of folksong other than narrative forms: lyric, game and play-party, religious; an examination of both content and form, as well as manner of performance. *Prerequisite:* Nine hours of undergraduate or graduate courses in literature and six hours of courses in folklore.

ENG. 621. Research Problems in Folklore
Intensive study of a particular area of research in folklore, approved by the graduate committee and carried out under the direction of an adviser. *Prerequisite:* Fifteen hours of graduate courses in folklore.

ENG. 622. The Folktale and Other Traditional Narrative Forms
Different forms of narrative folklore; history of folktale studies; scholarly tools of folk narrative research and their use. *Prerequisite:* Twelve hours of undergraduate or graduate courses in literature and six hours of courses in folklore.

ENG. 623. The Folk Ballad
Study of the folk ballad through the canon of *The English and Scottish Popular Ballads;* relationships with Scandinavian and other European forms; brief examination of broadsides and other semi-traditional forms. *Prerequisite:* Fifteen hours of undergraduate or graduate courses in literature.

ENG. 624. Folklore Field Work
Practical experience in the field collection of folklore, with coordinated discussion of problems and techniques; evaluation and annotation of collected materials, leading to presentation in potentially publishable form. *Prerequisite:* Fifteen hours of undergraduate or graduate courses in literature and nine hours of graduate courses in folklore.

ENG. 625. Folklore Theory
Examination and discussion of the major theories of folklore studies. *Prerequisite:* Nine hours of graduate courses in folklore.

ENG. 626. Folklore and Culture
Relationships between folklore and cultural studies, with emphasis on the American and British anthropological schools. *Prerequisite:* Twelve hours of undergraduate and graduate courses in literature and three hours of courses in folklore or anthropology.

Children's Literature

ENG. 455. Children's Literature and Mass Media (g)

ENG. 514. Studies in Children's Literature
Types of children's literature; criteria of book selection; reading interests of children; preparation of bibliography. May not be taken for credit by students who have taken Eng. 210.

ENG. 551. The Heroic Tradition in Children's Literature
Traditional heroic works of literature as they have been interpreted for children. *Prerequisite:* Eng. 210 or 514.

ENG. 552. Historical Backgrounds of Children's Literature
Historical survey of children's literature and of the writers, illustrators, and social forces which have shaped it. *Prerequisite:* Eng. 210 or 514.

ENG. 553. Classics of Children's Literature
Study in depth of several literary classics in children's literature. *Prerequisite:* Eng. 210 or 514.

ENG. 554. Fantasy and the Modern Literary Fairy Tale
Survey and evaluation of the significant writers of fantasy for children from Hans Christian Andersen to the present. *Prerequisite:* Eng. 210 or 514.

ENG. 555. Realistic Fiction for Children
Realistic fiction for children; regionalism, ethnic and religious groups, children of other lands. *Prerequisite:* Eng. 210 or 514.

ENG. 556. Non-Fiction in Children's Books
Readings for children in such fields as history, science, and mathematics. *Prerequisite:* Eng. 210 or 514.

ENG. 557. Poetry for Children
Adult poetry of interest to children; poetry written specifically for children. *Prerequisite:* Eng. 210 or 514.

ENG. 558. Biography and Historical Literature for Children
Selected writings in biography and historical fiction for children. *Prerequisite:* Eng. 210 or 514.

ENG. 559. Folklore in Children's Literature
A critical analysis of the traditional elements in children's literature. *Prerequisite:* Eng. 210 or 514.

FOREIGN LANGUAGE DEPARTMENT

FRENCH 401. Classical French Drama (g)

FRENCH 403. Survey of the French Novel (g)

FRENCH 404. Contemporary French Novel (g)

FRENCH 406. Literature of the Middle Ages (g)

FRENCH 407. The French Enlightenment (g)

FRENCH 408. Contemporary French Theater (g)

FRENCH 409. Nineteenth Century French Drama (g)

FRENCH 410. Nineteenth Century French Poetry (g)

FRENCH 415. Advanced Grammar and Composition (g)

FRENCH 421. Structure of Modern French (g)

SPANISH 400. Medieval Spanish Literature (g)

SPANISH 402. Spanish Classical Drama (g)

SPANISH 404. Cervantes (g)

SPANISH 406. Nineteenth Century Spanish Literature (g)

SPANISH 408. Twentieth Century Spanish Literature; Poetry and Theater (g)

SPANISH 409. Twentieth Century Spanish Literature; Novel, Short Story and Essay (g)

SPANISH 410. Survey of Latin American Literature (g)

SPANISH 411. Latin American Literature of the Nineteenth and Twentieth Centuries: Novel, Short Story, Essay (g)

SPANISH 412. Latin American Literature of the Nineteenth and Twentieth Centuries: Theater, Poetry (g)

SPANISH 415. Advanced Grammar and Composition (g)

SPANISH 421. Structure of Modern Spanish (g)

FRENCH 501. Old French Language and Literature
Intensive reading of the major works of Old French literature, with discussion of the important literary and linguistic features of the works read. Oral and written reports in French on the readings assigned.

FRENCH 502. Advanced French Composition
Further guidance and practice in the acquisition of a good French style of writing, the selected stylistic examples from major contemporary French authors. Frequent written assignments in French.

FRENCH 503. The New Novel in France
Reading and extensive discussion of representative novels of authors of the "nouvelle vague" (Robbe-Grillet, Butor, Sarraute, Duras, etc.) Frequent oral and written reports.

FRENCH 504. Readings in French Literature
A reading course whose content will be varied to conform to the specific needs of individual students, aimed at filling in any outstanding gaps in the student's linguistic and literary preparation.

SPANISH 501. Early Spanish Literature
Readings in the major genre prior to the Golden Age. Emphasis on the epic and the Cid, the poetry of Juan Ruiz and the origins of the drama and novel. Collateral readings to illustrate cultural background of the period. Reports and discussions in Spanish.

SPANISH 502. Early Spanish
Intensive oral practice through diction and conversation. Analysis of adequate written style through study of a variety of contemporary sources. Oral and written presentations will be required in Spanish.

SPANISH 503. The Latin American Novel
Representative novels from major Latin American nations illustrative of literary, social and political developments in the hemisphere. Collateral readings, reports and discussions in Spanish.

SPANISH 504. Readings in Spanish Literature
Directed readings in areas of Spanish Literature and literary criticism in which the student requires further work. Intended to provide greater breadth or depth of study of Spanish literature as the individual's needs and interests may dictate.

GENERAL SCIENCE DEPARTMENT

SCI. 409. History of Science (g)

SCI. 410. Science in the Elementary School Curriculum (g)

SCI. 415. Basic Science of Radiation and Radioisotopes (g)

SCI. 523. Science in Transportation
The science needed to understand various methods of transportation, including the science involved in such problems as safety, comfort, and governmental aid and regulation.

SCI. 527. Current Research in Science
Study of current research in the various sciences; implications of such research for present and future living; implications of research in science for the secondary school science curriculum. *Prerequisites:* Six semester hours in each of two sciences.

SCI. 528. Seminar in Science Education
Current trends in science education in the public schools; recent research in science education; problems of individual students. *Prerequisite:* Two years experience teaching science as a special subject.

SCI. 529. Advance Seminar in Science Education
An in depth exploration of problems and research in science education in areas selected by the students. *Prerequisites:* Sci. 528 or permission of the instructor.

SCI. 530. Curricular Trends in Science Teaching
An examination of recent curriculum developments through a study of philosophies, objectives, and materials; current understandings of the psychology of inquiry; historical events leading to changes in curriculum. *Prerequisites:* One year of teaching science as a subject, or assignment in an administrative position having responsibility for science curriculum, or permission of the instructor.

SCI. 535. Current Literature in Science Education
Study of current literature in science education and related areas. *Prerequisites:* Sci. 528 and Ed. 595, or permission of the instructor.

SCI. 590. Special Project
Research or investigation of a particular problem, to be planned and carried out by the student, with consultation and guidance from instructor.

SCI. 690. Project
A study undertaken by one or more individuals on a problem of special interest; must be submitted in acceptable form according to directions given by the Graduate Office.

SCI. 695. Thesis
An individual investigation of an original problem to be submitted in typewritten form according to directions given by the Graduate Office.

GEOGRAPHY DEPARTMENT

GEOG. 410. Resource Use and Urban Planning (g)

GEOG. 500. Geography of Eastern Asia
Physical and cultural geography of China, Japan, Korea, Mongolia, and the countries of southeast Asia; emphasis on the major economies and their relationships to the natural environment.

GEOG. 501. Studies in Industrial Geography
Study of man's major occupations and their relationships to the natural environment; emphasis on selected topics in agriculture, manufacturing, and mining that are of world-wide significance.

GEOG. 502. Geography in the Secondary Schools
Methods and techniques of teaching geography in the secondary schools with emphasis on the 9th grade level; elements of the natural and cultural environments that should be emphasized in secondary school geography; and the general geography of Eastern Asia, South and Southeast Asia, and Subsaharan Africa.

GEOG. 503. Studies in Resource Conservation
Principles of natural resources conservation; select problems in resource conservation, soil erosion, water pollution, destruction of forests, grasslands, and wildlife, flood control, and depletion of minerals; emphasis on conservation in the United States and New York State.

GEOG. 504. Studies in the Geography of Anglo-America
Regional divisions: landforms, climates, soils, natural vegetation, drainage, major economies; emphasis on the leading economies of each region and their relationships to the natural environment.

GEOG. 505. Studies in the Geography of Middle America
The physical and cultural geography of Mexico, Central America, and the West Indies with emphasis on the problems man has encountered in his attempts to adjust to the natural environment.

GEOG. 508. Studies in the Geography of New York State
The physical landscape; cultural geography and settlement; primary economic activities; urban systems and environments; planning and future development of the state.

GEOG. 510. Cultural Geography
Scope and nature of cultural geography; growth and development of cultural regions; investigations into the ideas of culture, culture area, cultural landscape, cultural history, cultural ecology and cultural perception.

GEOG. 590. Special Project
Research or investigation of a particular problem, to be planned and carried out by student, with consultation and guidance from instructor.

GEOG. 601. Seminar in Urban-Metropolitan Area Problems
Spatial aspects of urban-metropolitan area problems; urban land use; dynamics of change in urban areas; role of urban geography in finding solutions to urban problems. *Prerequisites:* Six hours of geography or three hours of urban sociology or urban affairs studies.

GEOG. 610. Seminar
Investigation, examination and discussion of topics of current interest in geography. Topics to be announced. *Prerequisites:* Twelve (12) hours of geography or permission of the instructor.

GEOSCIENCES DEPARTMENT

GEOS. 401. Petrology (g)

GEOS. 402. Structural Geology (g)

GEOS. 403. Glacial Geology (g)

GEOS. 404. Field Geology (g)

GEOS. 405. Geology of North America (g)

GEOS. 406. Geology of New York State (g)

GEOS. 407. Advanced Invertebrate Paleontology (g)

GEOS. 411. Advanced Oceanography (g)

GEOS. 412. Field Oceanography (g)

GEOS. 430. Stellar and Galactic Astronomy (g)

GEOS. 431. Planetarium Seminar (g)

GEOS. 435. Methods of Observational Astronomy (g)

GEOS. 441. Paleoclimatology (g)

GEOS. 451. Geochemistry (g)

GEOS. 461. Geophysics (g)

GEOS. 493. Regents Earth Science Syllabus (g)

GEOS. 501. Petrography
Microscopic study of igneous, sedimentary, and metamorphic rocks; textures and their interpretation; classification of rocks. *Prerequisite:* Geos. 401.

GEOS. 504. Field Investigations for Earth Science Teachers
Planning field investigations for use in secondary teaching; considers investigations which can be accomplished in the immediate school vicinity as well as those which require a full day and travel. *Prerequisite:* prior experience or assignment to teach a secondary science course.

GEOS. 511. Marine Geology
Descriptive and analytical approach to the sedimentation, stratigraphy, and structure of

the ocean basins. *Prerequisite:* Geos. 302 and 303, or Geos. 411.

GEOS. 535. Astronomy for Earth Science Teachers
The dynamic universe: solar system, stars, galaxies and quasars. Night sky and planetarium observation.

GEOS. 541. Meteorology for Earth Science Teachers
A study of weather as a response to the unequal distribution of energy from the sun. Individualized to begin at the level of the student. Includes data collecting techniques, interpretation and predictions appropriate for secondary classes. *Prerequisite:* prior experience or assignment to a secondary science course.

GEOS. 601. Economic Geology
Origin, composition, alteration, and enrichment of ores; origin of fossil fuels and other non-metalliferous deposits; conservation of geologic resources. *Prerequisite:* 18 sem. hrs. geology and one year of chemistry. Occasional field trips.

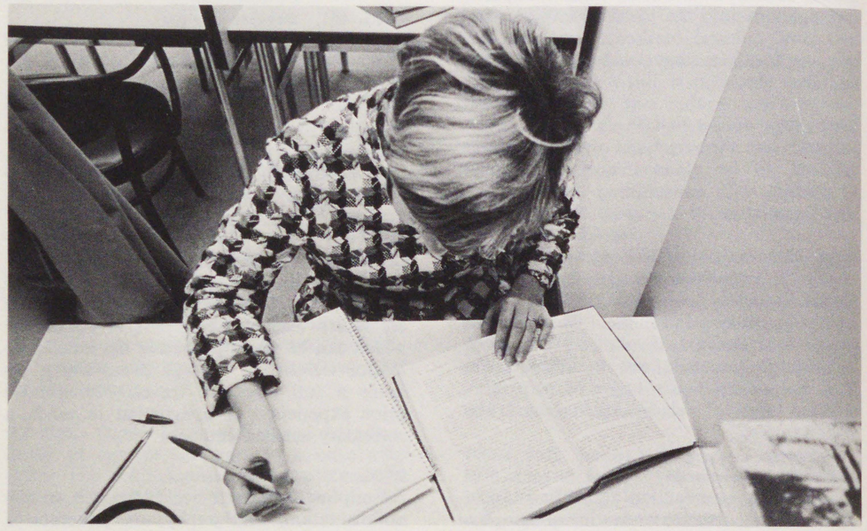
GEOS. 602. Tectonics and Earth History
Study of mountain building and large-scale movements of continents and sea-floor throughout geologic time; influence of such movements on climates and evolution of life. *Prerequisite:* 4 semesters of geosciences.

GEOS. 603. Advanced General Geology
Current topics and recent literature involving geologic research. *Prerequisite:* 18 sem. hrs. geology. Lecture and laboratory; occasional field trips.

GEOS. 605. Geosciences Seminar
Readings, reports, and discussion of current geoscience problems and research. *Prequisite:* 24 sem. hrs. geosciences. Lecture and laboratory; occasional field trips.

GEOS. 690. Research Project in Geosciences
A study undertaken by one or more individuals on a problem of special interest; must be submitted in acceptable form according to directions given by the Graduate Office.

GEOS. 695. Research Thesis in Geosciences
An individual investigation of an original problem to be submitted in typewritten form according to directions given by the Graduate Office.



HISTORY DEPARTMENT

MASTER OF ARTS IN HISTORY

Credit Hours

Prerequisites 30

Bachelor's degree from accredited college or university. Undergraduate cumulative average of 2.75 on 4.00 scale and average of 3.00 in History. Acceptable scores on the Graduate Record Examination, including the advanced examination in History. Thirty (30) semester hours in History.

Language Requirement

Demonstrated competence in one foreign language, through examination by the department. This competency must be established prior to the completion of eighteen (18) semester hours.

Required Courses 18

Courses to be chosen, under advisement, in American, European, or World History. Six (6) hours may be taken in related fields, such as Political Science, Geography, English, etc. with the expressed approval of the student's adviser.

Seminars 6

Students working for a degree in American History should elect History 600 and History 609 or History 611.
Students working for a degree in European History should elect History 601 and History 602, History 603, or History 610.

Thesis 6

Comprehensive Examination — administered by the department.

Total requirements 30

HIST. 400. Twentieth Century European Diplomacy (g)

HIST. 401. American Expansion Since 1783 (g)

HIST. 402. History of the Soviet Union (g)

HIST. 403. American Diplomatic History to 1898 (g)

HIST. 404. The South, Sectionalism, and the Civil War (g)

HIST. 405. The Renaissance and Reformation (g)

HIST. 406. The French Revolution and Napoleon (g)

HIST. 407. Germany Since 1871 (g)

HIST. 408. History of American Thought (g)

HIST. 412. History of East Central Europe (g)

HIST. 414. History of the Balkans Since 1453 (g)

HIST. 415. History of Iberia from the Reconquest to 1815 (g)

HIST. 416. Seminar in Principles and Techniques of Operating an Historical Agency (g)

HIST. 417. American Diplomatic History Since 1898 (g)

HIST. 418. The History Museum and Its Presentation of History (g)

HIST. 419. Seminar in Curatorship (g)

HIST. 420. Seminar in the Administration of the Historical Agency or Museum (g)

HIST. 423. History of the Byzantine Empire (g)

HIST. 425. Medieval Slavic History (g)

HIST. 500. Studies in Twentieth Century American History

Aspects of American life since 1900; significant trends, policies, and ideas in politics, diplomacy, and national culture; topics for study dictated by student needs and interests.

HIST. 501. Studies in Twentieth Century European History

Study of a central theme selected by instructor and class, such as: modern political ideologies; international relations; individual country, region or period.

HIST. 502. The United States and Its Inter-American Relations

American policies toward the Latin American Republics and the Dominion of Canada; recognition; Monroe Doctrine; imperialism; peaceful settlement; cultural interchange; hemisphere security; regionalism.

HIST. 503. Social and Intellectual History of the United States

Social roots of systems of thought; effect of ideas upon American society; continuing patterns of thought, such as Puritanism, liberalism, democracy; contributions of intellectual leaders.

HIST. 504. History of the American Frontier

Westward movement of settlement in terms of trader-trapper, farmer, cattle and mining frontiers; analysis of myth and interpretations, with emphasis upon the edenic and heroic conceptions in contemporary accounts, both fiction and non-fiction.

HIST. 505. Studies in American Colonial History

Comparison of colonial policies pursued by European powers in the New World; modification in a new environment of such transplanted elements as the family, church, schools, economy, and government.

HIST. 506. Problems in British History

An examination of major constitutional, political, social and intellectual factors which shaped England during one of the following periods: (1) Medieval England; (2) Tudor Stuart; (3) eighteenth century; (4) Victorian; (5) twentieth century.

HIST. 507. The United States in Contemporary World Affairs

United States foreign policy; United States and the United Nations; Atlantic and Pacific commitments; internal problems such as defense, production, inflation, and taxation.

HIST. 508. Reform and Reformers in American Civilization

Economic and social *milieu* creating need for reform; personality characteristics of reform leaders; structure and operations of reform movements; selected reform movements and periods of widely-sponsored reform sentiment; changes wrought in American society.

HIST. 509. History of Russian Diplomacy

Problems of Russian and Soviet foreign policy, with special emphasis on the post-revolutionary period.

HIST. 600. Seminar in the Bibliography of American History

Sources, monographs and general histories in the bibliography of American history; collections of historical materials; historical organizations and services; analysis of selected topics and authors.

HIST. 601. Seminar in the Bibliography of European History

Sources, monographs, and general histories in the historical bibliography of selected European countries; collections of historical materials; historical organizations; problems of research; analysis of selected topics and authors.

HIST. 602. Seminar in Modern Russian History

Research in the problems of the Soviet Union, from the establishment of Marxism on Russian soil to the present, emphasizing ideological problems and Russian foreign policy, particularly toward Europe.

HIST. 603. Seminar in Modern East Central European History

Research in the problems of the nations located between Russia and Germany, and between the Baltic Sea and Turkey, from the middle of the nineteenth century to the present with special emphasis on ideological conflicts and foreign policy.

HIST. 609. Local History: Research Methods and Techniques

Preparation of individual research papers on some undeveloped aspect of local history; guidance in historical research and writing techniques.

HIST. 610. Seminar in Contemporary European History

Problems of Contemporary Europe from the unification of Italy and Germany to the present; nationalism, imperialism and communism; the struggle for domination of Europe after World War I and World War II.

