

# MASTER OF SCIENCE (MS) DEGREE IN THE FIELD OF MATERIALS SCIENCE AND NANOENGINEERING

## Program Learning Outcomes for the MS Degree in the field of Materials Science and NanoEngineering

Upon completing the MS degree in the field of Materials Science and NanoEngineering, students will be able to:

1. Demonstrate an advanced command of Materials Science and NanoEngineering field work.
2. Conduct independent research that demonstrates advanced mastery of a subfield within Materials Science or NanoEngineering.
3. Communicate scientific ideas effectively in writing and when speaking.

## Requirements for the MS Degree in the field of Materials Science and NanoEngineering

The MS degree is a thesis master's degree. For general university requirements, please see [Thesis Master's Degrees \(https://ga.rice.edu/graduate-students/academic-policies-procedures/regulations-procedures-thesis-masters-degrees/\)](https://ga.rice.edu/graduate-students/academic-policies-procedures/regulations-procedures-thesis-masters-degrees/). For additional requirements, regulations, and procedures for all graduate programs, please see [All Graduate Students \(https://ga.rice.edu/graduate-students/academic-policies-procedures/regulations-procedures-all-degrees/\)](https://ga.rice.edu/graduate-students/academic-policies-procedures/regulations-procedures-all-degrees/). Students pursuing the MS degree in the field of Materials Science and NanoEngineering must complete:

- A minimum of 30 credit hours of graduate-level study (graduate semester credit hours, coursework at the 500-level or above) to satisfy degree requirements.
- A minimum of 18 credit hours must be completed through coursework (must be taken in standard or traditional courses with a course type of lecture, seminar, laboratory, lecture/laboratory).

Full-time students seeking the MS degree are expected to complete all the requirements for the degree within 2 calendar years into the program. Continuation in the program beyond this time limit will require special approval of the department.

The programs leading to the MS and PhD degrees are open to students who have demonstrated outstanding performance in their undergraduate studies. The granting of a graduate research degree presupposes academic work of superior quality and a demonstrated ability to do original research.

For general university requirements, see [Graduate Degrees \(https://ga.rice.edu/graduate-students/academic-opportunities/degrees/\)](https://ga.rice.edu/graduate-students/academic-opportunities/degrees/). Course requirements for the research degrees vary depending on the extent of individual undergraduate preparation as well as each student's performance in graduate courses and on qualifying examinations. For both the MS and PhD degrees, students must present a thesis that

comprises an original contribution to knowledge and defend it in a public oral examination.

Students are expected to earn letter grades of at least B- (2.67 grade points) in all courses taken, and maintain a minimum overall GPA of 3.00 to graduate. If a student's semester GPA is below 3.00, the student will be placed on departmental probation, and if the student's semester GPA is below 3.00 for two consecutive semesters, their performance will be reviewed by the Graduate Committee in consultation with the Department Chair, and the student may be dismissed from the program.

Each graduate student is expected to render research and/or instructional assistance to the department not to exceed 10 hours per week. Graduate student work assignments will be made by the advisor at the beginning of each semester.

All PhD students must attend at least 75% of the MSNE seminars per semester, and MS students must attend at least 50% of the MSNE seminars per semester. For details, please see the degree requirements on the [MSNE website \(https://msne.rice.edu/\)](https://msne.rice.edu/).

Graduate students pursuing a thesis degree program will be subject to a preliminary evaluation of their candidacy for the highest degree program they intend to pursue. The evaluation will be conducted by the end of the second semester of enrollment in the graduate program in the MSNE department.

Each candidate for the MS degree must complete a thesis demonstrating ability in research of a fundamental nature (analytical or experimental). It is expected that the research will be of sufficient importance and quality that positive results would lead to publication. Upon completion of the thesis, each candidate for the MS degree must pass a final public oral examination. The examination will be conducted by a committee consisting of at least three members. Two, including the advisor, must be MSNE faculty members, and one must be a faculty member from another department.

Candidates for the MS degree are required to provide teaching assistance to the department as a teaching assistant or grader for at least 1 semester, but no more than 2 semesters.

For details, please see the degree requirements on the [MSNE website \(https://msne.rice.edu/\)](https://msne.rice.edu/).

