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### College Catalog, 1968-1969, Graduate

Buffalo State College

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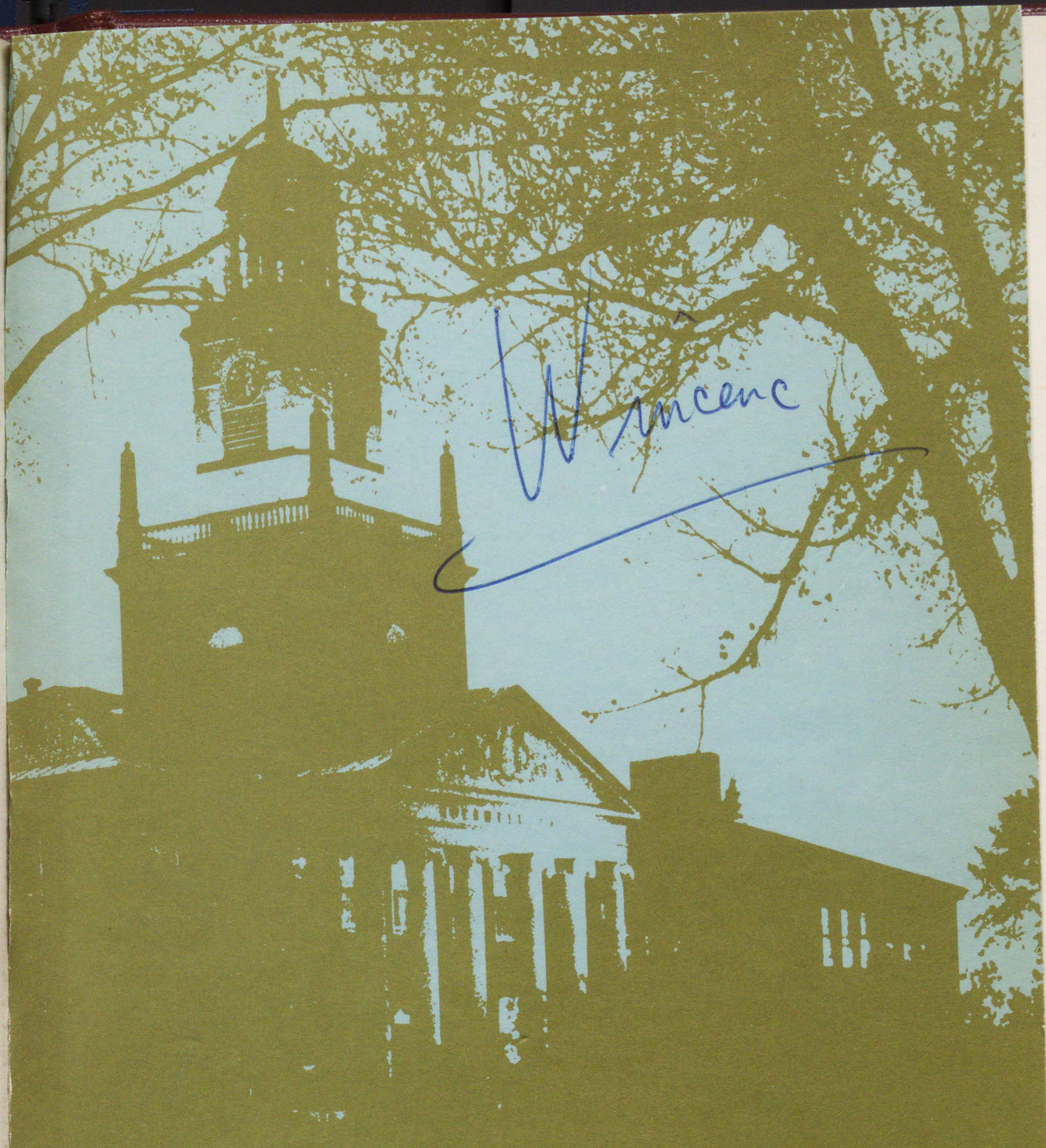
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Office of Graduate Studies  
State University College at Buffalo  
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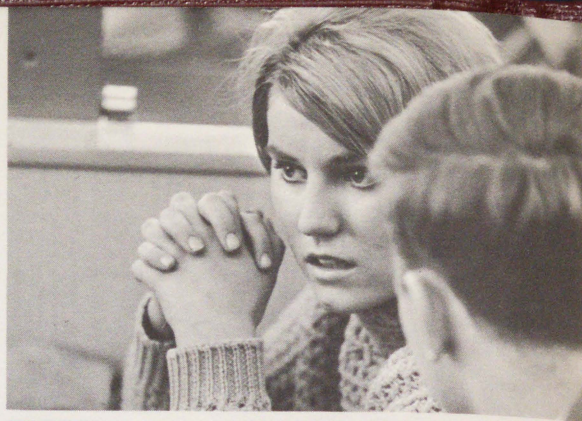
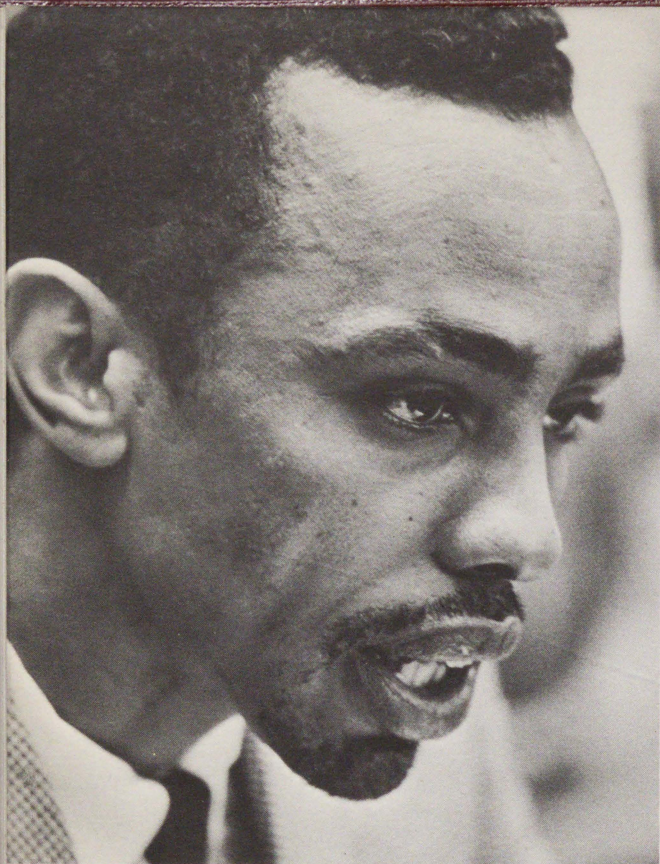
SYLVIA A. CRAIGUN  
CH 103



# STATE UNIVERSITY OF NEW YORK

## College at Buffalo 1968-69 Graduate Catalog





STATE UNIVERSITY  
OF  
NEW YORK

College at Buffalo

1968-69 Graduate Catalog



## GRADUATE CALENDAR FOR 1968 - 69

### Fall Semester—1968

<i>September</i>	7	Saturday, Registration, Moot Hall 8:30 A.M.-1:00 P.M.
		N-R 8:30- 9:00                      D-G 10:30-11:00
		S 9:00- 9:30                         H-K 11:00-11:30
		T-Z 9:30-10:00                    L-M 11:30-12:00
		A-C 10:00-10:30
<i>September</i>	9	Monday, Instruction Begins
<i>November</i>	23	Saturday, Last Day of Classes Before Thanksgiving Recess
<i>December</i>	2	Monday, Classes Resume
<i>December</i>	21	Saturday, Last Day of Classes Before Christmas Recess
<i>January</i>	6	Monday, Classes Resume
<i>January</i>	11	Saturday, Semester Ends

### Spring Semester—1969

<i>January</i>	18	Saturday, Registration, Moot Hall 8:30 A.M.-1:00 P.M.
		S 8:30- 9:00                      H-K 10:30-11:00
		T-Z 9:00- 9:30                    L-M 11:00-11:30
		A-C 9:30-10:00                   N-R 11:30-12:00
		D-G 10:00-10:30
<i>January</i>	27	Monday, Instruction Begins
<i>February</i>	2	Sunday, Midyear Commencement
<i>March</i>	29	Saturday, Last Day of Classes Before Spring Recess
<i>April</i>	14	Monday, Classes Resume
<i>May</i>	24	Saturday, Semester Ends
<i>June</i>	1	Sunday, Commencement

### Summer Session—1969 Day and Evening Classes

<i>First Session</i>	Monday, June 2—Friday, July 11
<i>Middle Session</i>	Monday, June 23—Friday, August 1
<i>Last Session</i>	Monday, July 14—Friday, August 22
<i>Post Session</i>	Monday, August 4—Friday, August 22



## GENERAL INFORMATION

### The Campus and Buildings

The College has a campus of one hundred and ten acres, located on Elmwood Avenue near Scajaquada Creek in the distinctive Delaware Park area of the City of Buffalo. This location gives ready access to the cultural, historical, research and scientific facilities of the second largest city in the Empire State. Many leading cultural and artistic institutions are located near the College such as the Albright-Knox Art Gallery, Buffalo and Erie County Historical Society Building, Kleinhans Music Hall and the Museum of Science. The College is easily reached by bus and car from all parts of the city, the suburbs, and from railroad, air and bus terminals.