HIST. 611. Seminar in American History

Problems in American social, intellectual, or diplomatic history as determined by student needs and staff; historical methodology, the philosophy of history and historical writing; individual projects and seminar discussion.

HIST. 695. Thesis

An individual investigation of an original problem to be submitted in typewritten form according to directions given by the Graduate Office.

LATIN AMERICAN STUDIES

L.A.S. 410. Twentieth Century Latin American Problems (g)

MATHEMATICS DEPARTMENT

MASTER OF ARTS IN MATHEMATICS

Prerequisites:

1. Bachelor's degree from accredited college or university.
2. Completion of at least 24 semester hours of undergraduate mathematics beyond the calculus, including a full year of algebra (our present Math. 301, 303); a full year of analysis (our present Math. 417, 418); and at least one semester of geometry or topology (our present Math. 323 or 471).
3. An average of B or better (3.0 on a 4 point grading scale) in undergraduate mathematics.
4. Written acceptance as a graduate student in the M.A. program by the Graduate Faculty of the Mathematics Department and the Director of Graduate Studies.
5. A student deficient in items 2 or 3 above may remove the deficiency while pursuing graduate study. This can be done only upon a written statement from the student's advisor or the Graduate Faculty of the Mathematics Department. The statement will indicate what deficiency is to be removed and specifically how.

Each student in the M.A. program must complete the Graduate Record Examination and the Advanced Mathematics Section by the time he has completed 9 semester hours of graduate study.

Reguirements for Master of Arts Degree:

The student must complete successfully the requirements listed in either (a) or (b).

a. 30 semester hours of graduate mathematics and a comprehensive examination in mathematics. A student may elect up to 6 semester hours of graduate work in related fields in lieu of the same number of semester hours of the required mathematics upon the written approval of his advisor. No more than 6 semester hours of 400 level course work may be applied towards the 30 semester hours for the degree.

b. 24 semester hours of graduate mathematics, a thesis in mathematics for 6 semester hours and a comprehensive examination in mathematics.

The purposes of the comprehensive examination are:

a. To measure how much subject matter of the graduate mathematics courses the candidate has acquired and retained.

b. To determine whether or not he has achieved an insight into the meaning and nature of mathematics, especially the discernment structure and abstract form, and the unifying aspects of the different mathematics subjects.

c. To examine his ability to approach problems new and different from those in his graduate courses, that is, his research ability.

In evaluating the results of this examination the Graduate Mathematics Faculty will decide how adequately the candidate has met the foregoing objectives. If the Faculty feels the student shows weaknesses in these areas, it may recommend further study for the candidate or it may disqualify him from the program.

The comprehensive examination will be written and will be taken when the course work is virtually complete. This examination will be administered by the student's committee which will consist of not fewer than three nor more than five members of the faculty. A favorable decision by three-fifths of the members of the committee is required for passing. The examination will be given in three of the following subjects:

(a) Algebra (b) Topology (c) Real Analysis (d) Complex Analysis. The student must notify his advisor and Chairman of the department of his intention to take the comprehensive examination of his choice of three subjects indicated above. This must be done no later than two months prior to the convocation at which he expects to receive his degree.

MATH. 411. Intro. to Complex Variables (g)

MATH. 413. Applied Analysis (g)

MATH. 415. Mathematical Methods in Applied Mathematics (g)

MATH. 417. Advanced Calculus I (g)

MATH. 418. Advanced Calculus II (g)

MATH. 431. Mathematical Logic (g)

MATH. 432. Mathematical Logic (g)

MATH. 435. Theory of Recursive Functions and Effective Computability

MATH. 461. Numerical Analysis (g)

MATH. 471. Topology (g)

The above mathematics courses at the 400 level may be taken for graduate credit providing no such course work duplicates work completed for undergraduate credit. (See further restrictions under Master of Science in Education and Master of Arts Degree requirements.)

The 500 level courses are, in general, for students in elementary or exceptional children education or electives.

All 600 level courses and 700 level courses are, in general, designed for students earning degrees in mathematics or science or students with a concentration in mathematics.

(See prerequisites for each course with course descriptions.)

MATH. 501. Mathematics for Elementary Teachers: Selected Topics from Modern Algebra

Equivalence; congruences; Boolean algebra; groups, rings, integral domain and fields;

matrices. *Prerequisite:* Math. 121 and 122 or equivalents.

MATH. 521. Mathematics for Elementary Teachers: Geometry
Formal and informal geometry; non-metric geometry; congruence; measurement; constructions; similarity, coordinate geometry; trigonometric functions, constructions.

MATH. 551. Mathematics for Elementary Teachers: Number Systems
Systems of numeration; sets; whole numbers; rational numbers; real numbers; operations; relations; properties, algorithms; elementary number theory.

MATH. 581. Mathematics for Elementary Teachers: Probability and Statistics
Organization and analysis of data; elementary probability; probability distributions; sampling; decision making; regression and correlation. Many topics are to be presented using ideas that can be adapted for the elementary classroom. *Prerequisite:* Math. 121 and 122 or equivalents.

MATH. 590. Special Project
Research or investigation of a particular problem, to be planned and carried out by student, with consultation and guidance from instructor.

MATH. 593. Mathematics for Elementary Teachers: Finite Mathematics
Partitions; permutations; probability measure; conditional probability; vectors; matrices, operations and properties; linear programming; applications. *Prerequisites:* Math. 121 and 122 or equivalents.

MATH. 595. Research Methods and Techniques in Mathematics Education
Nature of Educational Research; Problem Analysis; Descriptive and Inferential Statistics; Experimental Design; Strategy of Historical, Descriptive and Experimental Studies. *Prerequisites:* Nine semester hours of graduate mathematics beyond baccalaureate degree.

MATH. 603. Theory of Matrices
The algebra of matrices and determinants; equivalence, similarity and congruence relations on matrices; vector spaces, linear transformations; characteristic roots and vectors; applications. *Prerequisite:* 12 Sem. Hrs. of Math. beyond the Calculus.

MATH. 611. Theory of Sets
Sets; relations; functions; order and Zorm's lemma; ordinal numbers and their arithmetic; cardinal numbers and their arithmetic. *Prerequisite:* 12 Sem. Hrs. of Math. beyond the Calculus.

MATH. 621. Non-Euclidean Geometry
Historical development; hyperbolic plane geometry; elliptic plane geometry; topics from hyperbolic and elliptic trigonometry; consistency of non-Euclidean geometries. *Prerequisite:* 12 Sem. Hrs. of Math. beyond the Calculus.

MATH. 631. Foundations of Mathematics
The axiomatic method; theory of sets and infinite sets; real number system and linear continuum; the complex number system; groups and their significance for the foundations; development of various viewpoints on foundations. *Prerequisite:* 12 Sem. Hrs. of Math. beyond the Calculus.

MATH. 635. Mathematical Logic
Statement calculus; predicate calculus; formal theories; decidability; completeness; consistency. *Note:* Not open to students with credit for Math. 432 or equivalent. *Prerequisite:* 12 Sem. Hrs. of Math. beyond the Calculus to include Math. 301, 302 or 303 or equivalent.

MATH. 651. Theory of Numbers
Counting and recording of numbers; properties of numbers; Euclid's algorithm; prime numbers; the aliquot parts; indeterminate problems and their theory; Diophantine problems; congruences; analysis of congruences; Wilson's theorem; Euler's theorem; theory of decimal expansions; the converse of Fermat's theorem; the classical construction problems. *Prerequisite:* 12 Sem. Hrs. of Math. beyond the Calculus.

MATH. 681. Regression and Correlation
Linear, multiple and nonlinear regression; bivariate normal distribution; simple, partial and multiple correlation, estimation and hypothesis testing of parameters; relationship between regression and correlation. *Prerequisites:* 12 Sem. Hrs. of Math. beyond the Calculus to include Math. 382 or equivalent or permission of the instructor.

MATH. 683. Design and Analysis of Experiments
Principles of experimental design; model types; analysis of completely randomized block, Latin square and factorial designs; multiple comparisons of treatment effects. *Prerequisite:* 12 Sem. Hrs. of Math. beyond the Calculus to include Math. 382 or equivalent or permission of the instructor.

MATH. 690. Project (M.S.Ed. Candidates Only)
A research study or an investigation of a mathematical problem or topic under the guidance of a qualified member of the graduate faculty. Written approval by the faculty member and the Chairman of the Department is necessary before registration is permitted.

MATH. 696. History of Mathematics
Chronological study of the development of elementary mathematics; contributions of nations, ages or periods; selected biographies; appraisals and critiques; problem studies. *Prerequisite:* 12 Sem. Hrs. of Math. beyond the Calculus.

MATH. 701. Modern Algebra I
Cyclic groups; transformation groups; factor groups; groups with operators; isomorphism theorems; composition series; direct products of groups; Sylow theorems; residue class rings; operations on ideals; extensions of rings. *Prerequisite:* Math. 301 or equivalent.

MATH. 702. Modern Algebra II
Polynomial rings; factorization in polynomial domains; maximal, prime, and primary ideals; Noetherian rings; prime fields; extensions of fields; splitting fields; separability; irreducibility; Galois theory. *Prerequisite:* Math. 701 or equivalent.

MATH. 705 A, B or C. Special Topics in Algebra.
An intensive study of topics chosen from one or more of the following: A-group theory; B-ring theory; C-field theory. *Prerequisite:* Math. 701 and 702 or equivalents.

MATH. 707. Selected Topics in Set Theory
An introduction to the relative consistency and independence of the axiom of choice and the continuum hypothesis in set theory. *Prerequisite:* 12 Sem. Hrs. of Math. beyond the Calculus to include Math. 431 and 432 or equivalents. Math. 611 strongly recommended.

MATH. 711. Theory of Functions of a Complex Variable I
Complex numbers; analytic functions; elementary functions; some topological concepts; contour integration; calculus of residues. *Prerequisite:* Math. 417 or equivalent.

MATH. 712. Theory of Functions of a Complex Variable II
Transformations; conformal mapping; sequences; uniform convergence; Taylor series; Laurent series; partial fractions; gamma functions; multiple-valued functions. *Prerequisite:* Math. 711 or equivalent.

MATH. 717. Theory of Functions of a Real Variable I
Abstract measure theory; outer measure; metric outer measure; measurable functions; operations on measurable functions; Lebesgue-Stieltjes measure. *Prerequisite:* Math. 417 or equivalent.

MATH. 718. Theory of Functions of a Real Variable II
Integrable functions; Lebesgue-Stieltjes integrals; Lp Spaces, Hilbert and Banach spaces; orthogonal expansions; regular and strong derivatives; metric density; Fubini's theorem. *Prerequisite:* Math. 717 or equivalent.

MATH. 723. Differential Geometry
The differential geometry of curves and surfaces with the use of vector and tensor methods; curvature and tension; moving frames; curvilinear coordinates; the fundamental differential forms; intrinsic geometry; curves on a surface; applications to problems in dynamics, mechanics, and elasticity. *Prerequisite:* Math. 417 or equivalent.

MATH. 732. Selected Topics in Mathematical Logic.
Topics will be chosen from model theory,

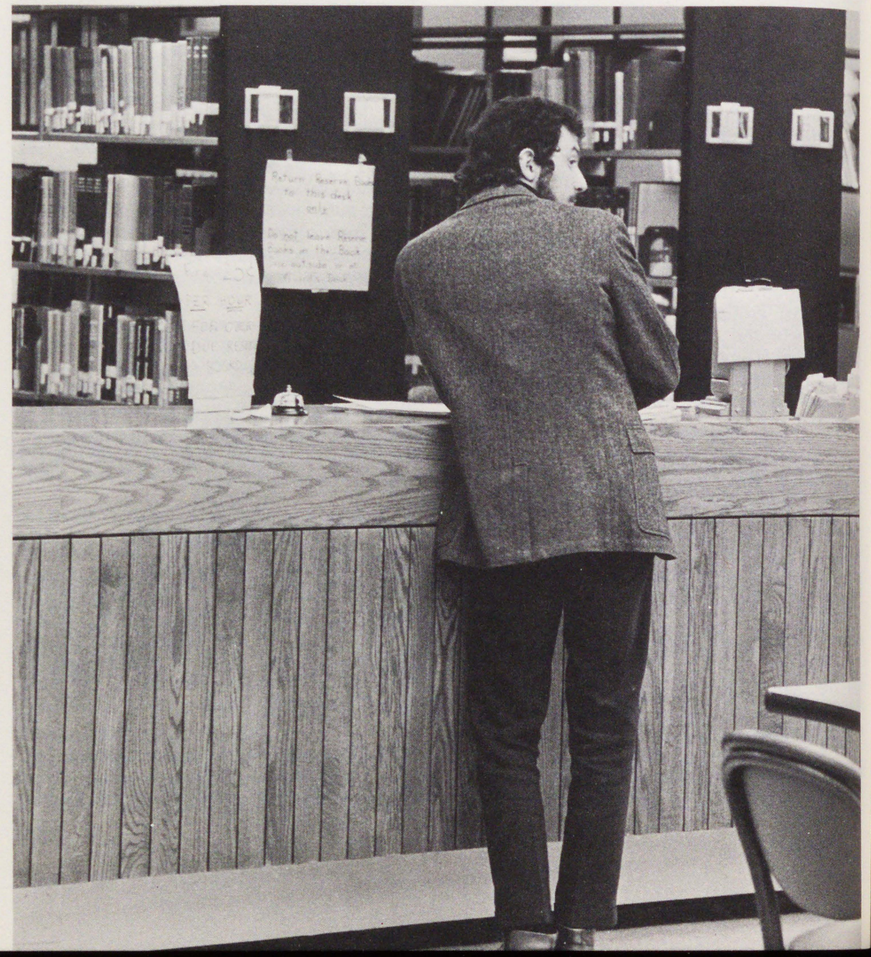
proof theory and non-standard logics with emphasis on recent developments in these areas. *Prerequisite:* 12 Sem. Hours of Math. beyond the Calculus to include Math. 431 or 635 or equivalent.

MATH. 735. Selected Topics in Recursive Function Theory
Study in depth of some particular topics in Recursive Function Theory such as degrees of unsolvability, recursive equivalence types, isols, simple sets, productive sets and creative sets. *Prerequisite:* 12 Sem. Hrs. of Math. beyond the Calculus to include Math. 435 or equivalent or permission of the instructor.

MATH. 771. Topology I
Introductory set theory; transformations; topological equivalence; topological spaces; metric spaces. *Prerequisite:* Math. 417, Math. 471, or Math. 717.

MATH. 772. Topology II
Regular, normal, and completely regular spaces, Hilbert space; space of continuous functions; complete metric spaces; product spaces, metrization and paracompactness; uniform spaces. *Prerequisite:* Math. 771.

MATH. 795. Thesis
An individual investigation into an area of mathematics under the guidance of a faculty member.



PHILOSOPHY DEPARTMENT

PHIL. 402. Philosophy of Psychology (g)

PHIL. 403. 17th-18th Century Rationalists (g)

PHIL. 404. British Empiricism (g)

PHIL. 405. Plato and Aristotle (g)

PHIL. 406. Theory of Logic and Mathematics (g)

PHIL. 407. Theory of Value (g)

PHYSICS DEPARTMENT

PHY. 510. Physics Laboratory Instruction
Selected experiences involving both new and classical techniques in laboratory and demonstration instruction in Physics and General Science.

PHY. 603. Advanced Thermodynamics and Statistical Physics
Thermodynamics, its laws, some elementary applications; kinetic theory, some elementary applications; statistical mechanics, classical and quantum statistics, ensembles. *Prerequisite:* Phy. 303 and Math. 202 or Phy. 414, or the equivalent. *Credit:* Three semester hours; three 1-hour lectures.

PHY. 606. Advanced Quantum Theory I
Quantum formalism and its interpretations, origins of the theory, Schroedinger equation, one-dimensional systems, statistical interpretations, WKB approximation; applications to simple systems, separation of variables, central potential, scattering problem, hydrogen problem, Rutherford scattering, the harmonic oscillator. *Prerequisite:* Phy. 406, Phy. 414, Phy. 415 and Phy. 417 or Phy. 616, or the equivalent. *Credit:* Three semester hours; three 1-hour lectures.

PHY. 607. Advanced Quantum Theory II
Quantum mechanical symmetries and invariance, angular momentum, identical particles and the exclusion principle, conservation laws, time reversal, methods of approximation, stationary perturbations, variational method, collision theory; introduction to relativistic quantum mechanics and to quantization of the electromagnetic field. *Prerequisite:* Phy. 418, Phy. 419, Phy. 606 and Phy. 616, or the equivalent. *Credit:* Three semester hours; three 1-hour lectures.

PHY. 608. Nuclear Physics
Properties of atomic nuclei and related phenomena; nuclear models, binding energy, nuclear forces. *Prerequisite:* Phy. 406 and Phy. 415, or equivalent. *Credit:* Three semester hours; three 1-hour lectures.

PHY. 609. Advanced Spectroscopy
A study of selected complex spectra and the evidence they have provided for the development of atomic theory. *Prerequisite:* Phy. 406 and Phy. 409, or the equivalent. *Credit:* Three semester hours; three 1-hour lectures.

PHY. 611. Advanced Solid State Physics
Crystal structure; classification of solids according to binding; propagation of waves in solids; thermal properties; dielectric properties; paramagnetism and diamagnetism; free electron theory of metals; band theory of solids; semiconductors. *Prerequisite:* Phy. 406 and Phy. 415, or equivalent. *Credit:* Three semester hours; three 1-hour lectures.

PHY. 616. Advanced Dynamics
Review of vectorial particle dynamics; Lagrangian formulation of mechanics; the two-body central force problem; rigid body motion in three dimensions; special relativity in classical mechanics; Hamilton's equations of motion; canonical transformations; Hamilton-Jacobi theory; theory of small oscillations; Lagrangian and Hamiltonian functions for continuous systems and fields. *Prerequisite:* Phy. 414, Phy. 415, Phy. 417 or equivalent. *Credit:* Three semester hours; three 1-hour lectures.

PHY. 618. Advanced Electricity and Magnetism I
Theory, boundary value problems, and dielectrics in electrostatics; magnetostatics; time varying fields and Maxwell's equations; plane electromagnetic waves; wave guides and resonant cavities; radiating systems and diffraction. *Prerequisite:* Phy. 414, Phy. 415, Phy. 416, Phy. 418 and Phy. 419, or the equivalent. *Credit:* Three semester hours; three 1-hour lectures.

PHY. 619. Advanced Electricity and Magnetism II
Continuation of Phy. 618; magnetohydro-

dynamics and plasma physics; special relativity; relativistic particle mechanics; collisions between charged particles; radiation by moving charged particles; radiation by moving charges; bremsstrahlung; multipole fields; radiation damping, scattering, and absorption. *Prerequisite:* Phy. 618, or the equivalent. *Credit:* Three semester hours; three 1-hour lectures.

PHY. 625. Physics Seminar
Selected reading, reports, discussion and evaluation of research in physics and the teaching of physics. *Credit:* One to three semester hours.

PHY. 690. Research Project in Physics
A study undertaken by one or more individuals on a problem of special interest; the problem must be approved by the Graduate Committee of the Department of Physics before the project is begun; a report on the project must be submitted in acceptable form according to directions given by the Graduate Office.

PHY. 695. Research Thesis in Physics
An individual investigation of an original problem to be submitted in typewritten form according to directions given by the Graduate Office, the problem and procedure must be approved by the Graduate Committee of the Department of Physics before the investigation is begun.

POLITICAL SCIENCE DEPARTMENT

P.S. 401. International Organization (g)

P.S. 403. History of Political Theory (g)

P.S.-SOC. 406. Political Behavior and Public Opinion (g)

P.S. 505. Contemporary Africa
An examination of the dimensions, dilemmas, and directions of the emerging African states; examples of interaction with the Western world; discussion of the social and economic changes underway.

P.S. 506. International Relations in the World Today
Topics such as international organization, international law, regionalism, economic development, role of ideologies, or relationship of domestic and international politics.

