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Welcome from the Chair

Welcome to MS&E!

I am writing to you as the Chair of the Department of Materials Science and Engineering. We in the department are excited that you chose UW Madison to pursue your graduate studies, and we look forward to working with you!

Materials Science and Engineering is the enabling field for all major advances in technology. Students who enter into the Materials Engineering graduate program get to work on cutting-edge research in areas covering the breadth of the field. Faculty in MS&E collaborate with researchers across campus and at other institutions, so students often participate as members of interdisciplinary research teams. We are committed to providing our students with a dynamic environment to learn, discover, innovate and make a difference. To help orient you we have put together this handbook with useful information on the MS and PhD degree programs, the department and the university.

If you have a question or concern, please contact me, a faculty member, or staff member. Use this handbook as a guide, and as a primary resource to answer your questions, but always feel free to seek assistance from MS&E faculty and staff.

I would like to encourage you to become an active member in the MS&E community and get to know students, faculty and staff across the Materials community at UW.

Sincerely,

Donald S. Stone
Professor and Chair
Materials Science and Engineering
262 MS&E Building
University of Wisconsin-Madison
1509 Engineering Drive Madison, WI 53706
Contact Information - Administrative

Materials Science and Engineering Building
1509 University Ave.
Madison, WI 53706-1595

Department Chair
Donald S. Stone, Professor
246 MS&E building | Phone: 608/262-8791 | stone@engr.wisc.edu

Financial, Payroll & Benefits Specialist
Paula King
276 MS&E building | Phone: 608/265-4970 | king@engr.wisc.edu

Building and Lab Manager, Technical and Computer Support
Christopher J. Kailhofer
201C MS&E building | Phone: 608/262-8175 | kailhofer@engr.wisc.edu

Purchasing and Accounting
Mackenzie R. Deese
246 MS&E building | Phone: 608/890-3836 | deese@wisc.edu

Professional Staff

Mackenzie Deese
Financial Specialist

Chris Kailhofer
Instrumentation Specialist

Paula King
Financial Specialist
Contact Information – Problems & Emergencies

- **CoE Counseling Service**: David Lacocque, 333 East Campus Mall. To schedule an appointment call (608) 265-5600. This is also the After Hours Crisis number.

- **University Counseling Service**: 333 East Campus Mall, 7th floor, (608) 265-5600; 8:30 am-5:00 pm, Monday–Friday

- **Dean of Students Office**: 75 Bascom Hall, (608) 264-5700, 7:30 am-5:00 pm, Monday–Friday

- **Acute Psychiatric Service**: (608) 265-5600, 8:00 am-4:30 pm, Monday–Friday, ext. 2 (during business hours), ext. 9 (after hours)

- **Dane County Mental Health Center’s Emergency Lines**: 24 hours daily, (608) 280-2600

- **Madison Police and Medical Emergency**: 911 (Non-Centrex and public telephones only), Non-Emergency number: (608) 266-4275

- **University Police**: 911, Non-Emergency number: (608) 264-COPS (2677)
## Important Dates of 2014

<table>
<thead>
<tr>
<th>Event</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Last day to cancel enrollment without transcript record</td>
<td>Mon, Sept 1</td>
</tr>
<tr>
<td>Instruction begins</td>
<td>Tue, Sept 2</td>
</tr>
<tr>
<td>Last day to enroll without Late Initial Enrollment Fee</td>
<td>Fri, Sept 5</td>
</tr>
<tr>
<td>Last day to drop courses or withdraw without notation on Transcript</td>
<td>Wed, Sept 10</td>
</tr>
<tr>
<td>Last day to Add Courses</td>
<td>Fri, Sept 12</td>
</tr>
<tr>
<td>Last day for 100% tuition adjustment on dropped classes</td>
<td>Fri, Sept 12</td>
</tr>
<tr>
<td>Last day to apply for Pass/ Fail Privilege</td>
<td>Fri, Oct 31</td>
</tr>
<tr>
<td>Last day to convert from Credit to Audit</td>
<td>Fri, Oct 31</td>
</tr>
<tr>
<td>Last day to drop spring courses</td>
<td>Fri, Oct 31</td>
</tr>
<tr>
<td>Thanksgiving recess</td>
<td>Thurs-Sun, Nov 27-30</td>
</tr>
<tr>
<td>Last day to withdraw without academic penalty</td>
<td>Fri, Nov 21</td>
</tr>
<tr>
<td>Last day of Classes</td>
<td>Fri, Dec 12</td>
</tr>
<tr>
<td>Study day</td>
<td>Sat, Dec 13</td>
</tr>
<tr>
<td>Exams begin</td>
<td>Sun, Dec 14</td>
</tr>
<tr>
<td>Commencement weekend</td>
<td>Sun, Dec 21</td>
</tr>
<tr>
<td>Exams end</td>
<td>Sat, Dec 20</td>
</tr>
</tbody>
</table>