In 1931, when the College moved to its present location at 1300 Elmwood



Avenue, five buildings were erected: Rockwell Hall, named in honor of the first President of the College, Harry W. Rockwell, contains the major administrative offices and the main auditorium. Jesse Ketchum Hall, named in honor of the man who deeded the land to provide for a State Normal School in the City of Buffalo, houses the English and Language Departments, and the Vocational Technical Education and Exceptional Children Education Divisions. Gertrude Mary Bacon Hall, named for a former principal of the School of Practice, houses faculty offices, seminar and class rooms. The old Gymnasium now houses additional swimming facilities. The original President's residence is now the Campus House.

Since 1931 many structural additions have been added to the growing campus. The Edward H. Butler Library, named in honor of a past president of the former Board of Visitors, contains the College's extensive book and periodical collection. Expansion of the Library is underway. Caudell Hall, named in honor of Myrtle V. Caudell, former Director of the Home Economics Division, houses that Division. The Student Union has offices for the Administration of Student Activities, and provides a recreational setting for students.

Irving P. Bishop Hall, named for a former member of the Normal School faculty; George Bradford Neumann Hall, named for a former Dean of Men; May Louise Perry Hall, named for a former faculty member; High Rise, North Wing, South Wing, Scajaquada Halls and Towers, furnish resident accommodations for men and women. Susan Frances Chase Hall, named for a former faculty member and Louise Margaret Cassety Hall, named for a former Director of the Kindergarten Department, contain faculty offices. The Health, Physical Education and Recreation Building, provides space for departmental instruction, spectator sports, and recreational facilities. Adelbert Moot Hall, named for a former member of the Board of Regents, provides the College community with dining, banquet and lounge areas.

Daniel Sherman Upton Hall, named in honor of the third principal of the Normal School, contains the Art Education and Industrial Arts Education Divisions. The new Science Buildings house the biological and physical sciences and research facilities. The Communication Center contains the most advanced technological equipment and facilities available for group teaching and can seat approximately 1,550 students at one time in rooms of varying size. The Home Management House, at 5 Granger Place, provides a residence where Seniors live for a five-week period to gain experiences in the social and economic management of the home. Albright Hall contains the Music Department. A new Campus School enrolls 1,200 children from three-year nursery school through the twelfth grade. In addition, it houses the Child Study Center and has classes for children with exceptional problems of learning.

#### **Library Facilities**

Over 200,000 books and volumes of bound periodicals are available on open shelves in the E. H. Butler Library. Current periodical subscriptions number 1800. Daily newspapers are received from some 20 American and foreign cities. There are also collections of microtexts and phonograph records, and facilities for photocopying.

The Laboratory of Curriculum Materials includes representative children's books, samples of school textbooks, curriculum guides, resource units, some audio-visual materials, and a collection of original drawings and first editions of books by Lois Lenski, as well as an historical collection of children's books and textbooks.

The Library is open seven days a week for a total of 104 hours. A reference librarian is always available for consultation. The Library issues bibliographies and a handbook describing its facilities in detail.

A new building, now in progress, is expected to be ready in the course of this academic year. It is planned to house 500,000 volumes and seat 2,000 readers.

#### **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 English and in Mathematics. It is anticipated that Master of Arts programs in Biology, Chemistry, History and Philosophy will be added during the year. Additional degree programs in the liberal arts are being developed.

#### **Class Schedules**

At present there is no formal full-time graduate program offered during the day. 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. A student who wishes to complete the degree program in one calendar year should consult the Director of Graduate Studies.

#### **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 studies in education. The requirements for the Master of Arts degree may vary and are listed in the curriculum.

1. An acceptable academic record. An applicant must be able to present an undergraduate scholastic average of 2.3 or higher, an acceptable teaching or professional employment record testified 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.
2. An approved bachelor's degree, i.e., one granted by a teachers college, liberal arts college, or university which is accredited by the National Council for Accreditation of Teacher Education, an appropriate regional accrediting agency, or a State University.

#### Procedure Before Registration

1. Secure an Application for Admission blank from the Director of Graduate Studies.
2. Return application, with all data required, before August 1, for registration in the fall semester; December 1, for registration in the spring semester; and, May 1, for registration in the Summer Session.
3. Furnish the Graduate Office with an official transcript from the college which granted the bachelor's degree. Transcript not necessary for graduate of this College.

#### Preregistration

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 full 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. Appropriate advanced tests in the area of specialization may be required by some Divisions. Information on the graduate Record Examination and other tests 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- or 600-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. 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 a College Camp, or at a branch established by the College.



- 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. In 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 for work taken beyond these limits at this College or elsewhere.

#### Special Students

- 1. Students not intending to apply for admission to candidacy for the master's degree, may be permitted to register for graduate courses as *special students*, with the understanding that credits earned will not necessarily count toward fulfillment of master's degree requirements.
- 2. A special student deciding to matriculate for the master's degree must request an evaluation of all graduate credits earned, complete the credentials required for full graduate status, and follow a program of graduate study planned by the Director of Graduate Studies to meet curriculum, grade and time-limit requirements. This includes the rule that all course work must be completed within six years from the date of registration in the first graduate course.

- 3. Not more than twelve semester hours may be earned by a special student unless a statement that he does not intend to become a candidate for the master's degree is filed with the Director of Graduate Studies.
- 4. An application must be secured and filed in the Office of Graduate Studies before registration as a special student.

### GRADUATE ACADEMIC REGULATIONS

#### Attendance

Attendance at all classes is required unless the student is excused by the instructor. A student may be excluded from a course if the instructor considers absences and tardiness to be too frequent for acceptable achievement.

#### Withdrawal From Courses

If a student wishes to drop a course, he must complete the necessary form at the Graduate Office without delay. State University Policy permits refunds of tuition but not fees for dropped courses. See schedule of tuition liability on page 11.

#### Grading System

- |                    |                              |
|--------------------|------------------------------|
| A 4 quality points | E 0 quality point            |
| 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

The present requirements for the Master of Science in Education degree in all divisions became effective July 1, 1967. All students who begin graduate work after that date will meet these requirements. Students who began graduate work prior to July 1, 1967 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. Additional work is required for graduate credit.
- 500 courses—open to graduate students only.
- 600 courses—open to graduate students only—generally limited to majors in the area or to others with sufficient 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

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

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

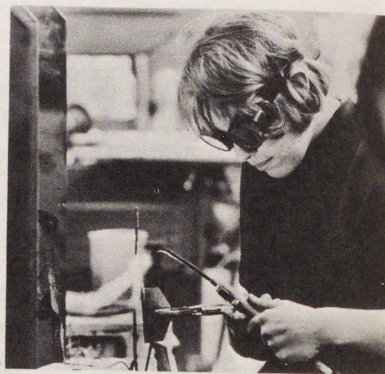
The schedule of tuition and fees listed above will also be in effect during the Summer Sessions plus the collection of a Student Activity Fee of \$.25 per semester hour. Students whose entire summer session program will be off-campus are exempt from the Student Activity Fee.

#### 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%		





## ART DIVISION

The Art Division offers courses in the fields of Art Education, Design and Fine Arts to meet the program requirements of Art Education majors as well as elective courses for other graduate programs.