P.S. 508. Contemporary European Political Movements
Party ideologies, organization, parliamentary tactics, propaganda, campaigns, electoral geography, and social composition; party systems, individual parties, and pressure groups.

P.S. 509. Case Studies in Local Government and Politics
Structure and practice; revenues and expenditures; public housing, health, and welfare; planning and zoning; educational-political relationships; topics selected in accordance with student needs and interests.

P.S. 510. Black Politics and Ideology
Examination of Black political and social thought in America, the West Indies, and Africa with major emphasis upon the USA.

P.S. 511. Urban Politics and Administration
A survey of political behavior and governmental administrative practices in urban areas in the U.S. and abroad. Particular attention is given to historical and contemporary problems in the inner-city and to "solutions" proposed by planners, administrators, and client groups.

SOCIAL STUDIES

S.S. 502. Teaching Social Studies
Nature of the Social Studies, its content, its methodology; survey of proposals and trends in curriculum, evaluation and instructional resources.

S.S. 504. Studies in Non-Western Cultures: The Middle East
An area study of characteristic cultural features of the countries; examples of interaction with Western world; cultural and social changes underway; examples of problems typical of the underdeveloped nations in the world today.

S.S. 590. Special Project
Research or investigation of a particular problem, to be planned and carried out by student, with consultation and guidance from instructor.

S.S. 613. Seminar in Secondary Social Studies Teaching and its Curriculum
Designed to provide discussion and research of the problems and innovations of the secondary school social studies. Emphasis will be placed upon philosophy, curriculum and methodology of the social studies program required by our changing society.

S.S. 690. Project
A study undertaken by one or more individuals on a problem of special interest; must be submitted in acceptable form according to directions given by the Graduate Office.

S.S. 695. Thesis
An individual investigation of an original problem to be submitted in typewritten form according to directions given by the Graduate Office.

SOCIOLOGY DEPARTMENT

SOC. 401. Juvenile Delinquency (g)

SOC. 402. Sociology of the City (g)

SOC. 403. Contemporary Sociological Theory (g)

SOC. 404. Sociology of Religion (g)

SOC. 405. Foundations of Sociological Thought (g)

SOC.-P.S. 406. Political Behavior and Public Opinion (g)

SOC. 407. Sociology of Occupations (g)

SOC. 410. Seminar on Alcoholism (g)

SOC. 411. Sociology of Aging (Social Gerontology) (g)

SOC. 412. Soviet Society (g)

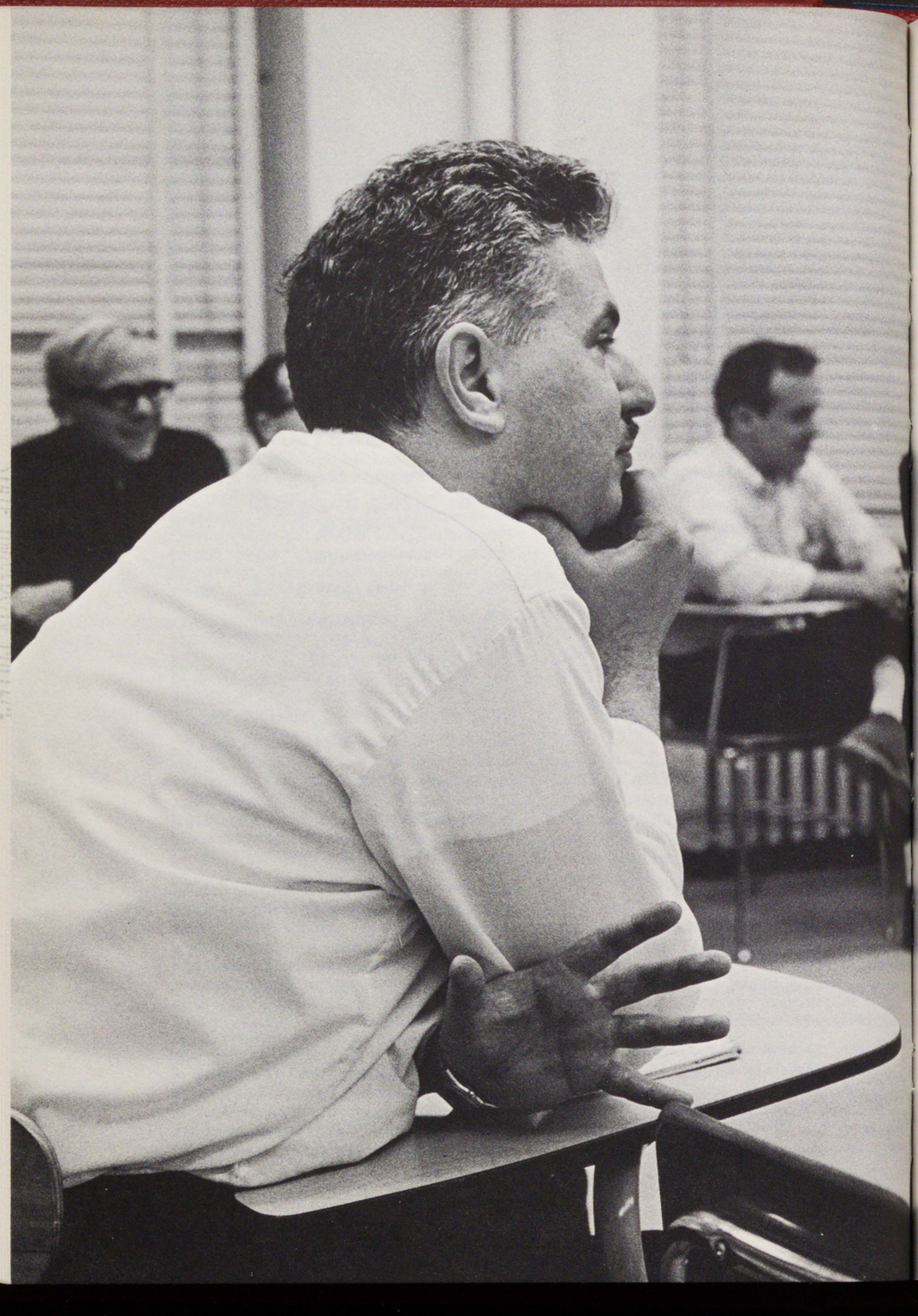
SOC. 413. Sociology of Law (g)

SOC. 501. Contemporary Social Problems
Problem areas of American society; sources of information; techniques for discovering and analyzing social problems; analysis of several major problems, selected in accordance with student needs and interests.

SOC. 505. Population Analysis and Problems
United States and world populations; quantity increase and decrease, distribution, migration, and composition of population; bearing of these factors upon economic, political, and social problems and upon social values, action, and structure.

SOC. 506. Minority Groups in American Culture
Major racial, nationality, and religious minority groups in America treated from the cultural, historical, and familial point of view; current anthropological and psychological data on uniformities, differences, prejudices, and discrimination.

SOC. 512. Seminar on Narcotic Addiction
Narcotic addiction as a social problem and a sociological phenomenon. The nature of narcotic addiction, the situations in which this behavior occurs, the characteristics of addicts. Legal, medical, and other efforts made to influence addicts.



BUFFALO, N. Y.

FACULTY OF PROFESSIONAL STUDIES

Professional Studies includes the Division of Education, including Elementary and Secondary Education, and the Division of Exceptional Children Education. Details concerning the programs and courses offered are provided under these headings in this Catalogue.

ELEMENTARY EDUCATION AND EARLY SECONDARY EDUCATION

Purpose

The purpose of this program is to help each candidate, in the process of acquiring permanent certification, become a master teacher with a particular area of competence and with individuality in using it.

Admission to the Program

Each applicant shall have provisional certification for either elementary or secondary teaching.

Advisement

The student and his adviser, after review of the student's prior experiences and education will plan his graduate work within the framework of the program he has selected. It will be their joint responsibility to examine this program periodically, to assess the growth that is resulting from it, and to revise and enrich it wherever this is appropriate.

Professional Experiences Leading to M.S. in Education	*Credit Hours*
A. Required work outside Professional Education	6
Behavioral Sciences ..... 3 hrs.	
Arts and Sciences ..... 3 hrs.	
B. Required work in Professional Education	9
Research in Education ..... 6 hrs.	
To be selected from among Education 595, 601, 690, 695.	
Education electives ..... 3 hrs.	
C. Approved cluster	15
D. Total	30
	51

Planning the Program

The candidate and his adviser are responsible for planning a series of experiences directed toward the fulfillment of the purpose of the degree: the development of a master teacher with a particular area of competence and with individuality in using it.

Each candidate shall have a research experience related to his field of competence; Ed. 595, Research Techniques, may or may not be appropriate to this.

The candidate is free to draw upon all of the resources of the College that contribute to his professional purposes. He and his adviser have the responsibility for determining what proportion of work outside professional education is appropriate to the realization of his purposes.

Available clusters of emphasis include:

Early Childhood Education
Elementary Education
Curriculum (Elementary/Secondary)
Secondary Education
Human Relations
International Studies/Comparative Education
Preparation for Peace Corps Teaching
Teaching of Reading, Science, Social Studies, Language Arts, Mathematics
Urban Education

Flexibility and individuality are basic to the program. In an area such as urban education the candidate may wish to draw upon sociology, anthropology, and economics as well as child development, philosophy of education, and materials and media. A candidate in international studies may wish to relate foreign history, history of diplomacy, and comparative literature to appropriate experiences in education. His previous education and his purposes will influence these choices. The aim is that this program will lead to depth and continuity in the candidate's field of interest and provide him an opportunity to *use* educative experiences rather than merely to meet course requirements. Although all courses should result in educative experience, they are not the only channel for it.

PREPARATION FOR PROFESSIONAL ADVANCEMENT IN ADMINISTRATION AND SUPERVISION (60-hour program)

Persons identified as potential elementary school administrators (principals, supervisors, and supporting staff) may apply for entrance into the program. Required

for admittance are: provisional certification for elementary teaching; initial interview; successful scores on the Graduate Record Examination and Miller Analogies; and written approval from the Director of Graduate Studies, the Director of the Education Division, and Coordinators of the 60-hour program.

Application for the program may be made as early as completion of the B.S. or B.A. degree requirements, or as late as completion of the M.S. or M.A. degree requirements. Early enrollment is highly desirable as individual advisement from the coordinators is an integral feature of the program.

Particularly important to the new program are the addition of two courses in Fundamentals of Administration, and the internship and internship seminar experiences. Along with careful advisement, these opportunities should produce a higher calibre of professional administrators who possess the expertise necessary in our current period of rapid, stressful, and complex change.

A typical program would include 30 hours of courses toward a M.S. or M.A. degree, followed by 30 hours of specific administration courses and the internship experience.

At the completion of the 60-hour program a Certificate of Advanced Study will be awarded.

Required courses for principal candidates are:

		Credit Hours
Ed. 701	Fundamentals of Administration I	6
Ed. 702	Fundamentals of Administration II	6
Ed. 706	Problems in Elementary School Administration	3
Ed. 703	Internship in Administration (Principal)	3
Ed. 704	Internship Seminar	3

Required courses for supervisor candidates are:

Ed. 701	Fundamentals of Administration I	6
Ed. 621	The Elementary School Curriculum	3
Ed. 721	Research in the Improvement of Curriculum	3
Ed. 631	Supervision of Teaching	3
Ed. 651	Problems in Elementary School Supervision	3
Ed. 705	Internship in Supervision (Curriculum)	3
Ed. 704	Internship Seminar	3

Electives in administrative courses will be under advisement from the coordinators of the program.

SECONDARY EDUCATION

The State University College at Buffalo offers graduate study leading to the degree of Master of Science in Secondary Education with majors in English, Mathematics, Science, or Social Studies. Science areas include Biology, Physics, General Science, Chemistry and Geoscience.

The student may take a major in mathematics and a minor in science, a major in science and a minor in mathematics, or a major and minor in two areas in science.

The student who completes the requirements for a Bachelor of Science degree in Secondary Education with a major and a minor in science or mathematics receives provisional certification until he completes the additional thirty hours for his master of science degree. The completion of the work provides permanent certification; however, the student may obtain permanent certification by completing thirty hours of prescribed graduate courses. This work must be completed within a period of five years after receiving the bachelor's degree.

The Teaching of English in Secondary (Junior and Senior High) School

		Credit Hours
Prerequisites	Undergraduate preparation including six hours in composition and/or communication and preparation in linguistics, literature for adolescents, English literature, American literature, world literature, speech and/or oral interpretation, and advanced writing.	42
Required English Courses	To be specified by adviser after review of the student's previous preparation.	18
Research	Required of all students who are candidates for the master's degree. Each candidate, after a conference with his adviser, must select one of the following:	3-6
Ed. 595	Research Methods and Techniques	3
Eng. 694	Research in Literature and Language	3
Eng. 690	Project	4
Eng. 695	Master's Thesis	6

Professional Education	Either Ed. 545 Teaching Reading in the Secondary School or one course in education chosen under advisement.	3
Unrestricted Electives		3-6
	Total Requirements	30

The Teaching of Mathematics in Secondary (Junior and Senior High) School

Prerequisites

1. Completion of at least 18 semester hours of undergraduate mathematics beyond calculus, including one semester of algebra (our present Math. 301, 303), a semester of analysis (our present Math. 417), at least one semester of geometry (our present Math. 222, 323), and at least one semester of statistics, topology or applied mathematics (our present Math. 381, 382, 471, 413 or 415).
2. An average of 2.5 on a 4.0 scale in all undergraduate mathematics courses.
3. Acceptance as a graduate student by the Chairman of the Graduate Faculty of the Mathematics Department and the Director of Graduate Study.
4. A limited deficiency in items 1 or 2 above may be removed while pursuing graduate study with a written statement from the student's advisor or the Chairman of the Graduate Faculty of the Mathematics Department. A copy of this statement will be filed in the mathematics office and with the graduate office.

Courses taken to remove a prerequisite deficiency will carry graduate credit only if approved by the Graduate Faculty. No student may apply more than 6 semester hours of 400 level courses towards this degree.

To be admitted to candidacy a student must have completed the Graduate Record Examination and the Advanced Mathematics Section.

		Credit Hours
Required Courses	At least one course from each of the following categories and at least two from two of these categories:	21
1. *Algebra*	603, 651, 701, 702	
2. *Analysis*	411, 418, 461, 711, 712, 717, 718, 723	

3. *Geometry/Topology*
471, 621, 723, 771, 772

4. *Miscellaneous*
413, 415, 431, 432, 435, 611, 631, 681, 683, 696, 731, 732, 735

Research 3-6

Required of all students who are candidates for the Master of Science degree. Each candidate, after conference with his adviser, must select one of the following requirements:

Math. Ed. 595	Research Methods & Techniques in Mathematics Education	3
or		
Ed. 595	Research Methods & Techniques	3
Math. 690	Project	4
Math. 795	Master's Thesis	6

Unrestricted Electives 6

Total Requirements 30

A 2.7 average is required in all graduate mathematics.

Satisfaction of these requirements will be verified by the Graduate Faculty of the Mathematics Department.

The Teaching of Science in Secondary (Junior and Senior High) School

Credit Hours

Prerequisites 48

Major Area of Specialization 24

Chemistry and Physics majors require, in addition, Differential and Integral Calculus. Also required, one year in each of the other sciences and in mathematics.

Required Courses 18

18 semester hours are required in graduate science and mathematics courses selected by advisement.

Research: Required of all students who are candidates for the master's degree. Each candidate, after a conference with his adviser, must select one of the following requirements:

Ed. 595	Research Methods and Techniques	3
Biol., Ch., Geos., Phy. or Sci. 690	Project	4
Biol., Ch., Geos., Phy. or Sci. 695	Master's Thesis	6

Professional Education 3

Secondary Education Elective (Student may elect a course in science in lieu of this requirement.)

Unrestricted Electives 6

Total Requirements 30

The Teaching of Social Studies in Secondary (Junior and Senior High) School

Prerequisites 42

Undergraduate preparation including at least six hours in United States History; six hours in European History; and the Social Science core of at least 24 hours, including a full year's work in four of the following 6 areas: Anthropology, Economics, Geography, History other than United States or European, Political Sciences, Sociology.

Required Courses 18

Research: Required of all students who are candidates for the master's degree. Each candidate, after a conference with his adviser, must select *one* of the following requirements:

Ed. 595	Research Methods and Techniques	3
S.S. 690	Project	4
S.S. 695	Master's Thesis	6

Professional Education 3

Secondary Education Elective (Student may elect a course in Social Studies in lieu of this requirement.)

Unrestricted Electives 6

Total Requirements 30

DIVISION OF EDUCATION

ED. 400. Elementary Statistics (g)

ED. 403. Historical and Philosophical Forces Influencing Secondary Education (g)

ED. 410. Philosophy of Education (g)

ED. 411. Evaluation in the Elementary School (g)

ED. 412. Comparative Education (g)

ED. 414. The Teaching of Reading (g)

ED. 415. Seminar in Early Childhood Education (g)

ED. 418 Media in Education (g)

ED. 419. Methods and Materials in the Elementary School (g)

ED. 420. Teaching the Language Arts in the Elementary School (g)

ED. 423. Comparative Educational Systems: Western Europe (g)

ED. 425. The Family and the Elementary School (g)

ED. 427. Community Services for Young Children (g)

ED. 428. Sociodrama and Role Playing in Education (g)

ED. 435. Advanced Statistics: Inference and Prediction (g)

ED. 502. Practicum in Programmed Instruction
The use of teaching machines and programmed instruction, programming techniques and means of evaluating programs. Laboratory experiences.

ED. 503. Educational Psychology
Study of various theories of learning; history of educational psychology; measurements of learning; variables and their interpretation; application of learning theory to the teaching situation.

ED. 504. The Community Junior College
Purposes, functions, and characteristics of the Community Junior College; historical and philosophical backgrounds; current issues in higher education; the improvement of instruction; administration and organization; student personnel services; school and community relations; related research.

ED. 508. Supervision of Student Teaching
Clarifying responsibilities of sponsor teachers; planning effective conferences with students; developing ways of helping students evaluate their own growth; keeping diversified records; clarifying long and short term planning; helping students plan learning experiences.

ED. 509. Personality Adjustment in the Elementary School
Dynamics of human behavior; prevention of maladjustment; corrective programs; formation of habits and attitudes; recent clinical research.

ED. 515. Laboratory Experiences in the Study of Young Children
Observing children in various learning situations; joint teacher-student planning of learning situation; review of teaching media for young children; emphasis on stimulating intellectual curiosity through discovery; recording, interpreting and reporting childhood behavior.

ED. 518. Selected Topics in Media Utilization
Topics of common concern explored in depth; individual investigation of a specific problem; recent developments in the field of instructional media. *Prerequisite:* Ed. 418 or equivalent.

ED. 519. Applied Mental Hygiene
Principles of mental hygiene and their application to personality development, emotional and social adjustment, and human relationships; application of mental hygiene principles to processes of teaching, pupil learning, classroom management, and conduct of the teacher in lay and professional relationships.

ED. 523. Principles and Practices of Guidance
The philosophy of guidance, its place in present education; identifying interests, and attitudes, and understanding problems of the age group and individuals; techniques of counseling and methods of investigation; the role of the teacher, specialist and administrator in guidance; school, home, community resources in a guidance program.

ED. 527. Problems in Educational Services for Young Children
Current social and economic trends affecting the lives of young children; curriculum contributions for developing individual and group living; educational problems confronting teachers in this specialized field.

ED. 528. Human Relations
Inter-group problems relating to race, religion, or national origin; slow and rapid learners; old and new residents; "fringers" and participants; competitive practices in school; dividing and integrating factors affecting learning.

ED. 529. Adolescent Psychology
Characteristics and problems of adolescents in our society; relationship of adolescent behavior to earlier development; special provisions of the early secondary school for this age group. *Prerequisite:* Six semester hours in Human Growth and Development or its equivalent.

ED. 532. Secondary School Education
Origin and functions of secondary education; curriculum patterns; guidance and exploratory programs; articulation between elementary school and senior high school; extra-curricular activities; evaluation in the secondary school; research methods in solving problems listed above and others suggested by students.

