MATERIALS SCIENCE AND ENGINEERING: NANOMATERIALS AND NANOENGINEERING, M.S.

This is a non-thesis named option within the Materials Science and Engineering M.S. (http://guide.wisc.edu/graduate/materials-science-engineering/materials-science-engineering-ms/)

Nanomaterials and nanoengineering are part of a rapidly expanding industrial segment. According to the NSF-funded National Nanotechnology Initiative, up to 1 million jobs in nanotechnology are expected to be available in the United States.

IS THIS PROGRAM RIGHT FOR YOU?
The demand for engineers who specialize in nanotechnology and nanoengineering is growing rapidly. The Nanomaterials and Nanoengineering program provides students with the opportunity to build a comprehensive fundamental and applied knowledge base for nanomaterials processing, characterization, and nanodevice development.

If questions, please contact CoE Grad Admissions at msaegradadmission@engr.wisc.edu; Subject Line: MSE Grad Admissions. Please see admission requirements on the Admissions tab.

ADMISSIONS

Please consult the table below for key information about this degree program’s admissions requirements. The program may have more detailed admissions requirements, which can be found below the table or on the program’s website.

Graduate admissions is a two-step process between academic programs and the Graduate School. Applicants must meet the minimum requirements (https://grad.wisc.edu/apply/requirements/) of the Graduate School as well as the program(s).

Once you have researched the graduate program(s) you are interested in, apply online (https://grad.wisc.edu/apply/).

<table>
<thead>
<tr>
<th>Requirements</th>
<th>Detail</th>
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<tbody>
<tr>
<td>Fall Deadline</td>
<td>December 15</td>
</tr>
<tr>
<td>Spring Deadline</td>
<td>The program does not admit in the spring.</td>
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<tr>
<td>Summer Deadline</td>
<td>December 15</td>
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<tr>
<td>GRE (Graduate Record Examinations)</td>
<td>Required.*</td>
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<tr>
<td>English Proficiency Test</td>
<td>Every applicant whose native language is not</td>
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<tr>
<td></td>
<td>English or whose undergraduate instruction</td>
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<td></td>
<td>was not in English must provide an English</td>
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<td>proficiency test score and meet the Graduate</td>
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<tr>
<td></td>
<td>School minimum requirements (<a href="https://grad.wisc.edu/apply/requirements/#english-proficiency">https://grad.wisc.edu/apply/requirements/#english-proficiency</a>).</td>
</tr>
<tr>
<td>Other Test(s) (e.g., GMAT, MCAT)</td>
<td>n/a</td>
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Letters of Recommendation Required

* Not required for continuing UW-Madison MS&E BS students.

Applicants normally are expected to have a B.S. in the physical sciences or engineering. Undergraduate studies normally would include mathematics through differential equations, at least one year each of general physics and chemistry, a course in physical chemistry or modern physics, and an elementary course in properties of materials. Applicants may be admitted with deficiencies. These must be made up as soon as possible after entering the program.

IMPORTANT APPLICATION INFORMATION

Admission to the University of Wisconsin–Madison Graduate School (http://grad.wisc.edu/) is a prerequisite for admission to study materials science. A minimum GPA of 3.0/4.0 is required. Graduate Record Examinations (http://www.ets.org/gre/) scores on the General Test are required. Admission is highly selective. Most admitted students have an undergraduate GPA above 3.5. Mean GRE scores in the most recent admission cycle were quantitative: 166, verbal: 163, and analytical writing: 3.5. However, full consideration will be given to all students meeting the UW–Madison graduate school requirements. Please use institution code: 1846; no department code is necessary.

Foreign students must submit satisfactory results on the TOEFL (http://www.ets.org/toefl/) or another acceptable English Language Test. Please use institution code: 1846; no department code is necessary. Information about these exams can be obtained from the Educational Testing Service, Princeton, New Jersey 08540 or Berkeley, California 94704.

Please use the online application (https://apply.grad.wisc.edu/Account/Login?ReturnUrl=%2f/) to begin your application. If you have questions about the application or admissions process, please do not hesitate to e-mail msaegradadmission@engr.wisc.edu.

The graduate school offers a limited number of application fee grants (waivers of all or part of the application fee) that are available in a few specific circumstances. Further information is available here (https://grad.wisc.edu/admissions/fee_grants/)

#Submit only the documents requested.

