

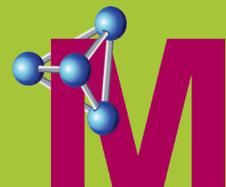
DEPARTMENT OF

# materials & ENGINEERING science

## GRADUATE HANDBOOK

Revised 7/2022

UConn



[www.mse.engr.uconn.edu](http://www.mse.engr.uconn.edu)



# FOREWORD

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Dear MSE students.

On behalf of the faculty and staff here in the Materials Science and Engineering Graduate Program, welcome to the University of Connecticut. This is a very exciting time for MSE at UConn, with a brand-new building, incredibly successful faculty, and a renewed commitment across the institution towards our students.

We hope you will have an enjoyable and intellectually stimulating experience for the duration of your graduate studies, both in our program and more broadly at UConn. You are a member of a highly capable and highly motivated group of students. We are confident that you will find your graduate colleagues to be engaging, and your interactions with them will prove to be an invaluable component of your professional and academic growth. The relationships you build with your classmates, labmates, staff, and faculty will be impactful now and long into the future.

We know that new students have questions upon entering our program, or periodically during their degree. This handbook provides answers to common questions, as well as resources, regulations, and procedures, all based on what we believe works best for most students.

Of course, it is the responsibility of all graduate students to understand and fulfill the specific requirements of their degree, which is technically maintained and overseen by Graduate School with local advice provided by the Department. The MSE Department website is regularly updated to reflect the current expectations. The absolute requirements are provided in the official [Graduate Catalog](#). Note that to graduate, students must satisfy the criteria established in the [catalog from the date they joined the program](#)—or any later date).

Your MSE graduate faculty advisor, along with input from the MSE Director of Graduate Studies and Department Head, will facilitate you as you progress. Your advisor will especially be your primary source of counsel regarding your academic program.

The faculty and staff of UConn's Materials Science & Engineering Department are pleased that you are among our vibrant community. We look forward to interacting with you both inside and outside the classroom and labs.

Sincerely,

Bryan D. Huey  
Department Head

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# DEGREE REQUIREMENTS

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## MASTER'S DEGREE

Two approaches are offered for individuals seeking to obtain a Master of Science (M.S.) degree: Plan A and Plan B. Plan A emphasizes research and is usually pursued by full-time graduate students. Plan B emphasizes coursework but is rarely applicable. For part time or more course-based programs, the Master of Engineering (M.Eng) degree is most common as it provides an excellent balance of depth and flexibility.

The specific requirements for each plan are outlined below. Any other general rules and regulations for the Master's degree, as established by the Graduate School in the latest Graduate Catalog, shall also apply.

### ***Plan A: The Thesis Option***

The main requirements of this plan are as follows:

1. The student must successfully complete 7 graduate courses (21 credits), maintaining a GPA of 3.0 or above. At least 5 of these courses must be MSE courses, 3 of which must be our core courses - Thermodynamics of Materials (MSE 5301), Transport Phenomena (MSE 5309), and Structure in Materials (MSE 5334). The student must also complete at least 9 credits of Master's Thesis Research (GRAD 5950).
2. The student must file a Plan of Study with the Graduate School. This plan must be approved by the student's Advisory Committee and the Executive Committee of the Graduate Faculty Council. The student must prepare and orally defend a research thesis.
3. Each student shall select an Advisory Committee. This committee must consist of one Principal Advisor and two Associate Advisors. The Principal Advisor and one Associate Advisor must be members of the graduate faculty in the Materials Science and Engineering field. One of the Associate Advisors may be a member of the graduate faculty in another field of study or may be external to the University of Connecticut, working in academia, government, or industry.
4. All full-time graduate students must enroll in the Graduate Seminar (MSE 6401) every semester.

Requirement (1) may be modified if the student has passed equivalent courses in a different department at the University of Connecticut or at a different university in a similar graduate program. Such decisions shall be made on a case-by-case basis by the student's Advisory Committee.

The majority of the student's research project must be performed on campus under the supervision of the Principal Advisor. Portions of the research may be performed at outside facilities as deemed necessary. A written thesis based on this research must be submitted to the student's Advisory Committee at least two weeks before the defense date. The thesis defense shall be open to the public. Following the public presentation, the student shall be further examined by the Advisory Committee and any other faculty members present. The Advisory Committee shall then meet privately and make their decision to approve or disapprove the thesis. Approval must be unanimous. The thesis research must be considered by the committee to be publishable in a refereed journal in the field. Although publication is not required for graduation, you are very strongly advised to submit publications before completing and defending your thesis.

### ***Plan B: The Non-Thesis Option***

The main requirements of this plan are as follows:

1. The student must successfully complete at least 10 graduate courses (30 credits), maintaining a GPA of 3.0 or above. At least 6 of these courses (18 credits) must be MSE courses, 3 of which must be our core courses - Thermodynamics of Materials (MSE 5301), Transport Phenomena (MSE 5309), and Structure in Materials (MSE 5334).
2. The student must file a Plan of Study with the Graduate School. This plan must be approved by the student's Advisory Committee and the Executive Committee of the Graduate Faculty Council.
3. The student must conduct a research project and pass an oral Comprehensive Examination based on this project. Each student shall select an Advisory Committee. This committee must consist of one Principal Advisor and two Associate Advisors. The Principal Advisor and one Associate Advisor must be members of the graduate faculty in the Materials Science and Engineering field. One of the Associate Advisors may be a member of the graduate faculty in another field of study or may be external to the University of Connecticut, working in academia, government, or industry.
4. All full-time graduate students must enroll in the Graduate Seminar (MSE 6401) every semester.

