

# Degree Programs

## Master of Fine Arts

### The Program

The objective of the Master of Fine Arts degree is to prepare individuals for careers in ceramic art, electronic integrated arts, glass art, or sculpture.

This two-year program is highly competitive; only eight ceramic art, four/five electronic integrated arts, two glass art and three sculpture students are admitted annually. Each accepted M.F.A. candidate is given a financial stipend, either as a teaching assistant or as an intern, within the Art and Design program.

In addition to studio work, all graduate students take a series of seminars, art history, elective credits and technical classes relevant to their area of study.

In the final year, students write a thesis report and present a M.F.A. exhibition in the School of Art and Design's Fosdick-Nelson Gallery or an approved alternate site.

### Application

Applicants for admission should hold the baccalaureate degree with the equivalent of sixty credit hours in studio courses. A portfolio of completed works could be considered the equivalent of some studio courses.

In addition to the transcripts and letters of recommendation required of all students, applicants to the MFA program must present a portfolio showing preparation in the appropriate areas. Applicants to the Electronic Integrated Arts program may submit slides, CD-ROMS, DVDs or cued videotapes. Applicants to the Ceramic Art and Sculpture/Dimensional Studies program may submit slides, CD-ROMs or DVDs. All work should be clearly labeled. Slides (20) should be placed in 9" X 11" clear plastic sheets for safe handling and easy return. Each slide must indicate name of artist, date of work, top of slide, medium and dimensions in inches. Submit digital photos as jpeg files, no additional presentations such as PowerPoint will be accepted. A self-addressed, postage paid envelope must be included with the application to insure the return of the portfolio. All portfolio materials will be handled with great care, but neither the School of Art & Design nor the Graduate Admissions Office takes responsibility for loss or damage.

The School of Art and Design of the New York State College of Ceramics at Alfred University offers graduate study in three divisional areas: Ceramic Art, Electronic Integrated Arts and Sculpture/Dimensional Studies (concentration in either sculpture or glass art). Applicants should make clear to which M.F.A. program they are applying.

### Ceramic Art

Applicants to the Ceramic Art program must indicate a commitment to working with ceramic materials - clay, glaze, fire, etc. The program is open to work in all aspects of ceramic art including functional pottery, vessel ceramics, architectural ceramics, ceramic sculpture and installation.

### Electronic Integrated Arts

The M.F.A. in Electronic Integrated Arts is an interdisciplinary approach to electronic and digital processes. It provides a context in which to explore the relationships between the languages, processes, and forms of emerging electronic/digital technologies with those of painting, printmaking, photography, design, video, and sonic arts.

This program is designed to recognize an emerging population of students who are committed to investigating these relationships through work that is not necessarily confined to a singular artistic discipline. Given this cross-disciplinary structure, student work can be based in any of the mediums included within the Division of Expanded Media and the Division of Painting and Photography, but should demonstrate an involvement with or integration of digital or electronic processes.

### **Sculpture/Dimensional Studies**

#### *Concentration in Glass Art*

Applicants to the Glass Art program will have made a commitment to working with glass as a medium for artistic expression.

#### *Concentration in Sculpture*

Applicants to the Sculpture program will have made a commitment to the making of sculpture with or without media specificity.

It is important to be clear which program you want to enter, as portfolios must be reviewed by the appropriate selection committee.

All applications are made through the Graduate Admissions Office and all supporting documents and the portfolio should be postmarked by January 15th of each year in order to be considered complete. Only completed applications will be sent to the Admissions Committee after January 15. Applications will be submitted to the appropriate selection committees for review. Enrollment is limited by facilities in the areas of concentration.

Those accepted must make a \$200 deposit and return a signed contract within 15 days after notification of acceptance, or acceptance becomes void. No applications for January admission are considered.

### **Financial Support**

Each M.F.A. student is assigned either a Graduate Assistantship or a Graduate Teaching Internship. In either case, the student receives a grant for full tuition and a stipend of \$4,750 for the academic year.

Teaching Assistants help faculty members in the performance of their academic duties. Each Graduate Teaching Intern teaches one four credit hour studio course per semester. All assistants and interns have a commitment of 10 hours/week to meet the requirements of the stipend. Assignments are made in consultation among faculty, students and division chairpersons at the beginning of each semester.

### **Degree Requirements**

Degree requirements include two years of residence and a minimum of sixty graduate credit hours. Reviews of work take place at the mid-term and end of each semester.

#### **First-Year Requirements – Ceramic Art**

Ceramics Studio	16-20
Glaze Calculation (Fall)	2
Raw Materials (Spring)	2
Art History (Ceramic)	4
Topics in Ceramic Art	2
First Year Graduate Seminar	2
Electives	0-4

## 44 Degree Programs

### First-Year Requirements – Electronic Integrated Arts

Advanced Electronic Arts	8
Work and Analysis	8
Art History/Criticism	4
Electronic Strategies (non-time based)	4
Electronic Strategies (time based)	4
First Year Graduate Seminar	2
Electives	0-4

### First-Year Requirements – Sculpture/Dimensional Studies

#### *Concentration in Glass Art*

Glass Studio	16-20
History of Art	4
Studio Practice	2
First Year Graduate Seminar	2
Electives	0-4

#### *Concentration in Sculpture*

Sculpture	16-20
History of Art	4
Studio Practice	2
First Year Graduate Seminar	2
Electives	0-8

The theoretical and creative studies of the first graduate year are so correlated as to provide the experience needed to identify and define the objectives of the second year.

The second year centers on the development of a body of work to be presented at the end of the year in a thesis exhibition. This exhibition must be accompanied by a written thesis report, which articulates the student's philosophical point of view.

The student's graduate faculty make quarterly reviews of work done and in progress. Before the review of the thesis exhibition, the final draft of the thesis report/technical statement/exhibition statement must be presented to the student's respective graduate committee. A representative collection of twenty 35mm original slides or electronic documentation of graduate work in all areas, with major emphasis on thesis exhibition, is due before graduation.

### Overview of Required Courses

#### Ceramic Art

ART 501	Studio Elective* (outside major concentration)	4
ART 552	Advanced Ceramics* (credits per semester, 1 <sup>st</sup> Year)	8-12
ART 555	Raw Materials	2
ART 556	Glaze Calculations	2
ART 560	Ceramics Graduate Seminar	2
ART 672	Written Thesis Preparation	4
ART 680	Thesis* (credits per semester, 2 <sup>nd</sup> Year)	8-12
ARTH 563	History of World Ceramics	4
ARTH 660	First Year Graduate Seminar	2

**Minimum Total Credit Hours Required for the Program 60**

**Electronic Integrated Arts**

ART 501	Studio Elective* (outside major concentration)	8
ART 523	Work and Analysis	16
ART 524	Electronic Strategies (non-time based)	4
ART 525	Advanced Electronic Arts*	8
ART 526	Electronic Strategies (time based)	4
ART 671	Written Thesis Preparation-EIA	4
ART 681	Thesis*	8
ARTH 660	First Year Graduate Seminar	2
ARTH	minimum one Art History/Criticism course	4
<b>Minimum Total Credit Hours Required for the Program</b>		<b>60</b>

**Sculpture/Dimensional Studies***Concentration in Glass Art*

ART 501	Studio Elective* (outside major concentration)	8
ART 529	Studio Practice	6
ART 565	Advanced Glass* (credits per semester, 1 <sup>st</sup> Year)	8-12
ART 672	Written Thesis Preparation	4
ART 682	Thesis* (credits per semester, 2 <sup>nd</sup> Year)	8-12
ARTH 561	History of Sculpture	4
ARTH 660	First Year Graduate Seminar	2
ARTH	minimum one additional Art History/Criticism course	4
<b>Minimum Total Credit Hours Required for the Program</b>		<b>60</b>

*Concentration in Sculpture*

ART 501	Studio Elective* (outside major concentration)	8
ART 522	Advanced Sculpture* (credits per semester, 1 <sup>st</sup> Year)	8-12
ART 529	Studio Practice	6
ART 672	Written Thesis Preparation	4
ART 682	Thesis* (credits per semester, 2 <sup>nd</sup> Year)	8-12
ARTH 561	History of Sculpture	4
ARTH 660	First Year Graduate Seminar	2
ARTH	minimum one additional Art History/Criticism course	4
<b>Minimum Total Credit Hours Required for the Program</b>		<b>60</b>

\*A materials fee, usually ranging from \$22-\$88 per credit hour, is charged for these courses

**Master of Business Administration**

The Alfred University MBA program focuses on decision making and emphasizes the use of technology in management. Students perform research in class and through assistantships. The curriculum has a special focus on enterprise resource planning (ERP) and integrates the use of SAP business suites (R/3, BW, SCM, SEM, CRM, etc.) in classes to provide students with some of the latest technology. An ERP system (used by many Fortune 500 companies) is an integrated enterprise-wide software to operate business processes in an efficient manner.