NOTE: PLEASE DO NOT SEND DOCUMENTS TO THE GRADUATE SCHOOL. ALL DOCUMENTS SHOULD BE UPLOADED WITH YOUR APPLICATION.

QUESTIONS?

Check out the Admissions FAQ or contact us at msaegradadmission@engr.wisc.edu.

FUNDING

GRADUATE SCHOOL RESOURCES

Resources to help you afford graduate study might include assistantships, fellowships, traineeships, and financial aid. Further funding information (https://grad.wisc.edu/funding/) is available from the Graduate School. Be sure to check with your program for individual policies and restrictions related to funding.
PROGRAM INFORMATION

Financial assistance from the University or the Department is not available for the Master of Science named option program in Nanomaterials and Nanoengineering.

If you would like to pursue funding on your own, the following sites could be helpful:

- Graduate School Funding Resources (https://grad.wisc.edu/studentfunding/prospective/)
- Graduate School Costs and Funding (https://grad.wisc.edu/studentfunding/currentstudents/)
- Tuition & Fees (https://registrar.wisc.edu/tuition_/&_feeshtm)

REQUIREMENTS

MINIMUM GRADUATE SCHOOL REQUIREMENTS

Review the Graduate School minimum academic progress and degree requirements (http://guide.wisc.edu/graduate/#policiesandrequirementstext), in addition to the program requirements listed below.

NAMED OPTION REQUIREMENTS

MODE OF INSTRUCTION

<table>
<thead>
<tr>
<th>Mode of Instruction Definitions</th>
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<tbody>
<tr>
<td>Face to Face</td>
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<tr>
<td>Yes</td>
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</tbody>
</table>

Mode of Instruction Definitions

- **Evening/Weekend**: These programs are offered in an evening and/or weekend format to accommodate working schedules. Enjoy the advantages of on-campus courses and personal connections, while keeping your day job. For more information about the meeting schedule of a specific program, contact the program.

- **Online**: These programs are offered primarily online. Many available online programs can be completed almost entirely online with all online programs offering at least 50 percent or more of the program work online. Some online programs have an on-campus component that is often designed to accommodate working schedules. Take advantage of the convenience of online learning while participating in a rich, interactive learning environment. For more information about the online nature of a specific program, contact the program.

- **Hybrid**: These programs have innovative curricula that combine on-campus and online formats. Most hybrid programs are completed on-campus with a partial or completely online semester. For more information about the hybrid schedule of a specific program, contact the program.

- **Accelerated**: These on-campus programs are offered in an accelerated format that allows you to complete your program in a condensed time-frame. Enjoy the advantages of on-campus courses with minimal disruption to your career. For more information about the accelerated nature of a specific program, contact the program.

CURRICULAR REQUIREMENTS

Requirements Detail

<table>
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<tr>
<th>Minimum Credit Requirement</th>
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<tbody>
<tr>
<td>30 credits</td>
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Required Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>M S &amp; E 350</td>
<td>Introduction to Materials Science</td>
<td>3</td>
</tr>
<tr>
<td>M S &amp; E 434</td>
<td>Introduction to Thin-Film Deposition Processes</td>
<td>3</td>
</tr>
<tr>
<td>M S &amp; E 448</td>
<td>Crystallography and X-Ray Diffraction</td>
<td>3</td>
</tr>
<tr>
<td>M S &amp; E 456</td>
<td>Electronic, Optical, and Magnetic Properties of Materials</td>
<td>3</td>
</tr>
<tr>
<td>M S &amp; E 521</td>
<td>Advanced Polymeric Materials</td>
<td>3</td>
</tr>
<tr>
<td>M S &amp; E 530</td>
<td>Thermodynamics of Solids</td>
<td>3</td>
</tr>
<tr>
<td>M S &amp; E 551</td>
<td>Structure of Materials</td>
<td>3</td>
</tr>
<tr>
<td>M S &amp; E 560</td>
<td>Fundamentals of Atomistic Modeling</td>
<td>3</td>
</tr>
<tr>
<td>M S &amp; E 570</td>
<td>Properties of Solid Surfaces</td>
<td>3</td>
</tr>
</tbody>
</table>
The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300

or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

**ADVISOR / COMMITTEE**

Every graduate student is required to have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies. In many cases, an advisor is assigned to incoming students. To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

**CREDITS PER TERM ALLOWED**

15 credits; Suggested course credit allocation:

- Summer session: 4 credits
- Fall semester: 13 credits
- Spring semester: 13 credits

**TIME CONSTRAINTS**

The Master of Science in Nanomaterials and Nanoengineering, which is a named option program within the Department of Materials Science and Engineering, can be completed within 12 months and must be completed within 16 months.