### ART EDUCATION PROGRAM

		<i>Credit Hours</i>
<b>Technical and Related Fields</b>		<b>12-15</b>
<i>Expressional Skills</i>		<b>9-15</b>
Art 513	Summer Art Camp	2-6
Art 592	Independent Studio in (Specified Area)	2-4
Art 610	Graduate Studio in Drawing	3-6
Art 611	Graduate Studio in Painting	3-6
Art 612	Outdoor Drawing and Painting	3-6
Art 613	Graduate Studio in Graphic Arts	3-6
Art 614	Graphic Arts Relief Processes	3
Art 615	Graphic Arts Intaglio Processes	3
Art 616	Graphic Arts Planographic Processes	3
Art 617	Graphic Arts Serigraphic Processes	3
Art 618	Advanced Life Modeling	3
Art 619	Graduate Studio in Sculpture	3-6
Art 620	Sculpture in Synthetic Materials	3
Art 621	Stone and Wood Sculpture	3
Art 622	Bronze Casting and Welded Sculpture	3
Art 623	Graduate Studio in Photography	3-6
Art 640	Graduate Studio in Design	3-6
Art 641	Graduate Studio in Product Design	3-6
Art 642	Graduate Studio in Wood Design	3-6
Art 643	Graduate Studio in Textile Design	3-6
Art 644	Graduate Studio in Metalsmithing	3-6
Art 645	Enameling on Metal	3
Art 646	Graduate Studio in Jewelry	3-6
Art 647	Casting Techniques in Jewelry	3
Art 648	Design Workshop in Leather	3
Art 649	Graduate Studio in Pottery	3-6
Art 650	Graduate Studio in Graphic Design	3-6
Art 651	Home and Community Design	3-6
Art 652	Seminar Studio in Scenography	3
Art 653	Seminar Studio in Light Design	3
Art 654	Seminar Studio in Puppetry	3



Art 655	Seminar Studio in Stage Costume .....	Credit Hours	3
Art 656	Seminar Studio in Technical Production .....	3	
Art 657	Seminar Studio in Theater Planning .....	3	
<b>Critical Evaluation</b> .....			0-9
Art 520	Field Study of Mexican Art .....	3	
Art 521	Field Study of European Art .....	6	
Art 522	Field Study of Mediterranean Art .....	6	
Art 523	Field Study of Art in Great Lakes Cities .....	2	
Art 524	Field Study of Art in New York City .....	2	
Art 525	Field Study of Art in New England .....	2	
Art 526	Field Study of Art in Washington and Philadelphia .....	2	
Art 527	Field Study of Oriental Art .....	6	
(See General Catalog for available 400 Series Art History courses)			
<b>Related Technical Disciplines</b> .....			0-6
With approval of <i>both</i> divisions involved, the student may elect graduate courses for which he has the necessary prerequisites in Industrial Arts, Home Economics, Exceptional Education, Audio-Visual Education, and other related areas.			
<b>Dynamics of Teaching</b> .....			3-6
Art 503	Art for the Culturally-Disadvantaged .....	3	
Art 504	The Role of Art in Our Society .....	3	
Art 505	The Folk Arts in Education .....	3	
Art 506	Colloquium in the Arts .....	3	
Art 510	Art Materials Workshop .....	3	
Art 600	Program Planning in Art Education .....	3	
Art 601	Administration in Art Education .....	3	
Art 603	Teaching Internship in Art .....	3-6	
*Art 605	Seminar in Art Education .....	3	
<b>Innovation Research</b> .....			3-6
Art 591	Special Research in (Specified Area) .....	2-4	
Each candidate, after a conference with his adviser, must select one of the following requirements:			
Ed. 595	Research Methods and Techniques .....	3	
Art 602	Research Workshop in Art Education .....	3	

\*Required for Master's Degree in Art Education.

Art 690	Master's Project .....	Credit Hours	4
Art 695	Master's Thesis .....	6	
<b>Required Courses in Arts and Sciences</b> .....			9-12
Chosen by advisement from English, Geography, Mathematics, Music, Philosophy, Science and Social Studies.			
<b>Unrestricted Electives</b> .....			0-3
<b>Total Requirements</b> .....			30

## ART

Art courses at the 400 level may be taken for graduate credit with the approval of the Art Division Director.

### ART 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 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 502. Art for the Exceptional Child

Special problems in the teaching of art to children who vary markedly from their peers in emotional, physical, mental, or other conditions; ranging from the handicapped and retarded through the specially gifted child; implications for the choice of materials, processes, and procedures in individual cases. Elective for Elementary and Exceptional Children students.

\*Acceptable as Arts and Sciences electives in all curricula except Art Education; acceptable in Art Education curriculum in Related Areas.

### ART 503. Art for the Culturally-Disadvantaged

Special problems in the teaching of art to children who vary markedly from others of the same age because of deprivations in home and community experiences; art as a contributing factor in equalizing experiences, opportunities, personal development; implications for choice of activities and procedures.

### \*ART 504. The Role of Art in Our Society

Art as a dynamic force in the life of an individual and society; creative activity as a way of clarifying thought, sensitizing feelings, propagating individual and group attitudes, implementing ceremonies, improving living; unique role of art in development of a culture; reports, class discussions.

### \*ART 505. The Folk Arts in Education

A study of the folk arts of music, dance, drama, crafts, and folk lore of various countries; the relationship to history, geography and culture; organization of folk art studies in school programs and community activities; role of art in related programs dealing with the folk arts; reports and discussions.

### \*ART 506. Colloquium in the Arts

Common and related concerns, experiences, and activities in the various arts; including visual and plastic arts, music, drama, dance, poetry, and other acts of personal or group expression; seminar reports, discussions;



plans for integrated activities involving several arts, carried out jointly as practical.

**ART 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 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.

**ART 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.

**ART 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.

**\*ART 520. Field Study of Mexican Art**

A conducted study tour of historic and contemporary art in Mexico; including painting, sculpture, crafts, architecture, and archeological sites; visits to major art and craft centers, museums, historical examples, and

contemporary works; individual reports; itinerary, travel, living plans to be announced.

**\*ART 521. Field Study of European Art**

A conducted study tour of historic and contemporary art in Europe; including painting, sculpture, crafts, architecture, and city planning; visits to major European museums, historic examples, and outstanding contemporary works; individual reports; itinerary, travel, living plans to be announced.

**\*ART 522. Field Study of Mediterranean Art**

A conducted study tour of historic and contemporary art in Mediterranean countries; including painting, sculpture, architecture, archeological sites; visits to major museums and historical examples; related cultural studies and individual reports; itinerary, travel, living plans to be announced.

**\*ART 523. Field Study of Art in Great Lakes Cities**

A conducted study tour of art in cities of the Great Lakes region; including Buffalo, Rochester, Toronto, Detroit, and Cleveland; visits to museums and principal examples of traditional and contemporary art, city planning; related studies and reports; itinerary, travel, living arrangements to be announced.

**\*ART 524. Field Study of Art in New York City**

A conducted study tour of art in New York City; including painting, sculpture, community planning, architecture, industrial design, interior design; seen at museums, art galleries, selected buildings, stores, and showrooms; individual reports; itinerary, travel, living arrangements to be announced.

**\*ART 525. Field Study of Art in New England**

A conducted study tour of art in Boston and the New England region; including painting, sculpture, architecture, industrial design, interior design; seen at museums, art galleries, selected buildings, stores, showrooms, craft centers; individual reports; itinerary, travel, living arrangements to be announced.

\*Acceptable as Arts and Sciences electives in all curricula except Art Education; acceptable in Art Education curriculum in Related Areas.

**\*ART 526. Field Study of Art in Washington and Philadelphia**

A conducted study tour of art in Washington, Philadelphia, and environs; including painting, sculpture, architecture, industrial design, interior design; seen at museums, and redevelopment; visits to museums, art galleries, selected buildings; reports; travel, living arrangements to be announced.

**\*ART 527. Field Study of Oriental Art**

A conducted study tour of historic and contemporary art in Oriental countries; including painting, sculpture, architecture, prints, crafts, archeological sites; visits to major museums and historical examples; related cultural studies and reports; itinerary, travel, living plans to be announced.

**ART 590. Special Project**

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

**ART 591. Special Research Study in (Specified Area)**

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 592. Independent Studio in (Specified Area)**

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.

**ART 600. Program Planning in Art Education**

Planning the special art room for various school levels and purposes, and facilities for art in the self-contained classroom; interdependence of art program and facilities; organizing curriculum activities in re-

\*Acceptable as Arts and Sciences electives in all curricula except Art Education; acceptable in Art Education curriculum in Related Areas.

lation to educational philosophy and research in the area; extra class assignments.

**ART 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 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 603. Teaching Internship in Art**

Supervised student teaching internship in various levels according to needs of the student; including elected experiences on the junior college and college level; teaching experiences in summer programs on the elementary and secondary level, in summer camps, special classes; teaching assistantships.

**ART 605. Semester 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 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.



**ART 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.

**ART 612. Outdoor Drawing and Painting**

Direct drawing and painting in and outdoors; 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.

**ART 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.

**ART 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.

**ART 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.

**ART 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.

**ART 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.

**ART 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.

**ART 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.

**ART 620. Sculpture in Synthetic Materials**

Casting, additive and subtractive methods in sculpture; utilizing plaster, concrete, plastics, 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.

**ART 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.

**ART 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.

**ART 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.

**ART 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.

**ART 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.

**ART 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.

**ART 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 assign-

ments, including minimum studio hours equal to class hours.

**ART 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.

**ART 645. Enameling of Metal**

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

**ART 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.

**ART 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.

**ART 648. Design Workshop in Leather**

Advanced experiment and research in practical and aesthetic problems involved in the design and construction of leather products; approached from the viewpoint of the contemporary designer-craftsman; the use of traditional techniques in modern forms, and the invention of new solutions appropriate to today.