Graduates of the Alfred University MBA program will demonstrate effective leadership and teamwork skills, integrate their functional knowledge of business to make decisions, use a global perspective in decision making, and understand the need for ethical practices in business.

## 46 Degree Programs

The curriculum has three components: foundation courses, the core, and graduate electives. Foundation courses feature fundamentals of business knowledge that can be completed at the undergraduate level prior to starting the program or as part of the program. Typically, students who have an undergraduate degree in business (or a similar field) have already completed most, if not all, foundation requirements and may be able to complete the program (core and electives) in as few as 30 credit hours.

### Foundation

The foundation classes introduce the functional areas of business practice. These classes are satisfied at the undergraduate level:

ACCT 211	Financial Accounting	3
ACCT 212	Managerial Accounting	3
BUSI 113	Business Statistics	3
ECON 201	Introduction to Economics and Markets	4
ECON 202	Principles of Macroeconomics	3
FIN 348	Managerial Finance	3
MATH 107	Calculus Concepts for the Social Sciences	4
MGMT 328	Management and Organizational Behavior	3
MGMT 484	Operations Management	3
MIS 101	Business Perspectives	3
MIS 190	Introduction to Management Information Systems	3
MKTG 221	Marketing Principles and Management	3
<b>Total credit hours</b>		<b>38</b>

### Core

MBA 611	Accounting Information Systems	3
MBA 613	International Marketing	3
MBA 614	Corporate Finance	3
MBA 621	Business Decision Making	3
MBA 622	Quality Management	3
MBA 624	Strategic Management	3
<b>Total credit hours</b>		<b>18</b>

### Electives

Elective courses will be offered to align with current business practices. Examples include: enterprise resource planning, organizational processes, and entrepreneurial finance. The M.B.A. Program Director must approve all electives.

**Total credit hours** **12**

Electives include but are not limited to the following:

MBA 610	Leadership Dynamics	3
MBA 612	Legal, Social, Political Environment of Business	3
MBA 620	Global Dimensions of Management	3
MBA 640	American Economic History	3
MBA 642	Portfolio Management: Personal and Corporate Planning	3
MBA 644	Accounting Issues	3
MBA 646	Enterprise Resource Planning	3
MBA 648	Business Warehouse	3
MBA 660	Seminar in Business Issues	3

**Full and Part-Time Study**

Students may attend the M.B.A. program on a part-time or full-time basis. The program is designed so that full-time students who need 30 credits can complete their course of study in less than one calendar year. A typical schedule for such a full-time student would be as follows:

**Fall Semester**

MBA core	3
MBA core	3
MBA core	3
MBA elective	3
MBA elective	3

**Spring Semester**

MBA core	3
MBA core	3
MBA core	3
MBA elective	3
MBA elective	3

Full-time students whose program requires more than the 30 credit hours would require more time, depending on their specific situation.

Part-time students can finish a 30 credit-hour program in a minimum of two years. Classes are offered in the late afternoon and early evening and students can reasonably plan to take a maximum of six credit hours per semester plus six credit hours in the summer. Part-time students whose program of study requires more than 30 credit hours will need more time to complete the degree. Students may begin part-time study without formal application to the program. A total of 9 credit hours may be completed on this basis.

**Admissions**

Admission to the program for both part and full-time students entails the following:

1. Official undergraduate transcripts.
2. Two letters of recommendation from either employers or college professors, whichever is appropriate. Forms are available through the Office of Graduate Admissions, or on-line, for your convenience.
3. Graduate Management Admissions Test. Applicants to the M.B.A. degree program must submit an official GMAT score.
4. Personal Statement
5. Submit application and above items to:  
Office of Graduate Admissions  
Alumni Hall  
Saxon Drive  
Alfred, NY 14802  
(607) 871-2141

**Assistantships**

A limited number of assistantships are granted annually to full-time students. These take the form of assistantships that provide for remission of approximately one-half the annual graduate tuition. Graduate assistants work 7.5 hours per week with a graduate faculty member in their area of interest. These are renewable.

## 48 Degree Programs

### Career Services

The University Career Development Center (CDC) works closely with MBA students both during and after graduation to secure employment in their chosen field. The CDC provides individual career assistance such as resume and cover letter writing, electronic job searching, effective interviewing, salary negotiation and provides an medium to network with alumni.

### Financial Aid

Financial aid is available. Students should contact the Financial Aid office at (607) 871-2159 for more information.

### Facilities

The College of Business was established at Alfred University in 1973 and has been accredited by AACSB since 1987. The M.B.A. degree program is accredited by the Association to Advance Collegiate Schools of Business (AACSB) - International. The College is located in the F.W. Olin Building, a 5.6 million dollar facility providing classroom computer facilities and a trading room which are among the finest available.

## Counseling and School Psychology

The Division of Counseling and School Psychology offers graduate programs to prepare candidates to become mental health professionals working in schools, community agencies, and higher education. Three degree programs are available:

### Master of Science in Education

- M.S.Ed. and Certificate of Advanced Study (MSED/CAS) in Counseling:  
School & Mental Health Tracks
- M.S.Ed. in Counseling: College Student Development Track

### Master of Arts/Certificate of Advanced Study (MA/CAS) in School Psychology

### Doctor of Psychology (Psy.D.) Degree in School Psychology

### Counseling Program

#### Overview

The Graduate Program in Counseling is designed to train knowledgeable and skilled counselors who are able to serve a culturally diverse society through professional employment in school, agency, and higher education settings. The school counseling specialization meets the course work and field experiences required by the New York State Department of Education for provisional certification as a school counselor.

Alfred University's graduate training in counseling prepares students to make appropriate and ethical decisions as counseling professionals. The most important of these decisions is the selection of strategies that empower clients to make personal decisions leading to the resolution of problems and resulting in an improved quality of life. Therefore admission is based on undergraduate achievement, and demonstration of high levels of maturity, flexibility, and self-understanding.

### Mission Statement

Alfred University's graduate program in counseling prepares individuals for counseling positions in elementary, middle and high schools, colleges and universities, mental health centers and social service agencies. Students acquire core knowledge and clinical skills that enable them to enter the profession of counseling.

We (the faculty) strive to create a rigorous scholarly and supportive atmosphere for students to develop intellectually with a deep sense of social consciousness and self-awareness. We value teaching, scholarship, and service, which contribute to the mission of Alfred University.

### **Goals and Objectives of the M.S.Ed. Program in Counseling**

**Goal A:** To produce counselors with the personal qualities, interpersonal skills and awareness, and the ethical sensitivity predictive of success in a broad array of social, economic, and political contexts.

**Objective A1:** Students will develop an understanding of service delivery programs within a context respectful and appreciative of individual, family, and cultural diversity.

**Objective A2:** Students will develop an awareness that their personal characteristics and interpersonal skills affect the quality, social validity, and acceptability of the services they provide.

**Objective A3:** Students will abide by ethical standards as they relate to the historical foundations of the counseling profession and the current guidelines for practice.

**Goal B:** To produce counselors competent to access a broad range of theoretical and practical approaches with sufficient depth to be effective, flexible practitioners.

**Objective B1:** Students will develop proficiency in understanding of the characteristics and needs of individuals at all developmental levels, as well as understanding of adaptive and maladaptive behaviors.

**Objective B2:** Students will develop proficiency in the counseling and consultation processes to develop programs to intervene both directly and indirectly with client's academic, behavioral, and emotional problems.

**Goal C:** To produce counselors who have an understanding of group development, dynamics, differing theoretical approaches to groupwork, group leadership skills and strategies.

**Objective C1:** Students will develop an understanding of career development and related life factors.

**Objective C2:** Students will apply knowledge of research methods, basic statistics, and ethical and legal considerations to the counseling process.

**Objective C3:** Students will develop an understanding of all aspects of the counseling profession and professional functioning including history, organizational structures, counselor role and function, ethics, standards, and credentialing.

**Objective C4:** Students will specialize in the areas of school counseling, community/agency counseling, and higher education (college/university student development).