Master’s degree students who have been absent for five or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

**GRIEVANCES AND APPEALS**

These resources may be helpful in addressing your concerns:

- Bias or Hate Reporting (https://doso.students.wisc.edu/bias-or-hate-reporting/)
- Graduate Assistantship Policies and Procedures (https://hr.wisc.edu/policies/gapp/#grievance-procedure)
- Hostile and Intimidating Behavior Policies and Procedures (https://hr.wisc.edu/hib/)
  - Office of the Provost for Faculty and Staff Affairs (https://facstaffprovost.wisc.edu/)
- Dean of Students Office (https://doso.students.wisc.edu/) (for all students to seek grievance assistance and support)
- Employee Assistance (http://www.eao.wisc.edu/) (for personal counseling and workplace consultation around communication and conflict involving graduate assistants and other employees, post-doctoral students, faculty and staff)
- Employee Disability Resource Office (https://employeedisabilities.wisc.edu/) (for qualified employees or applicants with disabilities to have equal employment opportunities)
- Graduate School (https://grad.wisc.edu/) (for informal advice at any level of review and for official appeals of program/departmental or school/college grievance decisions)
- Office of Compliance (https://compliance.wisc.edu/) (for class harassment and discrimination, including sexual harassment and sexual violence)
- Office of Student Conduct and Community Standards (https://conduct.students.wisc.edu/) (for conflicts involving students)
• Ombuds Office for Faculty and Staff (http://www.ombuds.wisc.edu/) (for employed graduate students and post-docs, as well as faculty and staff)
• Title IX (https://compliance.wisc.edu/titleix/) (for concerns about discrimination)

**MS&E Grievance Procedures**
Students who feel they have been unfairly treated or otherwise have a grievance related to the policies and procedures for graduate study in the Materials Science and Engineering Department may choose to submit a formal grievance to the department. Before taking this step, however, students are encouraged to discuss their grievance directly with the person or persons involved. Respectful, professional, direct communication can often reach a more satisfactory resolution to an issue more quickly than a formal grievance procedure.

To pursue a formal grievance, the student should submit a letter describing the issue in detail to the department Associate Chair of Graduate Studies within 60 days of the precipitating incident. (Should the grievance involve the Director of Graduate Studies, the letter should be submitted to the department Chair.) The Director (or Chair) will convene a committee of not fewer than three department faculty. The committee will obtain a written response from the person or persons who are the subject of the complaint. The committee will then decide a course of action in response to the grievance. The response from the subject of the complaint and the committee course of action will be communicated in writing to the student within 15 working days of submission of the grievance. The course of action will be implemented no later than 10 working days of the communication.

If the departmental procedure does not resolve the grievance, the student may appeal to the College of Engineering or the Graduate School. The College grievance procedures are currently available at http://www.engr.wisc.edu/current/current-students-how-to-file-a-grievance.html, and the Graduate School procedures are available at http://grad.wisc.edu/acadpolicy/.

The Assistant Dean for Graduate Affairs (engr-dean-graduateaffairs@engr.wisc.edu) provides overall leadership for graduate education in the College of Engineering (CoE), and is a point of contact for graduate students who have concerns about education, mentoring, research, or other difficulties.

**OTHER**
Students enrolled in this program are not permitted to accept teaching assistantships, project assistantships, research assistantships or other appointments that would result in a tuition waiver. Students in this program cannot enroll in other graduate programs nor take courses outside the prescribed curriculum.

**PROGRAM RESOURCES**
Find information about professional development from the College of Engineering at the following webpage: https://epd.wisc.edu/.

**PEOPLE**

**Professors:**
Mike Arnold, Sue Babcock, Chang-Beom Eom, Paul Evans, Padma Gopalan, Sindo Kou, Rod Lakes, Dane Morgan, John Perepezko, Ian Robertson, Don Stone, Izabela Szlufarska, Paul Voyles, and Xudong Wang.

**Assistant Professors:**
Dawei Feng, Jason Kawasaki, Jiayamian Hu, and Dan Rhodes.

**PROFESSIONAL DEVELOPMENT**

**GRADUATE SCHOOL RESOURCES**
Take advantage of the Graduate School’s professional development resources (https://grad.wisc.edu/pd/) to build skills, thrive academically, and launch your career.