**ART 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.

**ART 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.

**ART 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.

**ART 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.

**ART 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.

**ART 654. Seminar Studio in Puppetry**

Advanced experience in puppet conception, construction, staging, and performance; research in all forms of puppetry, with individual seminar reports and demonstrations integrated with studio and research activities; individual and group study; actual experience in puppet production whenever practical.

**ART 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.

**ART 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.

**ART 657. Seminar Studio in Theater Planning**

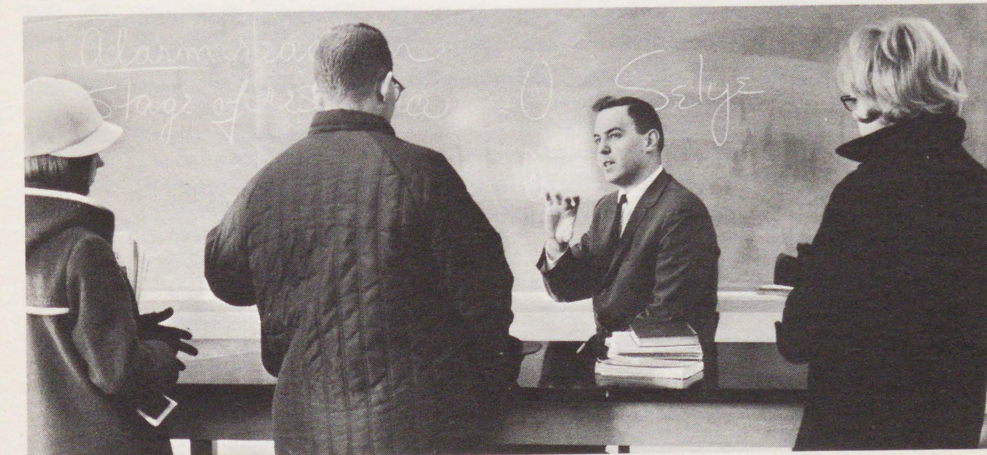
Integrated seminar and studio experiences in theater planning and architecture; educational, community, and professional theater problems; research and reports relative to theater organization and management; forces affecting actor-audience spatial relationships; historical and contemporary problems.

**ART 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 or art education, 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 art work related to study — with theories and findings reported to an acceptable form according to directions given by the Graduate Office.

**ART 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.



## ARTS AND SCIENCES

The Arts and Sciences are organized into three academic divisions: Arts and Humanities, Social Sciences, and Mathematics and Science. The Arts and Humanities include the Departments of English, Foreign Language, Health and Physical Education, Music, Philosophy, and Speech and Theater Arts. The Social Sciences include the Departments of Geography, History, Political Science-Economics, Psychology, and Sociology-Anthropology. The Mathematics and Science area includes the Departments of Biology, Chemistry, Geosciences, Mathematics, Physics and General Science.



## ARTS AND HUMANITIES

Also see courses listed under ART.

### MASTER OF ARTS IN ENGLISH

#### Prerequisites

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

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

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

#### Electives (under advisement)

Total requirements

Credit  
Hours  
36

18-24

0-6

6  
30

## ENGLISH

- 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. 455. Children's Literature and Mass Media (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**  
Renaissance 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. 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. 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, Masfield, 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 neo-classical 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. 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. 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. 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. 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. 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. 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.

**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. 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.

FOREIGN LANGUAGE

**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.

sition 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.





## MUSIC

- MUS. 400. American Folk Music (g)  
 MUS. 403. Dramatic Music (g)  
 MUS. 404. The Art of Enjoying Music (g)  
 MUS. 405. Music Literature for Young Listeners (g)  
 MUS. 407. Music History (Antiquity Through Baroque) (g)  
 MUS. 408. Music History (Classical Through Romantic) (g)  
 MUS. 409. Music History (Contemporary) (g)  
 MUS. 410. Afro-American Music (g)  
 MUS. 411. Conducting (g)  
 MUS. 413. Voice Culture and Repertory (g)  
 MUS. 418. Latin American Music (g)

### MUS. 500. Music in Education

Public school music education; contributions of various composers and music educators to public school music and to general culture; required readings; listening to records; ideas on school assemblies.

### 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.

## MATHEMATICS AND SCIENCE

### 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. Acceptance as a graduate student by both the Director of Graduate Study and the Graduate Faculty of the Department of Mathematics.
5. A student deficient in items 2 or 3 above may remove the deficiency while pursuing graduate study.

### MUS. 590. Special Project

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

## PHILOSOPHY

- 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)

## SPEECH AND THEATRE ARTS

- 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. 450. Directing (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.

### Requirement 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 6 semester hours of the required mathematics.
- b. 24 semester hours of graduate mathematics and a thesis in mathematics for 6 semester hours.

## MATHEMATICS

- 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. 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 and Master of Arts and Sciences 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. 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. 591. Mathematics in the Elementary Curriculum

Development of the real number system; analysis of and reports on current trends in elementary school mathematics. *Prerequisite:* Math. 122 or equivalent.

### 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 Zorn'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. 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 construc-



tion problems. *Prerequisite:* 12 Sem. Hrs. of Math. beyond the Calculus.

**MATH. 690. Project**

A study undertaken by one or more individuals in acceptable form according to directions given by the Graduate Office.

**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. 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;  $L_p$  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. 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.

**BIOLOGY**

**BIOL. 401. Ecology**

**BIOL. 403. Economic Biology and Conservation (g)**

**BIOL. 404. Plant Morphology (g)**

**BIOL. 405. Organic Evolution (g)**

**BIOL. 406. Biometrics I (g)**

**BIOL. 408. Plant Physiology (g)**

**BIOL. 409. Field Biology (g)**

**BIOL. 411. Parasitology (g)**

**BIOL. 413. Ornithology (g)**

**BIOL. 415. Radiation Biology (g)**

**BIOL. 418. Limnology (g)**

**BIOL. 603. Advanced Genetics**

A study of recent advances in the area of chemical genetics including the fine structure of DNA, enzyme inter-relationships and

action. Statistical treatment of genetic data, and population genetics. Individual experimental work under direction of instructor. Four hours per week, including laboratory. *Prerequisite:* one year of General Biology, Genetics (Biol. 203), General Physiology.

**BIOL. 607. Biometrics II**

Enumeration data with more than one degree of freedom, analysis of variance in two or more groups of measurement data and with two or more criteria of classification, covariance, multiple regression and covariance, binomial and Poisson distributions, and principles of experimental design. Four hours per week, including laboratory. *Prerequisites:* Biol. 406 — Biometrics I, or equivalent.

**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:* 12 Sem. Hrs. in biological sciences.

**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 Biol. 201.

**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.

**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:* Minimum of 18 hours of biology.

**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:* Biology 401—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**

**CHEM. 400. Inorganic Chemistry (g)**

**CHEM. 401. Biochemistry (g)**

**CHEM. 403. Instrumental Chemistry (g)**

**CHEM. 404. Chemistry Seminar (g)**

**CHEM. 420. Nuclear Chemistry (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. 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.

**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.

## GEOSCIENCES

**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. 411. Advanced Oceanography (g)**

**GEOS. 431. Planetarium Seminar (g)**

**GEOS. 451. Geochemistry (g)**

**GEOS. 461. Geophysics (g)**

**GEOS. 501. Petrography**

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

**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. 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. 603. Advanced General Geology**

Current topics and recent literature involving geologic research. *Prerequisite:* 18 Sem. Hrs. geology. *Credit:* Lecture and laboratory; occasional field trips.

**GEOS. 605. Geosciences Seminar**

Readings, reports, and discussion of current geoscience problems and research. *Prerequisite:* 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.

## GENERAL SCIENCE

**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. 527. Current Research in Science**

Study of current research in the various sciences; implications of such research for present and future living; implications of re-

search 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. 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.

## PHYSICS

**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 I**  
Review of vectorial particle dynamics; Lagrangian formulation of mechanics; the two-body central force problem; rigid body motion in three dimensions. *Prerequisite:* Phy. 414, Phy. 415 and Phy. 417, or the equivalent. *Credit:* Three semester hours; three 1-hour lectures.

**PHY. 617. Advanced Dynamics II**  
Continuation of Phy. 616; special relativity in classical mechanics; Hamilton's equations of motion; canonical transformations; Hamil-

ton-Jacobi theory; theory of small oscillations; Lagrangian and Hamiltonian functions for continuous systems and fields. *Prerequisite:* Phy. 419 and Phy. 616, or the 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; magnetohydrodynamics 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.