**Goal D:** To produce counselors competent in the comprehension and application of concepts, models and techniques to professional practice.

**Objective D1:** Students will complete practicum and internship experiences that provide quality supervision in order to assure that they obtain adequate experience with clients in their chosen specialization area. This knowledge base will include the updated and appropriate use of information technology in their placements.

**Objective D2:** Students will engage in personal growth experiences that will allow them to assess their personal characteristics, skills and their readiness to enter the counseling field.

**Objective D3:** Students will be presented with opportunities to engage in research activities on their own or with faculty.

## 50 Degree Programs

### The Curriculum

Alfred University's program consists of a 62 credit hour program in Counseling leading to the Master of Science in Education degree and a 12 credit hour Certificate of Advanced Study degree with specializations in school or mental health counseling. Students may also select a 53 credit hour college student development track which leads to the Master of Science in Education. Students specializing in school counseling will receive provisional certification as a New York State school counselor upon completion of the program.

The program admits students for the fall semester, and full-time students are continuously enrolled for two academic years. The degree can also be completed on a part-time basis. The final semester (internship) must be completed on a full-time basis. Satisfactory performance and development during the first two semesters as well as success on a qualifying examination are required for admission to the third semester of the program. The course sequence for full-time students in each of the tracks follows:

### School Counseling Track Course Sequence

#### First Year Courses

##### *Fall Semester*

COUN 601	Foundations of Cultural Diversity	1
COUN 602	The Profession of Counseling	3
COUN 606	Human Development: The Lifespan	3
COUN 626	Assessment in Counseling	3
COUN 636	Principles of Counseling	3
COUN 637	Introduction to Group Dynamics	1
COUN 656	Pre-Practicum	1

**Semester Total Credit Hours 15**

##### *Spring Semester*

COUN 604	Issues in School Counseling	3
COUN 605	Career Development and Life Planning	3
COUN 616	Mental Health, Exceptionality, and Disability	3
COUN 638	Advanced Counseling Theory and Practice	3
COUN 642	Multicultural Counseling	3
COUN 657	Practicum in Counseling I	2

**Semester Total Credit Hours 17**

#### Second Year Courses

##### *Fall Semester*

COUN 639	Group Counseling	3
COUN 658	Practicum in Counseling II	3
COUN 671	Research and Statistics I	3
PSYC 641	Introduction to Family Therapy	3
PSYC 646	Consultation and Prevention	3

**Semester Total Credit Hours 15**

##### *Spring Semester*

COUN 668	Internship in School Counseling	12
COUN 695	Topics in Counseling/Internship Seminar	3

**Semester Total Credit Hours 15**

**Total Credit Hours Required for the Program: 62**

**Mental Health Track Course Sequence****First Year Courses***Fall Semester*

COUN 601	Foundations of Cultural Diversity	1
COUN 602	The Profession of Counseling	3
COUN 606	Human Development: The Lifespan	3
COUN 626	Assessment in Counseling	3
COUN 636	Principles of Counseling	3
COUN 637	Introduction to Group Dynamics	1
COUN 656	Pre-Practicum	1

**Semester Total Credit Hours** **15**

*Spring Semester*

COUN 603	Issues in Mental Health Counseling	3
COUN 605	Career Development and Life Planning	3
COUN 615	Psychopathology and Differential Diagnosis	3
COUN 638	Advanced Counseling Theory and Practice	3
COUN 642	Multicultural Counseling	3
COUN 657	Practicum in Counseling I	2

**Semester Total Credit Hours** **17**

**Second Year Courses***Fall Semester*

COUN 619	Program Development and Grantsmanship	3
COUN 639	Group Counseling	3
COUN 658	Practicum in Counseling II	3
COUN 671	Research and Statistics I	3
PSYC 641	Introduction to Family Therapy	3

**Semester Total Credit Hours** **15**

*Spring Semester*

COUN 641	Counseling Special Populations	3
COUN 667	Internship in Mental Health Counseling	9
COUN 695	Topics in Counseling/Internship Seminar	3

**Semester Total Credit Hours** **15**

**Total Credit Hours Required for the Program:** **62**

**College Student Development Track Course Sequence****First Year Courses***Fall Semester*

COUN 601	Foundations of Cultural Diversity	1
COUN 602	The Profession of Counseling	3
COUN 606	Human Development: The Lifespan	3
COUN 626	Assessment in Counseling	3
COUN 636	Principles of Counseling	3
COUN 637	Introduction to Group Dynamics	1
COUN 656	Pre-Practicum	1

**Semester Total Credit Hours** **15**

*Spring Semester*

COUN 605	Career Development and Life Planning	3
COUN 607	Issues in College Student Development	3
COUN 638	Advanced Counseling Theory and Practice	3
COUN 642	Multicultural Counseling	3
COUN 657	Practicum in Counseling I	2

**Semester Total Credit Hours** **14**

## 52 Degree Programs

### Second Year Courses

#### *Fall Semester*

COUN 619	Program Development and Grantsmanship	3
COUN 639	Group Counseling	3
COUN 661	Advanced Practicum in College Student Development I	3
COUN 671	Research and Statistics I	3

**Semester Total Credit Hours** **12**

#### *Spring Semester*

COUN 617	Exceptionality: College Students with Disabilities	3
COUN 618	Leadership & Change in Higher Education Administration	3
COUN 662	Advanced Practicum in College Student Development II	3
COUN 696	Topics: College Student Development Practicum/Seminar	3

**Semester Total Credit Hours** **12**

**Total Credit Hours Required for the Program:** **53**

### Undergraduate Preparation for the M.S.Ed./C.A.S. Program in Counseling

It is preferred that students present evidence of successful completion of some undergraduate course work in the following subject areas: Psychology, sociology, education, or human development. However, it is more important that students demonstrate academic success in their undergraduate work, no matter what they majored in. No program credit is given for undergraduate study. Practical experiences are seen as valuable preparation, but cannot substitute for supervised graduate level practicum experiences.

All Counseling Program courses (unless otherwise noted) are open *only* to graduate students who are matriculated in the Counseling Program. In addition, some school psychology courses are available with permission of the instructor and division chair to matriculated graduate students in the Alfred University counseling programs. Up to 6 hours of graduate credit may be transferred to the master's degree.

### Admission

Students applying to the Counseling Program must submit the following documents directly to the Graduate Admissions Office:

- a completed application form;
- three (3) letters of recommendation;
- official transcripts of all undergraduate and graduate coursework;
- Graduate Record Examination (GRE) results-General Test; and
- a personal statement of objectives;

Admission to the MS.Ed./C.A.S. Counseling Programs is limited to 18 students each year. Review of applications will begin on February 15. Late applications will be considered if places in the class still exist for qualified applicants. Early application is strongly encouraged.

### Interview

An on-campus interview is expected of each applicant for admission to the program, but warranted exceptions may be made. Correspondence about the program should be addressed to Dr. Robert Bitting, Division of Counseling and School Psychology, Alfred University, Saxon Drive, Alfred, NY 14802. Telephone (607) 871-2212; e-mail: [bitting@alfred.edu](mailto:bitting@alfred.edu).

## The M.A./C.A.S. Program in School Psychology

### Overview

Alfred University offers a National Association of School Psychologists (NASP) approved program of graduate study in School Psychology consisting of two years of full-time graduate study followed by a full year internship. The Master's degree is conferred following completion of 61 credit hours of coursework, and the Certificate of Advanced Study is awarded upon completion of the 18 credits of full-time internship. These degree requirements satisfy the academic portion of the New York State Education Department requirements for the provisional certificate as a school psychologist. Graduates also fulfill the academic requirements for National Certification as a School Psychologist (NCSP), an additional credential offered by the National Association of School Psychologists. All students are required to take the School Psychology examination offered by the Educational Testing Service/Praxis Exam Series prior to completion of the internship.

The School Psychology Program is designed to develop professional psychologists who possess the personal characteristics and academic competencies necessary for serving the mental health and educational needs of all children and youth. Because of the applied nature of the program and the close interpersonal relationships that the profession of school psychology demands, students applying for admission must demonstrate a high level of maturity, independence, and flexibility.

### Mission of the MA/CAS Program

Preparation of school psychologists for applied professional practice in schools and related child and family settings.

### Goals and Objectives of the MA/CAS Program

**Goal A:** To produce school psychologists with the personal qualities, interpersonal skills and awareness, and the ethical sensitivity predictive of success in a broad array of social, economic, and political contexts.