**NOTE:** It is the responsibility of the student to be aware of and meet all requirement deadlines.
<table>
<thead>
<tr>
<th><strong>Donald S. Stone</strong>&lt;br&gt;Professor and Chair, Materials Science &amp; Eng&lt;br&gt;Associate Director, Materials Science Program&lt;br&gt;Mechanical properties, creep and relaxation, dislocation mediated plasticity, structure-property relationships. Metals, ceramics, polymers, wood. Thin films, composites, multilayer composites.</th>
<th><strong>Ian Robertson</strong>&lt;br&gt;Dean, College of Engineering&lt;br&gt;Professor, Materials Science &amp; Engineering&lt;br&gt;Microstructural evolution property changes in materials exposed to extreme conditions — stress, strain rate, gaseous and chemical environments and radiation.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Todd R. Allen</strong>&lt;br&gt;Associate Professor, Engineering Physics and Materials Science &amp; Engineering&lt;br&gt;Materials for nuclear energy system, fission reactors, nuclear fuels, energy policy, sustainability of nuclear energy.</td>
<td><strong>Mark A Eriksson</strong>&lt;br&gt;Professor, Physics and Materials Science &amp; Engineering&lt;br&gt;Nanoscience, quantum computation, semiconductor nanostructures, Si/SiGe quantum dots; thermal transport and thermoelectric materials; carbon nanotubes.</td>
</tr>
<tr>
<td><strong>Michael S. Arnold</strong>&lt;br&gt;Assistant Professor, Materials Science &amp; Eng&lt;br&gt;Carbon nanostructures; organic electronics &amp; optoelectronics: photovoltaic solar cells, organic light emitting diodes; materials for alternative energy and energy storage; nanoelectronics.</td>
<td><strong>Paul G. Evans</strong>&lt;br&gt;Associate Professor, Materials Science &amp; Eng&lt;br&gt;X-ray diffraction, microscopy, and optics; x-ray probes for ultrafast dynamics; nanoscale properties of magnetic materials; domains and switching in ferroelectric materials; monolayer scale organic electronics.</td>
</tr>
<tr>
<td><strong>Susan E. Babcock</strong>&lt;br&gt;Professor, Materials Science &amp; Engineering&lt;br&gt;Solid-solid interface structures, crystal defect microstructures, microstructure in thin films and engineered substrates, applications of electron microscopy in materials research.</td>
<td><strong>Padma Gopalan</strong>&lt;br&gt;Associate Professor, Materials Science &amp; Engineering and Chemistry&lt;br&gt;Polymers, synthesis and characterization, electro-optic and photonic materials, photonic devices, self-assembly of block copolymers, liquid crystalline polymers.</td>
</tr>
<tr>
<td><strong>James A. Clum</strong>&lt;br&gt;Visiting Professor, Materials Science &amp; Engineering&lt;br&gt;Materials and manufacturing processes, statistical design of experiments and process, reliability, electronics packaging.</td>
<td><strong>Bezalel Haimson</strong>&lt;br&gt;Professor Emeritus, Materials Science &amp; Eng&lt;br&gt;Rock mechanics, failure modes in rocks, cyclic fatigue, true tri-axial strength criteria, borehole breakout, strain localization and compaction bands, in-situ rock stress and its measurement; hydraulic fracturing.</td>
</tr>
<tr>
<td><strong>Wendy C. Crone</strong>&lt;br&gt;Associate Dean for Graduate Education&lt;br&gt;Professor, Engineering Physics and Materials Science &amp; Engineering&lt;br&gt;Experimental mechanics of materials; characterization of materials such as shape memory alloys; hydrogels and biomaterials; therapeutic medical devices.</td>
<td><strong>Sindo Kou</strong>&lt;br&gt;Professor, Materials Science &amp; Engineering and Mechanical Engineering&lt;br&gt;Materials processing and transport phenomena including: welding, casting, and crystal growth of semiconductors and metals.</td>
</tr>
<tr>
<td><strong>Chang-Beom Eom</strong>&lt;br&gt;Spangler Professor, Materials Science &amp; Engineering and Physics&lt;br&gt;Heteroepitaxy of complex oxide thin films and heterostructures, nanostructure, fabrication of novel materials.</td>
<td><strong>Thomas F. Kuech</strong>&lt;br&gt;Professor, Chemical &amp; Biological Engineering and Materials Science &amp; Engineering&lt;br&gt;Member, National Academy of Engineering&lt;br&gt;Solid-state materials synthesis and characterization, electronic and semiconductor materials, solar energy and photovoltaics, oxide materials, nanostructure formation.</td>
</tr>
<tr>
<td>Name</td>
<td>Position</td>
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<tr>
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</tr>
<tr>
<td>Roderic S. Lakes</td>
<td>Wisconsin Distinguished Professor, Engr Physics and Materials Science &amp; Eng</td>
</tr>
<tr>
<td>John H. Perepezko</td>
<td>Bascom Professor, Materials Science &amp; Eng Member, National Academy of Engineering</td>
</tr>
<tr>
<td>Max G. Lagally</td>
<td>E.W. Mueller Professor and Bascom Professor, Materials Science &amp; Engineering and Physics Member, National Academy of Engineering</td>
</tr>
<tr>
<td>Izabela Szlufarska</td>
<td>Associate Professor, Materials Science &amp; Eng and Engineering Physics</td>
</tr>
<tr>
<td>Dane Morgan</td>
<td>Associate Professor, Materials Science &amp; Eng Engineering and Engineering Physics</td>
</tr>
<tr>
<td>Paul M. Voyles</td>
<td>Associate Professor, Materials Science &amp; Engineering</td>
</tr>
<tr>
<td>William L. Murphy</td>
<td>Associate Professor, Biomedical Engineering and Materials Science &amp; Engineering</td>
</tr>
<tr>
<td>Xudong Wang</td>
<td>Assistant Professor, Materials Science &amp; Engineering</td>
</tr>
<tr>
<td>Michael Murrell</td>
<td>Assistant Professor, Materials Science &amp; Engineering and Biomedical Engineering</td>
</tr>
<tr>
<td>Paul S. Peercy</td>
<td>Professor Emeritus, College of Engineering Professor, Materials Science &amp; Engineering Member, National Academy of Engineering</td>
</tr>
</tbody>
</table>
Department and related facilities

Facilities and expertise required to design and fabricate special research equipment is available on the engineering campus. In addition to materials research laboratories in engineering and physical science departments, the Materials Science Center offers general-purpose laboratories, materials preparation facilities, and commonly used apparatus, such as electron microscopes and x-ray diffractometers.

Campus-wide facilities include computing centers, heavy ion and electron accelerators, and a nuclear reactor with facilities for neutron diffraction. Students and faculty use the Physical Sciences Laboratory and Synchrotron Radiation Center.

Materials Science Center (MSC)

MSC is a resource for instrumentation and expertise to characterize materials and nanostructures. MSC provides state-of-the-art instrumentation, support facilities, and expert technical assistance for research and education in materials. MSC has two specialized laboratories and a center within the MSC to serve an expanded need on campus in the Madison Area for dedicated facilities:

- Wisconsin Microscopy and Characterization Center
- Soft Materials Laboratory
- Characterization Laboratory for Irradiated Materials

Wisconsin Center for Applied Microelectronics (WCAM)

WCAM provides a research facility for microfabrication technologies, products and innovations. WCAM maintains a suite of semiconductor and microfabrication processing equipment in a cleanroom laboratory. The laboratory is located on the third floor of the Engineering Centers Building on the University of Wisconsin-Madison campus.

University of Wisconsin Nuclear Reactor

Synchrotron Radiation Center

Center for High-throughput Computing
Grid Laboratory of Wisconsin (GLOW)
Wisconsin Applied Computing Center
Wisconsin Structures and Materials Testing Laboratory
W.M. Keck Laboratory for Biological Imaging
Biological and Biomaterials Preparation, Imaging, and Characterization Laboratory
Water Science and Engineering Laboratory
Online resources

MS&E Department:  http://www.engr.wisc.edu/mse/
Academic Calendar:  http://www.secfac.wisc.edu/acadal/
CAE (Computer Aided Engineering):  http://www.cae.wisc.edu/
COE Diversity Affairs Office:  http://studentservices.engr.wisc.edu/diversity/
Deadlines At a Glance:  http://registrar.wisc.edu/fall_deadlines_at_a_glance.htm
DoIT (Division of Info. Technology):  http://www.doit.wisc.edu/students/
Engineering Career Services:  https://ecs.engr.wisc.edu/public/
Engineering Library:  http://wendt.library.wisc.edu/
Graduate School Academic Guidelines:  http://www.grad.wisc.edu/education/acadpolicy/guidelinesindex.html
Graduate School Forms:  http://www.grad.wisc.edu/education/forms/index.html
International Student Services:  http://iss.wisc.edu/
Materials Chemistry Program:  http://materials.chem.wisc.edu/
Materials Science Program:  http://www.engr.wisc.edu/interd/msp/
McBurney Disability Resource Center:  http://www.mcburney.wisc.edu/
OWLS Wait List System:  https://admin.engr.wisc.edu/wait_list/manage_menu.php
Semester Deadlines (Spring):  http://registrar.wisc.edu/spring_deadlines_at_a_glance.htm
Semester Deadlines (Fall):  http://registrar.wisc.edu/fall_deadlines_at_a_glance.htm
Schedule of Classes:  http://registrar.wisc.edu/schedule_of_classes.htm
The Graduate School:  http://www.wisc.edu/grad/
University Health Services:  http://www.uhs.wisc.edu/
Wisconsin Alumni Research Foundation:  http://www.warf.org/
Writing Center:  http://writing.wisc.edu/
New Graduate Student Orientation

Financial Support
Almost without exception, we do not accept students unless we also offer them financial support. All students can expect to be supported as research assistants, fellows, or teaching assistants for the duration of graduate study in the department - as long as they are making satisfactory progress towards their degree (Appendix IA). Ours is a research department, so most of the support is in the form of research assistantships, but we also admit and encourage students to serve as TA’s for limited duration; TA experience can be especially valuable for students intending to go into careers in academia.