Requirement (1) may be modified if the student has passed equivalent courses in a different department at the University of Connecticut or at a different university in a similar graduate program. Such decisions shall be dealt with on a case-by-case basis by the student's Advisory Committee.



The required research project shall be an industrial or laboratory project conducted in close collaboration with the Principal Advisor. The student must present a 15-20 minute oral exposition of the research results to the Advisory Committee, after which the Committee shall conduct the Comprehensive Examination. The presentation shall not be open to the public. The research need not be publishable in a refereed journal. The Comprehensive Examination shall be a one-hour oral examination conducted by the student's Advisory Committee. This examination shall focus primarily on the student's research project, but it may also include questions pertaining to the student's course work. The student must pass this examination by unanimous approval of the Advisory Committee.

Typical duration of a Plan B Master's degree is 2 to 4 years beyond the Baccalaureate degree. There is no financial support available for Plan B Master's students.

## DOCTORAL DEGREE

To earn a Doctoral degree in the Materials Science & Engineering (MSE) Department, students must follow the general rules and regulations for the Doctoral degree as established by the Graduate School in the latest Graduate Catalog. There are additional requirements for a Ph.D. degree in MSE that are detailed under Sec. I – Requirements.

The typical duration of a Doctoral degree is 5 years beyond the Baccalaureate degree or 3 years beyond the Master's degree. Most graduate students enrolled in the Ph.D. program are supported by some form of an assistantship (graduate, research, or teaching). Research assistantships are funded by grants from the Federal government, the State government, or private industry. Graduate and teaching assistantships are funded by the University. All forms of assistantships carry a stipend, a full tuition waiver, and an opportunity to purchase highly subsidized health insurance. Note that various sources of financial assistance (TAships, fellowships, industrial support, etc.) often include certain requirements (office hours, special courses, directed research, etc.). These requirements should be fulfilled separate from your mandatory progress in courses and research.

### ***I. Requirements***

The key requirements of the Graduate School are that students maintain an overall GPA of 3.0, submit a Plan of Study (PoS) to the Graduate School, pass a General Examination, and successfully defend their thesis. The details of all requirements for a Ph.D. are outlined in the latest Graduate Catalog, found at <http://catalog.grad.uconn.edu>. An informational departmental checklist can be found at [https://mse.engr.uconn.edu/wp-content/uploads/2021/08/PhD\\_MSEchecklist2021.pdf](https://mse.engr.uconn.edu/wp-content/uploads/2021/08/PhD_MSEchecklist2021.pdf).

In addition to these Graduate School requirements, the MSE program requires that:

1. The student must successfully complete 3 Core Courses (MSE 5301, 5309, and 5334) and maintain a minimum GPA of 3.0 in these courses.
2. The student must pass a written Qualifying Examination.
3. The student must pass a General Examination, which incorporates the outcome of the Qualifying Exam but also consists of a written Ph.D. thesis proposal and an oral presentation to the Advisory Committee. Each student shall select his/her own Advisory Committee. This Proposal must be approved by the student's Advisory Committee and the Executive Committee of the Graduate Faculty Council.
4. The student must enroll in the Graduate Seminar MSE 6401 every semester they are a full-time UConn student.
5. The student must serve as a Teaching Assistant for 2 semesters.
6. The student must demonstrate at least one published or accepted manuscript in a peer review journal.
7. The student must ultimately prepare and orally defend a research thesis.

### ***II. The Qualifying Examination***

All students seeking candidacy for the Ph.D. degree must sit for a written qualifying examination. The examination is given once a year after the first semester of full-time graduate study in the doctoral program and measures the student's level of preparedness to pursue advanced graduate coursework and research in MSE. Students are expected to demonstrate a high level of aptitude in the physical sciences and mathematics and to be knowledgeable in the application of these topics to the structure, properties, and processing of condensed states of matter. To be eligible



# DEGREE REQUIREMENTS

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for the examination, the student must be admitted for study in the Doctoral program. Furthermore, students must have completed three graduate courses, at least one being a MSE core class, in their first semester. They must maintain a cumulative GPA of at least 3.0. The qualifying examination is administered by a panel of MSE graduate faculty members designated by the Chair of the Graduate Program. The panel reviews the student's performance in the examination and in the three graduate classes and renders a decision on candidacy for the Ph.D. degree. In some cases, students who are unsuccessful may be offered the option to continue graduate study in the MSE program towards an M.S. degree. A petition to retake the examination can be submitted by a student along with a recommendation from the Major Advisor. A successful petition will require the approval of the Graduate Committee.