**Objective A1:** Students will develop an understanding of service delivery programs within a context respectful and appreciative of individual, family, and cultural diversity.

**Objective A2:** Students will develop an awareness that their personal characteristics and interpersonal skills affect the quality, social validity, and acceptability of the services they provide.

**Objective A3:** Students will abide by ethical standards as they relate to the historical foundations of the school psychology profession and the current guidelines for practice.

**Goal B:** To produce school psychologists competent to access a broad range of theoretical and practical approaches with sufficient depth to be effective, flexible practitioners.

**Objective B1:** Students will develop proficiency in data-based decision-making, including traditional and alternative approaches to the assessment and evaluation of children's academic, behavioral and emotional problems.

**Objective B2:** Students will develop proficiency in the design and development of programs to intervene both directly and indirectly with children's academic, behavioral, and emotional problems. These programs will include academic strategies, behavior modification, crisis intervention, and counseling techniques that are implemented in a timely manner.

**Goal C:** To produce school psychologists who have an understanding of the basic principles of human cognitive and emotional development and their relationship to the functioning of children within a school setting.

**Objective C1:** Students will develop an understanding of the development of both normal and exceptional children.

**Objective C2:** Students will gain knowledge of general and special education services and legal guidelines, as part of understanding the educational and socio-political climate of their school districts.

**Objective C3:** Students will develop skills in consulting and communicating with school professionals and parents.

**Objective C4:** Students will develop skills in the prevention and remediation of academic and emotional problems in children.

**Goal D:** To produce school psychologists competent in the comprehension and application of research to professional practice.

**Objective D1:** Students will acquire a foundation in the scientific knowledge base of psychology and education, as well as an ability to evaluate and utilize research in their practice.

**Objective D2:** Students will develop proficiency in ongoing program evaluation, so they make informed decisions based upon objective data in developing services for children.

**Objective D3:** Students will develop a knowledge base which includes the updated and appropriate use of information technology in their practice.

### Curriculum

The program of study emphasizes a base of training in school psychology with special concern for the application of psychological knowledge in a variety of settings. Training in the following competency areas is provided: knowledge base in psychology and education; assessment; direct and indirect intervention; program development and evaluation; family systems; and professional role and functioning.

Students participate in supervised fieldwork experiences and practica from the first semester on. Students gain experience in local public schools as well as in the on-campus Child and Family Services Center. The culminating experience consists of a full-time, supervised yearlong internship in a school setting. Students are paid a stipend by the public school in which he/she interns, covering tuition for that year.

Satisfactory performance and skill development during the first two semesters, as well as success on a qualifying examination, are required for admission to the third semester of the program.

The following courses are required for all students in the M.A./C.A.S Program:

#### First Semester

PSYC 601	Foundations of Cultural Diversity	1
PSYC 603	Foundations of School Psychology	3
PSYC 607	Learning and Cognition	3
PSYC 626	Psychological and Educational Measurements	2
PSYC 627	Norm-Referenced Testing I	2
PSYC 636	Foundations of Interpersonal Effectiveness	3
PSYC 637	Introduction to Group Dynamics	1
PSYC 656	Field Experience in School Psychology I	1

**Semester Total Credit Hours** **16**

**Second Semester**

PSYC 606	Advanced Developmental Psychology	3
PSYC 629	Social-Emotional Assessment	3
PSYC 632	Norm-Referenced Testing II	2
PSYC 638	Psychotherapy and Behavior Change	3
PSYC 639	Exceptionality in Learning and Behavior	3
PSYC 657	Field Experience in School Psychology II	1

**Semester Total Credit Hours** **15**

**Third Semester**

PSYC 628	Academic Functioning	3
PSYC 641	Introduction to Family Therapy	3
PSYC 646	Consultation and Prevention	3
PSYC 658	Clinic Practicum I	3
PSYC 671	Statistical Analysis and Research Design I	3

**Semester Total Credit Hours** **15**

**Fourth Semester**

PSYC 609	Physical Bases of Behavior	3
PSYC 642	Clinical Seminar: Advanced Topics in School Psychology	3
PSYC 651	Academic Interventions	2
PSYC 664	Practicum in Academic Interventions	1
PSYC 659	Clinic Practicum II	3
PSYC 695	Professional Practice Seminar	3

**Semester Total Credit Hours** **15**

**Fifth Semester**

PSYC 667	Internship in School Psychology I	9
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**Sixth Semester**

PSYC 668	Internship in School Psychology II	9
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**Total Credit Hours Required for the Program** **79**

**Undergraduate Preparation and Admission to the MA/CAS Program**

(see below)

**The Doctor of Psychology Degree Program****Overview**

The Psy.D. Program in School Psychology is designed to prepare psychologists who will practice advanced skills in the schools and related child and family settings and to prepare graduates to meet professional employment demands for:

1. Psychologists in applied research;
2. Supervising psychologists;
3. Psychologists in child and family treatment agencies, hospitals, and private practice;
4. Professionals in higher education involved in the training of educators and clinicians.

The program leads to New York State license eligibility as a psychologist as well as state and national certification as a school psychologist.

Doctoral training focuses on applied research skills, advanced studies, and expanded areas of expertise. Graduates will possess the flexibility to assume a variety of roles and have the necessary skills to aid in the continuous development through research and practice of more effective educational and psychological practices. They acquire a broad knowledge base in psychological and educational theory, research and practice. They develop competencies in basic skill areas, advanced assessment, direct and indirect intervention including counseling and consultation with individuals, groups and systems, applied research, and supervision of others providing psychological services to children and families, particularly within a rural context.

Doctoral candidates are also encouraged to develop a specific area of expertise through a concentration of coursework, field experience and research. This focus on a strong professionally oriented program logically leads to the Psy.D. versus the Ph.D. degree and is in concert with the view put forth in the final report of the Psychology Committee of the Doctoral Evaluation Project of the New York State Education Department.

**Mission of the Psy.D. Program**

Preparation of psychologists for applied professional practice in schools and other child and family oriented settings.

**Goals and Objectives of the Psy.D. Program**

**Goal A:** To produce professional psychologists with the personal qualities, interpersonal skills and awareness, and the ethical sensitivity predictive of success in a broad array of social, economic, and political contexts.

**Objective A1:** Students will develop an understanding of service delivery programs within a context respectful and appreciative of individual and cultural diversity.

**Objective A2:** Students will demonstrate the personal characteristics and interpersonal skills that affect the quality, social validity, and acceptability of the services they provide.

**Goal B:** To produce professional psychologists competent to access a broad range of theoretical and practical approaches with sufficient depth to be effective, flexible practitioners.

**Objective B1:** Students will develop proficiency in traditional and emerging approaches to the assessment and evaluation of children’s academic, behavioral, and emotional problems.

**Objective B2:** Students will develop proficiency in the design and development of programs to intervene both directly and indirectly with children’s academic, behavioral, and emotional problems.

**Goal C:** To produce professional psychologists competent in the conduct, comprehension, and application of research to professional practice.

**Objective C1:** Students will acquire a foundation in the scientific knowledge base of psychology and education.

**Objective C2:** Students will develop proficiency in the conduct, dissemination, and application of research related to professional practice.

**Curriculum**

A total of 120 credit hours are needed to complete the program. A minimum of 90 credits of coursework beyond the baccalaureate degree must be completed, in addition to one year of internship (18 credits) and a minimum of 12 credits of dissertation.

As specified by University regulations, all work for the degree must be completed within 7 years from the date of the start of the program. Every student must fulfill a residency requirement, which requires the student to be registered for courses as a full-time student for two consecutive semesters. Thus, this is a minimally a four-year program at the minimum, with three years of coursework (including approximately 800 hours of supervised practica experiences), at least one year of full-time residency, and then a year-long full-time supervised internship. The content of the coursework is a balance of scientific bases, research experiences, and academic and professional applied psychology.

Students are encouraged to develop a specialty through a combination of coursework, practica, research, and independent study in a particular area. Nine credits of electives are required, and may be fulfilled by courses or advanced practicum experiences. All students must pass master's level written comprehensive examinations, engage in a research apprenticeship, pass a doctoral qualifying examination and complete a written dissertation.