ED. 536. Secondary School Problems and Methods
Objectives of secondary school education; basic principles of learning and motivation; curriculum concepts; organizing learning experiences; providing for individual differences; teacher-pupil planning; selecting and organizing learning materials; audio-visual aids to learning; utilizing school, civic, and community resources; status and practice of the core-curriculum; nature and purposes of resource units; evaluating pupil growth.

ED. 537. Evaluation in the Secondary School
Relationship of evaluation to instructional objectives; selecting, administering, scoring, recording and interpreting standardized and teacher-made instruments for evaluating mental abilities, educational achievements, personality characteristics, interests and aptitudes; diagnosis, guidance counseling and improving instruction; organizing programs to provide for individual differences; modern practices in recording pupil progress; statistical concepts and methods of collecting, tabulating, and interpreting data.

ED. 540. Studies in Human Growth and Development
Research in child and adolescent growth; changing concepts in mental, emotional, social, and personality growth; planning, executing and evaluating "action research."

ED. 541. Social Foundations of Education
Relationships of school to society; contemporary social problems affecting education, social groups and institutions; school and community relations; nations; national, state and community organizations affecting educational programs and the development of social understandings in pupils.

ED. 542. Seminar in Secondary School Curriculum
Curricular and extra-curricular programs related to social, economic, and community changes; relationship of principles and procedures of curriculum development to educational objectives; relationship of extra-curricular activities to curriculum areas; adaptation of the curriculum to adolescent abilities, needs, and interests; various patterns of curriculum development; financing, organizing, scheduling, and supervising extra-curricular activities; bases for determining extent and type of student participation in school management.

ED. 545. Teaching Reading in the Secondary School
Need of reading instruction in secondary school; nature of reading process; types of reading programs; reading instruction; planning an effective Secondary Reading Program.

ED. 552. Legal Problems of Education
Foundations of Public School Law; legal problems arising out of the operation of the public school system; New York State Education Law; selected cases from state and federal courts; common law principles.

ED. 556. Group Dynamics in Education
Theory and practice of group procedures in the school; development of understandings, skills and attitudes conducive to successful group leadership and participation; group study and evaluation; the school group in its sociological, psychological and philosophical setting. Laboratory experience.

ED. 558. Seminar in Teaching the Disadvantaged Child
Study, analysis and evaluation of classroom procedures relevant to the disadvantaged child. The purpose of the course will be to afford participants to re-think and reconstruct the educational program in his classroom in relationship to research, methods and materials, and characteristics of the child. Major topics to be considered are: self-concept, learning and the disadvantaged, curriculum materials, role of parents, community agencies, research findings related to the disadvantaged.

ED. 590. Special Project
Research or investigation of a particular problem, to be planned and carried out by student, with consultation and guidance from instructor.

ED. 595. Research Methods and Techniques
The scientific method, including various methods of research; an analysis of different types of research studies; procedures in developing a research paper; elementary statistical terminology; collecting, classifying, and evaluating data. Required of candidates for master of science degree not writing a thesis or completing a research project.

ED. 601. Seminar in Elementary Education
The use of scientific educational research methods in studying problems in Elementary Education; the selection and discussion of current educational problems; the selection and development of a significant problem in student's area of interest and submission of a research paper. Required of Elementary Education candidates for the master of science degree. *Prerequisite:* Ed. 595.

ED. 606. Philosophy of Education
Principles underlying educational practices; changing concepts of education; education in a democratic society; teaching procedures as determined by a democratic concept of education. *Prerequisite:* Ed. 410.

ED. 607. General School Administration
Principles of school administration; historical beginnings; national, state, and local responsibilities for education; district; township, and county administrative units; boards of education; school services: health, supervision, research, library, and attendance; teacher selection, salary, tenure, in-service education; school building programs. *Prerequisites:* Ed. 603, 604.

ED. 614. The Teaching of Reading
Importance of reading in present day society, research in child development and learning and its implication in the teaching of reading; trends in the teaching of reading; developmental levels of reading; reading in the content areas; methods and materials; evaluation and guidance of pupil growth in reading. *Prerequisite:* Ed. 414.

ED. 621. The Elementary School Curriculum
Review of child nature, learning processes, purposes of the elementary school; conflicting philosophies and principles of curriculum development; types of curriculum organization; transitional steps; methods and materials; creative activities; mental health; community resources; individual differences.

ED. 631. Supervision of Teaching
Principles of supervision; classroom observation; evaluating teaching; effect of teachers' purposes and research on choice of subject matter and teaching procedures; teacher-pupil relationships; group and individual conferences; induction of new teachers; intervisitation; demonstration teaching; teachers' meetings; bulletins; workshops; evaluation of program. *Prerequisites:* Ed. 630; Elementary Provisional or Permanent Certification and two years of successful elementary school experience.

ED. 651. Problems in Elementary School Supervision
Advanced study of special problems of supervision; the roles of the teacher and supervisor in the total school program; human relations; group dynamics; creative teaching; in-service education; teacher selection and evaluation; self-evaluation by teachers; educational leadership; role of special teachers. Required for permanent certificate in Elementary School supervision. *Prerequisites:* Ed. 630, 631.

ED. 690. Project
A study undertaken by one or more individuals on a problem of special interest; must be submitted in acceptable form according to directions given by the Graduate Office.

ED. 695. Thesis
An individual investigation of an original problem to be submitted in typewritten form according to directions given by the Graduate Office.

ED. 701. Fundamentals of Administration
Principles and theories which influence decision-making processes in education; implications of philosophical, psychological, sociological, scientific and technological factors; the study and application of research in group organization, leadership, communication and related concepts of power and authority. *Prerequisite:* Thirty hours of approved graduate studies, to be reviewed by Committee.

ED. 702. Fundamentals of Administration II
The school in its societal setting; principles of school organization and resulting patterns at national, state and local levels; the bases of curriculum development and supportive administrative/supervisory functions; analysis of legal structures; problems of community relationships; aspects of staff recruitment, orientation, evaluation and negotiations. *Prerequisite:* Ed. 701.

ED. 703. Internship in Administration (Principal)
Full time experience in administration (curriculum-principal); planning and directing appropriate educational experiences under guidance and supervision of experienced administrator; seminar to run concurrently. *Prerequisite:* Ed. 701.

ED. 704. Internship Seminar
Problems of beginning administrators and supervisors; crucial issues in elementary education; function of theory and philosophy in problem solving and decision making. *Prerequisite:* Ed. 701 and approval of instructor.

ED. 705. Internship in Supervision (Curriculum)
Full time experience in supervision (curriculum); planning and directing appropriate educational experiences under guidance of experienced supervisor; seminar to run concurrently. *Prerequisite:* Ed. 701.

EXCEPTIONAL CHILDREN EDUCATION
MENTAL RETARDATION

		Credit Hours
Required Courses		12-18
	By advisement from the following:	
*Ex.Ed. 403	Mental and Educational Measurements	
*Ex.Ed. 404	Curriculum Practices for Children with Mental Retardation	
*Ex.Ed. 408	Creative Arts for Mentally Retarded	
*Ex.Ed. 413	Nature and Needs of Exceptional Children	
*Ex.Ed. 418	Practicum in Mental Retardation	
Ex.Ed. 419	Teaching the Severely Retarded (Trainable)	
Ex.Ed. 420	Speech Problems of Children	
Ex.Ed. 500	The Trainable Mentally Retarded: Trends, Problems and Issues	
Ex.Ed. 501	Psychological and Social Aspects of Mental Retardation	
Ex.Ed. 502	Administration and Supervision of Programs for Exceptional Children	
Ex.Ed. 503	Internship Program in Mental Retardation	
Ex.Ed. 504	Seminar in Mental Retardation	
Ex.Ed. 505	Survey of Specific Learning Disabilities	
Ex.Ed. 506	Supervision of Student Teachers in Mental Retardation	
Ex.Ed. 507	Secondary Work-Study Programs for the Mentally Retarded	

*These courses meet New York State certification requirements. Students seeking certification should consult with the Division Director before first registration.

		Credit Hours
Ex.Ed. 508	Understanding the Problem Child in the Classroom	
Ex.Ed. 509	The Gifted Child	
Ex.Ed. 510	Expanding Self Awareness for Effective Teaching	
Ex.Ed. 527	Guidance of Children who are Exceptional	
Ex.Ed. 590	Special Project	
Ex.Ed. 621	Communication Problems of the Mentally Retarded	
Required Courses in Arts and Sciences		3-9
	Chosen by advisement from Art, English, Geography, Mathematics, Music, Philosophy, Science and Social Sciences.	
Research		**3-6**
Ed. 595	Research Methods and Techniques	3
Ex.Ed. 690	Project	4
Ex.Ed. 695	Master's Thesis	6
	(Each candidate, after conference with his adviser, must select *one* of the above requirements.)	
Unrestricted Electives		3-12
	Total Requirements	30

PHYSICAL HANDICAP

Required Courses		12
	By advisement from the following:	
Ex.Ed. 403	Mental and Educational Measurement	
*Ex.Ed. 413	Nature and Needs of Exceptional Children	
*Ex.Ed. 417	Curriculum Practices for Children with Orthopedic Handicap	
Ex.Ed. 420	Speech Problems of Children	
*Ex.Ed. 421	Practicum in Teaching Children with Orthopedic Handicap	
Ex.Ed. 505	Survey of Specific Learning Disabilities	
Ex.Ed. 508	Understanding the Problem Child in the Classroom	
Ex.Ed. 509	The Gifted Child	
Ex.Ed. 510	Expanding Self Awareness for Effective Teaching	
*Ex.Ed. 527	Guidance of Children Who Are Exceptional	
Ex.Ed. 590	Special Project	

*These courses meet New York State certification requirements. Students seeking certification should consult with the Division Director before first registration.

		Credit Hours
Required Courses in Arts and Sciences		9
	Chosen by advisement from Art, English, Geography, Mathematics, Music, Philosophy, Science and Social Sciences.	
Research		3-6
Ed. 595	Research Methods and Techniques	3
Ex.Ed. 690	Project	4
Ex.Ed. 695	Master's Thesis	6
	(Each candidate, after conference with his adviser, must select *one* of the above requirements.)	
Unrestricted Electives		3-6
	Total Requirements	30

COMMUNICATION DISORDERS

Required Courses		15-18
	By advisement from the following:	
Ex.Ed. 412	Audiometry and Hearing Aids	
Ex.Ed. 415	Speech Reading and Auditory Training	
Ex.Ed. 416	Stuttering	
Ex.Ed. 524	Seminar in Audiology	
Ex.Ed. 559	Seminar in Stuttering: Theory and Research	
Ex.Ed. 590	Special Project	
Ex.Ed. 609	Seminar in Voice and Articulation	
Ex.Ed. 612	Neuropathologies of Speech	
Ex.Ed. 616	Diagnostic Principles and Procedures	
Ex.Ed. 617	Seminar in Cleft Palate	
Ex.Ed. 621	Communication Problems of the Retarded	
Research		3-6
Ed. 595	Research Methods and Techniques	3
Ex.Ed. 690	Project	4
Ex.Ed. 695	Master's Thesis	6
Electives from other areas by advisement		6-12
	Total Requirements	30

NOTE: Students with undergraduates degrees in arts and sciences or education may schedule a full thirty hour program in communication disorders (including the research requirement), providing minimal departmental undergraduate prerequisites have been satisfied.

EX.ED. 403. Mental and Educational Measurement (g)

EX.ED. 404. Curriculum Practices for Children With Mental Retardation (g)

EX.ED. 408. Creative Arts for Mentally Retarded (g)

EX.ED. 412. Audiometry and Hearing Aids (g)

EX.ED. 413. Nature and Needs of Exceptional Children (g)

EX.ED. 414. Introduction to Audiology (g)

EX.ED. 415. Speech Reading and Auditory Training (g)

EX.ED. 416. Seminar in Stuttering (g)

EX.ED. 417. Curriculum Practices for Children With Orthopedic Handicap (g)

EX.ED. 418. Practicum in Mental Retardation (g)

EX.ED. 419. Teaching the Severely Retarded (Trainable) (g)

EX.ED. 420. Speech Problems of Children (g)

EX.ED. 421. Practicum in Teaching Children with Orthopedic Handicap (g)

EX.ED. 430. Practicum in Learning and Behavioral Disorders (g)

EX.ED. 500. The Trainable Mentally Retarded: Trends, Problems and Issues
An exploration of major problems, trends, and issues related to providing effective programs for the trainable mentally retarded. Changing attitudes in educational, vocational, institutional, and community planning for the trainable retarded will be studied. *Prerequisite:* Ex. Ed. 419.

EX.ED. 501. Psychological and Social Aspects of Mental Retardation
A study of nature, etiology, diagnosis, classification and social implications of the condition of mental retardation to the individual, family and community. *Prerequisite:* Ex. Ed. 413.

EX.ED. 502. Administration and Supervision of Programs for Exceptional Children
A study of those aspects of educational leadership necessary to formulate, organize, implement and evaluate quality public school programs and services for exceptional children. *Prerequisite:* Ex. Ed. 404 or Certification to teach the mentally retarded.

EX.ED. 503. Internship Program in Mental Retardation
An opportunity to apply the theories and principles learned in cognitive courses to actual practices in administrative, diagnostic, supervisory, recreational and community service roles in programs for the retarded. *Prerequisite:* Full time graduate student in Mental Retardation.

EX.ED. 504. Seminar in Mental Retardation
A study of current interests, problems, issues, practices, research, theories, methodologies and program innovation and change related to the condition of mental retardation. *Prerequisite:* Full-time graduate students majoring in mental retardation. The Seminar is required for all such students.

EX.ED. 505. Survey of Specific Learning Disabilities
Survey of specific learning disabilities found in elementary school children and problems related thereto; methods of identifying and assessing the problem; theoretical bases of remediation and major educational techniques. *Prerequisite:* Human growth and development, educational psychology, nature and needs of exceptional children, and mental and educational measurement, or equivalents.

EX.ED. 506. Supervision of Student Teachers in Mental Retardation
Clarifying responsibilities of sponsor teachers; techniques of evaluation and conferring with students; determining content of student teaching experience; ways of helping students become effective teachers of the retarded. *Prerequisite:* A fully certificated teacher of the mentally retarded with a minimum of two years of successful teaching experience.

EX.ED. 507. Secondary Work-Study Programs for the Mentally Retarded
A study of basic knowledge, skills and attitudes necessary for planning, implementing and coordinating work-study programs for the retarded in the secondary school. *Prerequisite:* Ex. Ed. 404.

EX.ED. 508. Understanding the Problem Child in the Classroom
Personal and social factors as related to the problem child; case study of an individual pupil and group discussion of report. Enrollment limited to fifteen. Open to graduate students in any division.

EX.ED. 509. The Gifted Child
Study of the nature and needs of children who are gifted; examination of such provisions as acceleration, partial-segregation, enrichment, special classes; criteria for identifying; implications for classroom teacher.

EX.ED. 510. Expanding Self Awareness for Effective Teaching
Designed to increase understanding and acceptance of personal feelings as they affect teaching behavior. The impact one makes on others; his ability to listen and be attentive; the effects one's behavior has in teaching-learning situations with children having learning and behavioral disorders are covered. *Prerequisite*: Majors in Exceptional Children Education Division working with children having Learning and Behavioral Disorders, Communication Disorders, Physical Handicaps and Mental Retardation.

EX.ED. 524. Seminar in Audiology
Review of research and current clinical advances in Audiology. Emphasis will be given to recent areas of measurement and the relationship to diagnostic considerations. Observation and participation in advanced testing diagnostic appraisals. *Prerequisite:* Ex.Ed. 412 or equivalent.

EX.ED. 527. Guidance of Children Who Are Exceptional
Education, social and vocational guidance of children who are exceptional because of intelligence, physical development, behavior, speech and hearing.

EX.ED. 559. Seminar in Stuttering: Theory and Research
Review of major etiological theories of stuttering and investigations pertaining to these constructs. A review of current research related to the remediation of stuttering behavior will also be undertaken.

EX.ED. 590. Special Project
Research or investigation of a particular problem to be planned and carried out by student, with consultation and guidance from instructor.

EX.ED. 604. Workshop in Curriculum for Cerebral Palsied Children
Structured to encourage formulation of realistic curriculum for slow-learning cerebral palsied children in the elementary school grade range. Participants will be required to originate curricular proposals, working under guidance provided by workshop specialists. *Prerequisite:* Ex.Ed. 407 or equivalent.

EX.ED. 609. Advanced Seminar in Voice and Articulation Problems
Etiology and treatment of more severe voice problems, severe articulation problems, and esophageal speech. Investigation of current research.

EX.ED. 612. Neuropathologies of Speech
Study of neuropathologies related to adult aphasia, cerebral palsy and related motor speech disorders; and brain damage in childhood. Emphasis on diagnostics and therapeutic methods.

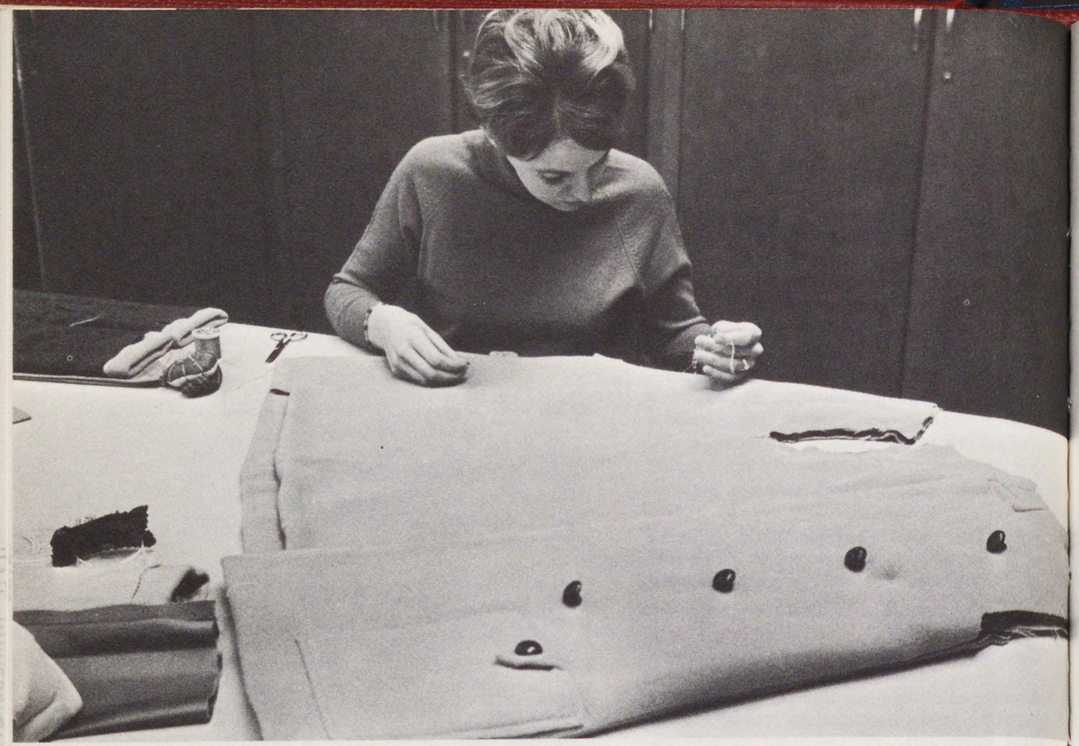
EX.ED. 616. Diagnostic Principles and Procedures in Speech Pathology
Investigation and assessment of diagnostic speech and language tests with emphasis on the more recently developed. Experience in their application in the clinical evaluation of speech problems.

EX.ED. 617. Seminar in Cleft Palate
Study of multiple problems and clinical management of cleft palate persons, emphasis on diagnostic and therapeutic methods; consideration of etiologic, embryologic, morphologic, psychologic, and craniofacial growth factors.

EX.ED. 621. Communication Problems of the Mentally Retarded
Designed for speech clinicians and teachers of the mentally retarded. The nature and needs and condition of retardation with special emphasis on learning, speech and language, are considered. Emphasis is given the role communication plays in the personal, social and occupational adjustment of the retarded.