## SOCIAL SCIENCES

### ANTHROPOLOGY

**ANTH. 402. Cultural Anthropology (g)**  
**ANTH. 403. Language and Culture (g)**  
**ANTH. 404. Peasant (Underdeveloped) Societies (g)**

### ECONOMICS

**ECON. 401. International Economic Relations of the United States (g)**  
**ECON. 403. Comparative Economics Systems (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. 503. Government and the American Economy**  
Economic and political background of the rise, nature, and extent of government aid, promotion, and regulation of the American Economy; economic impact of the Federal Government on business, agriculture, labor, conservation, and world trade; current policies to promote economic growth and stability.

**ECON. 505. Studies in Contemporary Economic Problems**  
International trade; international finance; inflation; labor legislation; problems of labor and management; price levels.

### GEOGRAPHY

**GEOG. 402. Map Interpretation (g)**  
**GEOG. 404. Geography of the Soviet Union (g)**

**GEOG. 405. Geography of the Mediterranean World (g)**  
**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. 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.

## HISTORY

**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. 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 of Contemporary England**  
Rise of trade unions; industrial and labor relations; career of the Labor Party; programs for social democracy; the changing world position of England.

**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.

## POLITICAL SCIENCE

**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. 507. The Constitution: Politics and Courts**

Foundations of American constitutionalism and the politics of the Constitution; establishment of judicial review and its functions through history; the evolution of Federal power over interstate commerce and taxation; federalism, separation of powers, and states rights through history; courts and the protection of individual rights — civil, political, and property.



**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.

## 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

**SOC. 401. Juvenile Delinquency (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. 408. Sociology of Crime (g)**

**SOC. 410. Seminar on Alcoholism (g)**

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

**SOC. 412. Soviet Society (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.

## LATIN AMERICAN STUDIES

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



## 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

Depending on his undergraduate preparation and certification, the student may earn a master's degree in Elementary Education or in Elementary and Early Secondary Education. Appropriate courses to each program should be selected from Group A and Group B as well as the choice of Education 601 or 532.

Credit  
Hours  
9

#### Required Professional Courses

(Select one course from Group A and one course from Group B and one course from either A or B.)

#### GROUP A

Ed. 411, 605 Evaluation Techniques in the Elementary School

or

Ed. 537 Evaluation in the Secondary School

Ed. 415 Seminar in Early Childhood Education

Ed. 527 Problems in Education Services for Young Children

Ed. 420, 620 Teaching the Language Arts in the Elementary School

Ed. 414, 614 The Teaching of Reading

or

Ed. 545 The Teaching of Reading in the Secondary School

Ed. 621 The Elementary School Curriculum

or

Ed. 542 Seminar in Secondary School Curriculum

Ed. 418, 518 Media in Education

Ed. 419 Methods and Materials in the Elementary School

Ed. 502 Programmed Learning



## GROUP B

Ed. 509	Personality Adjustment in the Elementary School
Ed. 519	Applied Mental Hygiene
Ed. 410, 606	Philosophy of Education
Ed. 541	Social Foundation of Education
Ed. 556	Group Dynamics
Ed. 540	Studies in Human Growth and Development
Ed. 529	Adolescent Psychology
Ed. 503	Educational Psychology
Ed. 523	Principles and Practices of Guidance
Ed. 412	Comparative Education

## Required Courses in Arts and Sciences

Chosen by advisement from Art, English, Geography, Mathematics, Music, Philosophy, Science and Social Sciences. Those extending certification to grades 7, 8, or 9 must complete at least six hours in their major discipline. Elementary Education majors must take six hours in their concentration.

## Research

Ed. 595	Research Methods and Techniques	3
	(Required of all candidates)	
	(In addition, each candidate, after a conference with his adviser, must select <i>one</i> of the following requirements.)	
Ed. 601	Seminar in Elementary Education	3
or		
Ed. 532	Secondary School Education	3
Ed. 690	Project	3
Ed. 695	Master's Thesis	6

## Unrestricted Electives

<i>Total Requirements</i>	30
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## ELEMENTARY PRINCIPALSHIP AND/OR SUPERVISION

Experienced teachers desiring the elementary school principal's provisional certificate should complete the bachelor's degree and six semester hours in Ed. 603 and 604. Candidates for the permanent certificate must complete the bachelor's degree and thirty hours in approved graduate courses including, in addition to Ed. 603 and 604, three to six hours in Ed. 607, 615, 621, or 552.

Experienced teachers desiring the elementary school supervisor's provisional certificate should complete the bachelor's degree and six semester hours in Ed. 630 and 631. Candidates for the permanent certificate must complete an additional twenty-four semester hours in approved graduate courses, six of which should be in Ed. 621 and 651.

*Students who have not received a permanent Elementary Certificate prior to Sept. 1, 1966 may not enter this program.*

	Credit Hours
<b>Required Professional Courses</b>	12
Ed. 603 Organization of the Elementary School	3
Ed. 604 Administration of the Elementary School	3
or	
Ed. 630 Principles of Supervision	3
Ed. 631 Supervision of Teaching	3
Education Electives	6
<b>Required Courses in Arts and Sciences</b>	8-10

Chosen by advisement from Art, English, Geography, Mathematics, Music, Philosophy, Science, and Social Sciences.

## Research

Ed. 595	Research Methods and Techniques	3
Ed. 690	Project	4
Ed. 695	Master's Thesis	6
	(Each candidate, after conference with his adviser must select <i>one</i> of the above requirements.)	

## Unrestricted Electives

<i>Total Requirements</i>	30
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## 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**

	<i>Credit Hours</i>
<b>Prerequisites</b> .....	42
Undergraduate preparation including six hours in composition and communication and preparation in writing, linguistics, literary materials for adolescents, English literature, American literature and world literature, speech, oral interpretation.	
<b>Required Courses</b> .....	18
<b>Research</b> .....	3-6
Required of all students who are candidates for the master's degree. Each candidate, after conference with his adviser, must select one of the following:	
Ed. 595      Research Methods and Techniques .....	3
or	
Eng. 694      Research in Literature and Language .....	3
Eng. 690      Project .....	4
Eng. 695      Master's Thesis .....	6
<b>Professional Education</b> .....	3
Ed. 545      Teaching Reading in the Secondary School	
<b>Unrestricted Electives</b> .....	3-6
<i>Total Requirements</i> .....	30

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

<b>Prerequisites</b> .....	24
Undergraduate preparation including a minimum of 24 hours in mathematics courses selected by advisement from the following: Analytic Geometry and Calculus I, II, III; Introduction to Modern Algebra; Linear Algebra; Introduction to Modern Geometry; Modern Geometry; Differ-	

ential Equations; Probability and Statistics I, II; Elementary Theory of Numbers; Advanced Calculus I and II; Sets and Logic; Numerical Analysis; Topology; Applied Analysis; Mathematical Methods in Applied Mathematics; Seminar; Mathematical Logic.

	<i>Credit Hours</i>
<b>Required Courses</b> .....	18
18 semester hours required in graduate mathematics courses selected by advisement.	
<b>Research</b> .....	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:	
Ed. 595      Research Methods and Techniques .....	3
Math. 690      Project .....	4
Math. 795      Master's Thesis .....	6
<b>Professional Education</b> .....	3
Secondary Education Elective (Student may elect a course in mathematics in lieu of this requirement.)	
<b>Unrestricted Electives</b> .....	6
<i>Total Requirements</i> .....	30

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

<b>Prerequisites</b> .....	48
Major Area of Specialization .....	
Chemistry and Physics majors require, in addition, Differential and Integral Calculus. Also required, one year in each of the other sciences and in mathematics.	
<b>Required Courses</b> .....	18
18 semester hours are required in graduate science and mathematics courses selected by advisement.	
<b>Research:</b>	
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
	43



	Credit Hours
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: Anthro- pology, 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 <i>one</i> 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 program- med instruction, programming techniques and means of evaluating programs. Labora- tory experiences.	
ED. 503. Educational Psychology Study of various theories of learning; his-	

tory of educational psychology; measure-  
ments of learning; variables and their in-  
terpretation; 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 is-  
sues in higher education; the improvement  
of instruction; administration and organiza-  
tion; student personnel services; school and  
community relations; related research.

ED. 508. Supervision of Student Teaching  
Clarifying responsibilities of sponsor teach-  
ers; planning effective conferences with stu-  
dents; developing ways of helping students  
evaluate their own growth; keeping diversi-  
fied records; clarifying long and short term  
planning; helping students plan learning ex-  
periences.

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. 510. Historical Foundation of Education  
Evolution of educational theories, activi-  
ties, programs, and institutions; religious;  
political, social, and cultural effects on  
schooling; men and movements that have  
affected American education; role of the  
school in the development of Western  
Civilization.

ED. 512. Education in the U.S.S.R.  
Analytical study of educational patterns in  
the U.S.S.R.; organizational structure; gov-  
ernmental involvement in policy decisions;  
philosophical beliefs underlying educational  
decisions; psychological theories underlying  
educational practices; comparison of educa-  
tional programs in open and closed so-  
cieties. *Prerequisite:* Ed. 410, or Ed. 412, or  
equivalent.