### Sample Sequence of Courses for a Full-Time Student's Program<sup>1</sup>

The first four semesters are identical to the curriculum for the M.A./C.A.S. program, with the exception that doctoral students take PSYC 672- Statistical Analysis and Research Design II, during the fourth semester. Beyond the first two years doctoral students would enroll for the following:

#### Years 1 and 2:

61 credits from M.A. coursework	61
PSYC 672 Statistical Analysis and Research Design II	3
<b>Years 1 and 2 Total Credit Hours</b>	<b>64</b>

Beyond the first two years doctoral students enroll for the following:

#### Year 3:

##### *Fifth Semester*

PSYC 673 Statistical Analysis and Research Design III	3
PSYC 674 Research in School Psychology	3
PSYC 692 Supervision and Administration of Psychological Services	3
PSYC 699 Dissertation	3-6
Electives	3-6

**Semester Total Credit Hours 15-18**

##### *Sixth Semester*

PSYC 602 Seminar in Cultural Diversity	2
PSYC 608 Social Psychology and Behavior	3
PSYC 611 History and Systems of Psychology	3
PSYC 699 Dissertation	3-6
Electives	3-6

**Semester Total Credit Hours 14-17**

#### Year 4:

##### *Seventh Semester*

PSYC 669 Pre-doctoral Internship I	9
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##### *Eighth Semester*

PSYC 670 Pre-doctoral Internship II	9
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## 58 Degree Programs

### Year 5:

*Ninth Semester*

PSYC 699                      Dissertation                      3-6

*Tenth Semester*

PSYC 699                      Dissertation                      3-6

**Minimum Total Credit Hours Required for the Program:                      120**

<sup>1</sup>This sample program illustrates the more typical case of a student requiring five years to complete the degree.

### Undergraduate Preparation for the M.A./C.A.S., and Psy.D. Programs

The student must present evidence of competence in the following subject areas:

1. introduction to psychology;
2. statistical and/or experimental methods; and
3. at least one of the following:
  - developmental psychology (e.g., child and adolescent psychology);
  - personality; or
  - abnormal psychology.

Students who have not taken these courses, but who are acceptable candidates otherwise, may make arrangements upon approval of the School Psychology Committee, to satisfy these requirements via coursework or independent study in the summer preceding admission. Other courses, such as tests and measurements, learning or educational psychology are looked upon favorably. Practical experiences in psychology or education as well as any other relevant experiences are seen as valuable preparation. Up to 6 graduate credits may be transferred to the master's degree. Students who enter the doctoral program with prior graduate training relevant to the field of school psychology (including a prior master's degree in school psychology) must complete ½ of their credits for doctoral coursework at Alfred University. This means that no more than 45 of the 90 credits of coursework can be transferred towards the doctoral degree.

### Admission

Students applying to the School Psychology Program must submit the following documents directly to the Graduate Admissions Office:

- a completed application form;
- three (3) letters of recommendation;
- official transcripts of all undergraduate and graduate coursework;
- Graduate Record Examination (GRE) results-General Test;
- a personal statement of objectives; and
- a statement of research interest (Psy.D. only).

Admission to the M.A./C.A.S. School Psychology Program is limited to 18 students each year, and six students for the Psy.D. program. The deadline for applications to the Doctor of Psychology (Psy.D.) program in School Psychology is January 15. Review of applications for the M.A./C.A.S. program in School Psychology will begin on February 15. Late applications will be considered if places in the class still exist for qualified applicants. Early application is strongly encouraged.

### Interview

An on-campus interview is expected of each applicant for admission to the program, but warranted exceptions may be made. Correspondence about the program should be addressed to Dr. Jana Atlas, Division of School Psychology, Alfred University, Saxon Drive, Alfred, NY 14802. Telephone (607) 871-2212; e-mail: atlasj@alfred.edu.

## Education

The Division of Education offers a program in the teaching of literacy leading to the Master of Science in Education (M.S.Ed.) and offers the Master of Science in Numeracy (M.S.)

### Initial Certification in Childhood or Adolescence Education

Students who have a bachelors or masters degree desiring initial or provisional certification in Childhood or Middle/Adolescence Education should contact their local BOCES certification officer to determine the required coursework. Three local BOCES are: Greater Southern Tier (GST) BOCES, Teacher Certification Office 607- 654-2269 or 962-3175, ext. 269; Cattaraugus-Allegany-Erie-Wyoming (CAEW) BOCES, Teacher Certification, 716-376-8200; and Steuben County BOCES 607-281-2166.

After an initial consultation with the BOCES officer, a faculty member from Alfred University will work with individuals to insure that the requirements have been met for receiving initial certification through BOCES.

### Mission and Objectives

The Education Division at Alfred University is guided by and agrees with the overall philosophical approach of the New York State Department of Education. Namely, that a teacher education program must prepare students who:

1. have a thorough knowledge of the New York State standards and have developed the pedagogical competencies to ensure that all students can meet these standards;
2. develop breadth of knowledge in the content areas consistent with these new New York State standards;
3. develop depth of knowledge in the content areas consistent with these new New York State standards;
4. develop strong communication modes in the areas of writing, listening and speaking; and use these to promote student learning in the classroom;
5. develop an understanding of the developmental stages of the learner; understanding of motivation, cognitive development, child or adolescent psychology, psychology of the exceptional child, diagnostic skills and remediation strategies;
6. develop an understanding of the social context of education and schools, including understanding of multicultural dimensions of schools and teaching and roles of the family in education;
7. develop training in effective classroom management techniques so as to create a safe and productive learning environment;
8. develop an understanding of motivational principles and multiple approaches to instruction and can facilitate active learning and student achievement in various situations, use diverse forms of technology; and
9. develop an understanding for the principles and procedures of an organization and implementation of lessons and how to help learners achieve intended objectives.

### Literacy Teacher Program (Birth – Grade 6)

Graduates of the Literacy program have completed the academic requirements for professional certification in all teaching areas, (including Early Childhood/ Childhood, Art, and Middle and Adolescent subjects) regardless of the subject area of their initial certification.

## 60 Degree Programs

### Purpose of the Degree

The graduate program in literacy is designed to prepare master teachers of literacy as consultants, program coordinators, specialists and classroom teachers (Birth - grade 6). The program's emphasis is placed on the practical application of current reading approaches and strategies, materials, methodologies, goal assessment, techniques, evaluation, and professional responsibilities of the literacy teacher. Upon completion of the program, the student is expected to demonstrate a thorough knowledge of both developmental and remedial literacy (Birth - grade 6).

### Admission to the Literacy Program

Prior to entering the Literacy Program, applicants must have fulfilled all requirements for initial or provisional teacher certification and completed all three sections of the New York State teacher examinations, including the Content Specialty Tests (CST), and at least two letters of recommendation from professional sources. Applicants should send copies of these scores, along with official undergraduate transcripts and letters of recommendation to the Graduate Admissions office.

### Certification

The degree in Literacy meets the criteria for and may be used in partial fulfillment of the requirements for permanent and professional certification in New York. Additionally, students completing the Literacy Program fulfill the requirements for certification in Literacy (Pre-K - grade 6).

### Required Courses

EDUC 503	Competency in the Teaching of Literacy	3
EDUC 504	Diagnostic and Remedial Techniques in Literacy	3
EDUC 505	Literacy in the Content Areas	3
EDUC 507	Literacy Seminar and Field Experience	6
EDUC 513	Literature for Children	3
SPED 556	Teaching Students with Special Needs in the Inclusive Classroom	3
EDUC 695	Master's Research	3

### Elective Courses

Select two of the following\*:

EDUC 593	Use of Technology in the Classroom	3
SPED 545	Learning Disabilities	3
EDUC 542	The Teaching-Learning Process	3

\*with advisor approval, other electives may be substituted

**Total Credit Hours Required** **30**

### Numeracy Program

Numeracy is quantitative literacy, specifically referring to our ability to communicate with numbers. Numeracy can be defined as the enabling skills needed to process quantitative information and the power of mind necessary to critique it, reflect upon it, and apply it in making decisions. Effectively, numeracy is “everyday math”; the numbers we find in tables and charts in the newspaper, the use of percentages in home finance, and the statistics employed in manipulating data for such important policy issues as social security and immigration.

Teachers from all levels and all disciplines who complete this program will come to possess the skills and confidence to introduce relevant quantitative concepts in their own disciplines.

Students will then see the transfer and applicability of mathematical content in the context of other disciplines, as well as the relevance to their daily personal and civic lives.

To be considered for admission to this program, one must currently hold New York State initial teacher certification and have completed all three sections of the New York State teacher examinations including the LAST, ATS-W (required for initial certification) and the Content Specialty Test (CST). Graduates of the Numeracy program will need to submit to the NYS Teacher Certification Office documentation of completion of the degree, with verification of three years of teaching experience and one year of a mentored experience provided by an employer.