EX.ED. 690. Project
A study undertaken by one or more individuals on a problem of special interest; must be submitted in acceptable form according to directions given by the Graduate Office.

EX.ED. 695. Thesis
An individual investigation of an original problem to be submitted in typewritten form according to directions given by the Graduate Office.



FACULTY OF APPLIED SCIENCE AND TECHNOLOGY

Applied Science and Technology includes the divisions of Industrial Arts Education and Vocational Technical Education and the department of Home Economics Education. The programs offered by each division or department are described under the following headings.

HOME ECONOMICS EDUCATION

		Credit Hours
Technical		9-12
	Environmental and Consumer Studies Human Development, Family and Community Relations Dietetics, Food and Nutrition	
Professional		3-6
	Evaluation Trends in Teaching Home Economics Home Economics Education for Adults Curriculum Planning in Home Economics	
Required Courses in Arts and Sciences		3-6
	Chosen by advisement from Art, English, Geography, Mathematics, Music, Philosophy, Science and Social Sciences.	
Research		3-6
HEE 600	Seminar in Home Economics Education Research (Required)	3
	(Each candidate, after conference with her adviser, may elect to take HEE 690 or HEE 695 in addition to HEE 600. HEE 600 may serve as a basis for these.)	
HEE 690	Research Study	3
HEE 695	Master's Thesis	6
Unrestricted Electives		3-9
	Total Requirements	30

DIETETICS, FOOD AND NUTRITION

DFN 408. Advanced Nutrition (g)

DFN 426. Food Demonstration (g)

DFN 428. Meal Management (g)

DFN 433. Food Management for Disadvantaged Families (g)

DFN 490. Field Experience (g)

DFN 500. Bio-Nutrition
Evaluations of the close interrelationships of amino acids, lipids, carbohydrates, vitamins, and minerals in human nutrition based on recent metabolic findings; evaluations of recent metabolic and physiological data of both human beings and animals; and the relationship of these factors to recommended dietary allowances.

DFN 501. Seminar on Trends in Nutrition
Recent developments, techniques, and findings in the field of human nutrition, food needs, and their application. The use of guest speakers as professional contributors.

DFN 604. Trends and Research in Food
Recent research and trends in food preparation and technology. Some experimental work in food preparation.

DFN 605. Recent Advances in Nutrition
Review of principles of nutrition. Current trends and research in nutrition. Emphasis on application of nutrition information to specific problems of individual and society.

ENVIRONMENTAL AND CONSUMER STUDIES

ECS 402. Management and Family Finance (g)

ECS 420. Housing and the Community (g)

ECS 425. Advanced Clothing (g)

ECS 427. Draping and Flat Pattern Design (8)

ECS 431. Furnishing the Home (g)

ECS 437. Advanced Textiles (g)

ECS 447. Clothing in Relation to Human Behavior (g)

ECS 457. Fashion Merchandising (g)

ECS 490. Field Experience (g)

ECS 509. Textiles

A study of the current developments in the field of textiles with particular emphasis on information for the consumer with regard to the selection, utilization and care of modern textiles.

ECS 510. Trends in Housing and Home Furnishings
Problems related to housing and home furnishings; planning and construction; consultants, field trips.

ECS 516. Family Clothing
A study of economic, psychological, and sociological factors that affect the purchase, selection, care and construction of clothing for the family; management of time, money, and energy as they relate to family problems, development of individual studies in areas of particular interest.

ECS 519. Decision Making in Management
Consideration of problems of the family in relation to the management of the home; speakers and consultants; field trips, individual problems.

ECS 520. Family Financial Planning
Consideration of family financial problems; alternate choices in the light of family goals and values; examination and evaluation of available materials for use in teaching.

ECS 606. Trends in Home Management
Newer developments in the field of management in the home; problems met in teaching management in secondary and adult classes; individual work on problems in accordance with student needs.

ECS 608. Clothing Design
Draping and flat pattern with emphasis on couturiere techniques.

ECS 612. New Developments in Household Equipment
Survey and evaluation of developments in large and small equipment used in homes and schools; field trips, laboratory and demonstrations.

ECS 617. Recent Trends in Clothing
Interpretation, use and evaluation of present trends in teaching clothing construction; emphasis on techniques and the importance of management in the use of time, money, energy and equipment.

ECS 627. Comparative Methods in Clothing Construction
Experimental techniques in the manipulation of fabric by considering fiber, weave, finish, hand, and design; qualitative analysis of the results, use of time and effort.

HOME ECONOMICS EDUCATION

HEE 429. Home Economics and International Education (g)

HEE 435. Occupational Education in Home Economics (g)

HEE 590. Special Problem
Investigation of a particular problem to be planned and carried out by student, with consultation and guidance of (1) an instructor approved by Home Economics Graduate Committee; and/or (2) a member of the Home Economics Graduate Committee.

HEE 600. Seminar in Home Economics Education
Recent research and problems in the field of Home Economics considered; special problems selected by students investigated according to acceptable procedures in preparing, writing a research paper.

HEE 601. Trends in Teaching Home Economics
Problems in teaching of Home Economics based upon individual needs and interests of workshop participants. Individual conferences; group discussion; joint activities.

HEE 602. Leadership in Home Economics Supervision
Consideration of the development of home economists for leadership positions in education and in related areas within the profession including background and principles of supervision, role of the supervisor related to leadership, human relations and evaluation.

HEE 607. Evaluation in Home Economics Education
Techniques for identifying and appraising progress toward goals in home economics; methods of teaching appropriate to the achievements of these objectives; individual work on problems of evaluation.

HEE 615. Home Economics Education for Adults
A study of recent developments in homemaking education for adults.

HEE 621. Curriculum Planning in Home Economics
Offers an opportunity to study the planning, development and evaluation of the home economics curriculum.

HEE 690. Research Study
An undertaking engaged in by one or more students related to the area of special interests. The study must be planned cooperatively and approved by a member of the Home Economics Graduate Committee.

HEE 695. Thesis
Individual investigation of an original problem to be submitted in typewritten form according to directions given by the Graduate Office.

HUMAN DEVELOPMENT, FAMILY AND COMMUNITY RELATIONS

HDFCR 409. Human Development and Family Relations—The Individual and Family in Society and Culture (g)

HDFCR 418. Parent Education (g)

HDFCR 420. Interventive Methods (g)

HDFCR 429. Educational Programs for Pre-kindergarten Children in Urban Settings (g)

HDFCR 430. Issues of the Modern American Family (g)

HDFCR 440. Psychopathology of Parent Child Relations (g)

HDFCR 490. Field Experience (g)

HDFCR 502. Personality Development in the Family
Study of personality development emphasizing the role of the family in shaping the individual from infancy through adulthood; contributions of recent research in personality, child development, family relations.

HDFCR 503. Family Relations
Basic concept of the family; current emphasis; social trends as these influence the family; research on the family.

HDFCR 504. Achieving Human Potentiality
A seminar designed to explore the phenomena of unfulfilled potentiality among selected families, including the disadvantaged. Methods for the identification of and techniques for working with hard-to-reach families will be assessed.

HDFCR 530. Seminar in Intergroup Relations
A case study approach to the problems of interpersonal and intergroup conflicts geared to the "helping" professional and community worker. Participants will be expected to contribute their own experiences for group study.

HDFCR 611. Resources for Teaching Family Relations
Techniques and media for teaching family relationships; examination and evaluation of materials for teaching at various levels. *Prerequisite or concomitant:* functional course in family relations.

HDFCR 630. Seminar in Social Dynamics of Contemporary Ghettos
Comprehensive review and analysis in depth of selected aspects of the social-psychological forces operation in contemporary ghetto and the subsequent effects upon family and other human resources. Ghetto is defined in terms of attitudes rather than geography.

HDFCR 635. Seminar in Research in Human Development, Family and Community Relations
The seminar will be devoted to a review and appraisal of research in selected areas of human development, family and community relations.

INDUSTRIAL ARTS EDUCATION

The fifth year program in Industrial Arts Education is designed to develop, extend and enhance the technical and professional competencies of graduate students and teachers in Industrial Arts. Completion of the program provides the Master of Science in Education degree and satisfies the requirements for permanent certification in New York State.

Courses in Technical and Related Fields		*Credit Hours*
Professional Education:		12
I.A. 600	Foundations in Industrial Arts	3
I.A. 601	Research Seminar in Industrial Arts	3
I.A. 628	Curriculum Development in Industrial Arts	3
I.A. 624	Evaluation in Industrial Arts	3
Technical Education		12

Chosen by advisement from the following: I.A. 608, 612, 613, 615, 617, 618, 619, 620, 621, 623, 627, 629, 630, 590.

Note: I.A. 400g courses may be selected with the approval of the advisor or department chairman.

Free Electives		6
Total Requirements		30

Evidence of mastery in the field requires fulfillment of one of the following:

A. A thesis with six semester hours credit;

B. A master study with three hours credit;

C. Satisfactory completion of a comprehensive examination (in addition to the 30 credits required.)

I.A. 402. Graphic Reproduction Processes (g)

I.A. 403. Plastics Technology (g)

I.A. 406. Production and Research in the Forest Products Industries (g)

I.A. 407. Architectural Drawing (g)

I.A. 408. Electronics Communication (g)

I.A. 409. Electronic Instrumentation (g)

I.A. 410. Materials and Products of the Ceramic Industry (g)

I.A. 417. Descriptive Geometry (g)

I.A. 418. Research and Experimentation in Metal Technology (g)

I.A. 419. Electronics Frequency Modulation (g)

I.A. 421. Industrial Arts for Students With Special Needs (g)

I.A. 423. The Industrial Arts Consultant in the Elementary School (g)

I.A. 427. Graphic Solutions (g)

I.A. 513. Industrial Ceramics
A general review and familiarization with the total field of the ceramics industries will be developed through class discussions and manipulative experiences with each material. Persons wishing to take I.A. 613, but not able to meet the prerequisites should take this course.

I.A. 523. Industrial Arts in the Elementary School
Opportunities for classroom teachers to promote and develop ideas for their own situations; planning, organizing and constructing activities for the elementary school; use of a variety of materials, development of IA in the elementary school and the changing industrial and technological process and their effect upon society. Not for IA majors.

I.A. 590. Special Project
Research or investigation of a particular problem, to be planned and carried out by student, with consultation and guidance from instructor.

I.A. 600. Foundations in Industrial Arts
European and American antecedents of Industrial Arts; social and technological factors that make the Industrial Arts a major condition of culture; psychological and philosophical basis for teaching Industrial Arts.

I.A. 601. Research Seminar in Industrial Arts
Discussion, research, reports on individual problems, studies of current research problems. Required of Industrial Arts students registered for the degree of Master of Science in Education. *Prerequisite:* I.A. 600.

I.A. 602. Field Studies Related to Industrial Arts Education
Individual and group studies of industrial activities in the Niagara Frontier; the woodworking and fabrication trades; metal industries; plastic and fibre products; graphic arts; electrical, ceramic, airplane and automotive manufacturer; conferences with representatives of industry and labor organizations.

I.A. 606. Supervision of Industrial Arts
Problems and techniques concerning administration and supervision of elementary, secondary, and adult programs in industrial arts education at the federal, state, and local levels.

I.A. 607. Industrial Arts Facility Planning and Management
Problems involved in planning new industrial arts facilities or the remodeling of existing laboratories; concepts in relationship of objectives to facilities, space allocation, area development and organization, service requirement, criteria for selection and placement of equipment, analyzing available equipment and writing specifications, actual experience in evaluating an existing Industrial Arts laboratory and in proposing improvements.

I.A. 608. Metallic Fusion and Joining Technology
An intensive course for students interested in the improvement of technical skills in welding, using the latest equipment and knowledge. Use of both gas and electric welding equipment required. Study of the latest research into welding applications in industry will be made.

I.A. 609. History of Industrial Arts
European antecedents; attempts to introduce technical instruction into American education; Russian Manual Training; Swedish Sloyd System of instruction; the Arts and Crafts Movement; the Manual Arts movement; growth of the vocational concept in America; Industrial Arts as pre-vocational training; the social-economic concept for Industrial Arts; Industrial Arts as the study of industry; Industrial Arts as the study of technology.

I.A. 612. Plastics in the Building and Aeronautical Industries
Study of polymer materials used in the field of home construction and aeronautical industry; machining, forming and testing of materials; materials and equipment selection for organizing in high school plastics course; research techniques applicable to the field of thermosets. Prerequisite: I.A. 303 or I.A. 404 or equivalent background in plastics technology.

I.A. 613. Ceramic Technology
A detailed investigation of industrial ceramics with emphasis on recent developments; evaluation of materials for product application and laboratory application; emphasis on industrial processes and product evaluation. *Prerequisite:* I.A. 206 or I.A. 513.

I.A. 615. Power Technology
Principles of operation, design, function of power systems employing various types of engines; mechanisms involved in the development, transmission and control of power with emphasis on dynamic analysis of specific units and their application.

I.A. 617. Electronics
Electronics in the junior and senior high school Industrial Arts program; advanced electronic theory and practice in communications; development of instructional materials, demonstration equipment, projects, and visual aids. *Prerequisite:* I.A. 408.

I.A. 618. Electronics
Advanced study in circuit analysis of instruments; familiarization with electronic instruments, their operation, and application. *Prerequisite:* I.A. 408.

I.A. 619. New Techniques and Materials in Forest Products Industry
Consideration given to design, application, and use of power equipment; preparation and treatment of wood; exploration of adhesives, abrasives, and finishes; experiences in lamination and patternmaking; introduction to house construction; application of new techniques and materials in wood to our culture.

I.A. 620. The Forest Products Industry
Processes and procedures involved in the derivation of chemicals, solvents, human consumption goods and other by-products from the tree; research and experimentation to interpret industrial processes; application of bending, laminating, veneering, inlaying and production techniques; development of teaching materials to improve classroom presentations.

I.A. 621. New Methods and Techniques in Metal Technology
Primarily a research seminar involving investigation of recent and current experimental developments in metalworking knowledge; securing of data from primary sources, abstracts, and actual contact with the developing laboratories or industries; laboratory facilities available for original development or experimentation on part of the student.

I.A. 623. Industrial Arts for the Elementary School
Understanding the role of the industrial arts consultant; gain increased proficiency in teaching children to work with tools and materials; child nature and growth, his potency of experience; understanding the relationships of industrial arts to the elementary school; develop the ability to administer a program of elementary industrial arts.

I.A. 624. Evaluation in Industrial Arts
General principles of evaluation; construction and use of objective tests, informal devices and techniques of evaluation applicable to Industrial Arts; selection, construction, and use of appropriate instruments of evaluation; observation, rating scales, anecdotal records, personnel systems, and the Industrial Arts project; interpreting, recording and using the results of evaluation for the improvement of instruction. *Prerequisite:* I.A. 601, I.A. 628.

I.A. 627. Television Technology
Circuit analysis of television; use of specialized laboratory equipment.

I.A. 628. Curriculum Development in Industrial Arts
Philosophical foundation of Industrial Arts; current social, economic, and technological conditions; curriculum patterns and curriculum controls; course of study construction; approaches to teaching; programs, structure and evaluation. *Prerequisite:* I.A. 600.

I.A. 629. Drafting — Problems and Techniques
Technical proficiency in specific areas of

drafting; the program of drafting in the junior and senior high schools; governmental and industrial drafting standard; conventional and simplified drafting practices; evaluation of pupil progress in technical drawing.

I.A. 630. Graphic Arts
Updating content and methodology of graphic arts education as an area of industrial arts; activities and presentations emphasizing innovations brought about by recent developments in industry; instruction in techniques of copy preparation for reproduction, general, technical and graphic arts photography, current methods of stripping and platemaking, principles of offset lithographic presswork for junior and senior high industrial arts.

I.A. 635. Supervision of Industrial Arts Student Teachers
Intensive study of the professional role of the public school teacher who supervises industrial arts student teachers; provides opportunity to develop video tapes, type scripts and other related supervisory instruments; students will develop specific supervisory skills as appropriate to the supervision of student teachers. *Prerequisites:* 15 semester hours of graduate study and 2 years of teaching experience.

I.A. 690. Master's Study
A Study undertaken by one or more individuals on a problem of special interest; must be submitted in acceptable form according to directions given by the Graduate Office. *Prerequisite:* I.A. 601, I.A. 628.

VOCATIONAL TECHNICAL EDUCATION

Courses in Area of Specialization and Related Fields

		Credit Hours
Area of Specialization Education		12
	Required: V.T. 601, 602, and in addition a minimum of 8 hours in V.T. 603, 610, 615, 620, 630, 640, 645, 650, 655.	
Advanced Professional Education		6
V.T. 595	Research in Vocational Technical Education (Required)	2-4
	V.T. 635, 660, 665, 670, and Educational Electives.	
Required Courses in Arts and Sciences		6
	Chosen by advisement from Art, English, Geography, Mathematics, Music, Philosophy, Science, Social Sciences.	
Unrestricted Electives		6
	Total Requirements	30

V.T. 590. Special Project
Research or investigation of a particular problem, to be planned and carried out by the student, with consultation and guidance from the instructor.

V.T. 595. Research in Vocational Technical Education
Problems in the reorganization of vocational technical education programs in the light of changing social and industrial conditions; community and industrial surveys, curriculum content, possibilities in part-time cooperative arrangement, apprenticeship agreements. Discussions, lectures, visits to plants and schools. An opportunity for advanced students of vocational technical education to make practical field studies under supervision. Among the fields represented will be aviation, marine engineering, automobile mechanics, building trades, metal trades, service trades, and other newer developments in specialized fields.

V.T. 601. Supervision of Vocational Education
Nature and scope of supervision; surveying, studying, analyzing needs and facilities; planning, initiating, and maintaining supervisory programs; evaluating procedures and outcomes, trends in Vocational Technical Education.

V.T. 602. Administration of Vocational Education
Nature and scope of vocational technical education; administrative responsibilities for curriculum, student selection, rating, integration with industrial, advisory boards, community relationships, and liaison with state and federal authorities.

V.T. 603. Selected Topics in the Organization, Administration and Supervision of Vocational Technical Education
Problems arising in the organization, administration, and supervision of vocational technical education.

V.T. 610. Coordination in Vocational and Practical Arts Education
The course will analyze the philosophy, organization and procedures involved in adjusting the local vocational program to the current and anticipated employment requirements for youth and adults in business and industry. Particular attention will be given to the recent reports of the National Manpower Council, Area Redevelopment Act, Manpower Development Training Act.

V.T. 615. Supervised Professional Experiences in the Administration of Vocational Education
An opportunity for a limited number of persons to secure, under guidance, experience in administrative situations in vocational programs.

V.T. 620. Organization of Programs of Vocational Technical Education for In-School Youth, Out-of-School Youth and Adults
A study of the structure of a comprehensive program of vocational technical education with particular reference to the objectives and organization of the various types of courses and services needed in preparing for and making progress in a skilled occupation or technical field. Consideration will be given to the effect that technological developments will have on existing programs.

V.T. 630. Individualizing Instruction in Vocational Technical Education
The need for individualizing instruction in trade and technical courses and the purposes to be achieved by an individualized approach. Methods and devices for such instruction, the preparation of appropriate material, and methods for evaluating the results of individualized instruction.

V.T. 635. Curriculum Problems of Vocational Schools
A course planned to fit the needs of vocational technical education instructors in the preparation and use of curriculum material for vocational technical training.

V.T. 640. Testing and Measurement in Vocational Technical Education
A study of the elements to be measured in the teaching of vocational technical subjects, together with the application of sound testing procedures to the teaching of shop subjects, technical and related technical subjects. Development of test materials to meet individual teaching situations.

V.T. 645. Current Concepts in Vocational Education
A problems course dealing with basic issues in vocational technical education;

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studies relating to need, purpose, financial support and evaluations of vocational technical education; duties and responsibilities of specialized personnel for teaching, supervising, and administering such programs.

V.T. 650. Organization of Vocational Technical Cooperative Programs
Provides information for industrial arts or trade teachers and department chairmen or supervisors interested in establishing industrial cooperative programs. Included are procedures for promoting a new program, working with advisory boards, developing employment opportunities, arranging training outlines, planning instructional facilities and securing Regents accreditation.