### **III. The Plan of Study**

The student shall put together a PoS under the guidance of his/her Principal Advisor. All Ph.D. students entering the MSE Ph.D. program must take one MSE core course and two other graduate-level classes in their first semester and maintain a 3.0 GPA. Furthermore, the PoS should include the three designated MSE classes and an additional 12 credits of advanced coursework tailored to the student's specific interests for a minimum 30 credits of class work. Three of the elective courses may be taken outside the MSE program. The student must maintain a minimum GPA of 3.0, both in the core courses and overall. In general, the PoS should include coursework providing coverage of structure, processing, and properties of materials. The PoS shall also include at least 15 credits of Dissertation Research (GRAD 6950) and the total number of credits should not be less than 45, excluding MSE 6401. The core course requirement may be modified if the student has passed equivalent courses in a different department at the University of Connecticut or at a different university in a similar graduate program. Such decisions shall be dealt with on a case-by-case basis by the Chair of the Graduate Program.

### **IV. The General Examination: Dissertation Proposal**

Preceding the General Examination, a PoS must be submitted to the Graduate School for approval. For the General Examination, the student prepares a written Ph.D. thesis proposal and presents it orally to a faculty committee. This exam is scheduled on an individual basis after coursework is completed. The student is required to submit a written Dissertation Proposal to the Advisory Committee.

A typical proposal is 15 pages, including sections covering motivation, background and literature survey, preliminary results, proposed research, reasonable timeline, conclusion, and proper references. A typical presentation lasts 30 minutes covering the most relevant aspects of the proposal. This is followed by up to 90 minutes of discussion and questions with particular emphasis on fundamental materials science concepts related to a student's coursework, project, and plans for completion.

The student shall also present and discuss the Proposal in front of a panel comprising the Advisory Committee and two additional members of the MSE graduate faculty. It is expected that the student will have acquired a comprehensive knowledge of fundamental Materials Science and Engineering principles regardless of the elective courses taken prior to the examination. If this competency is not demonstrated adequately during the oral examination, the Advisory Committee may recommend that additional courses be taken above and beyond those included in the student's PoS.

If the Proposal is not acceptable to the Committee, the Committee shall suggest amendments, whereupon the student shall revise and re-submit the Proposal. The Proposal must receive unanimous approval from the Advisory Committee. The student shall submit the Proposal to the Graduate School for approval by the Executive Committee of the Graduate Faculty Council. The student shall also deliver a copy of the approved Proposal to the Graduate Records Office.

### **V. The Research Thesis and Defense**

The majority of the student's research project shall be performed on campus under the supervision of the Principal Advisor. The residency requirement shall be fulfilled by conducting full-time research and study for a minimum of 2 consecutive semesters on the Storrs campus. Portions of the research may be performed at outside facilities as deemed necessary.

The student shall submit the written thesis to the Examination Committee for review at least two weeks before the Defense date and announce in UConn and MSE calendars. This Committee shall consist of the Advisory Committee (3 persons) plus 2 additional members chosen by the Advisory Committee. The student shall present an oral Thesis Defense, which will be open to the public. Following the public presentation and discussion, the student shall be examined orally by the Examination Committee and the other faculty members present. The thesis research must be publishable in a refereed journal in the field.



## **Additional Information**

Requests for additional information and all routine communications regarding graduate admissions should be directed to the Department of Materials Science and Engineering at the following contact information:

Department of Materials Science & Engineering  
University of Connecticut  
97 North Eagleville Road, Unit 3136  
Storrs, CT 06269-3136  
Phone: 860.486.4620

## **TUITION & FEES**

All graduate students enrolled in this program will be subject to a tuition charge. This is in addition to the other fees charged to Connecticut, New England Regional Students Program, and out-of-state students. As of 2022, Connecticut residents pay \$9,087 per semester if registering for nine or more credits. Students who are classified as out-of-state pay \$20,043 per semester for nine or more credits. For full-time funded students, this tuition (but not associated fees or housing costs) is usually paid for by grants, graduate assistantships, etc.

There are various fees that apply to all graduate students regardless of assistantships and must be paid by the first day of classes. The Bursar's Office encourages payment as soon as possible, typically after registration. Tuition and Fee rates are subject to change in the future. For a more detailed and up-to-date description of the fees listed, please visit the Bursar Office website: <http://bursar.uconn.edu/graduate-students-3/>.

As of Fall 2022:

- General University Fee - \$488/semester
- Infrastructure Maintenance Fee - \$279/semester
- Graduate Matriculation Fee - \$42/semester
- Activity/Transit Fee - \$89/semester
- Technology Fee - \$89/semester
- Student Health & Wellness Fee - \$343/semester
- Student Rec Center Fee - \$200/semester

A student who fails to make timely payment of an outstanding balance may be barred from all privileges normally accorded to a student in good standing. These include but are not limited to course registration, class attendance, advisement, dining hall, library, infirmary, and academic transcript privileges. If there

is any question concerning a bill, it is the student's responsibility to contact the Office of the University Bursar directly for clarification and resolution.

Additionally, students who are paid graduate assistantships have the option of deducting their fees from their bi-weekly paychecks. This can be done through the PeopleSoft system. Graduate assistants who join the Graduate Employees Union (GEU) are waived certain fees - information can be found at <https://hr.uconn.edu/wp-content/uploads/sites/1421/2022/05/GEU-UAW-contract-7-1-22-6-30-26.pdf>.

## **FINANCIAL AID**

Two major types of financial aid are available to graduate students: (1) financial aid based on academic merit, and (2) financial aid based on need.