The program consists of 5 required courses and 5 elective courses, for a total of thirty semester credit hours:

#### Required Courses

EDUC 571	Teaching Numeracy	3
EDUC 572	Teaching with Data	3
EDUC 573	Assessment and Learning Theories in Numeracy	3
EDUC 574	Doing Science	3
EDUC 695	Master's Research	3

#### Elective Courses

EDUC-electives	Select 5 additional EDUC graduate courses	15
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**Total Credit Hours Required** **30**

## Engineering and Science

There are six engineering and science programs leading to the conferral of the Master of Science degree:

- **Biomedical Materials Engineering Science**
- **Ceramic Engineering**
- **Electrical Engineering**
- **Glass Science**
- **Materials Science & Engineering**
- **Mechanical Engineering**

### Biomedical Materials Engineering Science

#### Overview

Biomedical Materials Engineering Science (BMES) at Alfred University is an interdisciplinary program that focuses on both the intrinsic properties of biomaterials and the interaction between these nonliving biomaterials and the biological systems with which they must interact. Tailored ceramics, glass, metals, composites, and polymers are assuming greater importance for implants, drug delivery substrates, radioactive delivery vehicles for cancer therapy, substrates for cell culture, catalysts for biological reactions, immobilizers of harmful molecular species, materials for batteries, capacitors and other implant devices. In addition, biomolecule-materials composites with entirely new properties (e.g. biomimetics) will dramatically enlarge the field of biomaterials in the near future.

## 62 Degree Programs

The BMES program at Alfred University seeks to educate a unique group of biomedical engineers whose focus is on materials and their interactions with cells and tissues. The program is designed to attract students from diverse backgrounds such as materials engineering, biotechnology, biomedical, and physical sciences who wish to study materials for medical applications.

The curriculum and thesis-based research focuses on: (a) an understanding of the interaction/interface between nonliving materials and biological systems via fabrication, characterization, and simulation; (b) the development of novel biomaterials, including biomimetic, bioactive, and combination systems that utilize both living and nonliving components, (c) identification of new ways in which standard and novel biomaterials may be used in the analysis, diagnosis, and treatment of diseases and injuries; and (d) the development of standardized testing procedures for assessing and predicting materials behavior in the biological environment.

Students completing the program are well prepared to enter the rapidly growing “biotech” industries where knowledge of both materials and molecular cell biology is rare. They are also prepared to enter industries that develop and manufacture medical devices, equipment and supplies including the design and production of classic biomedical implants such as cardiovascular stents and dental prosthetics. They will be qualified for a wide range of careers in the healthcare industries. A significant fraction of students may continue their education in professional schools of medicine or law, or pursue Ph.D. studies in related fields such as Materials Science or Biomedical Engineering.

### Prerequisites and Undergraduate Preparation

The program is open to students holding Bachelor of Science degrees in materials engineering, biological, and physical sciences. Acceptance into the program is based on the applicant’s prior academic record, work experience, potential for growth, and the availability of space in the program. Ideally, applicants should present evidence of undergraduate-level competence in the following subject areas: 1) introductory cell biology, 2) organic chemistry, 3) thermal and mechanical properties of materials, and 4) single-variable calculus. Applicants without the required background will also be considered for admission, but may have to take pre-requisite courses before enrolling specific graduate classes.

### Curriculum

The Master of Science in BMES requires a minimum of thirty semester-hours of graduate credit, of which at least twenty-four must be in advanced coursework. Candidates for the degree are required (1) to present and defend a written thesis of their research and (2) to submit a manuscript suitable for publication in a peer-reviewed journal. The curriculum is designed to be completed in two years of full-time study.

### Course Requirements

CEMS 568	Biomedical Materials	3
CEMS 569	Advanced Biomedical Materials Engineering	3
List A Technical Electives		9
List B Technical Electives		8
CEMS 680	Graduate Thesis	6
ENGR 660	Research Seminar	1
ENGR 690	Graduate Seminar (mandatory each semester)	0
<b>Total Credit Hours Required for the Program</b>		<b>30</b>

**List A Technical Electives (Materials)**

CEMS 505	Defects and Defect-related Process	3
CEMS 513	Nano-Structured Materials	3
CEMS 526	Surface Properties of Glass	3
CEMS 533	Statistical Experimental Design	3
CEMS 534	Polymer Characterization	3
CEMS 536	Physical and Mechanical Metallurgy	3
CEMS 538	Surfaces and Interfaces	3
CEMS 541	Advanced Crystallography	3
CEMS 542	Advanced Optical Microscopy	3
CEMS 543	Analytical Transmission Electron Microscopy	3
CEMS 567	Electrochemistry and Bioelectrochemistry	3

**List B Technical Electives (Molecular and Cell Biology)**

CEMS 563	Advanced Cell Biology	4
CEMS 564	Biochemistry: Proteins and Metabolism	4
CEMS 565	Biochemistry: Nucleic Acids	4

**Ceramic Engineering****Overview**

Ceramic Engineering is concerned with developing and manufacturing ceramic products, materials, and processes. Often characterized as "high temperature chemistry," ceramic engineering relies heavily on chemistry and physics of the solid state to measure and control the composition, structure, properties and performance of oxide and non-oxide materials. Processing, beginning with mining and raw material preparation, and including forming, drying, firing, decorating and quality assurance, lies at the heart of ceramic materials development and manufacture.

Ceramic materials are used in a wide range of extreme environments where their unique chemical, thermal, optical, electrical, magnetic, and mechanical properties lead to superior performance where other materials cannot survive. Refractory ceramics provide the thermal envelop for the manufacture of metals and glasses and for power generation, both conventional and nuclear. Magnetic ceramics power dozens of motors in aircraft, cars and trucks and home appliances. Arguably, the "computer revolution" depends on the electrical and, more recently, the optical properties of ceramic materials, including glass.

Ceramic products range from familiar products that we all use every day to very advanced products used in transportation, medicine, national defense, communications, and computing. Everyday products include ceramic floor, wall and roof tiles, dinnerware, sanitary ware, electrical insulators for power transmission, cement and concrete for construction and transportation systems, glass products including flat glass (windows and architectural glasses), fiber glass insulation, TV glass for both the face and the "bulb" of TV tubes, and tableware. And the list goes on. Advanced ceramic products include glass fibers and active optical devices for communication, body armor for military and police, prosthetic devices for body part replacement, and high temperature materials for current and next-generation air and spacecrafts.

The M.S. Ceramic Engineering program at Alfred University seeks to provide students with practical, hands-on learning that is founded on the science of the solid state. Students gain experience using state-of-the-art processing, characterization, and property measurement equipment and instrumentation as tools aimed at solving real-world ceramic materials problems, often with industrial partners and mentors.

## 64 Degree Programs

While it is true that many of our M.S. Ceramic Engineering graduates go on to pursue Ph.D. and other advanced professional degrees, our program is primarily designed for the student who recognizes that study beyond an engineering B.S. degree will be of great benefit to employment and success in the ceramics industries.

Graduates of the M.S. Ceramic Engineering program are well prepared for careers in the full range of ceramics industries, but thesis research will have focused attention and provided depth in a subset of opportunities of special interest to the student. Some graduates of the program continue their education by pursuing doctoral degrees in Ceramics and related technical fields, or in a broad range of professional degrees, including medicine, law, and business.

### Prerequisites and Undergraduate Preparation

The program is open to qualified students holding Bachelor of Science degrees in an ABET accredited engineering program. Acceptance into the program is based on the applicant's prior academic record, work experience, potential for growth, and the availability of space in the program. Ideally, applicants should present evidence of undergraduate-level competence in the following subject areas: 1) glass science, 2) ceramic processing, 3) thermal and mechanical properties of materials, and 4) electrical and optical properties of materials. Applicants without the required background will also be considered for admission, but may have to take pre-requisite courses before enrolling specific graduate classes.

### Curriculum

The Master of Science in Ceramic Engineering requires a minimum of thirty semester-hours of graduate credit of which at least fifteen must be in advanced coursework.

The degree also requires a minimum of fourteen hours of thesis credit and a one-credit research seminar, which is taken during the first semester of graduate enrollment. Candidates for the degree are required (1) to present and defend a written thesis of their research and (2) to submit a manuscript suitable for publication in a peer-reviewed journal. The curriculum is designed to be completed in two years of full-time study.