V.T. 655. Operation of Vocational Technical Cooperative Programs
A course for those interested in conducting effective instruction in an industrial cooperative program, including how to interview employers, supervise trainees, interpret legal aspects, prepare records and reports, and conduct classes in related theory.

V.T. 660. Vocational Curriculum Laboratory
A laboratory course in which experienced teachers may identify and develop curriculum materials for various levels and types of vocational technical education programs. Projects may be undertaken in trade, technical, occupational extension or apprentice education. Syllabi, content outlines, basic curriculums, instructional and teacher education materials will be developed. Special attention will be given to those who wish guidance in the solution of vocational curriculum problems for their communities.

Participants will be required to submit a preliminary plan of the curriculum problem for approval in advance and carry it through to completion in the course. The major portion of the instruction will be on an individual basis. Enrollment by permission only.

V.T. 665. Seminar in Vocational Technical Education
Discussions and reports on selected major aspects of vocational technical education including relation of vocational technical education to education in general, need for and purposes of vocational technical education, types, levels and trends, evaluation, the vocational technical teacher as a guide in the learning process, and unique functions of vocational technical teachers.

V.T. 670. Advanced Seminar in the Administration of Vocational Technical Education
Opportunities, duties and responsibilities of administrators of vocational technical programs. For persons preparing for positions as supervisors and directors of various phases of vocational technical education.

SAFETY AND DRIVER EDUCATION

S.ED. 416. Safety Education (g)

S.ED. 417. Driver Education and Traffic Safety (g)

S.ED. 426. Driver Education and Traffic Safety (g)

S.ED. 430. Fundamentals of Industrial Accident Prevention (g)

S.ED. 564. Advanced Driver Education and Safety
Course designed to fit the needs of Teachers of Driver Education courses now in practice in the secondary schools. Evaluation of Audio-Visual Aids, survey and evaluation of research studies in driver education, practice driving analysis, analysis and evaluation of diagnostic tests. Evaluation of techniques for improving practice driving instruction and project development. Teachers should have one year of teaching driving education on the secondary level before registering. *Prerequisite:* S.ED. 417.

S.ED. 565. Trends and Problems in Driver and Traffic Safety Education
Teaching, administration and supervision of driver education and traffic safety programs; methods and materials, resource people and agencies; critical analysis of existing procedures; discussion of problems; research findings; field trips and lectures by leaders in related specialized areas. *Prerequisite:* S.ED. 417 (when S.ED. 417 was completed after Sept. 1, 1966, then S.ED. 426 would also apply). *Special Note:* Required to obtain permanent approval as a Driver Education Instructor.

INTERDEPARTMENTAL

I.D. 424. Peoples and Institutions of India (g)

SIGNIFICANT DATES IN THE HISTORY OF THE COLLEGE

1867 Legislature created the Normal School at Buffalo
1871 Henry B. Buckham appointed Principal, school opened with three departments, Normal, Collegiate, Scientific
1873 First graduating class — 23 graduates
1886 James M. Cassety appointed Principal
1895 Three-year "Primary and Kindergarten Course" initiated
1906 Manual Arts department established
1909 Daniel Upton appointed Principal
1910 Household Arts Department established
1915 Edward H. Butler, Jr. succeeds Edward H. Butler as President of Local Board
1919 Harry W. Rockwell appointed Principal
1919 Home Economics Program became four-year course leading to Bachelor of Science in Home Economics
1920 Manual Arts Department changed to Industrial Arts Department
1925 Normal course became four-year program leading to Bachelor of Science in Education
1928 Name changed to New York State College for Teachers; Principal changed to President; accredited by American Association of Teachers Colleges
1930 Art Education Department established
1931 Moved to present campus
1939 Accredited by American Association of University Women
1944 Exceptional Children Education Division established
1945 Master of Science in Education Degree authorized
1948 State University of New York established; College accredited by Middle States Association of Colleges and Secondary Schools
1951 President Harry W. Rockwell retired; Dean Ralph Horn became Acting President; Harvey M. Rice appointed President
1958 President Harvey M. Rice resigned; Dean Ralph Horn became Acting President
1958 Approval of Secondary Teacher Education Curricula in Mathematics and Science
1959 Kate Butler Righter appointed Chairman of Local Council
1959 Dean Ralph Horn, Acting President, retired; Paul G. Bulger appointed President
1959 Name changed to State University College of Education at Buffalo
1961 Name changed to State University College at Buffalo
1962 Approval of Secondary Teacher Education Curriculum in English

1962 Approval of Secondary Teacher Education Curriculum in Social Studies
1963 Approval of Liberal Arts Degree Program
1963 Kate Butler Righter re-appointed Chairman of Local Council
1964 Approval of Secondary Teacher Education Curriculum in Foreign Language
1964 Approval of Vocational Technical baccalaureate curriculum
1966 Approval of Bachelor of Science curriculum with major in Home Economics
1967 President Paul G. Bulger resigned; Dr. Houston T. Robison, Vice-President for Academic Affairs became Acting President; E. K. Fretwell Jr. appointed President; Master of Arts Degree authorized with major in English and Mathematics
1968 Master of Arts Degree with major in History was authorized; Approval of Bachelor of Science curriculum with major in Industrial Technology; Department of Chemistry accredited by American Chemical Society
1969 Master of Arts Degree with major in Chemistry, Biology and Philosophy was authorized

ACCREDITATION AND MEMBERSHIP

State University College at Buffalo

accreditations
Board of Regents, University of the State of New York
Middle State Association of Colleges and Secondary Schools
National Council for Accreditation of Teacher Education

affiliations
American Association of Colleges for Teacher Education
American Association of College Registrars and Admissions Officers
American Association of State Colleges and Universities
American Association of University Women
American Chemical Society
American Council on Education
American Library Association
Association for General and Liberal Studies
Association for Higher Education
Association of College Unions
Great Lakes Historical Society
National Association of College and University Summer Session
National Association of Elementary School Principals
National Association of Secondary School Principals
National Association of Student Personnel Administrators
New York State Historical Association

STATE UNIVERSITY OF NEW YORK

The State University of New York, established by the State Legislature in 1948, comprises 70 colleges and centers. At present, 68 conduct classes: four University Centers, two Medical Centers, 13 Colleges of Arts and Science, two Specialized Colleges, six two-year Agricultural and Technical Colleges, five Statutory Colleges, and 36 locally-sponsored, two-year Community Colleges.

Permanent campuses for two of the Colleges of Arts and Science are under construction, the College at Purchase in Westchester County and the College at Old Westbury in Nassau County. Old Westbury conducts classes on a limited enrollment basis in temporary quarters at Oyster Bay, Long Island. Special credit programs are conducted by Purchase, including joint operation of a Cooperative College Center in Mount Vernon. A third Arts and Science campus, upper-divisional in concept, serves the Herkimer-Rome-Utica area. Evening courses are being offered in temporary facilities in the West Frankfort Elementary School, with construction of a permanent campus in the Town of Marcy scheduled to begin in 1972.

Three Upstate Community Colleges moved from the planning stage into actual operation in September 1969. They are Schenectady County Community College, Clinton Community College, and Columbia-Greene Community College.

Hostos Community College in South Bronx will admit its first students in temporary facilities at 900 Grand Concourse in September. It is the seventh community college sponsored by the New York City Board of Higher Education, with an eighth in the planning and development stage.

The University further comprises the Ranger School, a division of the College of Forestry, which offers a 43-week technical forestry program at Wanakena; the Center for International Studies and World Affairs at Albany; and four Urban Centers administered by Community Colleges.

University-wide research programs include the Atmospheric Sciences Research Center with campus headquarters at Albany, the Institute for Theoretical Physics and the Marine Sciences Research Center at Stony Brook, and the Water Resources and Polymer Research Centers at the College of Forestry. Two research facilities headquartered at State University of New York at Buffalo are the Western New York Nuclear Research Center and the Center for Immunology.

Graduate study of the doctoral level is offered by State University at 12 of its campuses, and graduate work at the master's level at 22. The University is continuing to broaden and expand over-all opportunities for advanced degree study.

Graduate study areas embrace a wide spectrum including agriculture, business administration, criminal justice, dentistry, education, engineering, forestry,

law, liberal arts and science, library science, medicine, nursing, pharmacy, social work, and veterinary medicine.

Four-year programs strongly emphasize the liberal arts and science and also include specializations in teacher education, business, forestry, maritime service, ceramics, and the fine and performing arts.

Two-year programs include nursing and liberal arts transfer programs and a wide variety of technical curriculums such as agriculture, business, and the industrial and medical technologies.

The University's Urban Centers provide training for skilled and semi-skilled occupations and college foundation courses for youths in the inner city areas.

Governed by a Board of Trustees appointed by the Governor, State University of New York comprises all State-supported institutions of higher education, with the exceptions of the senior colleges of City University of New York. Each college and center of State University is locally administered. Although separated geographically, all are united in the purpose of improving and extending numerous opportunities to the youth of New York State.

The State University motto is: "Let Each Become All He Is Capable of Being."

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THE COLLEGE

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Peter Corson	1970
David J. Laub	1978
Jesse E. Nash, Jr.	1975
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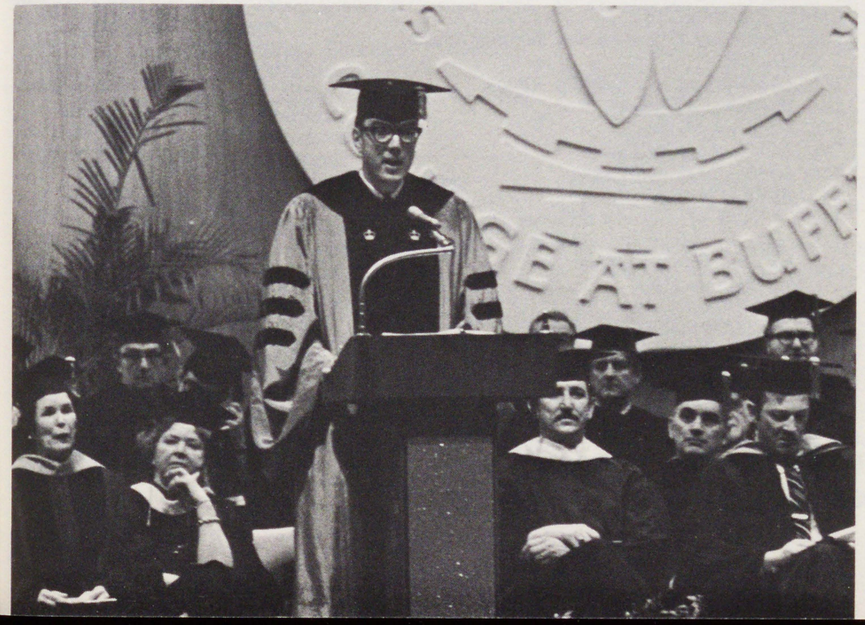

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Professor of History
B.A., Iowa Wesleyan College; M.A., University of Iowa; Ph.D., University of Rochester.

EDWIN L. ANDREWS (1969)
Assistant Professor of Social Studies Education
B.A., Valparaiso University; M.A., Ed.D., Ball State University.

VINCENT C. ARNONE (1963)
Associate Professor of Art Education
B.S.Ed., State University College at Buffalo; M.A., Teachers College, Columbia University.

CHARLES R. BACHMAN (1965)
Assistant Professor of English
B.A., Baylor University; Ph.D., Indiana University.

CHARLES E. BALL (1956)
Professor of Industrial Arts
B.S.Ed., State University College at Buffalo; M.A., Ed.D., New York University.

AREED F. BARABASZ (1969)
Assistant Professor of Education
B.S., M.S., State University College at Buffalo; Ed.D., State University of New York at Albany.

JOSEPH BARBACK (1969)
Associate Professor of Mathematics
A.B., University of Buffalo; M.S., Ph.D., Rutgers University.

WILLIAM J. BARNETT (1950)
Professor of Education
B.Ed., State Teachers College at Brockport; M.Ed., University of Rochester; Ed.D., University of Buffalo.

SAUL BARRON (1964)
Professor of Chemistry
B.S., Lafayette College; M.S., Ph.D., Ohio State University.

JAMES A. BATTISTONI (1965)
Associate Professor of Art Education
B.S.Ed., M.S.Ed., State University of New York College for Teachers at Buffalo.

*As of June, 1970.

CARLTON E. BAUER (1956)
Professor of Design
B.S.Ed., M.A., Ph.D., New York University.

PAUL R. BEAUDET (1961)
Associate Professor of Geography
B.S.Ed., State Teachers College at Fitchburg; M.A., Ph.D., Clark University.

ALFRED W. BECKER (1963)
Professor of Foreign Language
B.A., M.A., Ph.D., University of Maryland.

NANCY B. BELFER (1960)
Associate Professor of Design
B.S.Ed., State University College at Buffalo; M.F.A., School for American Craftsmen.

THEDA E. BENNETT (1964)
Professor of Biology
B.A., Radcliffe College; M.A., Ph.D., Syracuse University.

WILLIAM B. BENNETT (1969)
Associate Professor of Economics and Chairman of the Department
A.B., Princeton; M.A., Ph.D., University of Rochester.

ANDREW F. BERETVAS (1968)
Assistant Professor of Physics
B.S., M.S., Ph.D., University of Chicago.

JOHN A. BICE (1963)
Associate Professor of Fine Arts
B.F.A., M.A., M.F.A., University of Colorado.

MURRAY BLOUSTEIN (1955)
Professor of Physical Handicap and Chairman of the Department
B.S.S., City College of New York; M.A., Ed.D., Teachers College, Columbia University.

JOSEPH A. BOLINSKY (1954)
Professor of Fine Arts
B.S.Ed., New Jersey State Teachers College; M.A., Teachers College, Columbia University; M.F.A., State University of Iowa.

SILAS L. BOYD (1943)
Professor of Music
A.B., St. Olaf College; B.Mus.Ed., Northwestern University; M.A., New York University; D.Mus.Ed., Indiana University.

ARTHUR L. BRADFORD (1946)
Professor of English
A.B., M.S., University of Missouri; Ph.D., George Peabody College.

WESLEY F. BRETT (1959)
Professor of Design
B.Ed., Keene Teachers College; M.Ed., University of New Hampshire.

MONICA C. BRINSON (1959)
Associate Professor of Environmental and Consumer Studies
B.S., State University College at Plattsburgh; M.S., Purdue University.

EDMUND A. BROWN (1948)
Professor of History
B.A., Amherst College; M.A., Yale University; Ph.D., Columbia University.

KENNETH W. BROWN (1953)
Professor of Industrial Arts
B.S., M.S., Kansas State Teachers College; Ph.D., Ohio State University.

RICHARD C. BROWN (1952)
Professor of History
B.S., Ohio State University; M.A., Colgate University; Ph.D., University of Wisconsin.

ERIC BRUNGER (1954)
Professor of History
B.S.Ed., State University College at Oswego; M.S.Ed., Ph.D., Syracuse University.

JASON W. BRUNK, JR. (1966)
Professor of Education
B.S., Loyola College; M.Ed., Johns Hopkins University; Ed.D., University of Maryland.

JOHN J. BRUNO (1966)
Associate Professor of Education
B.S.Ed., M.S.Ed., State University College at Buffalo; Ed.D., State University of New York at Buffalo.

RUTH M. BUDDENHAGEN (1945)
Professor of Dietetics, Food and Nutrition
B.S.Ed., State University College at Buffalo; M.A., Teachers College, Columbia University.

JOSEPH H. BUNZEL (1967)
Professor of Sociology
JUD, University of Vienna

ROBERT C. BURKHART (1965)
Professor of Art Education
B.A., Colby College; M.A., University of Pittsburgh; Ed.D., Pennsylvania State University.

WILLIAM E. BURNS (1966)
Professor of Industrial Arts
B.S., State Teachers College, Oswego; M.S., State University of New York College of Education at Oswego; Ed.D., University of Maryland.

ANNA P. BURRELL (1948)
Professor of Education
B.S., M.S., University of Pennsylvania; Ph.D., New York University.

ROBERT E. BUXTON (1967)
Professor of Industrial Arts
B.S., M.S., Oregon State College; Ed.D., University of Maryland.

LOUIS J. CALLAN (1946)
Professor of Industrial Arts
B.S.Ed., State University College at Buffalo; M.A., Ph.D., Ohio State University.

DAVID A. CAPPIELLO (1948)
Professor of Industrial Arts
B.S.Ed., State Teachers College at Buffalo; M.S., Cornell University; Ed.D., State University of New York at Buffalo.

JOSEPH A. CAPUTO (1968)
Assistant Professor of Chemistry
B.S., M.S., Seton Hall University; Ph.D., University of Houston.

JOHN C. CARBONARA (1964)
Assistant Professor of Philosophy
B.A., M.A., Ph.D., State University of New York at Buffalo.

FREDA A. CHALMER (1966)
Associate Professor of Education
B.S.Ed., State University College at Buffalo; Ed.M., Ed.D., State University of New York at Buffalo.

RUDOLPH J. CHERKAUER (1948)
Professor of Mathematics and Chairman of the Department
B.S.Ed., New York State College for Teachers at Buffalo; Ed.M., Ed.D., University of Buffalo.

FRANK CHERRY (1969)
Professor of Sociology
B.S., Alabama State College; M.A., Fisk University; Ph.D., University of Chicago.

F. JUNE CLARKE (1959)
Professor of Home Economics Education
B.S.Ed., Buffalo State Teachers College; M.S., Ed.D., Cornell University.

LEO A. COHEN (1969)
Associate Professor of Education
B.S., University of Massachusetts; M.A., University of Connecticut; Ed.D., Boston University.

SIDNEY COHEN (1966)
Professor of Chemistry
B.S., Northeastern University; M.S., Tufts University; Ph.D., University of Colorado.

JUNE M. COLLINS (1968)
Professor of Anthropology and Chairman of the Department
B.S., University of Washington; M.A., Ph.D., University of Chicago.

ORVIS F. COLLINS (1968)
Professor of Sociology
M.A., Ph.D., University of Chicago.

CLARENCE A. COOK (1947)
Professor of Industrial Arts
B.S.Ed., State University College at Buffalo; M.S., Cornell University; Ed.D., State University of New York at Buffalo.

ELOISE N. COURTER (1966)
Professor of English
B.A., Douglass, Rutgers University; M.A., Teachers College, Columbia University; Ph.D., University of Minnesota.

STANLEY A. CZURLES (1931)
Professor of Art Education
B.F.A., M.F.A., Syracuse University; Ph.D., University of Iowa.

EUGENE L-G DAKIN (1947)
Professor of Design
B.S., University of Wisconsin; M.S., Teachers College, Columbia University; Professional Diploma, Columbia University.

ROBERT J. DAVITT (1965)
Assistant Professor of General Science
B.S., Niagara University; M.S.Ed., Canisius College; Ed.D., State University of New York at Buffalo.

MANUEL P. DE ALMEIDA (1964)
Associate Professor of Foreign Language
M.A., Ph.D., Laval University.

RAM DESAI (1963)
Professor of Political Science-Economics
B.A., University of Bombay; M.A., Wayne State University; Ph.D., Michigan State University.

STANLEY DICKSON (1956)
Professor of Speech Pathology and Audiology
B.A., M.A., Brooklyn College; Ed.D., State University of New York at Buffalo.

RICHARD C. DIEDRICH (1964)
Associate Professor of Mathematics and Associate Dean of Arts and Sciences for Secondary Education
B.S.Ed., State University of New York College for Teachers at Buffalo; M.S., Ph.D., Syracuse University.

MARY K. DIENST (1965)
Associate Professor of Dietetics, Food and Nutrition
B.S., Iowa State University; M.S., Cornell University.

WILLIAM A. DONNELLY (1964)
Professor of English
B.A., University of Notre Dame; M.A., Ed.D., Teachers College, Columbia University.

THOMAS A. DONOVAN (1968)
Assistant Professor of Chemistry
B.A., Knox College; Ph.D., University of Illinois.