### **Academic Merit**

Awards based on academic merit include: Graduate Assistantships (for teaching or research), University Predoctoral Fellowships, Dissertation Fellowships, and Summer Fellowships. Academic departments, not the Graduate School, make decisions on the award of graduate assistantships and fellowships.

Typically, all full-time Ph.D. graduate students in the Department are supported by some form of an assistantship (graduate, research, or teaching). Research assistantships are funded by grants from the Federal government, the State government, or private industry. Graduate and teaching assistantships are funded by the University. All forms of assistantships carry with them a stipend, a tuition payment, and an opportunity to purchase highly subsidized health insurance. Again, you must serve as a teaching assistant for at least two semesters and have full-time student status (which requires at least 6 credits) while holding the appointment. To be appointed, you must hold Regular (not Provisional) academic status and maintain a cumulative grade point average of at least 3.0 (B).

### **Need-based Financial Aid**

United States citizens and permanent residents of the United States (but not international students) may apply for need-based financial aid, which includes Federal Stafford Loans (FSL), Federal Work Study, and University of Connecticut Tuition Remission Grant. \*To apply for need-based aid, an additional form not included in the online or paper application must be completed.



# FINANCIAL AID

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The required application for need-based aid is the Free Application for Federal Student Aid (FAFSA) or Renewal FAFSA. Application materials should be available on/after October 1. The FAFSA may also be obtained from any high school guidance office or college/university financial aid office. You can also file an electronic FAFSA on the web at: [www.fafsa.ed.gov](http://www.fafsa.ed.gov). For more information on FAFSA, visit the University of Connecticut financial aid website at: [www.financialaid.uconn.edu](http://www.financialaid.uconn.edu).

Need-based financial aid deadlines are March 1 for continuing UConn graduate students and May 1 for entering UConn graduate students. The FAFSA must be received and logged in at the Federal Processor on or before the published deadline. On-time status will not be determined by postmark dates or postage receipts. Priority for the awarding of Federal Work Study as well as University of Connecticut Tuition Remission funds will be reserved for applicants who comply with the above deadlines. Applications received after the deadline will be considered for Federal Stafford Loans only.

### **Private Loans**

- [www.gradloans.com](http://www.gradloans.com) - One of the best Financial Aid sites available, containing deadline calendars, guides for choosing a loan, and specific information for financing your graduate education.
- [www.collegeanswer.com](http://www.collegeanswer.com) - Online Sallie Mae loan search. Includes loans for Graduate work.

## **LISTING OF UCONN GRADUATE STUDENT FELLOWSHIPS & FINANCIAL AID OPPORTUNITIES**

### **The Graduate School Fellowship Awards**

The Jorgensen Fellowship (JF) and the Harriott Fellowship (HF) are available to outstanding young scholars who have been admitted to doctoral programs at the University of Connecticut. The Crandall Fellowship (CF) is available to outstanding young scholars who have been admitted to master's programs at the University. Details on these awards can be found at <https://grad.uconn.edu/prospective-student/internal-awards/>.

### **Graduate Student Senate Short-term Loan Fund**

The fund is administered by the Graduate Student Senate (GSS), and is funded by the graduate student activities fees. It provides interest-free loans up to \$500 for emergencies. Visit the GSS website at [www.gss.uconn.edu](http://www.gss.uconn.edu) for further information.

### **Semi – Annual Doctoral Dissertation Fellowships Program**

This program is designed to assist advanced Ph.D. students in completing their dissertations. Minimum eligibility requirements include having passed the doctoral general exam, having a fully approved dissertation proposal on file with the Graduate School, and earning less than the annual income limit. The maximum amount eligible students may apply for is \$2,000. Applications can be found on the Graduate School webpage.

### **Graduate Assistantships/Predocutorial Fellowships**

Departments have a limited number of graduate assistantships and fellowships to disperse each year. Most awards are based upon merit and financial need. There is a credit requirement the student must meet each semester based upon whether the assistantship is a full-time or half-time award. There are also different payment rates associated with each stipend level. Included with both full- and half-time assistantships are tuition waivers and the opportunity to purchase highly subsidized health insurance. The student must still pay all associated University fees. More detail is provided in the Catalog or on our website. The student should contact his/her home department for further information.

# COURSES



## CORE COURSES

		<b>Credits</b>
MSE 5301	Thermodynamics of Materials	3
MSE 5309	Transport Phenomena in Materials Science and Engineering	3
MSE 5334	Structure of Materials	3

## ELECTIVES

		<b>Credits</b>
MSE 6401	MSE Graduate Seminars in Materials Science and Engineering (mandatory for all full time graduate students)	1
MSE 5001	Principles of Materials Engineering	3
MSE 5095	Special Topics in Materials Science and Engineering	1 - 3
MSE 5097	Research Methods in Materials Science and Engineering	1 - 3
MSE 5098	Variable Topics in Materials Science and Engineering	1 - 3
MSE 5099	Independent Study in Materials Science and Engineering	1 - 3
MSE 5135	Textile Structural Composite Materials	3
MSE 5305	Phase Transformations in Solids	3
MSE 5310	Modeling Materials	3
MSE 5311	Mechanical Properties of Materials	3
MSE 5317	Electronic and Magnetic Properties of Materials	3
MSE 5322	Materials Characterization	3
MSE 5323	Transmission Electron Microscopy	3
MSE 5330	Classical Atomic-level Simulations in Materials Science and Engineering	3
MSE 5333	Imperfections in Crystalline Solids	3
MSE 5335	High Temperature Materials	3
MSE 5336	Material Selection in Mechanical Design	3
MSE 5343	Corrosion	3
MSE 5364	Advanced Composites	3
MSE 5366	Alloy Casting Processes	3
MSE 5370	Ceramics	3
MSE 5700	Biomaterials Tissue Engineering	3
MSE 5380	Fatigue and Fracture of Composites	3

Other electives on request with advisor permission.