### Course Requirements

CEMS 510	Advanced Ceramic Processing	
or CEMS 511	Science of Whitewares	3
Characterization Elective		3
Technical Electives		9
CEMS 680	Graduate Thesis (14 credit minimum)	14
ENGR 660	Research Seminar	1
ENGR 690	Graduate Seminar (mandatory each semester)	0
<b>Total Credit Hours Required for the Program</b>		<b>30</b>

### Characterization Elective

CEMS 541	Advanced Crystallography	3
CEMS 542	Advanced Optical Microscopy	3
CEMS 543	Analytical Transmission Electron Microscopy	3
CEMS 544	Structure and Characterization of Glasses	3
CEMS 545	Characterization in Materials Science and Engineering	3

**Technical Electives**

A technical elective in Ceramic Engineering is any graduate-level course in the School of Engineering *except* CEMS 519. Graduate-level courses offered in Chemistry, Physics or Mathematics may be used as technical electives with written approval of the thesis advisory committee.

**Electrical Engineering****Overview**

Electrical Engineering covers everything from power generation, transmission, distribution and utilization to microchip circuit design, control systems, communications systems, computer design, lasers, etc. Electrical engineering covers computers, controls, communication, power, and electronic materials. Graduates of the M.S. in E.E. program will pursue Ph.D., J.D., and M.D. degrees, or will enter the job market in the areas of electrical engineering, general engineering, management, research and development, teaching or other related profession.

The mission of the Electrical Engineering Graduate Program is to provide excellent learning opportunities for individual graduate students in our specialized areas, with a required research thesis or design project. At Alfred University, the Master of Science degree in Electrical Engineering seeks enable student to specialize in the following areas:

- Communication systems
- Control systems
- Computer systems and software
- Optoelectronic and solid-state devices
- Power systems and machinery
- Superconducting electronics and lasers
- Electromagnetic waves & high voltage devices

Graduates of the program are well prepared to work in research and development, technical sales, product design, manufacturing, or management, just to name a few.

**Prerequisites and Undergraduate Preparation**

The program is designed for individuals with a Bachelor of degree from an approved institution in a field of engineering or physics. Students with degrees from non-accredited engineering programs will also be considered for admission, but may have to take one or more course pre-requisites prior to enrolling in specific graduate credit courses. Acceptance is based on the candidate's prior academic record, work experience, potential for growth, and the availability of space in the program.

**Curriculum**

The M.S. degree in Electrical Engineering requires a minimum of 30 semester hours of graduate credit, of which at least 5 classes must be in advanced course work. The selected elective courses must form a coherent plan of in-depth study and should be selected in consultation with the student's advisor/thesis committee. A thesis or project is required of each candidate of the program. Candidates enrolled in full-time studies are required (1) to present and defend a written thesis of their research and (2) to submit a manuscript suitable for publication in a peer-reviewed journal. Candidates enrolled in part-time study are required to complete an engineering project, representing three semester-hours of credit, and to submit a written technical report. For full-time students, the degree requirements must be completed within three years first enrolling as a graduate student at AU. For part-time students, this time limit is extended to six years.

## 66 Degree Programs

### Course Requirements (Thesis Option)

Technical Electives		12-20
Math Elective		4
ELEC 680	Graduate Thesis	6-14
ENGR 690	Graduate Seminar (mandatory each semester)	0
<b>Total Credit Hours Required for the Program</b>		<b>30</b>

### Course Requirements (Project Option)

Technical Electives		23
Math Elective		4
ELEC 699	Master's Project	3
<b>Total Credit Hours Required for the Program</b>		<b>30</b>

### Technical Electives

A technical elective in Electrical Engineering is any graduate-level course with the ELEC designation. Up to two graduate-level courses offered in the School of Engineering, Chemistry, and Physics may also be used as technical electives with written approval of the student's advisor and thesis committee.

### Mathematics Electives

Select ELEC 588 or one of the specified 400-level MATH courses offered for graduate credit:

ELEC 588	Applied Complex Variables	4
MATH 401	Advanced Engineering Mathematics	4
MATH 421	Numerical Mathematics	4
MATH 461	Geometry	4
MATH 481	Modern Algebra	4
MATH 491	Advanced Calculus	4

### Glass Science

#### Overview

Glass Science (GS) involves the study of non-crystalline materials, which may be inorganic, organic, or metallic in nature. Glass scientists and engineers at the M.S. degree level are employed in positions ranging from research to development to plant operations. Many M.S. degree recipients quickly enter into management positions. Glass science can be divided into the fields of consumer products, which includes flat and container glass, fiberglass, and glasses used to produce TV, CRT, PDA, and other electronic devices, and specialty glasses, which include optical fibers, photonic materials, glasses for electronic applications, biological applications of glasses, glasses for the isolation of radioactive waste materials, space technology, homeland security, and a host of other, continually evolving applications in the areas of advanced technology.

The Master of Science in Glass Science at Alfred University seeks to produce graduates who can immediately enter positions throughout industry and government laboratories or continue to a Ph.D. in glass, materials science, or biomaterials. Entering students should ideally have a B.S. degree in some area of materials science, physics, chemistry, or, if interested in biological applications of glass, biology. Students from other backgrounds will be considered, but may be required to take specific courses from our undergraduate program to correct deficiencies before beginning their graduate program. Students seeking a terminal M.S. degree should have a strong interest in the application of science to solving problems.

This program emphasizes “hands-on” studies, with a solid research experience through the thesis project. This approach provides a level of confidence in our graduates which is reflected in their ability to move into industrial positions with minimal adjustment time. A terminal M.S. degree is particularly suited for those who desire an industrial position, with rapid advancement into managerial ranks, or for those with the desire to work in development facilities. Our graduates are also well prepared to continue to a Ph.D. in glass, materials science, or biomaterials. Graduates of the program are well prepared for careers ranging from research and development to general plant operations. Our graduates are employed at Corning, Inc., Owens-Corning, IBM, Naval Research Laboratory, the U.S. Patent Office, and a wide range of other facilities ranging from major corporations to national laboratories to small high technology companies at the cutting edge of materials technology. Many of our graduates make a rapid transition into managerial positions in industry. A significant number of our graduates continue their education by pursuing doctoral degrees in Glass and related fields, with many recent Ph.D. students particularly interested in optical and biological applications of glass.

### Prerequisites and Undergraduate Preparation

The program is open to qualified students holding B.S. degrees in chemistry, physics, biology, and engineering programs in materials, ceramics, glass, polymers, or biomaterials. It is also possible for graduates in other engineering programs, e.g. EE, to qualify for admission. Ideally, applicants should present evidence of undergraduate-level competence in chemistry, physics, and math through differential equations, with some experience with materials science, including the mechanical, thermal, and electrical behavior of solids. Some knowledge of the structure of solids is also desirable. Applicants without the required background will also be considered for admission, but may have to take pre-requisite courses before enrolling specific graduate classes. Acceptance is based on the candidate’s prior academic record, work experience, potential for growth, and the availability of space in the program.

### Curriculum

The Master of Science in Glass Science requires a minimum of thirty semester-hours of graduate credit of which at least fifteen must be in advanced coursework. The degree also requires a minimum of fourteen hours of thesis credit and a one-credit research seminar, which is taken during the first semester of graduate enrollment. Candidates for the degree are required (1) to present and defend a written thesis of their research and (2) to submit a manuscript suitable for publication in a peer-reviewed journal. The curriculum is designed to be completed in three semesters of full-time study.

### Course Requirements

Glass Electives		6
Characterization Electives		3
Technical Electives		6
CEMS 680	Graduate Thesis (14 credit minimum)	14
ENGR 660	Research Seminar	1
ENGR 690	Graduate Seminar (mandatory each semester)	0
<b>Total Credit Hours Required for the Program</b>		<b>30</b>

### Glass Electives

CEMS 520	Optical Glasses	3
CEMS 521	Behavior of Glass-forming Melts	3
CEMS 522	Thermal Behavior of Glasses and Melts	3
CEMS 523	Structure of Glasses	3
CEMS 524	Mass Transport in Glasses and Melts	3

## 68 Degree Programs

CEMS 525	Advanced Optical Behavior of Glasses	3
CEMS 526	Surface Properties of Glass	3
CEMS 544	Structure and Characterization of Glasses	3
CEMS 553	Mechanical Properties of Glasses and Ceramics	3
CEMS 555	Principles and Technology of Photonic Devices	3

### Characterization Elective

CEMS 541	Advanced Crystallography	3
CEMS 542	Advanced Optical Microscopy	3
CEMS 543	Analytical Transmission Electron Microscopy	3
CEMS 544	Structure and Characterization of Glasses	3
CEMS 545	Characterization in Materials Science and Engineering	3

## Materials Science & Engineering

### Overview

Material Science and Engineering (MSE) is concerned with the interrelationship among the structure, processing, properties, performance, and applications of materials, which includes ceramics, metals, polymers, and composites. MSE is an interdisciplinary field that combines aspects of chemistry, physics, mathematics, and engineering. Materials engineers provide “enabling technologies” for a wide range of industries including electronics, automotive, aerospace, medical, and more traditional manufacturing industries. Today, material science and engineering professionals are involved in developing improved fuel cells and hydrogen-storage devices for efficient energy production, designing lightweight and reliable materials for advanced aircraft and space vehicles, developing high temperature materials and coating for turbine applications, and devising remote sensors for detecting pathogens. Materials science and engineering also lies at the center of the nanotechnology revolution.