Research Assistantship (RA) Offers for Research Assistantships are made by individual faculty members based on matching the interests, capabilities, and experiences of the student to the research programs of the faculty members. Students interested in Research Assistantships in a particular area are encouraged to contact professors whose work is of special interest. The faculty’s research interests are briefly discussed above and in more detail on the department website. A Research Assistantship permits the most rapid progress toward a degree. The stipend for Research Assistantships for Materials Science and Engineering graduate students is comparable to the stipend from other institutions. More information about stipends can be obtained from the admissions contact.

Teaching Assistantship (TA) Teaching Assistantships involve teaching rather than research experience. They vary in stipend depending on the level of teaching responsibilities but often the stipend is approximately the same as for Research Assistantships. Teaching experience is especially desirable for students considering an academic career.

Fellowships Both the university and external institutions offer Fellowships. Select applicants to the department may be offered university Fellowships on the merit of letters of recommendation, grades, GRE general test scores, and past accomplishments. Foreign students are generally not eligible for university Fellowships. Other Fellowships are offered by organizations such as the National Science Foundation, the Hertz Foundation, the U.S. Department of Defense, the Department of Energy, and a number of industries and foundations. Because some of these fellowships have fall application deadlines, early application is necessary. GRE scores for the General Test are usually required for fellowship applications in
addition to letters of recommendation. Fellowships can offer more flexibility in choice of advisor and thesis topic and sometimes offer more competitive stipends.

**When You Should Come**

All new graduate students should report to the department at least one week before the beginning of the semester so that they can participate in graduate orientation. If you have a confirmed* advisor, please discuss with them about your starting date.

* For an advisor to be confirmed, you should have an official offer letter from that faculty that includes their expectations and financial support.

**Student ID/Wiscard**

All students need a Student ID card. With this card, students can check out books and equipment from any of the Campus Libraries. The card can also be used as a multipurpose debit card called “Wiscard.” Wiscard can be used to purchase food, textbooks, and school supplies around campus. This ID is needed to obtain a bus pass (see below) and also acts as a Key Card after access is granted.

Newly admitted students may obtain their initial card at no cost upon verification of enrollment by the card office staff. Continuing or returning students may obtain a card to replace a lost, stolen, or worn ID as needed. Replacement cards may be subject to a fee. In order to obtain your student ID you must present some form of personal photo identification such as a valid driver’s license, passport, or state ID. The Photo ID Office is located in Union South Room 149. Normal hours of operation are Monday through Friday: 8:30 AM - 5 PM.

**Paying Your Tuition/Fees**

Check your student account invoice for amount due and payment deadlines. Pay your fees and tuition, if applicable, at the Bursar’s office, 333 East Campus Mall #10501. If you are RA or TA, your tuition is covered by the assistantship but you still need to pay your fees. Contact the Bursar’s Office at 608-262-3611 if you do not receive an invoice. Failure to receive an invoice will not be accepted as a reason for failure to comply with payment deadlines.

**Activating Your NetID**

You will need your NetID and password to access the My-UW portal at [http://my.wisc.edu](http://my.wisc.edu). To activate your NetID click on the ACTIVATE NETID button
from the My UW Madison login screen. Enter your 10 digit student campus ID number and birthdate. The NetID you create and password you enter are keys to your access to the MyUW portal, so make a record of it and keep it private. If you are unsure about your NetID and password, contact the DoIT Help Desk at (608) 264-HELP (4357).

Your NetID account can be modified by logging into the NetID Account Modification tool at https://www.mynetid.wisc.edu/modify. The account modification tool allows you to activate missing services, reset your password, change your account recovery questions, and change your preference to forward your WiscMail (see below) to a work or personal email address used frequently.

**Email Address (WiscMail)**

Once you have activated your NetID, log on to http://my.wisc.edu. WiscMail is UW-Madison’s centrally supported email service. It provides email to all faculty, staff and students via the My-UW portal on the Web or through a local email client. WiscMail has valuable features, including IMAP folders, secure login, Web access, virus scanning, spam filtering and much more. The Registrar, Bursar, deans and the Graduate School only use WiscMail to correspond with students.

**Updating Mailing address and phone number**

To update your mailing address and phone number, go to http://my.wisc.edu/. To update your information, you must know your NetID and password. If you are unsure about your NetID and password, contact the DoIT Help Desk at 264-4357.

**CAE Account**

CAE accounts are automatically established for all engineering students from their current registration information, and they allow for a variety of services at no charge to the student. Your CAE account will give you access to the many computing resources in the College of Engineering including the CAE Windows workstations, the CAE Linux workstations, and access to tethered software. Your CAE account is available as long as you are enrolled in an engineering course, until your graduation. You can activate your account at this address: http://www.cae.wisc.edu/accounts, by clicking “Activate your account online!” or by emailing the CAE Helpdesk at: helpdesk@cae.wisc.edu.

**Course registration**
Students enroll via the Web at http://my.wisc.edu. You can enroll at any time after your Enrollment Appointment Time, and up through each session’s class-add deadline. You can find your enrollment time in your Student Center at http://my.wisc.edu. Please seek course advice from faculty before enrolling. To enroll after the add period for a course, you will need department and/or dean’s permission. Information on courses offered in MSE can be found at: http://courses.engr.wisc.edu/mse.

Meet with Faculty

If you do not have an advisor confirmed* before your arrival, you will need to identify your advisor within the first semester, as described in the Advising section. Matching a student with an advisor is a process of mutual selection. To facilitate this process, you are required to meet with 7 faculty members in our department within the first 2 months after the beginning of the semester. You are strongly encouraged to attend their group meetings and talk with their students. You should fill out the “Graduate Student/Faculty Meeting Form” (Appendix II). When you finish your meeting with faculty, please select at least three faculty that you would most like to work with. By the end of the second month, please turn in this form to Ms. Lynn Neis (276 MS&E Bldg.).

* For an advisor to be confirmed, you must have an official offer letter from that faculty that includes their expectations and financial support.

Health insurance

Health care is available at the University Health Service (UHS) for all UW-Madison students. (See www.uhs.wisc.edu for details on the coverage offered.) Hospitalization and emergency room services are not included in UHS benefits. Health insurance covering hospitalization and emergency services is strongly recommended. Information concerning group health insurance, which is available to those holding at least a 33.3% appointment as a graduate RA, grad Fellow or TA, may be obtained from the MS&E Payroll & Benefits Specialist, Paula King, Rm. 276 MS&E Bldg. Unsupported graduate students are not eligible for insurance offered to RAs and TAs. Unsupported students may contact the Wisconsin Student Association for health insurance information.

Transportation

Travel by bus: The ASM bus pass is free (already included in your tuition and fees) and includes unlimited rides on Madison Metro, the local bus and paratransit agency.
Bus passes will be available Monday, August 27th through Friday, August 31st from 10:00am-6:00pm in Room 240 of the Steenbock Library, 550 Babcock Drive.