## RESEARCH

		<b>Credits</b>
GRAD 5930	Full-Time Directed Studies (Master's Level)	3
GRAD 5950	Master's Thesis Research	1 - 9
GRAD 5960	Full-Time Master's Research	3
GRAD 5998	Special Readings (Master's)	0
GRAD 5999	Thesis Preparation	0
GRAD 6930	Full-Time Directed Studies (Doctoral Level)	3
GRAD 6950	Doctoral Dissertation Research	1 - 9
GRAD 6960	Full-Time Doctoral Research	3
GRAD 6998	Special Readings (Doctoral)	0
GRAD 6999	Dissertation Preparation	0



## COURSE DESCRIPTIONS

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### ***MSE 5001. Principles of Materials Engineering***

Accelerated Introduction to Materials Science and Engineering Concepts, including: structures and defects; phase diagrams; mechanical properties; electronic properties; magnetic properties; optical properties; thermal properties; functional materials; metals and alloys; ceramics; polymers; and composites.

3 credits. Lecture.

### ***MSE 5095. Special Topics in Materials Science and Engineering***

Course taught on a provisional basis for the purposes of course development. Students may take multiple instances for MSE 5095, which all can count toward the applicable MSE graduate course credit requirements for MS Plan A, MS Plan B, MEng, or PhD degrees, provided each instance covers a different topic. 1-3 credits.

### ***MSE 5097. Research Methods in Materials Science and Engineering***

Introduction to modern methodologies of experimental and computational materials research. Offered only to MS Plan B or MEng students. Requires major advisor approval. A maximum of 3 credits can count toward the MSE graduate course credit requirements for MS Plan B or MEng degrees. Cannot substitute for any GRAD course or be used to satisfy MS or PhD degree credit requirements for thesis or dissertation research.

1-3 credits.

### ***MSE 5098. Variable Topics in Materials Science and Engineering***

Advanced or specialized topics in materials science, engineering, and/or technology. Students may take multiple instances of MSE 5098, provided each instance covers a different topic. A maximum of 3 credits can count towards the applicable MSE graduate course credit requirements for MS Plan A, MS Plan B, MEng, or PhD degrees.

1-3 credits.

### ***MSE 5099. Independent Study in Materials Science and Engineering***

Specialized non-classroom-based coursework under the regular supervision of a faculty instructor, or as offered by an accredited third party source. Requires major advisor approval. Does not constitute original research. A maximum of 3 credits can count towards the applicable MSE graduate course credit requirements for MS Plan A, MS Plan B, MEng, or PhD degrees.

1-3 credits.

### ***MSE 5135 Textile Structural Composite Materials***

The course is aimed at providing an in-depth understanding of textile composites, their fabrication and consolidation processes, applications, characterization techniques, mechanical properties, mechanical property models and fatigue and damage tolerance properties. It will focus on both 2D and 3D composites made using the textile technologies of weaving, braiding and stitching. The in-plane mechanical properties and failure mechanisms of these composites under static and fatigue loads will be examined along with their enhanced interlaminar fracture toughness, impact resistance and damage tolerance properties.

3 credits, Lecture.

### ***MSE 5301. Thermodynamics of Materials***

Classical thermodynamics with emphasis on solutions and phase equilibria. Applications to unary and multicomponent, reacting and nonreacting, and homogeneous and heterogeneous systems, including development of phase diagrams.

3 credits, Lecture.

### ***MSE 5305. Phase Transformations in Solids***

Thermodynamics, kinetics, and crystallography of phase transformations. Nucleation and growth kinetics. Order-disorder, ferroelectric, and ferromagnetic transformations.

3 credits, Lecture.

### ***MSE 5309. Transport Phenomena in Materials Science and Engineering***

Mechanisms and quantitative treatment of mass, energy, and momentum transfer will be discussed in the context of materials science and engineering applications. Increasingly complex and open-ended applications will be used to illustrate principles of fluid flow; heat conduction, radiation, and diffusion.

3 credits, Lecture.

### ***MSE 5310. Modeling Materials***

This course is intended to provide an overview of the theory and practices underlying modern electronic structure materials computations, primarily density functional theory (DFT). Students involved primarily/partially in materials computations, as well as those focused on experimental materials research wishing to learn about DFT techniques will benefit from this course.

3 credits, Lecture.

### ***MSE 5311. Mechanical Properties of Materials***

Mechanics of deformation and fracture, dislocation theory, strength of ductile and brittle materials, tough-



ness, strengthening mechanisms, toughening mechanisms, creep mechanisms, fatigue crack initiation and propagation, reliability and lifetime prediction. 3 credits, Lecture.