**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. 535. Methods of Teaching Secondary School Science**

Objectives of science teaching; methods of reaching those objectives; evaluation of the results of science teaching. Not for students who have credit for Ed. 318, Ed. 328, or equivalent. Otherwise required for persons who wish to be certified to teach sciences. Lectures, discussions, and role experience.

**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. 539. Workshop in Teaching Spanish in the Elementary Grades**

Spanish conversation; Spanish civilization; observation and participation in a Spanish demonstration class in the Campus School; evaluation of text materials and other teaching aids.

**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. 547. Core Programs in the Early Secondary School**

Nature of block-of-time and core programs,

teacher-pupil planning, preparation of resource units, guidance and evaluation procedures.

**ED. 548. Workshop in Teaching French in the Elementary Grades**

French conversation; observation and participation in a French demonstration class in the Campus School; evaluation of text materials and other teaching aids.

**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. 557. Teaching Mathematics in the Junior High School**

Methods and materials relating to selected topics in the field of early secondary mathematics; analysis and evaluation of research and experimental materials; individual study of a problem and written report of findings; committee study and reports on problems.

**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. 603. Organization of the Elementary School**

Major concepts in Elementary Education; administration of the elementary school; the curriculum; grouping of students; the school plant; trends in school building design; co-curricular activities; pupil safety measures. Required for principal's provisional and permanent certification. *Prerequisites:* Elementary Provisional or Permanent Certification and two years of successful elementary school experience.

**ED. 604. Administration of the Elementary School**

New York State educational system; legal aspects; school board, educational finance; responsibilities of the principal; business management, school plant management; plant maintenance; pupil transportation; pupil accounting; pupil counseling; teacher recruitment, selection, employment, assignment, orientation, evaluation, tenure and dismissal. Required for principal's provisional and permanent certification. *Prerequisites:* Elementary Provisional or Permanent Certi-

fication and two years of successful elementary school experience.

**ED. 605. Evaluation in the Elementary School**

Evaluating growth of pupils; evaluation related to teaching objectives; informal, objective, and essay type tests; selection, administration and scoring of measuring instruments; study and use of different kinds of evaluation procedures; statistical methods in handling and interpreting data. *Prerequisite:* Ed. 411.

**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. 615. Workshop in Elementary School Administration**

Selection, induction and guidance of new teachers; development of school-community relations; curriculum improvement; adjustment of school facilities to increasing enrollments; in-service education of staff personnel; elementary school problems suggested by the group. *Prerequisites:* Ed. 603, 604.

**ED. 620. Teaching the Language Arts in the Elementary School**

Factors that influence language growth; interrelationship of the language arts skills of spelling, reading, speaking, writing, handwriting, listening; factors affecting creative writing, creative dramatics, choral speaking, and leisure reading; recent research in the areas of the language arts; developmental language arts program. *Prerequisite:* Ed. 420.

**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. 630. Principles of Supervision**

Historical developments and changing concepts of supervision; principles of effective supervisory programs; types of administrative organization; maintaining staff morale. *Prerequisites:* Elementary Provisional or Permanent Certification and two years of successful elementary school experience.

**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.







# EXCEPTIONAL CHILDREN EDUCATION MENTAL RETARDATION

Required Courses	Credit Hours
By advisement from the following:	12
*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. 508 Understanding the Problem Child in the Classroom	
Ex.Ed. 509 The Gifted Child	
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	10
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 <i>one</i> of the above requirements.)	
Unrestricted Electives	2-5
Total Requirements	30

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

# PHYSICAL HANDICAP

Required Courses	Credit Hours
By advisement from the following:	12
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. 508 Understanding the Problem Child in the Classroom	
Ex.Ed. 509 The Gifted Child	
*Ex.Ed. 527 Guidance of Children Who Are Exceptional	
Ex.Ed. 590 Special Project	
Required Courses in Arts and Sciences	10
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 <i>one</i> of the above requirements.)	
Unrestricted Electives	2-5
Total Requirements	30

# SPEECH PATHOLOGY AND AUDIOLOGY

Required Courses	Credit Hours
By advisement from the following:	12
Ex.Ed. 412 Audiometry and Hearing Aids	
Ex.Ed. 413 Nature and Needs of Exceptional Children	
Ex.Ed. 415 Speech Reading and Auditory Training	

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



Ex.Ed. 416	Seminar in Stuttering
Ex.Ed. 506	Workshop in Education of Children with Hearing Impairment
Ex.Ed. 524	Seminary in Audiology
Ex.Ed. 559	Seminar in Stuttering: Theory and Research
Ex.Ed. 590	Special Project
Ex.Ed. 609	Advanced Seminar in Voice and Articulation Disorders
Ex.Ed. 612	Neuropathologies of Speech
Ex.Ed. 616	Diagnostic Principles and Procedures in Speech Pathology
Ex.Ed. 617	Seminar in Cleft Palate
Ex.Ed. 621	Communication Problems of the Mentally Retarded

		<i>Credit Hours</i>
Required Courses in Arts and Sciences	Chosen by advisement from Art, English, Geography, Mathematics, Music, Philosophy, Science and Social Sciences.	10
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 <i>one</i> of the above requirements.)	
Unrestricted Electives		2-5
	Total Requirements	30

## EXCEPTIONAL CHILDREN EDUCATION

EX.ED. 403. Mental and Educational Measurement (g)	EX.ED. 415. Speech Reading and Auditory Training (g)
EX.ED. 404. Curriculum Practices for Children With Mental Retardation (g)	EX.ED. 416. Seminar in Stuttering (g)
EX.ED. 408. Creative Arts for Mentally Retarded (g)	EX.ED. 417. Curriculum Practices for Children With Orthopedic Handicap (g)
EX.ED. 412. Audiometry and Hearing Aids (g)	EX.ED. 418. Practicum in Mental Retardation (g)
EX.ED. 413. Nature and Needs of Exceptional Children (g)	EX.ED. 419. Teaching the Severely Retarded (Trainable) (g)
EX.ED. 414. Introduction to Audiology (g)	EX.ED. 420. Speech Problems of Children (g)
	EX.ED. 421. Practicum in Teaching Children with Orthopedic Handicap (g)

EX.ED. 506. Workshop in Education of Children With Hearing Impairment	Practicum work under supervision with class of children having varying degrees of hearing impairment; from moderate to profound loss. Observation and participation; experimentation in techniques and materials.
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. 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. <i>Prerequisite:</i> 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.



APPLIED SCIENCE AND TECHNOLOGY

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

HOME ECONOMICS EDUCATION

	Credit Hours
Technical .....	10-12
Clothing-Textiles	
Equipment	
Family Finance	
Family Life	
Foods-Nutrition	
Housing	
Management	
Supervision	
Professional .....	2-6
Evaluation	
Trends in Teaching Home Economics	
Homemaking Education for Adults	
Curriculum Planning in Home Economics	
Required Courses in Arts and Sciences .....	6-10
Chosen by advisement from Art, English, Geography, Mathematics, Music, Philosophy, Science and Social Sci- ences.	
Research .....	2-6
H.Ec. 600 Seminar in Home Economics Research (Required) .....	2-3
(Each candidate, after conference with her adviser, may elect to take H.Ec. 690 or H.Ec. 695 in addition to H.Ec. 600. H.Sc. 600 may serve as a basis for these.)	
H.Ec. 690 Research Study .....	4
H.Ec. 695 Master's Thesis .....	6
Unrestricted Electives .....	0-6
Total Requirements .....	30

HOME ECONOMICS

H.EC. 402. Home Management (g)
H.EC. 408. Advanced Nutrition (g)
H.EC. 409. Human Development and Family Relations—The Individual and Family in Society and Culture (g)
H.EC. 420. Housing and the Community (g)
H.EC. 425. Advanced Clothing (g)
H.EC. 426. Food Demonstration and Meals for Larger Than Family Groups (g)
H.EC. 427. Draping and Flat Pattern Design (g)
H.EC. 428. Meal Management (g)
H.EC. 429. Home Economics and International Education (g)
H.EC. 430. Issues of the Modern American Family (g)
H.EC. 431. Furnishing the Home (g)
H.EC. 435. Occupational Education in Home Economics (g)
H.EC. 437. Advanced Textiles (g)
H.EC. 447. Clothing in Relation to Human Behavior (g)
H.EC. 502. Personality Development in the Family Study of personality development empha- sizing the role of the family in shaping the individual from infancy through adulthood; contributions of recent research in personal- ity, child development, family relations.
H.EC. 503. Family Relationships Basic concept of the family; current em- phasis; social trends as these influence the family; recent research on the family.
H.EC. 509. Textiles A study of the newer 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.

H.EC. 510. Trends in Housing and Home  
Furnishings

Problems related to housing and home  
furnishings; planning and construction; con-  
sultants, field trips.