For a complete listing of the Bus Routes and Schedules, please see: http://www.cityofmadison.com/metro/Schedules/RoutesSchedules/RoutesSchedules.htm

NOTE: If you scroll to the bottom of that web page, you will see a list of five free UW-Campus routes that run on a frequent basis. These five buses do not require use of a bus pass. The 82 and 85 buses pick up very close to Engineering Campus.

Parking: Graduate students may purchase university parking permits for their automobiles for Area Lot 60 or for Lot 83. There is frequent campus bus service between both lots and the engineering campus. Students with no employment should apply directly to Transportation Services. In view of the restricted parking options on campus and the fact that all students are entitled to a free bus pass, students are encouraged to consider parking off campus near a bus stop and riding the bus into campus.

Teaching Assistants or Research Assistants may also apply for a permit to Lot 17. For parking information, go to www.fpm.wisc.edu/trans. You may also email your request to Connie Brachman, brachman@engr.wisc.edu, along with your student ID number.

Bicycles: Bicycling is a commonly used method of transportation. Be sure to buy a lock and renew your Madison bicycle license on a regular basis. Bicycle parking is available near most campus buildings. Campus policy holds that you may not bring your bicycles into buildings.

**Mailing Address**

You are assigned a mailbox for department notices and messages, campus mail and U.S. mail. The mailboxes are located outside Rm. 266 MS&E Bldg., on the second floor and are listed in alphabetical order. Students should check their boxes daily for university and department information. Mailboxes in ERB are located on the first floor hallway between ERB and the ME building.

Because of increasing demands on space and staff time, you are to have all personal mail, periodicals and newspapers delivered elsewhere. The staff will NOT distribute your personal mail. The correct address for your mailbox is your name plus:
Housing Information
The University Apartments community serves graduate students, students with families, post-docs, academic staff, and faculty at UW Madison, and is comprised of three distinct "neighborhoods", Eagle Heights, University Houses, and Harvey Street Apartments. University Apartments is also home to Eagle's Wing Child Care and Education Programs, a licensed childcare service serving resident and non-resident families. More information can be found at: http://www.housing.wisc.edu/universityapartments.

Student Organizations
There are over 600 student organizations at UW-Madison. For a complete listing of student organizations go to http://www.wisc.edu/studentLife/gettingInvolved.php. The following is a list of Student Organizations in which many Materials Science and Engineering students are involved:

1. Engineers without borders (http://www.ewbuw.org/)
2. Society of women engineers (http://swe.slc.engr.wisc.edu/)
3. Associated students of Madison (http://www.asm.wisc.edu/)

International Students
International Students who are on a student scholar or visa must check in with International Student Services, 716 Langdon Street, immediately upon arrival.

Social Security number: Only F-1 and J-1 students employed on campus are eligible for a Social Security number. If you are eligible, find out how to sign up for a Social Security number and get answers to your tax questions by visiting the Office of Human Resources Payroll and Benefits Services website (http://www.bussvc.wisc.edu/ecbs/emp-taxes-menu.html).
**English Competency for Non-Native English Speakers:** If you are required to take the ESLAT (English as a Second Language Assessment Test), the test is offered in the Fall and Spring during the week before the beginning of instruction. For schedule and location information, visit the UW-Madison Program in English as a Second Language, phone: (608) 263-3780, website: [http://www.english.wisc.edu/esl/eslat-exam.html](http://www.english.wisc.edu/esl/eslat-exam.html). Students must bring their student identification number and a photo ID (such as passport or UW Student identification card).

**Satisfactory progress toward degree**

Details of Degree requirements can be found at sections Master's Degree Program and PhD Degree Program. The official document describing satisfactory degree progress is included in Appendix I.

To be considered to be making satisfactory progress, a student must:

1. Maintain a cumulative B average for all courses taken; in computing this average, all research course grades are excluded from the average.
2. Choose an advisor and begin work within 1 semester of graduate study, and thereafter make satisfactory progress in research as judged by the advisor and department. Normally, an advisor is chosen in September or October during the first year.
3. Satisfy the preliminary examination requirements.
4. Complete the Ph.D. minor requirements not later than the end of the third year of graduate work.

A student who fails to meet specified requirements after one semester will be placed on probation and will receive notification from the department. Any requirements not satisfied after 2 semesters will result in termination unless the advisor requests, and the department approves, probationary status. Probation will be granted one semester at a time. All requests for probation must be initiated through and approved by the advisor prior to the first department meeting of the affected semester.

In addition to these requirements, the student is advised to be aware of the general rules of the Graduate School. The Graduate School urges that special attention be paid to the rules governing residence credit.
The requirements for the degree and the criteria defining satisfactory progress toward it are subject to change by vote of the MS&E Faculty. When any substantive change is made, students in the Ph.D. program will have the option of continuing under the new requirements or under those that were in effect when their program was started. Students who are not registered for a full semester or longer become subject to requirements in effect when they re-enter.

**Academic Integrity**

The MS&E Department requires students to maintain the highest standards of integrity while pursuing their studies. Students are expected to represent their contributions to coursework accurately and honestly. Plagiarism in courses, on research papers, and in other documents is forbidden. Plagiarism is usually obvious to readers, is easy to prove, and can lead to strong sanctions including the student being expelled from the university. A good piece of advice is to **NEVER** cut and paste text from a literature document into your own, even if you merely "taking notes" and intend to change the text. Likewise, fabricating data or otherwise inaccurately representing data is forbidden, and can lead to severe sanctions. A good resource is [http://writing.wisc.edu/Handbook/QuotingSources.html](http://writing.wisc.edu/Handbook/QuotingSources.html).

**Purchasing on grants**

Graduate students should contact their advisors and financial specialist, Paula King, 276 MS&E Bldg. first for making purchases on grants. Regulations and procedures of purchasing on grants can be found on the college of engineering website: [https://coeadmin.engr.wisc.edu/FinancialServices/index.php](https://coeadmin.engr.wisc.edu/FinancialServices/index.php).
Degree Programs

Official degree requirements are listed in Appendix I

Degrees offered

Presently, MS&E offers two degrees in Materials Engineering: the Master of Science (MS) and Doctorate of Philosophy (PhD).

Advising

Every MS&E graduate student must have a faculty advisor. A faculty advisor provides the graduate student with academic guidance in their course program and research oversight in their thesis, project, or engineering report. Graduate students should always seek advice from their advisor and other faculty in their interest area prior to enrolling for courses.

Finding a Faculty Advisor

When graduate students are admitted to the MS&E department and provided financial support (RA), the faculty person providing financial support is the student’s advisor. Students who are TAs or do not have financial support should discuss finding an advisor with the department Chair as soon as possible after arriving in order to find a faculty advisor. Students must choose a faculty advisor and begin work within the first semester of graduate study, and thereafter make satisfactory progress in research as judged by the faculty advisor and department. Normally, a faculty advisor is chosen in September or October during the first year.

Changing Faculty Advisors

Changing advisors during the graduate program may be necessary due to changes in a student’s interests or changes in the funding sources for their support. Students should discuss an advisor change with their current advisor and with the faculty in their new interest area and request a change in advisor with Ms. Lynn Neis located in 276 MS&E Bldg.