### ***MSE 5317. Electronic and Magnetic Properties of Materials***

Crystal structures and interatomic forces, lattice vibrations, thermal, acoustic, and optical properties. Semiconductors, dielectric properties, magnetism, and magnetic properties, superconductivity. Device applications. 3 credits, Lecture.

### ***MSE 5322. Materials Characterization***

A review of the principal experimental methods used to reveal the microstructure and chemistry of materials. Diffraction techniques: x-ray, electron, neutron and proton scattering. Photon probes: photon microscopies, x-ray topography and XPS. Electron probes: SEM, TEM, EDX, EELS, AES. Atom and ion probes: RBS, SIMS, FIM, PIXE. Scanned probe microscopies. 3 credits, Lecture.

### ***MSE 5323. Transmission Electron Microscopy***

Electron beam-specimen interactions. Basics of electron microscopes. Diffraction: theory, types of patterns and interpretation. Imaging: diffraction contrast, phase contrast and other techniques. Spectrometry: x-ray microanalysis and electron energy-loss spectrometry. 3 credits, Lecture. Prerequisite: MSE 5322 or consent of instructor.

### ***MSE 5330. Classical Atomic-level Simulations in Materials Science and Engineering***

Introduction to several classical atomic-level simulation techniques (molecular dynamics, Monte Carlo methods) with an emphasis on learning the art of designing simulations and analyzing data generated. The capabilities of the methods to investigate properties and response of materials and the current limitations of materials at the atomic scales will be covered. 3 credits, Lecture.

### ***MSE 5333. Imperfections in Crystalline Solids***

Defects in materials: point defects, line defects, and planar defects. The origins, structure and distribution of defects in crystalline solids will be described. The influence of defects on materials properties will be discussed in the context of materials science and engineering applications. 3 credits, Lecture.

### ***MSE 5334. Structure of Materials***

Translation symmetry and space lattices, crystallographic computations, point and space groups, reciprocal space treatment of diffraction, and use of the International Tables for Crystallography. Chemical bonding and descriptive crystal chemistry of metals, ceramics and molecular solids. Structure of amorphous and vitreous materials and introduction to point, line and planar defects. Crystal anisotropy and relations between structure, symmetry and physical properties. 3 credits, Lecture.

### ***MSE 5335. High Temperature Materials***

Strength-determining factors in advanced alloys, ceramics, and composites. Role of material chemistry and microstructure. High temperature creep and crack growth. Oxidation. Thermomechanical behavior. 3 credits, Lecture.

### ***MSE 5336. Material Selection in Mechanical Design***

The course consists of a study of materials and how they are chosen for various mechanical designs. A wide range of materials will be discussed (metal, ceramic, polymer, etc.) and their key properties (modulus, strength, density, etc.) in design will be reviewed. Guidelines for material selection will be shown. As part of the course, design trades will also be discussed. 3 credits, Lecture. Prerequisite: MSE 2101 or consent of instructor.

### ***MSE 5343. Corrosion***

Mechanisms, characteristics, and types of corrosion. Test methods and evaluation of corrosion resistance. Suitability of metals, ceramics, and organic materials in corrosive environments. Oxidation and other high temperature gas-metal reactions. 3 credits, Lecture.

### ***MSE 5364. Advanced Composites***

Mechanical properties, analysis and modeling of composite materials. The properties treated include stiffness, strength, fracture toughness, fatigue strength and creep resistance as they relate to fiber, whisker, particulate, and laminated composites. 3 credits, Lecture.

### ***MSE 5366. Alloy Casting Processes***

Principles and practices of alloy solidification and casting processes are discussed and applied in the



## COURSE DESCRIPTIONS

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context of sand, investment, permanent mold and die casting; continuous and direct chill casting; electroslag and vacuum arc remelting; crystal growth; rapid solidification; and laser coating.

3 credits, Lecture.

### ***MSE 5370. Ceramics***

Prerequisites: a knowledge of Materials Science at the undergraduate level is essential, or MSE 5001

A graduate-level treatment of the science and engineering of Ceramic Materials. Concepts to be studied include the structure of both crystalline and non-crystalline material, and defects (including point defects, dislocations and interfaces) in these materials. A broad range of special (for ceramics) methods for the preparation, processing and characterization of these materials will run throughout the course. An important component of the course is consideration of how the crystal structure determines or influences mechanical, electronic, magnetic, and thermal properties. Special topics may include functional ceramics, 2D ceramics, and connections between ceramics, economics and global affairs.

3 credits, Lecture.

### ***MSE 5700. Biomaterials and Tissue Engineering***

A broad introduction to the field of biomaterials and tissue engineering. Presents basic principles of biological, medical, and material science as applied to implantable medical devices, drug delivery systems and artificial organs. Not open to students who have passed BME 4710, Also offered as BME 5700.

3 credits, Lecture.

### ***MSE 5380 Fatigue and Fracture of Composites***

The course is aimed at providing an in-depth understanding of the fatigue and fracture behavior of composite materials under both uniaxial and multiaxial loading for both unidirectional and multidirectional laminates. It will focus on the characterization of these properties and the damage and failure mechanisms including the effects of

constituents, loading, layup and stress concentration on the fatigue and fracture behavior. This course will also cover the basic concepts and fundamental models used to describe and predict the fatigue and fracture behavior of composites. It will also cover topics related to the impact damage tolerance of composites and the application of fracture mechanics concepts to characterize and analyze composite delamination propagation under both static and fatigue loading.