EDITH F. DOUGLAS (1951)
Associate Professor of Environmental Consumer Studies
B.S., M.Ed., University of New Hampshire.

KENNETH J. DOWNEY (1968)
Associate Professor of Sociology
B.S.Ed., State University College at Buffalo; M.A., Ph.D., University of Illinois.

NUALA M. DRESCHER (1965)
Associate Professor of History
B.A., St. Joseph's College for Women; M.A., Ph.D., University of Delaware.

FRASER B. DREW (1945)
Professor of English
A.B., University of Vermont; A.M., Duke University; Ph.D., State University of New York at Buffalo.

SHERMAN F. DREYER (1964)
Dean, Faculty of Applied Science and Technology
B.S., M.S., Stout State College; Ed.D., University of Oklahoma.

WALTER M. DRZEWIENIECKI (1963)
Professor of History and Chairman of the Department
Diploma, Polish Military Academy, Ostrow Mazowiecki, Poland; Army General Staff College, Haifa, Palestine; B.S., Wisconsin State College; M.A., Ph.D., University of Chicago.

THEODORE E. ECKERT (1953)
Professor of Biology
B.A., State University of New York at Albany; M.S., Ph.D., Cornell University.

DORIS K. EDDINS (1947)
Professor of Education
B.S., Bowling Green State University; A.M., University of Chicago; Ed.D., Michigan State University.

RUPERT J. EDERER (1967)
Professor of Economics
A.B., St. Bonaventure University; M.A., Ph.D., St. Louis University.

MOHAMED EL-BEHAIRY (1963)
Professor of Political Science-Economics
B.Com., Cairo University; M.A., University of Minnesota; Ph.D., Ohio State University.

ELEANOR B. EVENSON (1962)
Associate Professor of Environmental and Consumer Studies
B.S., M.A., University of Minnesota.

ERNEST S. FALBO (1968)
Professor of Foreign Language and Chairman of the Department
A.B., Reed College; Ph.D., University of Florence, Italy.

GERHARD J. FALK (1957)
Associate Professor of Sociology-Anthropology
B.A., M.A., Western Reserve University; Ed.D., State University of New York at Buffalo.

VELMA J. FEBEL (1956)
Associate Professor of Education
B.Ed., Ed.M., University of Buffalo; Ed.D., State University of New York at Buffalo.

JOSEPH A. FEKETE (1960)
Professor of Geography
B.A., Baldwin-Wallace College; M.A., Miami University; Ph.D., University of Illinois.

WILLIAM H. FIELD (1967)
Associate Professor of Psychology
B.A., Ph.D., State University of New York at Buffalo.

ABEL K. FINK (1956)
Professor of Education
B.A., Brooklyn College; M.A., Ed.D., Teachers College, Columbia University.

MARY E. FIORE (1963)
Professor of Music
A.B., University of California; M.A., San Jose State College; Ph.D., Indiana University.

MILDRED J. FISCHLE (1965)
Professor of Education
B.S.Ed., M.S.Ed., State University College at Buffalo; Ed.D., Ball State University.

IRVING S. FOLADARE (1958)
Professor of Sociology
A.B., University of Georgia; Ph.D., Columbia University.

JOHN FONTANA (1929)
Professor of Industrial Arts and Vocational Education
B.S.Ed., State University College at Buffalo; M.A., New York University; Ed.D., University of Buffalo.

BERNHARD FRANK (1965)
Associate Professor of English
B.S., City College of New York; M.A., New York University; Ph.D., University of Pittsburgh.

E. K. FRETWELL JR. (1967)
President
A.B., Wesleyan University; M.A.T., Harvard University; Ph.D., Columbia University.

BARBARA R. FREY (1963)
Professor of Education and Chairman of Curriculum and Instruction Department
B.Ed., State University College at Geneseo; M.Ed., Boston University; D.Ed., Indiana University.

MARTIN B. FRIED (1948)
Professor of English
B.S.Ed., State University College at Buffalo; M.A., Harvard University; Ph.D., University of Chicago.

BETTY GALLAGHER (1946)
Professor of Communication Disorders
B.S.Ed., State University College at Buffalo; M.A., University of Michigan; Ph.D., University of Wisconsin.

HERTHA S. GANEY (1934)
Professor of English
A.B., State University of New York at Albany; A.M., Columbia University.

ROSSMAN T. GIESE (1967)
Adjunct Professor of Physics
B.A., M.A., Ph.D., Columbia University.

STEVEN GITTLER (1955)
Director of Continuing Education and Summer Session
B.A., Lake Forest College; M.A., Washington State University; Ed.D., University of Buffalo.

MINERVA J. GOLDBERG (1958)
Professor of Instructional Resources and Associate Director, Instructional Resources
B.S.Ed., M.S.Ed., State University of New York College for Teachers at Buffalo; Ed.D., State University of New York at Buffalo.

WILSON B. GRAGG (1949)
Professor of English
A.B., University of Illinois; A.M., Ph.D., Northwestern University.

FRED H. GREENBERG (1964)
Associate Professor of Chemistry
A.B., Berea College; M.S., Ph.D., University of Chicago.

HERBERT M. GREENBERG (1969)
Professor of Education
A.B., University of Illinois; Ph.D., University of Chicago.

WALTER B. GREENWOOD (1950)
Professor of English and Interim Vice-President for Academic Affairs
A.B., Transylvania College; M.A., Columbia University; Ph.D., University of Cincinnati.

BENJAMIN F. GRONEWOLD (1947)
Professor of English
B.A., North Central College; M.A., University of Wisconsin; Ph.D., New York University.

PAUL V. HALE (1963)
Professor of English
A.B., Canisius College; A.M., Cornell University; Ph.D., New York University.

FRANK K. HARMAN (1955)
Professor of Physics and Chairman of the Department
B.A., B.Sc., M.Sc., Ph.D., Ohio State University.

LYLE H. HEMINK (1962)
Professor of Education
Ed.B., State Teachers College at Fredonia; Ed.M., Ed.D., State University of New York at Buffalo.

DONALD A. HESS (1964)
Professor of Communication Disorders
B.S.Ed., Clairion State College; M.Ed., D.Ed., Pennsylvania State University.

PAUL A. HILAIRE (1956)
Associate Professor of Mathematics
B.S.Ed., California State Teachers College, Pennsylvania; M.Ed., University of Pittsburgh.

JOSEPH G. HITREC (1967)
Associate Professor of English
Diploma, B.A., M.A., Royal University, Zagreb, Yugoslavia.

FRANK A. HOFFMAN (1966)
Associate Professor of English
A.B., A.M., Bucknell University; Ph.D., Indiana University.

FREDERICK J. HOLLISTER (1948)
Professor of Sociology
A.B., Union College; M.A., New York State College for Teachers at Albany; Ph.D., Syracuse University.

SAUL J. HOROWITZ (1960)
Associate Professor of Art Education
Diploma, Society of Arts and Crafts; B.S.Ed., Wayne State University; M.F.A., Cranbrook Academy of Art.

JULIUS J. HUBLER (1948)
Professor of Design
B.S., Southeast Missouri State College; M.A., Ed.D., Columbia University.

IRENE M. HULICKA (1967)
Professor of Psychology and Chairman of the Department
B.Ed., University of Alberta, Canada; B.A., Honours Degree, M.A., University of Saskatchewan, Canada; Ph.D., University of Nebraska.

THERESA R. HUMPHREYVILLE (1968)
Professor of Human Development, Family and Community Relations and Director of Caudell Division
B.Sc., Ohio State University; M.Sc., New York University; Ed.D., Teachers College, Columbia University.

IVOR ILMET (1967)
Associate Professor of Chemistry
A.B., Ph.D., New York University.

HADAR ISSEROFF (1968)
Assistant Professor of Biology
B.S., Brooklyn College; M.S., Ph.D., Purdue University.

CLEVELAND E. JAUCH, JR. (1966)
Associate Professor of English
A.B., Princeton University; M.A., Columbia University; M.A., Ph.D., Yale University.

LAYMAN JONES, JR. (1966)
Professor of Art Education
B.A., M.A., University of Tulsa; D.Ed., Pennsylvania State University.

BILL KALTSOUNIS (1969)
Assistant Professor of Mathematics
B.S., Middle Tennessee State University; M.S.Ed., State University College at Oswego; M.S., Atlanta University; Ed.D., University of Georgia.

GEORGE L. KALTSOUNIS (1963)
Professor of Education
B.A., M.A., Ph.D., University of Michigan.

ESTELLE M. KANE (1959)
Associate Professor of Human Development, Family and Community Relations
B.S., Kent State University; M.A., State University of Iowa.

JAMES M. KEECH, JR. (1965)
Assistant Professor of English
A.B., University of North Carolina; M.A., Ph.D., Louisiana State University.

AFTAB A. KHAN (1967)
Associate Professor of Education
B. Tchg., Muslim University, India; M.S.Ed., University of Wisconsin; Ed.D., University of Maryland.

HENRY KLOMP (1955)
Professor of English
A.B., Calvin College; A.M., Ph.D., University of Michigan.

MANNY T. KOGINOS (1967)
Associate Professor of History
B.A., Bowling Green State University; M.A., Ph.D., American University.

ROBERT H. KOHLER (1966)
Professor of Physics
B.S., Ph.D., Massachusetts Institute of Technology

THEODORE W. KURY (1963)
Professor of Geography and Chairman of the Department
B.A., Montclair State College; M.A., Ph.D., Louisiana State University.

MARVIN J. LaHOOD (1964)
Associate for Academic Development
B.S., Boston College; M.A., Ph.D., University of Notre Dame.

CHARLES P. LaMORTE (1955)
Professor of Education
B.A., M.A., Ed.D., Columbia University.

RICHARD H. LAMPKIN (1950)
Professor of General Science
A.B., B.Ed., M.Ed., University of Cincinnati; Ph.D., Teachers College, Columbia University.

GEORGE M. LAUG (1949)
Professor of Biology
B.S., M.S., Ph.D., Syracuse University.

CHARLES R. LEFCOURT (1964)
Associate Professor of English
B.S., M.A., New York University; Doct., University of Paris.

MYRON E. LEWIS, JR. (1962)
Professor of Industrial Technology, Chairman of the Department, and Director, Technology Division
B.S., M.S., State University College at Oswego; Ed.D., State University of New York at Buffalo.

WILLIAM S. LICATA (1959)
Assistant Vice-President for Academic Affairs
B.S.Ed., State University College at Buffalo; M.Ed., Ed.D., State University of New York at Buffalo.

EDNA M. LINDEMANN (1946)
Director of Development and Cultural Affairs
B.S., State University of New York at Buffalo; M.A., Northwestern University; Ed.D., Columbia University.

CHEN-TUNG LIU (1969)
Associate Professor of Mathematics
B.Ed., Taiwan Normal University; B.S., University of Oregon; Ph.D., University of Rochester.

NICHOLAS J. LOCASCIO (1968)
Assistant Professor of Biology
B.S., Brooklyn College; M.S., Ph.D., Pennsylvania State University.

HAROLD R. LOFGREN (1949)
Professor of Art Education
B.S., Miami University; M.A., Teachers College, Columbia University.

FRANKLIN C. MacKNIGHT (1961)
Professor of General Science
Ph.B., Ph.D., University of Chicago.

HORACE MANN (1953)
Director of Exceptional Children Education Division
A.B., Brooklyn College; A.M., Teachers College, Columbia University; Ph.D., Pennsylvania State University.

ANNA A. MARTORANA (1946)
Professor of Education
B.S.Ed., State University College at Buffalo; M.A., Columbia University; Ph.D., University of Minnesota.

KISHIO MATOBA (1965)
Associate Professor of Art Education
B.S., M.S., University of Wisconsin.

G. ALLEN McFARREN (1965)
Professor of Social Studies and Chairman, Secondary Social Studies Education Department
B.A., Muskigum College; M.Ed., Kent State University; Ph.D., Ohio State University.

ROBERT F. MEHL (1966)
Associate Professor of English
B.A., College of Wooster; M.A., Ed.D., State University of New York at Albany.

DANIEL T. MELOON (1966)
Associate Professor of Chemistry
B.A., M.A., University of Buffalo; Ph.D., State University of New York at Buffalo.

REX MILLER (1957)
Professor of Industrial Arts
B.A., Iowa State Teachers College; M.A., Colorado State College; Ed.D., University of Buffalo.

BENJAMIN H. MIN (1964)
Associate Professor of History
B.A., University of Wisconsin; M.A., Ph.D., University of Massachusetts.

ROBERT E. MOISAND (1960)
Associate Professor of Biology
B.S., M.S., Northern Illinois University; Ph.D., University of Kentucky.

MABEL D. MONTGOMERY (1958)
Professor of Mathematics
A.B., Houghton College; M.A., Ph.D., University of Buffalo.

THOMAS J. MORRISEY (1967)
Professor of Industrial Arts
B.S., M.S., State University College at Oswego; C.A.S., University of Rochester; Ed.D., University of Missouri.

THOMAS E. MOTT (1967)
Professor of Mathematics
A.B., Union College; A.M., University of Pennsylvania; Ph.D., Pennsylvania State University.

JOHN D. MULHERN (1967)
Professor of Education and Director of Education Division
A.B., Boston College; M.Ed., Massachusett State College; Ph.D., University of Wisconsin.

EMERSON E. NEUTHARDT (1946)
Professor of Industrial Arts
B.S., State University College at Oswego; M.A., New York University; Ed.D., State University of New York at Buffalo.

NORMAN J. NIESEN (1966)
Professor of Mental Retardation and Chairman of the Department
B.S., Wisconsin State College; M.A., Columbia University; Ed.D., Colorado State College.

MAE O'BRIEN (1931)
Professor of Education
B.S., M.A., Ph.D., Teachers College, Columbia University.

KI-CHOUL OUM (1967)
Professor of Mathematics
B.S., M.S., Yonsei University, Korea; Ph.D., Syracuse University.

JOHN A. PALMER (1960)
Associate Professor of Education
B.S.Ed., State University College at Buffalo; M.A., Ph.D., State University of New York at Buffalo.

GERALD O. PAYNE (1969)
Associate Professor of Education
B.A., Yale University; B.Church Mus., University of Dubuque; Ph.D., University of Wisconsin.

LOIS W. PEARSON (1960)
Associate Professor of Education
B.S.Ed., M.S.Ed., State University College at Buffalo; Ed.D., University of Rochester.

ELIZABETH G. PENN (1947)
Professor of Education
B.S., New Jersey State Teachers College; M.A., Ed.D., Teachers College, Columbia University.

JOHN R. PEO (1964)
Associate Professor of Education
A.B., University of Rochester; M.Ed., Ed.D., State University of New York at Buffalo.

JULIA C. PIQUETTE (1952)
Professor of Speech and Theatre Arts
B.S., M.A., Ph.D., Northwestern University.

ARTHUR W. PITTS, JR. (1963)
Associate Professor of English
A.B., Princeton University; A.M., Catholic University of America; Ph.D., Louisiana State University.

LEONARD J. POLESZAK (1956)
Professor of Industrial Arts
B.S.Ed., State University College at Buffalo; Ed.M., University of Buffalo; Ed.D., Michigan State University.

ABDUL H. RAOOF (1967)
Associate Professor of Political Science-Economics
B.A., University of Bagdad; M.P.A., Ph.D., New York University.

JOHN E. REEDY (1965)
Associate Professor of English
A.B. in Th., Gordon College; B.D., Gordon Divinity School; M.Ed., University of Maine; D.Ed., Boston University.

WILLIAM REYNOLDS (1968)
Director of Vocational Technical Education
B.S., State University College at Oswego; M.Ed., Pennsylvania State University; Ed.D., Cornell University.

JOHN A. ROEDER (1962)
Professor of Vocational Technical Education
B.Ed., M.Ed., University of Buffalo.

MILDRED S. ROESSER (1940)
Professor of History
B.S., M.A., Ed.D., University of Buffalo.

DAVID A. ROGERS (1950)
Director of Graduate Studies
B.A., M.A., University of Buffalo; Ph.D., University of Wisconsin.

ELLSWORTH M. RUSSELL (1948)
Professor of Industrial Arts and Chairman of Communications & Power Department
B.Ed., Eastern Illinois University; M.S., Iowa State University; Ed.D., Pennsylvania State University.

DONALD J. SAVAGE (1963)
Professor of Speech and Theatre Arts and Chairman of the Department
B.A., Hamline University; M.A., Ph.D., University of Minnesota.

WINIFRED E. SCHASEL (1963)
Associate Professor of Environmental and Consumer Studies
B.S., Bowling Green State University; M.S., Cornell University.

WILLIAM C. SCHEFLER (1958)
Professor of Biology and Chairman of the Department
B.A., Ed.M., University of Buffalo; Ed.D., State University of New York at Buffalo.

NED V. SCHIMIZZI (1968)
Associate Professor of Education
B.S., M.S., Ed.D., Indiana University.

CARL K. SEYFERT (1967)
Associate Professor of Geosciences and Chairman of the Department
B.A., Vanderbilt University; Ph.D., Stanford University.

GEORGE R. SHERRIE (1947)
Professor of Education
B.S.Ed., State University College at Buffalo; Ed.M., State University of New York at Buffalo; Ed.D., Syracuse University.

J. STEPHEN SHERWIN (1956)
Professor of English
B.S., University of Wisconsin; M.A., Teachers College, Columbia University; Ed.D., New York University.

FRANCIS T. SIEMANKOWSKI (1964)
Associate Professor of General Science
B.S.Ed., State University College at Buffalo; M.Ed., University of Buffalo; Ed.D., State University of New York at Buffalo.

NOEL SIMMONS (1959)
Professor of Chemistry
B.S., City College of New York; M.S., Ohio State University; Ph.D., University of Minnesota.

ROBERT B. SIMPSON (1966)
Dean, Faculty of Professional Studies
A.A., University of California; A.B., M.A., Stanford University; Ed.D., Teachers College, Columbia University.

SURJIT SINGH (1967)
Associate Professor of Chemistry
B.Sc., (Hons), Kh. College, Amritsar, India; M.Sc., (Hons), Punjab University, India; Ph.D., St. Louis University.

JOHN J. SLIVKA (1969)
Associate Professor of Mathematics
B.S., Canisius College; M.A., Ph.D., State University of New York at Buffalo.

EDWARD O. SMITH, JR. (1963)
Associate Professor of History
B.A., Muhlenberg College; M.A., Ph.D., Lehigh University.

SIGMUND A. SMITH (1964)
Vice-President for Administration
B.S., State University of New York at Albany; M.S., State University College at Brockport; M.S., University of Illinois; Ed.D., Pennsylvania State University.

RALPH D. SOLLARS (1965)
Professor of Education and Associate Dean of Professional Studies
B.S., Ohio State University; M.Ed., Bowling Green State University; Ph.D., Ohio State University.

ADRIAN SOLOMON (1968)
Professor of Human Development, Family and Community Relations and Chairman of the Department
A.B., M.A., University of Kentucky; Ph.D., Cornell University.

ROBERT SQUERI (1955)
Professor of Fine Arts
B.A., Brooklyn College; M.A., Ed.D., Columbia University.

H. GENE STEFFEN (1946)
Director of Instructional Resources
B.S.Ed., State University College at Buffalo; Ed.M., State University of New York at Buffalo; Ph.D., Cornell University.

ROBERT C. STEIN (1965)
Professor of Biology
B.A., St. Olaf College; M.S., Ph.D., Cornell University.

BENJAMIN STEINZOR (1953)
Professor of Design
B.S., New York University; Ed.M., Alfred University; Ph.D., University of Southern California.

SAMUEL T. STERN (1962)
Professor of Mathematics
B.A., M.A., Ph.D., State University of New York at Buffalo.

FRANCIS G. STEWART (1962)
Director of Admissions and Records
A.B., Grove City College; Th.B., Western Theological Seminary; M.Ed., Ph.D., University of Pittsburgh.

RAYMOND P. STONE (1959)
Professor of Political Science-Economics
B.A., University of Massachusetts; M.A., Ph.D., Princeton University.

MABEL M. STONER (1960)
Associate Professor of Environmental and Consumer Studies
B.S., West Virginia University; M.Ed., Pennsylvania State University.