Master's Degree Requirements

1. Satisfy Graduate School:
   http://www.grad.wisc.edu/catalog/dreg_criteria.htm
2. A minimum of 30 credits beyond undergraduate degree, with at least 15 credits of them at the 700 level or above (including MSE 790 Master's Research or Thesis and up to 2 credits for MSE 900 Seminar).
3. A minimum of 5 classroom courses* consisting of at least 14 credits.
   a. Courses must follow a plan approved by advisor and Graduate Affairs Committee
   b. At least 3 of these courses totaling to at least 8 credits must be graduate level.
c. MSE 900 and other seminar courses, independent study, thesis, etc., may not be used to satisfy any aspect of this requirement.
d. Graduate-level math (e.g., EP 547) and graduate level thermodynamics (MSE 530) required.
e. Up to 6 credits (2 courses) can be transferred from other graduate programs to substitute toward these course requirements, subject to approval of the Graduate Affairs Committee.

4. Two semesters of MS&E 900.

*classroom course: standard lecture or lab course – this excludes MSE 900, other seminar courses, independent study, thesis credits, etc. The Graduate Affairs Committee has the last word on what constitutes a classroom course.
**graduate-level course: for the purpose of these requirements, the Graduate Affairs Committee decides what constitutes a graduate-level course, and it does so on a case-by-case basis. A course numbered 300-699 can only be considered by the Graduate Affairs Committee as a candidate to satisfy the “700 level or above” criterion if: 1) it is specifically designed for graduate students in a graduate program; or 2) it assesses graduate students separately from undergraduate students; or 3) it has a graduate student enrollment >50% in any given semester.

**M.S. Dissertation and Oral Defense**

Attainment of a M.S. degree requires the preparation of a thesis on a research topic selected by the student and his or her advisor.

Once a research project is selected, the student must choose his or her thesis committee. Committees (sometimes called "Graduate Advisory Committees" or "Degree Committees") evaluate satisfactory progress and the M.S. dissertation and oral defense.

1. The chair or co-chair of the Committee must be Graduate Faculty from MSE. M.S. Committees must have at least 3 members, 2 of whom must be Graduate Faculty or former Graduate Faculty up to one year after resignation or retirement. At least one of the members must be from outside of the MSE Department. See more information about who and who cannot serve on a Committee at:
   http://www.grad.wisc.edu/catalog/degreq_criteria.htm
2. The M.S thesis should be submitted to the committee members 14 days prior to the oral thesis defense.
3. The dissertation work must be presented in an oral defense to the committee. It is intended that this will normally take place before the end of the fourth regular semester of study (not including summer sessions). The M.S. dissertation and the defense of the dissertation must be approved by the committee before the student can become eligible for graduation.

**Graduation Checklist for Masters**

In order to be eligible for graduation,

1. An M.S. student must meet all M.S. degree requirements outlined in this document and by the Graduate School at:
   - [http://www.grad.wisc.edu/education/completedegree/mdegree.html](http://www.grad.wisc.edu/education/completedegree/mdegree.html)
   - [http://www.grad.wisc.edu/catalog/degreq_criteria.htm](http://www.grad.wisc.edu/catalog/degreq_criteria.htm)

2. Be enrolled in at least 2 credits the semester in which they graduate.

3. Notify the MSE departmental graduate coordinator of intention to graduate. The MSE department must request a degree warrant a minimum of three weeks before the defense/exam or the degree deadline.

**Additional Details When Finishing the M.S. Degree (not continuing on to PhD)**

1. After a student submits their degree warrant, they will no longer be able to enroll in courses.

2. Graduate students will keep their student status through the end of the semester, until the official date of graduation, after which they will no longer be eligible for financial support. If the student holds an assistantship or a fellowship, the student must consult with his or her advisor and the payroll coordinator to determine the end date of the appointment.

3. The student’s diploma will be mailed 12-14 weeks after the degree deadline to the mailing address listed in the student’s Student Center. All international students are required to enter a diploma address into their Student Center to receive a diploma.

4. The student’s e-mail account will be left active a few months after graduation. The student will receive an e-mail notifying them when your account will be deactivated. Once a student has graduated, they can also apply for an UW alumni e-mail at [http://www.uwalumni.com/home/marketplace/market_email/market_email.aspx](http://www.uwalumni.com/home/marketplace/market_email/market_email.aspx)
5. Remember to keep in touch after graduation! Also, feel free to contact the MSE Department if you have any questions or concerns after graduation.

**PhD Degree Program**

The PhD degree is granted in recognition of original scholarship. Therefore, beyond passing a qualifying examination, students must demonstrate research ability in their area of specialization as evidenced by preparation and defense of an original research proposal, and completion (preparation and defense) of a doctoral thesis. A PhD candidate who begins with a BS in engineering (with no deficiencies) may expect a 4-to-5 year graduate program.

The MS&E PhD program provides excellent opportunities for interdisciplinary research in Materials Engineering. Basic requirements for a Ph.D. degree with a major in Materials Engineering include:

1) Satisfy Graduate School:

   [http://www.grad.wisc.edu/catalog/degreq_criteria.htm](http://www.grad.wisc.edu/catalog/degreq_criteria.htm)

2) 5 (15 cr) classes beyond Masters, 2 in department and 3 to satisfy minor.

3) M.S. degree

4) Qualifying exam taken within first 15 months of entering graduate program

5) Preliminary exam taken within 3 years of entering graduate program

6) Write and defend Ph.D. dissertation

The official requirements approved by the department can be found in Appendices.

**PhD Course requirements**

1. Courses, including minor courses, must follow a plan constructed by student and advisor and approved by the Graduate Affairs Committee (Appendix B).

2. At least 15 classroom course* credits beyond M.S. are required including
   a. At least 6 credits from graduate-level** MSE courses.
   b. At least 9 additional credits to satisfy the Graduate School requirements for Option A or Option B minor requirements. These requirements may be found at [http://www.grad.wisc.edu/catalog/degrees.htm](http://www.grad.wisc.edu/catalog/degrees.htm).
   c. MSE 530 (Graduate Thermodynamics, 3 cr) unless previously taken as part of M.S. degree.

3. An advanced math class (enumerated under the M.S. requirements), unless previously taken as part of the M.S. requirements at UW or in graduate study elsewhere.
4. MSE 900 for two semesters unless previously taken as part of M.S. at UW
5. Minor requirements must be finished by end of third year in graduate study

* Classroom course: standard lecture or lab course - this excludes MSE 900, other seminar courses, independent study, thesis credits, etc. The Graduate Affairs Committee has the last word on what constitutes a classroom course.

** Graduate-level course: for the purpose of these requirements, the Graduate Affairs Committee decides what constitutes a graduate-level course, and it does so on a case-by-case basis.

**Transferring credits**

Transfer credits can count towards the M.S. degree but not towards the Ph.D. degree. The one exception is math: students can petition the Graduate Affairs Committee to allow an advanced math course taken elsewhere to substitute for the math requirement. This substitution does not, however, go toward reducing the 15 credit classroom course requirement.