3 credits, Lecture.

### ***MSE 6401. Graduate Seminars in Materials Science and Engineering***

Presentations by invited guest speakers on topics of current interest in various areas of Metallurgy and Materials Engineering.

1 credit, Seminar.

### ***GRAD 5930. Full-Time Directed Studies (Master's Level)***

Open only to Master's Plan A students. Graduate School consent required. This course denotes that the student is participating in a full-time internship, field work experience, or other course of off-campus study required as part of the student's Master's Plan A program. No other courses may be taken concurrently.

3 credits, Practicum.

### ***GRAD 5950. Master's Thesis Research***

This course is associated with the research efforts of students pursuing a Plan A Master's degree, and may be used to meet the nine credit Master's research requirement.

1-9 credits, Thesis Research.

### ***GRAD 5960. Full-Time Master's Research***

This course is to be used by those students who have completed all courses on the plan of study and who are performing Master's level research on a full-time basis. It may contribute to meeting the Master's research credit requirement. No other courses may be taken concurrently. In the summer, this is a 12-week (Summer 4) course. Since this course denotes a full-time commitment, students may not hold graduate assistantships while taking this course.

3 credits, Thesis Research.

Graduate School consent required.

### ***GRAD 5998. Special Readings (Master's)***

To be used by Master's students who are not enrolled in a thesis (Plan A) track. This is a non-credit course for which Master's degree students must register in cases where their regular for-credit coursework has been interrupted and they are not otherwise registered. International students should consult with the Graduate School prior to registering for this course.

0 credits, Special Readings.

### ***GRAD 5999. Thesis Preparation***

Open only to graduate students enrolled in Plan A Master's degree programs. This is a non-credit course



used to maintain registered status after students have completed their coursework and are not registered for any other credit-bearing course. International students should consult with the Graduate School prior to registering for this course.

0 credits, Thesis Research.

### **GRAD 6930. Full-Time Directed Studies (Doctoral Studies)**

Open only to doctoral students. Graduate School consent required. This course denotes that the student is participating in a full-time internship, field work experience, or other course of off-campus study required as part of the student's doctoral program. No other courses may be taken concurrently.

3 credits, Practicum.

### **GRAD 6950. Doctoral Dissertation Research**

Open only to doctoral students. This course is associated with the research efforts of students pursuing a doctoral degree, and may be used to meet the fifteen-credit doctoral research requirement.

1-9 credits, Dissertation Research.

### **GRAD 6960. Full-Time Doctoral Research**

Open only to doctoral students. Graduate School consent required. This course is to be used by those students who have completed all courses on the plan of study and who are performing doctoral level research on a full-time basis. It may contribute to meeting the fifteen credit doctoral research requirement. No other courses may be taken concurrently. In the summer, this is a 12-week (Summer 4) course. Since this course denotes a full-time commitment, students may not hold graduate assistantships while taking this course.

3 credits, Dissertation Research.

### **GRAD 6998. Special Readings (Doctoral)**

Open only to doctoral students. This is a non-credit course for which doctoral students must register in cases where their regular for-credit coursework has been interrupted and they are not otherwise registered. International students should consult with the Graduate School prior to registering for this course.

0 credits, Special Readings.

### **GRAD 6999. Dissertation Preparation**

Open only to doctoral students. This is a non-credit course used to maintain registered status after students have completed their coursework and are not registered for any other credit-bearing course. International students should consult with the Graduate

School prior to registering for this course.

0 credits, Dissertation Research.

Senior Level Courses which can be approved by student's advisor:

<b>MSE 4001</b>	<b>Electrical &amp; Magnetic Properties</b>
<b>MSE 4005</b>	<b>Process Materials Liquid &amp; Vapor State</b>
<b>MSE 4240</b>	<b>Materials for Nanotechnology</b>
<b>MSE/BME 4701</b>	<b>Advanced Biomaterials</b>
<b>MSE 4800</b>	<b>Materials for Advanced Fossil Energy Systems</b>
<b>MSE 4801</b>	<b>Materials for Alternative, Renewable Energy</b>

Students may take a 3000-level course for credit but it will not count towards the plan of study because it is not a required course for graduation.

## REGISTRATION

### **Electronic Notification and Enrollment**

Enrollment and all related communication are done electronically. We encourage you to use this account. If you do not plan to use the campus email service, it is very important that you forward your University email to your active personal email address by going to [www.forward.uconn.edu/](http://www.forward.uconn.edu/), clicking on the Student box, and following the directions given.

Registration is through the PeopleSoft Student Administration System, accessed at <http://student.studentadmin.uconn.edu>.

### **Electronic Notification and Enrollment**

Enrollment and all related communication are done electronically. If a student chooses not to use the UConn email system for primary contact purposes, it is crucial that the student set up automatic forwarding of UConn email to an address that is checked regularly. This can be done by going to <http://forward.uconn.edu> and providing the requested information.

Registration is through the PeopleSoft Student Administration System, accessed at <http://student.studentadmin.uconn.edu>.

