

# Master of Science in Materials Science

The MS Materials Science degree is appropriate for students who have earned bachelor's degrees in either chemistry, physics, materials science or related fields. Other STEM degree recipients may be accepted with appropriate additional coursework. There are two tracks for this MS Degree with a common core of courses: a thesis option, appropriate for students interested in continuing their scientific education, and an Entrepreneurial option, appropriate for students wanting to combine materials science with business.

## Admission to the Program

Specific requirements to be considered for admission to the program are:

1. A baccalaureate degree from an accredited college or university.
2. Completion of an undergraduate major in physics, chemistry, materials science or related majors. Additional undergraduate coursework may be required for related majors.
3. A cumulative undergraduate grade point average of at least 2.5 overall, and in all courses used for credit in the major (3.0 recommended).
4. Submission of scores from the Graduate Record Examination (GRE) to Graduate Admissions is optional, and may provide evidence of mastery of quantitative skills in the absence of a high GPA.
5. Submission to the Graduate Coordinator of a one to two-page, typewritten statement of the student's preparation for graduate study, goals in the graduate program, potential area of study and possible advisor, and professional goals following completion of the M.S.
6. Submission of three letters of recommendation from people who are in a position to make relevant comments on the student's intent and potential for success in the program. At least two of the letters should be from current or former college or university faculty familiar with the student's scholarship and related activities, or from current or former employers in STEM industries/government labs. All letters should be sent to the Graduate Coordinator.

Students are accepted by the Program Graduate Committee as classified students for admission for Fall semester. Spring admissions may be considered under compelling circumstances. In some cases, students who do not meet these criteria may be conditionally admitted to the program. Please consult the Graduate Coordinator for more information.

## Advancement to Candidacy

To be advanced to candidacy, the student must have:

1. Achieved classified status;
2. Been accepted by a major advisor from the M.S. in Materials Science program;
3. Completed at least 6 semester units of work applicable to the degree program as a graduate student at this university, and with a minimum grade point average of 3.0;
4. Submitted a formal program of graduate course work, in addition to a project or thesis proposal, prepared in consultation with and approved by the student's thesis committee, and approved by the graduate coordinator;

5. Gained final approval of the program and of the candidacy itself by the Dean of Graduate Studies.

## Requirements for Graduation

1. A minimum of 30 semester units of acceptable graduate level work included in the formal program, with no less than 21 units completed in residence at this University and with at least 21 units gained from 5000- and 6000-level courses approved by the program;
2. Advancement to candidacy for the degree and approval of the specific program of courses;
3. A cumulative grade point average of "B" (3.0) or better in all graduate course work fulfilling the requirements of the program, and a grade of "C" (2.0) or better in each course in the program;
4. Completion and defense of an entrepreneurial project, or a thesis;
5. The graduation writing requirement is met upon successful completion of the project or thesis, if not met earlier;
6. Any additional general requirements not cited above and listed in [Graduate Degree and Program Requirements](#).

## Degree Requirements (30 units)

CHEM 4800	Chemistry Foundations for Material Science	3
	or PHYS 3100	Mathematical Methods of Physics
MSCI 6110	Material Structure	3
MSCI 6000	First Year Materials Science Seminar	1
MSCI 6120	Material/Solid State Properties	3
MSCI 6130	Thermodynamics of Materials	3
MSCI 6500	Advanced Instrumentation and Experimentation in Materials Science	2
MSCI 6050	Second Year Materials Science Seminar	1
Concentration		14
<b>Total Units</b>		<b>30</b>

## Concentrations (14 units)

### Interdisciplinary Materials Investigation Concentration

(Program Code: MSIM)

Research Units: a minimum of 4 units must be taken from a combination of the following, repeatable courses. 4

MSCI 6952	Graduate Research in Materials Science	
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Electives: a minimum of 6 units, chosen in consultation with your graduate advisor or thesis/project advisor		6
CHEM 4300	Inorganic Chemistry	
CHEM 5002	Topics in Chemistry (When topic is materials related)	
CHEM 5100	Polymer Science	
CHEM 5150	Materials Chemistry	
CHEM 5410	Solid State Chemistry	
CHEM 5550	Computational Chemistry	
GEOL 5300	Microscopy	

PHYS 3300	Computational Physics	
PHYS 5500	Solid State Physics	
PHYS 5851	Special Topics in Physics (When topic is materials related)	
PHYS 5852	Special Topics in Physics (When topic is materials related)	
PHYS 5853	Special Topics in Physics (When topic is materials related)	
PHYS 5851L	Special Topics in Physics Laboratory (When topic is materials related)	
PHYS 5852L	Special Topics in Physics Laboratory (When topic is materials related)	
MATH 3460	Probability Theory	
MATH 3770	Introduction to Graph Theory	
MATH 4270	Differential Equations with Dynamical Systems II	
IST 4510	Advanced Data Analytics	
IST 4520	Data Mining	
1 additional unit not previously used from the thesis concentration.		1
MSCI 6973	Graduate Thesis	3
<b>Total Units</b>		<b>14</b>

## Entrepreneurial Concentration

(Program Code: MSEN)

ENTR 6210	Entrepreneurship and New Ventures	3
ENTR 6230	Exploring Entrepreneurial Opportunities	3
ENTR 5410	Commercializing Entrepreneurial Innovation	3
MSCI 6965	Materials Entrepreneurial MS Project	5
<b>Total Units</b>		<b>14</b>

### Culminating Experience

- Students in the Graduate Thesis Concentration will take MSCI 6973 for their culminating experience.
- Students in the Entrepreneurial Concentration will take MSCI 6965 for their culminating experience.