**Qualify exam**

To be fully admitted to the Ph.D. program, a student must pass the Ph.D. qualifier exam, thereby demonstrating basic competence in basic fundamentals:

1. Students should take the exam within 15 months of beginning the graduate program. This time period can be extended for special cases with approval of the graduate committee.
2. The exam will be prepared and graded by the MS&E department faculty and given in Sept. and Jan. of each year. Final pass/fail assessment is given by the graduate committee.
3. Students who do not pass the exam the first time are allowed to take the exam again one more time. The second attempt must be made at the next available exam date after the failure. Students who do not pass the exam a second time cannot advance to Ph.D. program but can receive an M.S. provided they complete a Master's Thesis.
4. The qualifying exam must be in written format.
Qualifying Exam Topics and Related Courses:

Qualifying exam is written. Students must choose 3 topic areas and will be tested on each. The following shows topic areas and related courses:

Thermodynamics
MSE330, MSE530

Transport and Kinetics
MSE330, MSE331, MSE751, MSE752

Physical Metallurgy
MSE330, MSE352, MSE752

Mechanical Properties
MSE441, MSE750

Materials Processing
MSE332, MSE333, MSE434
MSE435, MSE461-465, MSE544

Electronic Properties
MSE456, Physics 551

Polymers
MSE421

Structure
MSE448, MSE748, MSE750

PhD committee requirements

Attainment of a Ph.D. degree requires the preparation of a thesis on a research topic selected by the student and his or her advisor. Once a research project is selected, the student must choose his or her thesis committee. The thesis committee must be on file in the MSE Office by the end of the student's second year.

Committees (sometimes called "Graduate Advisory Committees" or "Degree Committees") advise and evaluate satisfactory progress, administer preliminary and final oral examinations, evaluate a thesis or dissertation, and/or sign a degree warrant. Students should consult their advisor and their program's student handbook for the specific function of degree committees in their program.

The program/department chair must sign the "Ph.D. Final Oral Committee Approval Form," thus representing the approval of the program/department executive committee (or its equivalent), before the warrant request form is submitted to the Graduate School for final approval to obtain the final warrant.
Minimum Graduate School requirements for graduate committees are as follows:

The chair or co-chair of the committee must be Graduate Faculty from the student’s program. The UW-Madison Faculty Policies and Procedures 3.05A stipulates that "the faculty of the Graduate School includes all university faculty defined in 1.02 holding professional rank (professor, associate professor, assistant professor or instructor) in any department with graduate program authority, including those with zero-time appointments in such departments." Committee members who have retired or resigned from the University automatically retain Graduate Faculty status for one year; after one year they are permitted to serve as co-chair or other non-Graduate Faculty committee member.

Doctoral committees must have at least 5 members, 4 of whom must be UW-Madison graduate faculty or former UW-Madison graduate faculty up to one year after resignation or retirement. At least one of the 5 members must be from outside of the student’s program.

The required 5th member of a doctoral committee, as well as any additional members, all retain voting rights. They may be from any of the following categories, as approved by the program executive committee (or its equivalent): graduate faculty, faculty from a department without a graduate program, academic staff (including emeritus faculty), visiting faculty, faculty from other institutions, scientists, research associates, and other individuals deemed qualified by the executive committee (or its equivalent).

**Preliminary examination**

The preliminary exam should be taken within 3 years of beginning the graduate program. The exam consists of a written thesis proposal and a presentation to the thesis committee. The thesis proposal should be submitted to the MS&E Graduate Affairs Committee.

**Dissertators**

Dissertator status, which is granted once a student has passed their Preliminary Exam, allows a student to enroll for only 3 credits to be considered a full-time student. However, in order to maintain dissertator status, students must enroll for no more than and no less than 3 credits each semester. For more information on dissertator status, please see the Graduate School’s Academic Policies.
Students will receive an e-mail from the Grad School once their Preliminary warrant has been processed, notifying them of the Dissertator status.

As a dissertator, students enroll in only research credits and work towards completing their thesis project.

**Ph.D. warrant and oral defense**

The Ph.D. Final Oral Defense committee consists of five faculty members. Usually, this committee is the same committee as for the preliminary exam. This examination requires a demonstration of the unique contributions of the research and a defense of the methods used and conclusions drawn. The Ph.D. Final Oral Committee Approval Form must be filled out and sent to the Graduate School at least four weeks in advance of the defense. This form is only available thru Ms. Lynn Neis in 276 MS&E Bldg. This form must be signed by the student’s advisor and the department chair. The Graduate School reviews the composition of the committee (see Ph.D. Committee Requirements) and sends back the final warrant.

The thesis is submitted to the PhD committee for review 1-2 weeks before the scheduled defense. The PhD oral defense is open to the public. Following the defense, revisions are made to the thesis as required by the committee.

After the final defense, the student must follow all of the Graduate School procedures described at: [http://www.grad.wisc.edu/education/completedegree/Dissertation_options.html](http://www.grad.wisc.edu/education/completedegree/Dissertation_options.html).

The student must contact the Graduate School at 608-262-2433 to arrange an appointment for the final review. The student is responsible for depositing the dissertation at the Graduate School. All graduate students will retain student status through the end of the semester, until the official date of graduation and at that time are no longer eligible for financial support. If the student holds an assistantship or a fellowship, the student must consult with his or her advisor and the payroll coordinator to determine the end date of the appointment and its ramifications. All international students are required to enter a diploma address into their Student Center to receive a diploma.

**Commencement**

Graduate students are encouraged to participate in the commencement ceremony. Commencement ceremonies are held in December and May. Because there is no ceremony offered during the summer, students can decide which ceremony they
would like to participate in. Students should think of their degree completion and participation in the commencement ceremony as two separate events.

To participate in the commencement ceremony for any given semester, the student must simply notify the Graduate Coordinator at least 8 weeks before the ceremony if they wish for their name to be printed in the ceremony program. A student can decide to participate in the ceremony up until the day of the ceremony, but if they have not notified the Graduate Coordinator 8 weeks before the ceremony their name will not be printed in the commencement program.

Traditionally, Ph.D. students are escorted by their faculty advisor. Ph.D. students should discuss their commencement plans with their advisor. For more information on ordering the proper attire, dates and times, please see: http://www.secfac.wisc.edu/commence/index.htm.

Check-Out Procedure

✓ Keys must be returned to the MSE Department Office (Christopher Kailhofer, Rm. 201C MS&E) prior to leaving. Your degree may be delayed if you do not follow this requirement. The purpose is to ensure that all department equipment is returned and that your office and desk are clean and ready to be used by another person. The checkout process should not be done at the last minute. One week before leaving would be ideal.

✓ If you had an assistantship appointment in your last semester, check in with the MSE Payroll & Benefits Specialist (Rm. 276 MS&E) before you leave campus.

✓ For Domestic students, your diploma will be sent to your mailing address. For International students, your diploma will be sent to your diploma address. Please confirm this address is correct in your Student Center. Diplomas are sent 12-14 weeks after graduation to the mailing address or diploma address, respectively.

✓ An online survey will be e-mailed to all graduate students completing their degree. This survey is extremely helpful to the department in tracking where students go after graduation. We greatly appreciate your cooperation in completing this survey.

✓ Your e-mail account will be left active a few months after graduation. You will receive an e-mail notifying you when your account will be deactivated. Once a student has graduated, they can also apply for a UW alumni e-mail on the Wisconsin Alumni Association website (http://waa.uwalumni.com/email/signup.php).