RUTH SUGARMAN (1946)
Professor of Education
B.S.Ed., State Teachers College at Buffalo; M.A., Northwestern University; Ed.D., University of Buffalo.

ILENE J. SWARTNEY (1968)
Assistant Professor of General Science
B.S., University of Detroit; M.S., University of Pennsylvania; Ph.D., University of Wisconsin.

CAROL R. SWEENEY (1967)
Adjunct Associate Professor of Biology
A.B., Antioch College; M.S., Ph.D., Ohio State University.

ROBERT A. SWEENEY (1966)
Associate Professor of Biology, Director of Great Lakes Laboratory and Coordinator of Environmental Science
B.S., State University of New York at Albany; M.S., Ph.D., Ohio State University.

IRVING H. TESMER (1957)
Professor of Geology
B.A., M.A., University of Buffalo; Ph.D., Syracuse University.

CLEMENT T. TETKOWSKI (1949)
Professor of Design and Chairman of the Department
B.S., New Jersey State Teachers College; M.A., Ed.D., Teachers College, Columbia University.

DAVID H. THIELKING (1948)
Professor of Physics
B.S., St. Lawrence University; Ed.M., Ed.D., State University of New York at Buffalo.

GEORGE V. TOMASHEVICH (1968)
Professor of Anthropology
B.A., Roosevelt University; M.A., Ph.D., University of Chicago.

GUY B. TORCHINELLI (1959)
Associate Professor of Mathematics
B.S., Hobart College; M.S., University of Illinois.

C. STEPHEN TRITT (1966)
Assistant Professor of English
A.B., Cornell University; Ph.D., University of Washington.

NORMAN F. TRUESDALE (1947)
Professor of Art Education and Chairman of the Department
B.S.Ed., State University College at Buffalo; M.Ed., Ed.D., State University of New York at Buffalo.

REN-DEH TUAN (1962)
Professor of General Science
B.S., Cheeloo University; M.S., Ed.D., University of Denver.

MARVIN TUNIS (1965)
Associate Professor of Chemistry
A.B., Hunter College of New York; Ph.D., University of Illinois.

JOHN URBAN (1946)
Professor of Biology
B.S., Kent State University; A.M., Ph.D., Teachers College, Columbia University.

ROLLAND VAN HATTUM (1963)
Professor of Communication Disorders and Chairman of the Department
B.S., Western Michigan University; M.S., Ph.D., Pennsylvania State University.

JOHN H. VANN (1963)
Professor of Geography
B.A., M.S., Louisiana State University; Ph.D., University of California.

MARY C. VUCINICH (1947)
Professor of English
B.S., M.A., University of Cincinnati; Ph.D., State University of Iowa.

MAZIE E. WAGNER (1950)
Director of Counseling and Professor of Education
B.A., M.A., University of Buffalo; Ph.D., Columbia University.

INEZ M. WARE (1959)
Professor of Education
B.A., Occidental College; M.A., Ed.D., Teachers College, Columbia University.

NORMAN F. WEAVER (1950)
Professor of History
B.A., Ball State Teachers College; M.S., Ph.D., University of Wisconsin.

GENE S. WELBORN (1958)
Professor of Sociology
B.S., University of Illinois; M.S., Indiana University; Ed.D., New York University.

JAMES W. WELLS (1968)
Assistant Professor of Physics
B.S., Case-Western Reserve University; Ph.D., State University of New York at Buffalo.

MILDRED C. WELLS (1957)
Professor of Education
B.A., State University of Iowa; M.A., Ph.D., Ohio State University.

FREDERICK R. WEST (1969)
Assistant Professor of Geosciences
B.A., Reed College; B.S., Massachusetts Institute of Technology; M.A., Ph.D., Indiana University.

RICHARD A. WIESEN (1964)
Associate Professor of Mathematics
B.S.Ed., Clarion State Teachers College; M.S., Syracuse University.

DuWAYNE E. WILSON (1960)
Associate Professor of Design
B.S.Ed., M.S.Ed., State University College at Buffalo.

MARGARET WILSON (1966)
Professor of Biology
B.A., Smith College; M.D., University of Michigan Medical School.

JOSEPH F. WINCENC (1947)
Professor of Music
Mus.B., Oberlin College; Mus.M., State Conservatory of Music, Prague, Czechoslovakia; M.A., Teachers College, Columbia University; L.H.D., (Hon.), Canisius College.

D. KENNETH WINEBRENNER (1939)
Professor of Design
B.S., Indiana State Teachers College; M.A., Ed.D., Teachers College, Columbia University.

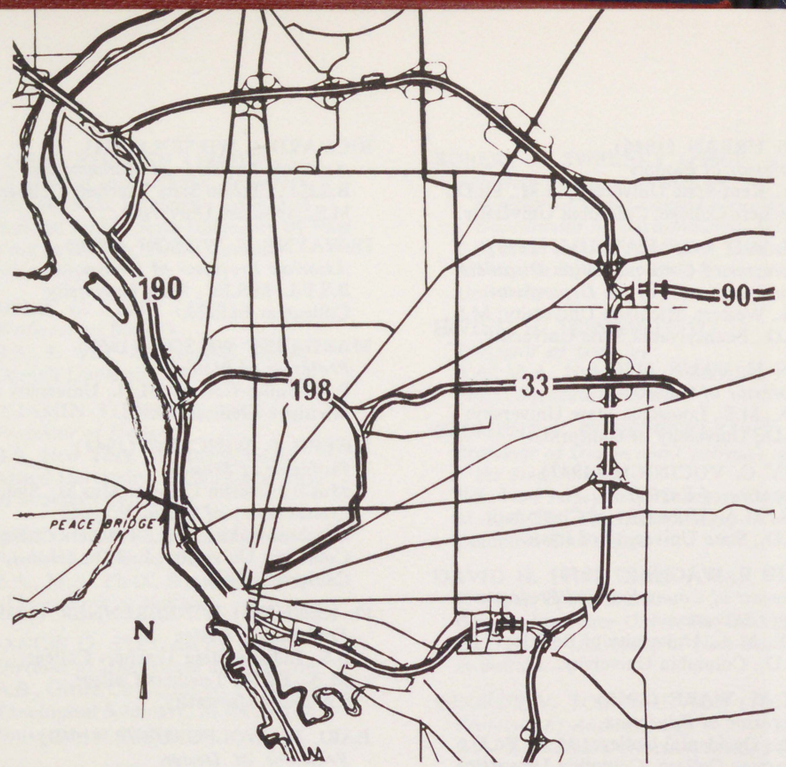
EARL W. WOLFGRUBER (1960)
Professor of Design
Ed.B., University of Buffalo; Ed.M., State University of New York at Buffalo.

RALPH YALKOVSKY (1962)
Professor of Geosciences
B.S., M.S., Ph.D., University of Chicago.

BERNARD B. YORMAK (1963)
Professor of Learning and Behavioral Disorders and Chairman of the Department
B.S., Long Island University; M.S., University of Wisconsin; Ph.D., Pennsylvania State University.

DARRELL D. YOUNG (1960)
Associate Professor of General Science and Chairman of the Department
B.A., Iowa State Teachers College; M.A., Colorado State College; Ed.D., State University of New York at Buffalo.

JOSEPH S. ZINGARO (1958)
Professor of Chemistry and Chairman of the Department
B.S., State University College at Geneseo; M.S., M.A., Ph.D., Syracuse University.



Points of Interest

1. Downtown Business District
2. Kleinhans Music Hall
3. War Memorial Stadium
4. Albright-Knox Art Gallery
5. Central Terminal
6. Memorial Auditorium
7. State University of New York at Buffalo
8. Greater Buffalo International Airport
9. Buffalo and Erie County Historical Society Building
10. Buffalo Zoo
11. Buffalo Museum of Science

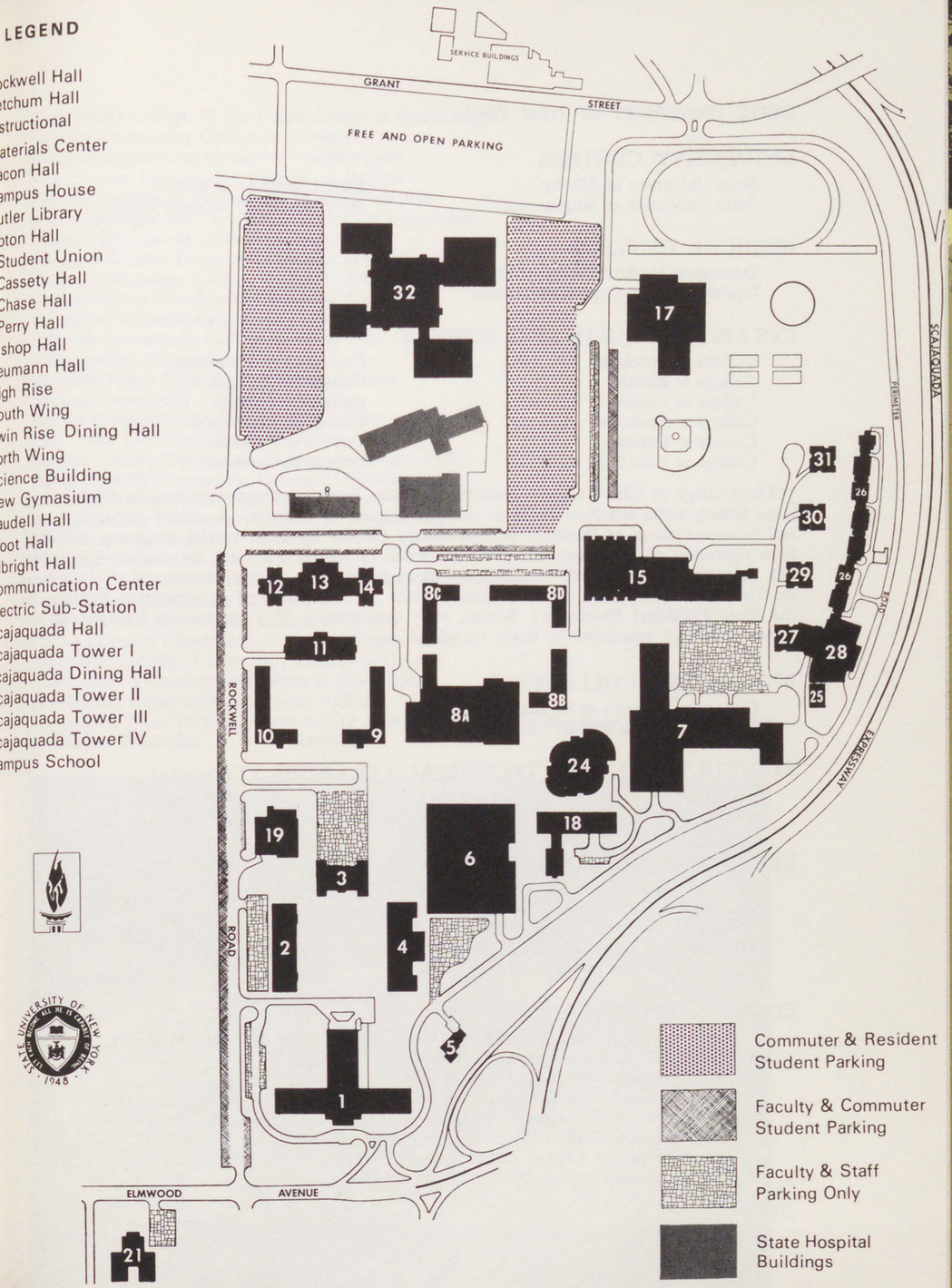
State University College at Buffalo is located in the center of Buffalo at the hub of a varied complex of arterial expressways leading in and out of the city which gives ready access to the cultural, historical and scientific facilities surrounding the campus.

Entrances to the College are on Elmwood Avenue and Grant Street. These two entrances lead to a peripheral drive which services all the buildings on campus. When arriving at the Elmwood Avenue campus entrance from the east via the New York State Thruway (Interstate 90) use exit 51 (N. Y. 33 West) which connects with (N. Y. 198 West) and leave the Expressway at Elmwood Avenue South. The College will be to your immediate right.

If you are driving to the campus from the west utilizing the New York State Thruway (Interstate 90) use exit 53 which will be the Niagara Expressway (Interstate 190). From this one can emerge at the Scajaquada Creek Expressway (N. Y. 198 East) and leave it at Elmwood Avenue South. Guests with a Visitor's Parking Permit are allowed to park in any lot on campus.

AP LEGEND

- Rockwell Hall
- Ketchum Hall
- Instructional Materials Center
- Bacon Hall
- Campus House
- Butler Library
- Upton Hall
- A. Student Union
- B. Cassety Hall
- C. Chase Hall
- D. Perry Hall
- Bishop Hall
- Neumann Hall
- High Rise
- South Wing
- Twin Rise Dining Hall
- North Wing
- Science Building
- New Gymasium
- Caudell Hall
- Moot Hall
- Albright Hall
- Communication Center
- Electric Sub-Station
- Scajaquada Hall
- Scajaquada Tower I
- Scajaquada Dining Hall
- Scajaquada Tower II
- Scajaquada Tower III
- Scajaquada Tower IV
- Campus School



STATE UNIVERSITY OF NEW YORK

UNIVERSITY CENTERS

State University at Albany
State University at Binghamton
State University at Buffalo
State University at Stony Brook

MEDICAL CENTERS

Downstate Medical Center at Brooklyn
Upstate Medical Center at Syracuse

COLLEGE OF ARTS AND SCIENCE

College at Brockport
College at Buffalo
College at Cortland
College at Fredonia
College at Geneseo
College at New Paltz
*College at Old Westbury
College at Oneonta
College at Oswego
College at Plattsburgh
College at Potsdam
*College at Purchase

*(The College at Old Westbury currently operates from temporary quarters in Oyster Bay, Long Island, while construction of its permanent campus proceeds. A second developing Arts and Science College at Purchase in Westchester County conducts special programs including joint operation of a Cooperative College Center in Mount Vernon. An upperdivision Arts and Science College, to offer junior year through Master's degree courses of study, serves the Herkimer-Rome-Utica area. Evening courses are being offered in temporary facilities in the West Frankfort Elementary School, with construction of a permanent Campus in the Town of Marcy scheduled to begin in 1972.

SPECIALIZED COLLEGES

College of Forestry at Syracuse University
Maritime College at Fort Schuyler (Bronx)

AGRICULTURAL AND TECHNICAL COLLEGES (Two-year)

Alfred
Canton
Cobleskill
Delhi
Farmingdale
Morrisville

STATUTORY COLLEGES

College of Ceramics at Alfred University
College of Agriculture at Cornell University
College of Human Ecology at Cornell University
School of Industrial and Labor Relations at Cornell University
Veterinary College at Cornell University

COMMUNITY COLLEGES

(Locally-sponsored, two-year colleges under the program of State University.)
Adirondack Community College at Glens Falls
Auburn Community College at Auburn
Borough of Manhattan Community College
Bronx Community College
Broome Technical Community College at Binghamton
Clinton Community College at Plattsburgh
Columbia-Greene Community College at Athens

Community College of the Finger Lakes at Canandaigua
Corning Community College at Corning
Dutchess Community College at Poughkeepsie
Erie County Community College at Buffalo
Fashion Institute of Technology at New York City
Fulton-Montgomery Community College at Johnstown
Genesee Community College at Batavia
Herkimer County Community College at Ilion
Hostos Community College in South Bronx
Hudson Valley Community College at Troy
Jamestown Community College at Jamestown
Jefferson Community College at Watertown
Kingsborough Community College
Mohawk Valley Community College at Utica
Monroe Community College at Rochester
Nassau Community College at Garden City
New York City Community College
Niagara County Community College at Niagara Falls
North Country Community College at Saranac Lake
Onondaga Community College at Syracuse
Orange County Community College at Middletown
Queensborough Community College
Rockland Community College at Suffern
Schenectady County Community College at Schenectady
Staten Island Community College
Suffolk County Community College at Selden
Sullivan County Community College at South Fallsburg
Tompkins-Cortland Community College at Groton
Ulster County Community College at Stone Ridge
Westchester Community College at Valhalla
(An eighth New York City community college, sponsored by the New York City Board of Higher Education, is in development.)

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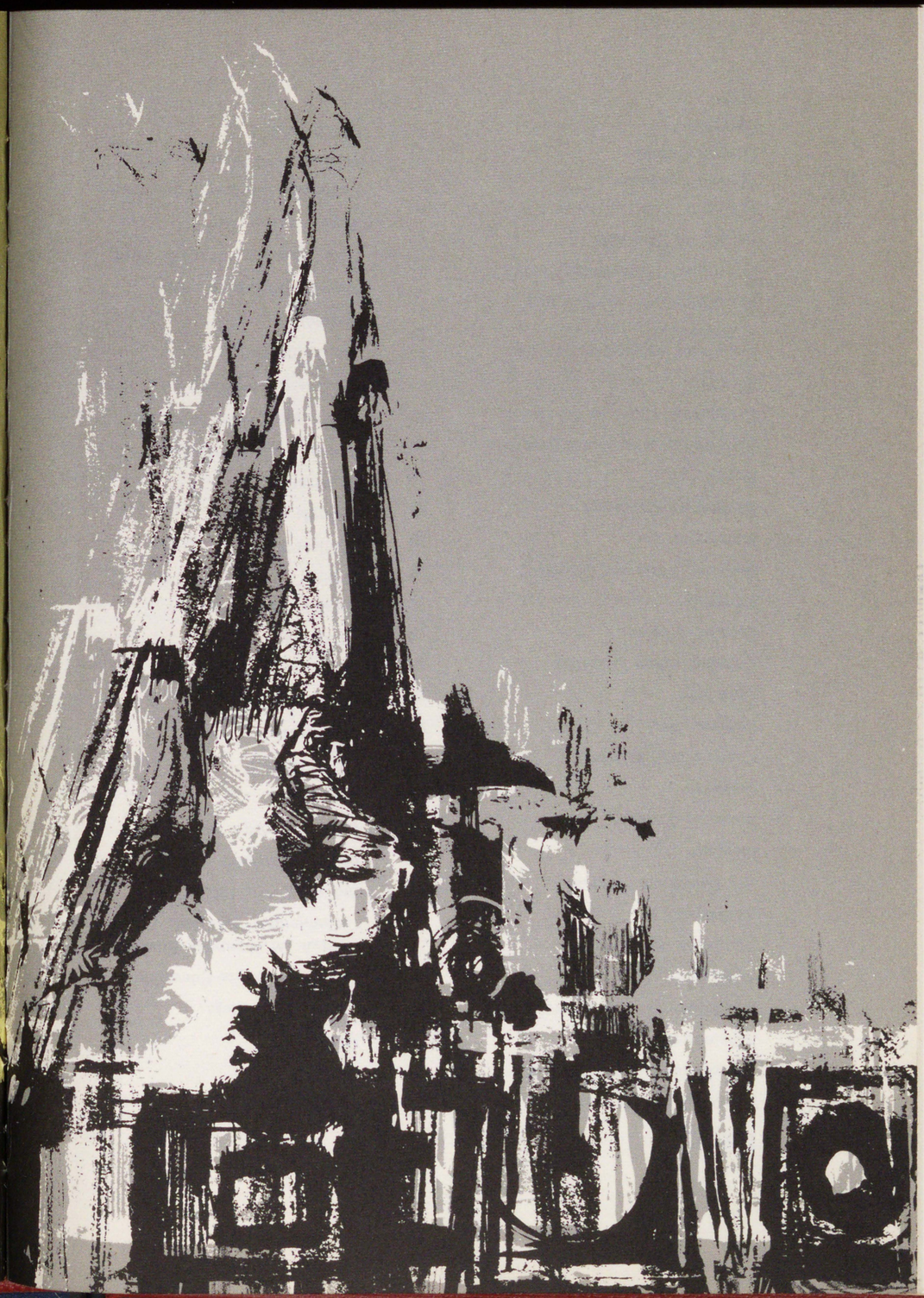

STATE UNIVERSITY COLLEGE
BUFFALO, N. Y.