H.EC. 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 prob-  
lems, development of individual studies in  
areas of particular interest.

H.EC. 519. Decision Making in Management

Consideration of problems of the family in  
relation to the management of the home;  
speakers and consultants; field trips, indi-  
vidual problems.

H.EC. 520. Family Financial Planning

Consideration of family financial problems;  
alternate choices in the light of family  
goals and values; examination and evalu-  
ation of available materials for use in teach-  
ing.

H.EC. 523. Field Experiences in Home Economics

Study of the functions of home experiences,  
criteria for evaluating directed home ex-  
periences, relationship of homemaking teach-  
er, parents and pupils; community relation-  
ships; guidance and evaluation. *Prerequisite:*  
The student must be a teacher and must  
have taught at least one of the courses in  
the basic sequence, Homemaking 1, 2, 3  
(preferably Homemaking 3) the year prior  
or be a newly hired teacher who is to teach  
at least one course in the basic sequence the  
following year.

H.EC. 590. Special Problem

Investigation of a particular problem to be  
planned and carried out by student, with  
consultation and guidance of (1) an in-  
struction and/or instructors approved by  
Home Economics Graduate Committee; (2)  
a member of the Home Economics Gradu-  
ate Committee.



**H.EC. 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.

**H.EC. 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.

**H.EC. 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.

**H.EC. 604. Advanced Foods**

Recent research and trends in food preparation and technology. Some experimental work in food preparation.

**H.EC. 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.

**H.EC. 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.

**H.EC. 607. Evaluation in Home Economics Education**

Techniques and instruments 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.

**H.EC. 608. Advanced Clothing**

Dress design and pattern making, including

consideration of alteration problems met in clothing classes.

**H.EC. 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.

**H.EC. 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.

**H.EC. 615. Homemaking Education for Adults**

A study of recent developments in homemaking education for adults. Discussion of problems which arise in adapting facilities, resources and in the organization of such groups.

**H.EC. 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.

**H.EC. 621. Curriculum Planning in Home Economics**

Offers an opportunity to study the planning, development and evaluation of an overall home economics curriculum.

**H.EC. 690. Research Study**

An undertaking engaged in by one or more students related to the area of special interests. The study must be planned co-operatively and approved by a member of the Home Economics Graduate Committee.

**H.EC. 695. Thesis**

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



**INDUSTRIAL ARTS EDUCATION**

**Courses in Technical and Related Fields**

	<i>Credit Hours</i>
<i>Professional Education:</i> .....	8
I.A. 601 Seminar in Industrial Arts .....	2-3
I.A. 628 Industrial Arts Curriculum .....	2-3
I.A. 690 Master Study .....	4
<i>Technical Education:</i> .....	8
Chosen by advisement from the following: I.A. 602, 608, 613, 615, 617, 618, 619, 620, 621, 627, 629, 630.	
<i>Required Courses in Arts and Sciences</i> .....	6
Chosen by advisement from Art, English, Geography, Mathematics, Music, Philosophy, Science, Social Sciences.	
<i>Unrestricted Electives</i> .....	8
<i>Total Requirements</i> .....	30

57



## INDUSTRIAL ARTS

### 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. 409. Electronic Instrumentation (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. 423. The Industrial Arts Consultant in the Elementary School (g)

### I.A. 427. Graphic Solutions (g)

### 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.

### 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. 601. Seminar in Industrial Arts

Discussion, research, reports on individual and group problems in Industrial Arts education. Required of Industrial Arts students registered for the degree of Master of Science.

### I.A. 602. Field Studies Related to Industrial Arts Education

Individual and group studies of industrial

activities in the Niagara Frontier; the wood-working 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. School Shop Planning

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. Welding

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.

### 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.

### I.A. 618. Electronics

Advanced study in circuit analysis of instruments; familiarization with electronic instruments, their operation, and application.

### I.A. 619. New Techniques and Materials in Woodworking

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.

### 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.

# 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. 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.

## VOCATIONAL TECHNICAL EDUCATION

### Courses in Area of Specialization and Related Fields

Area of Specialization Education	Credit Hours
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.	12
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

## VOCATIONAL TECHNICAL

### 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, oncoming development in Vocational Technical Education.

### V.T. 602. Administration of Vocational Education

Nature and scope of vocational technical education; administrative aspects of curriculum, student selection, rating, integration with industry, advisory boards, community relationships, 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 instructional 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 is-



sues in vocational technical education; 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

#### 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 University Women  
 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 68 colleges and centers. At present, 60 conduct classes: four University Centers, two Medical Centers, ten Colleges of Arts and Science, seven Specialized Colleges, six two-year Agricultural and Technical Colleges, and 31 locally-sponsored, two-year Community Colleges.

Three additional Colleges of Arts and Science are in varying stages of development. Two four-year campuses, in Westchester County at Purchase and in Nassau County at Old Westbury are under development. Old Westbury will admit its first students in limited numbers in September 1968. The third campus will be upper-divisional (junior-senior years) in concept and located in the Utica-Rome-Herkimer area. Master's level programs will be offered at all three campuses.

The University's Trustees also have approved the establishment of additional Community Colleges. In varying stages of development, they are sponsored by Clinton, Columbia-Greene, Tompkins-Cortland, Essex-Franklin and Schenectady Counties.

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 Oyster Bay, L. I. which serves as a University-wide conference and seminar facility and as the site for programs in international education; 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, the Great Lakes Research Laboratory at the College at Buffalo, and the Water Resources Center at the College of Forestry.

Graduate study at 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, etc.



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 youth in city poverty 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 exception 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."

## STATE UNIVERSITY OF NEW YORK

### Board of Trustees

Mrs. Maurice T. Moore, B.A., LL.D., L.H.D., <i>Chairman</i>	New York City
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George L. Hinman, A.B., LL.B., L.H.D., LL.D., L.C.D.	Binghamton
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Don J. Wickham, B.S.	Hector
1 appointment pending	

<i>Chancellor of the University</i>	Samuel B. Gould, A.B., M.A., LL.D.
<i>Provost</i>	Harry W. Porter, A.B., M.S., Ph.D.
<i>Vice Chancellor for University Colleges</i>	James A. Frost, A.B., M.A., Ph.D.
<i>Secretary of the University</i>	Martha J. Downey, B.S., M.A.

## THE COLLEGE

### Local Council

	<i>Term Expires</i>
Mrs. James H. Righter, <i>Chairman</i>	1972
Charles G. Blaine	1973
Mrs. John R. Campbell	1971
Paul P. Cohen	1967
Peter Corson	1970
David J. Laub	1969
Mrs. Harlan J. Swift	1974
Mrs. Henry Z. Urban	1968
Raymond Ph. Weil	1976

### Administration

E. K. FRETWELL JR., A.B., M.A.T., Ph.D.	<i>President</i>
HOUSTON T. ROBISON, B.S., M.S., Ph.D.	<i>Vice-President for Academic Affairs</i>
GEORGE R. SHERRIE, B.S.Ed., Ed.M., Ed.D.	<i>Vice-President for Administration</i>
CHARLES P. LaMORTE, B.A., M.A., Ed.D.	<i>Vice-President for Student Affairs</i>

<i>President of the College</i>	E. K. FRETWELL JR., A.B., M.A.T., Ph.D.
<i>Secretarial Assistant to the President</i>	KATHRYN S. GRAHAM
<i>Special Assistant to the President</i>	SILAS R. MOLYNEAUX, B.A., M.A.
<i>Director of Public Information</i>	ELSIE U. KAYE, B.A., B.Lit.
<i>Director of Publications</i>	JOYCE E. FINK, A.B., Ed.M.

<i>Vice-President for Academic Affairs</i>	HOUSTON T. ROBISON, B.S., M.S., Ph.D.
<i>Secretary to the Vice-President for Academic Affairs</i>	FRANCES G. RAHN
<i>Associate Vice-President for Academic Affairs</i>	PHILIP R. BONNER, B.S., M.A., Ed.D.
<i>Assistant Vice-President for Academic Affairs</i>	ROBERT E. SHOENBERG, A.B., M.A., Ph.D.

<i>Dean of Applied Science and Technology</i>	SHERMAN F. DREYER, B.S., M.S., Ed.D.
<i>Director of Home Economics</i>	THERESA R. HUMPHREYVILLE, B.Sc., M.Sc., Ed.D.
<i>Director of Industrial Arts Education</i>	ROBERT E. BUXTON, B.S., M.S., Ed.D.
<i>Director of Vocational Technical Education</i>	



Dean of Arts and Science .....HOWARD G. SENGBUSCH, B.S.Ed., Ed.M., M.S., Ph.D.