✓ Feel free to contact the MS&E Administrative Office if you have any questions or concerns in the future, and please keep in touch!
Policies

Policy on Sexual Harassment

Sexual harassment is a community concern. When sexual harassment occurs, it degrades the quality of work and education at the University of Wisconsin-Madison. It erodes the dignity and productivity of the individuals involved and diminishes the quality, effectiveness, and stature of the institution. It can occur in any university setting (an office, a classroom, a university program). Each of us has a collective responsibility not to harass others and to act responsibly when confronted by the issue of sexual harassment, thereby promoting an environment that better supports excellence in teaching, research, and service.

(Taken from: http://www.oed.wisc.edu/sexualharassment/index.html)

What is Sexual Harassment? Unwelcome sexual advances, requests for sexual favors, and verbal or physical conduct of a sexual nature constitute sexual harassment when submission to such conduct is a condition of employment, academic progress, or participation in a university program; or submission to or rejection of such conduct influences employment, academic or university program decisions; or the conduct interferes with an employee’s work or a student’s academic career, or creates an intimidating, hostile or offensive work, learning, or program environment.

Key Points about Sexual Harassment

- Differences in power or status can be a significant component in sexual harassment. A person who seems to acquiesce to sexual conduct may still experience tangible action harassment or hostile environment harassment if the conduct is unwelcome.

- Harassment can occur between men and women or between members of the same gender.

- Sexual harassment may or may not involve a tangible injury (e.g., economic loss, lowered grades). A sexually harassing environment, in and of itself, may constitute a harm.

- Individuals in positions of authority are responsible for ensuring that employees, students or others do not harass. In an academic or program setting, offenders can be faculty, instructors, lecturers, teaching assistants, coaches, tutors, or fellow students or program participants.
The person filing a sexual harassment charge does not have to be the person harassed but could be anyone significantly harmed by the harassing conduct.

Some behavior that is not in violation of university policy may, nonetheless, be unprofessional under the circumstances. Consequences of such unprofessional behavior may include poor performance evaluations or possible discipline.

**What to do if you feel you’ve been sexually harassed:**

- Seek advice. Consult your department chair, another divisional resource person, the Office of Equity and Diversity (http://www.oed.wisc.edu/), or another campus resource to discuss options for resolution.
- You may choose to seek informal resolution or file a sexual harassment complaint. You may find more information on filing a complaint at http://www.oed.wisc.edu/dishar.html.
- For additional information, please visit: http://www.oed.wisc.edu/sexualharassment/do.html.

**Grievance procedures**

Students who feel that they have been treated unfairly have the right to a prompt hearing of their grievance. Such complaints may involve course grades, classroom treatment, advising, various forms of harassment, or other issues. Any student or potential student may use these procedures.

Procedures for proper accounting of student grievances:

- The student is encouraged to speak first with the person toward whom the grievance is directed. In most cases, grievances can be resolved at this level.
- Should a satisfactory resolution not be achieved, the student should contact the program’s Grievance Advisor to discuss the grievance. The Graduate Program Coordinator can provide students with the name of this faculty member, who facilitates problem resolution through informal channels. The Grievance Advisor is responsible for facilitating any complaints or issues of students. The Grievance Advisor first attempts to help students informally address the grievance prior to any formal complaint. Students are also encouraged to talk with their faculty advisors regarding concerns or difficulties if necessary.
- If the issue is not resolved to the student’s satisfaction the student can submit the grievance to the Grievance Advisor in writing, within 60 calendar days of the alleged unfair treatment.
On receipt of a written complaint, a faculty committee will be convened by the Grievance Advisor to manage the grievance. The program faculty committee will obtain a written response from the person toward whom the complaint is directed. This response will be shared with the person filing the grievance.

The faculty committee will determine a decision regarding the grievance. The Grievance Advisor will report on the action taken by the committee in writing to both the student and the party toward whom the complaint was directed within 15 working days from the date the complaint was received.

At this point, if either party (the student or the person toward whom the grievance is directed) is unsatisfied with the decision of the faculty committee, the party may file a written appeal. Either party has 10 working days to file a written appeal to the College.

Documentation of the grievance will be stored for at least 7 years. Significant grievances that set a precedent will be stored indefinitely.

The Graduate School has established policies governing student conduct, academic dishonesty, and sexual and racial harassment. The Graduate School also has procedures for students wishing to appeal a grievance decision made at the college level. These policies are described in the Academic Guidelines (http://www.grad.wisc.edu/education/acadpolicy/guidelines.html#97).

**Academic integrity and misconduct**

**Academic Integrity Statement** Academic Integrity is critical to the mission of the University of Wisconsin-Madison, a research one institution with high academic standards and rigor. All members of the University community play a role in fostering an environment in which student learning is achieved in a fair, just and honest way. Faculty and instructional staff set the tone in their classrooms by communicating clear expectations to their students and educating them on the consequences of engaging in academic misconduct while referring to campus resources. Students are expected to uphold the core values of academic integrity which include honesty, trust, fairness, respect and responsibility. These core values, combined with finding one’s purpose and passion and applying them in and out of classroom learning, produce students who become extraordinary citizens. This unique path of opportunities, created by each student, is commonly known as the Wisconsin Experience and impacts our campus community and beyond in significant and positive ways. The value of a University of Wisconsin-Madison degree depends on the commitment of our academic community to promote high levels of personal honesty and respect for the intellectual property of others.
**Academic Misconduct Process** The University of Wisconsin-Madison takes academic misconduct allegations very seriously. If a faculty member suspects a student has engaged in academic misconduct, they contact the student and ask them to explain their work. If the faculty member still believes the student engaged in such an act after meeting with them, they will decide on a sanction, which may include a zero on the assignment or exam, a lower grade in the course or failure in the course. The Dean of Student's Office is informed and will contact the student about their rights. Repeated acts of academic misconduct may result in more serious actions such as probation or suspension.

**UW-Madison Academic Misconduct Process can be found at:**
[http://students.wisc.edu/doso/misconductflowchart.html](http://students.wisc.edu/doso/misconductflowchart.html)
This guide was prepared by the Department of Materials Science and Engineering,

University of Wisconsin-Madison

Comments or suggestions for improvements are welcome.
Appendices

Appendix I: Official MS and PhD Requirements

M.S. in Materials Engineering Requirements, University of Wisconsin – Madison

Approved by faculty 1/14/2014

6. Satisfy Graduate School: [http://www.grad.wisc.edu/catalog/degreq_criteria.htm](http://www.grad.wisc.edu/catalog/degreq_criteria.htm)

7. A minimum of 30 credits beyond undergraduate degree, with at least 15 credits of them at the 700 level or above (including MSE 790 Master's Research or Thesis and up to 2 credits for MSE 900 Seminar).

8. A minimum of 5 classroom courses* consisting of at least 14 credits.
   a. Courses must follow a plan approved by advisor and Graduate Affairs Committee
   b. At least 3 of these courses totaling to at least 8 credits must be graduate level.**
   c. MSE 900 and other seminar courses, independent study, thesis, etc., may not be used to satisfy any aspect of this requirement.
   d. Graduate-level math (e.g., EP 547) and graduate level thermodynamics (MSE 530) required.
   e. Up to 6 credits (2 courses) can be transferred from other graduate programs to substitute toward these course requirements, subject to approval of the Graduate Affairs Committee.