The Master of Science degree program in MSE at Alfred University seeks to provide students with a solid foundation in the fundamentals of material science while allowing them the flexibility to pursue advanced studies a focused area of their interest. The mission of the program is to prepare a graduate with both strong theoretical and “hands-on” laboratory skills. A student in the MSE program can also use their choice of technical electives and thesis research topic to obtain a broad general materials background; or the student can specialize in a specific materials field (e.g. metals, ceramics, polymers, or composites processing) or a specific area of analysis and characterization (e.g. mechanical properties of materials, electrical properties of materials, X-ray analysis, spectroscopy, or electron microscopy).

Graduates of the program are well prepared for careers in industrial research and development, industrial process engineering, and research at national labs. Some graduates of the program continue their education by pursuing doctoral degrees in MSE and related fields. Others pursue professional degrees in business, law, and medicine.

### Prerequisites and Undergraduate Preparation

The program is open to qualified students with Bachelor of Science degrees in engineering and the physical sciences. Students with a degree in another science or engineering field may have to take prerequisite undergraduate materials science and engineering courses before enrolling in specific graduate classes. Typically, the student and his or her advisor develop a plan of study at the start of the program based on the student’s background and the student’s research topic.

Applicants without the required background will also be considered for admission, but acceptance is based on the candidate's prior academic record, work experience, potential for growth, and the availability of space in the program.

### Curriculum

The Master of Science in Materials Science and Engineering (MS-MSE) requires a minimum of thirty semester-hours of graduate credit of which at least fifteen must be in advanced coursework. The degree also requires a minimum of fourteen hours of thesis credit and a one-credit research seminar, which is taken during the first semester of graduate enrollment. Candidates for the degree are required (1) to present and defend a written thesis of their research and (2) to submit a manuscript suitable for publication in a peer-reviewed journal. The curriculum is designed to be completed in three semesters of full-time study although students with other engineering or science backgrounds may require four semesters.

### Course Requirements

CEMS 501	Solid State Physics	
or CEMS 503	Thermodynamics of Materials	3
CEMS 545	Characterization in Materials Science & Engineering	3
Technical Electives		9
CEMS 680	Graduate Thesis (14 credit minimum)	14
ENGR 660	Research Seminar	1
ENGR 690	Graduate Seminar (mandatory each semester)	0
<b>Total Credit Hours Required for the Program</b>		<b>30</b>

### Technical Electives

A technical elective in the MS-MSE program is any graduate course in the School of Engineering *except* CEMS 519. Graduate-level courses offered in Chemistry, Physics or Math may be used as technical electives with written approval of the thesis advisory committee.

### Mechanical Engineering

#### Overview

Mechanical Engineering (ME) is one of the largest, broadest and oldest engineering disciplines. Mechanical engineers use the principles of energy, materials and mechanics to design and manufacture machines and devices of all kinds. Mechanical engineers also create the processes and systems that drive technology and industry. Mechanical engineers are often called the 'general practitioners' of engineering because of the broad scope of their education and the diversity of their professional opportunities. Due to its breadth, mechanical engineering is generally linked to the economy as a whole; job prospects are relatively immune to isolated economic events.

The field of ME is notable for emphasizing versatility. A mechanical engineering education is an excellent foundation for work in other fields. Versatility is an asset in a world that is undergoing constant economic, political, industrial and social change. Mechanical engineers are positioned, not only to adopt, but also to define and direct change.

The mission of the Mechanical Engineering program is to provide a superior student-centered engineering education within a small university environment. Our dedicated faculty places the highest value on the teaching-learning process, while also being active in professional, technical and scholarly activities. Graduates of our program will understand the social and ethical implications of their engineering decisions, and be prepared to excel in the engineering profession.

## 70 Degree Programs

### Prerequisites and Undergraduate Preparation

The program is designed for individuals with a Bachelor of Science degree from an ABET-accredited program in Mechanical Engineering. Students with bachelor's degrees in other engineering fields and the physical sciences or with degrees from non-accredited engineering programs will also be considered for admission.

Those admitted may have to take one or more course prerequisites prior to enrolling in specific graduate credit courses. Acceptance is based on the individual's prior academic achievements and work experience, and upon the availability of space in the program.

### Curriculum

The program leading to the M.S. degree in Mechanical Engineering requires a minimum of 30 semester hours of graduate credit, of which at least 24 credit hours must be in advanced course work. The selected elective courses must form a coherent plan of in-depth study and should be selected in consultation with the student's advisor/thesis committee. Candidates for the degree are required (1) to present and defend a written thesis of their research and (2) to submit a manuscript suitable for publication in a peer-reviewed journal. For full-time students, the degree requirements must be completed within three years of first enrolling as a graduate student at AU. For part-time students, this time limit is extended to six years.

#### Course Requirements (Thesis Option)

Technical Electives		24
MECH 680	Graduate Thesis	6
ENGR 690	Graduate Seminar (mandatory each semester)	0
<b>Total Credit Hours Required for the Program</b>		<b>30</b>

#### Course Requirements (Project Option)

Technical Electives		27
MECH 699	Master's Project	3
<b>Total Credit Hours Required for the Program</b>		<b>30</b>

### Technical Electives

A technical elective in Mechanical Engineering is any graduate-level course with the MECH designation. Graduate-level courses offered in the School of Engineering, Chemistry, Physics, and Mathematics may also be used as technical electives with written approval of the student's advisor and thesis committee.

### Doctor of Philosophy Degrees in Engineering and Science

The Inamori School of Engineering offers the Ph.D. in three fields:

- **Ceramics**
- **Glass Science**
- **Materials Science & Engineering**

The Ph.D. programs are open to qualified students holding Bachelor of Science and Master of Science degrees in the fields of science and engineering. Acceptance into the program is based the applicant's prior academic record, previous work experience, potential for growth, and the availability of space in the program.

The Ph.D. degrees require ninety credit hours beyond the requirements for the baccalaureate degree. Of these, a minimum of thirty-three credit hours must be in regular course work; the remainder may be earned as thesis credits. There is also a two-year residency requirement.

**All three programs require the following four core courses:**

CEMS 503	Thermodynamics of Materials
CEMS 504	Kinetics and Non-equilibrium Processes in Materials
CEMS 501	Solid State Physics
CEMS 506	Advanced Engineering Math

All three programs also require successful completion of ENGR 660 - Research Seminar during the first semester, and attendance of ENGR 690 - Graduate Seminar during each semester in residence at Alfred University. Additional course requirements in the Material Science and Engineering program include CEMS 502 - Quantum Physics, CEMS 505 - Defects and Defect-Related Processes, and CEMS - 545 Characterization in Materials Science and Engineering. Students enrolled in the Glass Science program must complete fifteen credit hours of Glass courses work (CEMS 52X).

Students enrolled in the Ph.D. programs must pass a qualifying exam, usually within the first year of their enrollment.

Candidates for the degree must write, present and successfully defend a doctoral thesis based on independent and original research conducted by the student. Thirty credit hours in thesis work must be a recorded part of each student's program, and as many as fifty credit hours may be included, but the accumulation of these credits does not in itself imply the satisfaction of the requirement. The thesis must be acceptable for publication.

During the first semester, the student will select, with the approval of the Graduate Director, a faculty member of the School of Engineering to be his/her advisor. The advisor will then select at least three more members of the faculty, with due consideration of the specific research interest of the student, to form the Advisory Committee. This Committee will guide the student in course selections, thesis research, preparation for qualifying and final oral examinations, and, in general, care for the student's academic well being.