Director of Arts and  
Humanities Division .....ROBERT B. CANTRICK, A.B., M.A., Ph.D.  
Chairman of English Department .....J. STEPHEN SHERWIN, B.S., M.A., Ed.D.  
Chairman of Foreign  
Language Department .....ERNEST S. FALBO, A.B., Ph.D.  
Chairman of Health, Physical Education and  
Recreation Department .....CHESTER L. PALMER, B.S., A.M., Ed.D.  
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# INDEX

Academic Regulations .....	9
Accreditation .....	64
Administration .....	67
Admission .....	5
Admission to Candidacy .....	7
Adviser .....	7
Anthropology .....	35
Applied Science and Technology .....	54
Art Division .....	13
Arts and Humanities .....	22
Arts and Sciences .....	21
Attendance .....	9
Biology .....	30
Calendar .....	2
Campus and Buildings .....	3
Chemistry .....	31
Class Schedules .....	5
Course Number System .....	10
Credit and Eligibility .....	10
Cumulative Average .....	10
Curricula .....	5
Early Secondary Education .....	39
Economics .....	35
Education Courses .....	45
Elementary Education .....	39
Elementary Principalship and/or Supervision .....	40
English .....	23
Exceptional Children Education .....	50
Faculty .....	71
Foreign Languages .....	27
General Information .....	3
General Science .....	33
Geography .....	35
Geosciences .....	32
Grading System .....	9
Graduate Curricula .....	10

History .....	36
History of College .....	63
Home Economics Education .....	54
Incompletes .....	9
Industrial Arts Education .....	57
Interdepartmental .....	62
Latin American Studies .....	38
Library .....	5
Local Council .....	67
Master of Arts in English .....	22
Master of Arts in Mathematics .....	28
Mathematics .....	29
Mathematics and Science .....	28
Memberships .....	64
Mental Retardation .....	50
Music .....	28
Philosophy .....	28
Physical Handicap .....	51
Physics .....	33
Political Science .....	37
Prerequisites .....	6
Professional Studies .....	39
Refunds .....	11
Requirements for Master's Degree .....	7
Safety and Driver Education .....	62
Secondary Education .....	41
Social Sciences .....	35
Social Studies .....	38
Sociology .....	38
Special Students .....	8
Speech and Theatre Arts .....	28
Speech Pathology and Audiology .....	51
State University of New York .....	65
Student Load .....	8
Tuition and Fees .....	11
Vocational Technical Education .....	60
Withdrawal from Courses .....	9

## STATE UNIVERSITY COLLEGE AT BUFFALO 1300 Elmwood Avenue Buffalo, New York 14222

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INDEX

Academic Regulations .....	9	History .....	36
Accreditation .....	64	History of College .....	63
Administration .....	67	Home Economics Education .....	54
Admission .....	5	Incompletes .....	9
Admission to Candidacy .....	7	Industrial Arts Education .....	57
Adviser .....	7	Interdepartmental .....	62
Anthropology .....	35	Latin American Studies .....	38
Applied Science and Technology .....	54	Library .....	5
Art Division .....	13	Local Council .....	67
Arts and Humanities .....	22	Master of Arts in English .....	22
Arts and Sciences .....	21	Master of Arts in Mathematics .....	28
Attendance .....	9	Mathematics .....	29
Biology .....	30	Mathematics and Science .....	28
Calendar .....	2	Memberships .....	64
Campus and Buildings .....	3	Mental Retardation .....	50
Chemistry .....	31	Music .....	28
Class Schedules .....	5	Philosophy .....	28
Course Number System .....	10	Physical Handicap .....	51
Credit and Eligibility .....	10	Physics .....	33
Cumulative Average .....	10	Political Science .....	37
Curricula .....	5	Prerequisites .....	6
Early Secondary Education .....	39	Professional Studies .....	39
Economics .....	35	Refunds .....	11
Education Courses .....	45	Requirements for Master's Degree .....	7
Elementary Education .....	39	Safety and Driver Education .....	62
Elementary Principalship and/or Supervision .....	40	Secondary Education .....	41
English .....	23	Social Sciences .....	35
Exceptional Children Education .....	50	Social Studies .....	38
Faculty .....	71	Sociology .....	38
Foreign Languages .....	27	Special Students .....	8
General Information .....	3	Speech and Theatre Arts .....	28
General Science .....	33	Speech Pathology and Audiology .....	51
Geography .....	35	State University of New York .....	65
Geosciences .....	32	Student Load .....	8
Grading System .....	9	Tuition and Fees .....	11
Graduate Curricula .....	10	Vocational Technical Education .....	60
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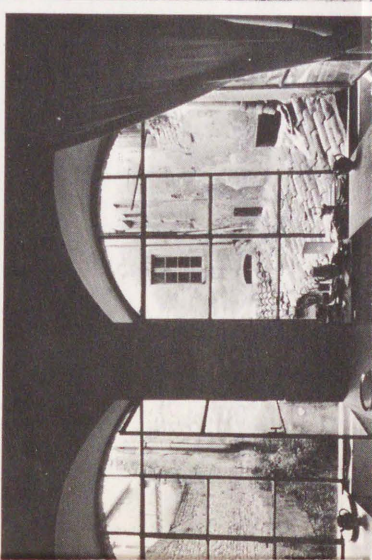
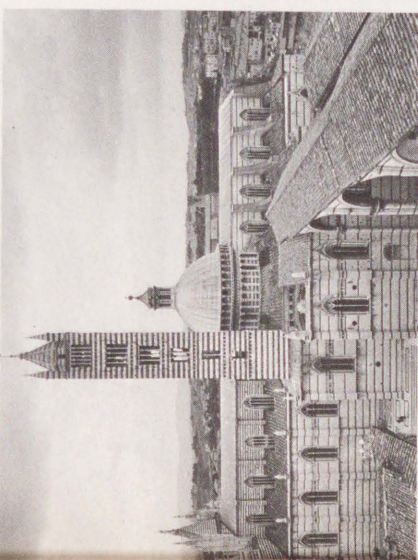
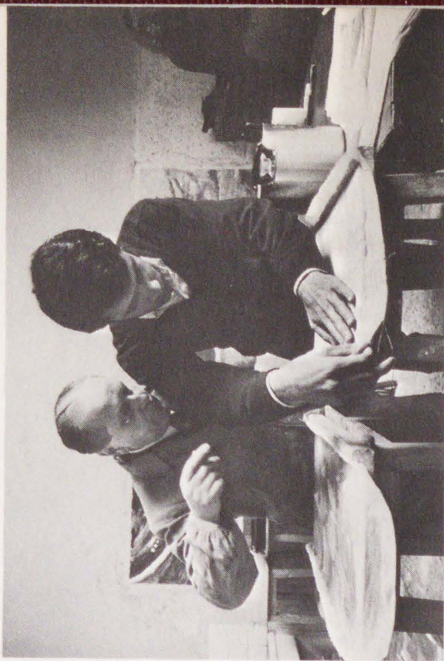
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ARRANGE THAT OFFICIAL TRANSCRIPTS OF ALL COLLEGE AND UNIVERSITY WORK, EXCEPT FOR WORK DONE AT THIS INSTITUTION, BE SENT BY THE RESPECTIVE INSTITUTION TO DIRECTOR, GRADUATE DIVISION, STATE UNIVERSITY COLLEGE, BUFFALO, NEW YORK 14222.

NOTICE

AS SOON AS ALL OF THE ABOVE COMMUNICATIONS HAVE BEEN RECEIVED YOU WILL BE NOTIFIED IMMEDIATELY OF YOUR ADMISSION STATUS. AT THAT TIME YOU WILL BE INVITED TO SELECT AN ADVISER TO GUIDE YOUR GRADUATE PROGRAM. YOU ARE URGED TO COMPLETE CREDENTIALS AT THE EARLIEST POSSIBLE MOMENT SO THAT YOU MAY HAVE THE BENEFIT OF AN ADVISER EARLY IN YOUR GRADUATE STUDIES. IF SUCH NOTIFICATION DOES NOT REACH YOU WHEN YOU EXPECT IT, YOU SHOULD CHECK TO BE SURE THAT ALL THE REQUESTED INFORMATION HAS BEEN MAILED TO THE COLLEGE.

N.B. MAIL THIS FORM TO: DIRECTOR, GRADUATE DIVISION  
STATE UNIVERSITY COLLEGE AT BUFFALO  
1300 ELMWOOD AVENUE  
BUFFALO, NEW YORK 14222

\*REQUIRED OF STUDENTS SEEKING FULL GRADUATE STANDING AND ACCEPTANCE AS A CANDIDATE FOR THE MASTER OF SCIENCE DEGREE. NOT REQUIRED OF SPECIAL STUDENTS WORKING FOR CERTIFICATION AND NOT EXPECTING TO APPLY FOR THE MASTER OF SCIENCE DEGREE. CONFIDENTIAL REPORT IS NOT REQUIRED OF CANDIDATES FOR MASTER OF ARTS DEGREE.



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*AB 200*