9. Two semesters of MS&E 900.


*classroom course: standard lecture or lab course – this excludes MSE 900, other seminar courses, independent study, thesis credits, etc. The Graduate Affairs Committee has the last word on what constitutes a classroom course.

**graduate-level course: for the purpose of these requirements, the Graduate Affairs Committee decides what constitutes a graduate-level course, and it does so on a case-by-case basis. A course numbered 300-699 can only be considered by the Graduate Affairs Committee as a candidate to satisfy the “700 level or above” criterion if: 1) it is specifically designed for graduate students in a graduate program; or 2) it assesses graduate students separately from undergraduate students; or 3) it has a graduate student enrollment >50% in any given semester.
Ph.D. in Materials Engineering Requirements, University of Wisconsin – Madison

Updated and approved by MS&E Department Faculty 12/7/12

Outline

1. Satisfy Graduate School: http://www.grad.wisc.edu/catalog/degreq_criteria.htm
2. 5 (15 cr) classes beyond Masters, 2 in department and 3 to satisfy minor.
3. M.S. degree
4. Qualifying exam taken within first 15 months of entering graduate program
5. Preliminary exam taken within 3 years of entering graduate program
6. Write and defend Ph.D. dissertation
Ph.D. in Materials Engineering Requirements, University of Wisconsin – Madison

Specifics

1. An M.S. Degree in Materials Engineering, Materials Science, or other related science or engineering field is a prerequisite for entry into the Ph.D. program.
2. At all times, students must demonstrate satisfactory progress (Appendix A).
4. Specific course requirements:
   a. Courses, including minor courses, must follow a plan constructed by student and advisor and approved by the Graduate Affairs Committee (Appendix B).
   b. At least 15 classroom course* credits beyond M.S. are required including
      i. At least 6 credits from graduate-level** MSE courses.
      ii. At least 9 additional credits to satisfy the Graduate School requirements for Option A or Option B minor requirements. These requirements may be found at http://www.grad.wisc.edu/catalog/degrees.htm.
      iii. MSE 530 (Graduate Thermodynamics, 3 cr) unless previously taken as part of M.S. degree.
      iv. An advanced math class (enumerated under the M.S. requirements), unless previously taken as part of the M.S. requirements at UW or in graduate study elsewhere.
   c. MSE 900 for two semesters unless previously taken as part of M.S. at UW
   d. Minor requirements must be finished by end of third year in graduate study.
5. Transfer credits. Transfer credits can count towards the M.S. degree but not towards the Ph.D. degree. The one exception is math: students can petition the Graduate Affairs Committee to allow an advanced math course taken elsewhere to substitute for the math requirement. This substitution does not, however, go toward reducing the 15 credit classroom course requirement.
6. To be fully admitted to the Ph.D. program, a student must pass the Ph.D. qualifier exam, thereby demonstrating basic competence in basic fundamentals:
   a. Students should take the exam within 15 months of beginning the graduate program. This time period can be extended for special cases with approval of the graduate committee.
   b. The exam will be prepared and graded by the MS&E department faculty and given in Sept. and Jan. of each year. Final pass/fail assessment is given by the graduate committee.
   c. Students who do not pass the exam the first time are allowed to take the exam again one more time. The second attempt must be made at the next available exam date after the failure. Students who do not pass the exam a second time cannot advance to Ph.D. program but can receive an M.S. provided they complete a Master’s Thesis.
   d. The qualifying exam must be in written format (Appendix C).
7. The preliminary exam should be taken within 3 years of beginning the graduate program. The exam consists of a written thesis proposal and a presentation to the thesis committee. The thesis proposal should be submitted to the MS&E Graduate Affairs Committee.

*classroom course: standard lecture or lab course – this excludes MSE 900, other seminar courses, independent study, thesis credits, etc. The Graduate Affairs Committee has the last word on what constitutes a classroom course.
**graduate-level course: for the purpose of these requirements, the Graduate Affairs Committee decides what constitutes a graduate-level course, and it does so on a case-by-case basis.
Appendix A: Criteria for satisfactory progress toward the PhD degree

To be considered to be making satisfactory progress, a student must:

1. Maintain a cumulative B average for all courses taken; in computing this average, all research course grades are excluded from the average.
2. Choose a major professor and begin work within 1 semester of graduate study, and thereafter make satisfactory progress in research as judged by the major professor and department. Normally, a major professor is chosen in September or October during the first year.
3. Satisfy the preliminary examination requirements.
4. Complete the Ph.D. minor requirements not later than the end of the third year of graduate work.

A student who fails to meet specified requirements after one semester will be placed on probation and will receive notification from the department. Any requirements not satisfied after 2 semesters will result in termination unless the major professor requests, and the department approves, probationary status. Probation will be granted one semester at a time. All requests for probation must be initiated through and approved by the major professor prior to the first department meeting of the affected semester.

In addition to these requirements, the student is advised to be aware of the general rules of the Graduate School. The Graduate School urges that special attention be paid to the rules governing residence credit.

The requirements for the degree and the criteria defining satisfactory progress toward it are subject to change by vote of the MS&E Faculty. When any substantive change is made, students in the Ph.D. program will have the option of continuing under the new requirements or under those that were in effect when their program was started. Students who are not registered for a full semester or longer become subject to requirements in effect when they re-enter.
Appendix B: Materials Engineering Ph.D. Course Plan

1. ____________________________

2. ____________________________

3. ____________________________

4. ____________________________

5. ____________________________

6. ____________________________

Student Name: ____________________________

Student Signature: ____________________________

Date: ____________________________

Academic Advisory Name: ____________________________

Academic Advisory Signature: ____________________________

Date: ____________________________

Graduate Committee Representative Name: ____________________________

Graduate Committee Representative Signature: ____________________________

Date: ____________________________
Appendix C: Qualifying Exam Topics and Related Courses:

Qualifying exam is written. Students must choose 3 topic areas and will be tested on each.

The following table shows topic areas and related courses.

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<thead>
<tr>
<th>Subject</th>
<th>Thermo-dynamics</th>
<th>Transport and Kinetics</th>
<th>Physical Metallurgy</th>
<th>Mechanical Properties</th>
<th>Materials Processing</th>
<th>Electronic Properties</th>
<th>Polymers</th>
<th>Structure</th>
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<td>Related Courses</td>
<td>330, 530</td>
<td>330, 331, 751, 752</td>
<td>330, 352, 752</td>
<td>441, 750</td>
<td>332, 333, 434, 435, 461-465, 544</td>
<td>456, Physics 551</td>
<td>421</td>
<td>448, 748, 750</td>
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Appendix II: Graduate Student/Faculty Meeting Form

**Instruction:** Please meet with at least seven faculty members in the Department of Materials Science and Engineering within the first two months of your first semester here. You are strongly encouraged to attend their group meetings and talk with their students. Upon completion of your meetings, please select at least three faculty members that you most like to work with. This form needs to be filled and turned in to Ms. Lynn Neis by the end of the second month of your first semester.

Student Name: ____________________________

<table>
<thead>
<tr>
<th>Faculty name</th>
<th>Attended Group Meeting?</th>
<th>Funding Available?</th>
<th>Faculty signature</th>
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</table>

Your preferred professors are: ____________________________

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Signature: ____________________________ Date: ________________