The requirements listed in the General Announcements (GA) satisfy the minimum requirements for this degree program. In certain instances, courses (or requirements) not officially listed here may be substituted upon approval of the program's academic advisor, or where applicable, the department or program's Director of Graduate Studies. Course substitutions or any exceptions to the stated official curricular requirements must be approved by the [Office of Graduate and Postdoctoral Studies \(https://graduate.rice.edu/\)](https://graduate.rice.edu/). Students and their academic advisors should identify and clearly document the courses to be taken.

## Summary

Code	Title	Credit Hours
	Total Credit Hours Required for the MS Degree in the field of Materials Science and NanoEngineering	30

## Degree Requirements

Code	Title	Credit Hours
<b>Core Requirements</b>		
MSNE 502	MECH PROPERTIES OF MATERIALS	3
MSNE 503	THERMODYNAMICS IN MATERIALS SCIENCE	3
MSNE 506	PHYSICAL PROPERTIES OF SOLIDS	3
MSNE 535 / PHYS 535	CRYSTALLOGRAPHY & DIFFRACTION	3
<b>Elective Requirements</b>		
Select 2 courses from departmental (MSNE) course offerings at the 500-level or above <sup>1</sup>		6
<b>Non-Coursework <sup>2</sup></b>		
MSNE 500	MATERIALS SCIENCE SEMINAR <sup>3</sup>	1
MSNE 501	GRADUATE STUDENT SEMINAR <sup>4</sup>	1
MSNE 589	ETHICS & SAFETY FOR MATERIALS ENGINEERS <sup>5</sup>	1
MSNE 800	RESEARCH AND THESIS <sup>6</sup>	9
<b>Additional Requirements as Defined by Department</b>		10
<b>Total Credit Hours</b>		30

### Footnotes and Additional Information

- <sup>1</sup> Students may complete courses that satisfy the Electives requirement from other departmental course offerings upon approval from their advisors or one member of the Departmental Graduate Committee.
- <sup>2</sup> Credit received for MSNE 500, MSNE 501, MSNE 589, and MSNE 800 will not be counted toward coursework, but will count toward the total credit hours required for the degree.
- <sup>3</sup> Students must attend at least 6 of the 13 MSNE 500 seminars per semester for the duration of their study.
- <sup>4</sup> Students must attend at least 6 of the 13 MSNE 501 seminars per semester for the duration of their study.
- <sup>5</sup> Students must register for MSNE 589 for one semester for the duration of their study.
- <sup>6</sup> Students must register for a minimum of 9 credit hours of MSNE 800 per semester. This course is taken for a Satisfactory/Unsatisfactory grade and must be completed with a Satisfactory grade. As a S/U course, it does not apply to the requirement of a minimum grade of B- (2.67 grade points) in each required course. For more information, see the Grades section of the MSNE Graduate Student Handbook on the [Policies](#) (p. 2) tab.

## Policies for the MS Degree in the field of Materials Science and NanoEngineering

### Department of Materials Science and NanoEngineering Graduate Program Handbook

The General Announcements (GA) is the official Rice curriculum. As an additional resource for students, the department of Materials Science and NanoEngineering publishes a graduate program handbook, which can be found here: [https://gradhandbooks.rice.edu/2023\\_24/Materials\\_Science\\_NanoEngineering\\_Graduate\\_Handbook.pdf](https://gradhandbooks.rice.edu/2023_24/Materials_Science_NanoEngineering_Graduate_Handbook.pdf)

## Transfer Credit

For Rice University's policy regarding transfer credit, see [Transfer Credit \(https://ga.rice.edu/graduate-students/academic-policies-procedures/regulations-procedures-all-degrees/#transfer\)](https://ga.rice.edu/graduate-students/academic-policies-procedures/regulations-procedures-all-degrees/#transfer). Some departments and programs have additional restrictions on transfer credit. Students are encouraged to meet with their academic program's advisor when considering transfer credit possibilities.

## Departmental Transfer Credit Guidelines

Students pursuing the MS degree in the field of Materials Science and NanoEngineering should be aware of the following departmental transfer credit guidelines:

- Requests for transfer credit will be considered by the program director on an individual case-by-case basis.

## Additional Information

For additional information, please see the Materials Science and NanoEngineering website: <https://msne.rice.edu/>

## Opportunities for the MS Degree in the field of Materials Science and NanoEngineering

### Additional Information

For additional information, please see the Materials Science and NanoEngineering website: <https://msne.rice.edu/>