### **Change of Passwords or Forgotten Password**

Passwords can be reset by visiting ITS NetID Management at <https://netid.uconn.edu> and selecting the "Reset Password" link. You will be required to enter your seven-digit login ID and date of birth; the system



will reset the password and send it to your official university e-mail address. You can also reach the NetID Management page from the Student Administration login page by clicking the “Forgot Password” link. If there is any difficulty with this process, contact the UITS Help Desk at 860-486-HELP (4357), not the Graduate School.

### ***Consequences of Failure to Register & Registration Deadlines***

Unfortunately, if a student does not register for courses and pay all applicable fees OR apply for an issuance of limited deferment prior to the tenth day of classes, the student will be discontinued by the system. To be reinstated, the student will have to pay a \$65 reinstatement fee as well as complete the “Request for Reinstatement Form” and submit to the Graduate School. If the student has a graduate assistantship, it will be suspended until the student has registered. Any loans or other need-based aid that has been awarded will also be put in jeopardy.

### ***Financial Aid Connection***

If a student receives any form of financial aid (including a graduate assistantship or need-based aid from the Student Financial Aid Office), that should register for as many of the necessary classes as possible, as early as possible. In particular, graduate assistants MUST be registered for at least 6 credits or they will have their paychecks held. Those receiving financial aid (other than a GA) must be registered for at least 9 credits to be considered a full-time student, or at least 5 credits to be considered half-time. If the Financial Aid Office finds that a student has not registered for the appropriate course load, they will not be able to process his/her aid disbursement.

### ***Adding/Dropping Courses***

All course selections and changes (add/drop) must be made with the prior consent of the major advisor unless otherwise specified. Adding or dropping a course without the consent of the advisor may result in loss of financial support.

Students have until the tenth day of the semester to sign up for courses. Courses added after the tenth day must be submitted to the Graduate School.

Before terminating class attendance, students should make sure the course has been dropped officially. No grade is recorded for courses officially dropped, but a mark of W is recorded for withdrawal from a course after the tenth day of the semester (or after the first week of a summer-session course).

During the first eleven weeks of the semester, a course may be dropped directly by the Graduate School by filing a schedule revision request card with the Graduate School. After eleven weeks, students are generally not allowed to drop a course. If a student must drop a course because of illness or other compelling reasons, the student must request special permission as early as possible and well before the last day of classes. Permission must be obtained by the Graduate School.

### ***Permission Numbers***

Some courses may require a permission number to allow you to add the course to your schedule. The online system will require a permission number when courses are full or when a pre-requisite is required. Giving a permission number will override prerequisites and class enrollment limits. A permission number will NOT override time conflicts, repeating the class a third time, service indicators, or a credit limit. In order to get permission numbers please e-mail Sarah Moore at [sarah.e.moore@uconn.edu](mailto:sarah.e.moore@uconn.edu).

### ***Dropping all Courses: Withdrawal from the Program***

The general policies and procedures regarding dropping one course also apply to dropping all courses, whether the student wishes to remain active in the graduate degree program or to withdraw permanently from it. Permission from the Graduate School is needed for the student either to remain active in the program or leave in good standing. If a refund is due to a student, the request card must be signed by the appropriate Graduate School officer regardless of the week of the semester.

The Materials Science and Engineering Department requires written notification from any graduate student who intends to permanently withdraw from the graduate program. Students who are supported with a Fellowship, Teaching, or Research Assistantship must give written notification to the Director of the Graduate Program and their faculty advisor at least 6 months prior to departure. Students who are not supported financially must provide written notification at least 3 months prior to departure.

### ***Continuing Registration***

See Graduate Catalog. Should a student need to take some time off, they can register for a non-credit course until their degree is complete by paying graduate matriculation fees. Notification of leave should be given to his/her faculty advisor at least three months prior



to the semester of the leave. Master's students will need to register for zero credit course GRAD 5998. Ph.D. students will register for zero credit course GRAD 6998. International students may take time off but may only register for zero credit courses for up to one academic year. Failure to enroll in this course means students may need to reapply for the program.

For further information log on to:  
<http://catalog.grad.uconn.edu>

## ACADEMIC POLICIES

### ***Scholastic Standards***

Students are required to maintain at least a B (3.0) average in their program. Whenever a student's cumulative average falls below 3.0, the program is reviewed by the student's advisory committee to determine whether or not the student shall be permitted to continue graduate study. For all Incompletes, it is the student's responsibility to reach and maintain an understanding with the instructor concerning the timely completion of the work. If there are more than three Incompletes, the student may be required to complete those still viable before being allowed to register for additional course work.

### ***Academic Dismissal***

A graduate student's progress in a degree program is monitored by the student's Advisory Committee. If at any time a student's academic performance, graduate degree program progress, or professional development or suitability is judged by the Advisory Committee to be unsatisfactory, and if the Advisory Committee determines that dismissal on any of these grounds is warranted, the Advisory Committee must submit to the Dean of the Graduate School a written recommendation that the student be dismissed.

A student may be subject to dismissal for (1) failing to maintain the minimum cumulative grade point average required by the Graduate School (3.0); (2) receiving a grade of D+, D, D-, F or U in any course; (3) failing the doctoral general examination; (4) fails to produce an acceptable doctoral dissertation proposal; (5) performing unsatisfactorily in any aspect of the research or writing for a master's thesis or doctoral dissertation; (6) failing the final examination for the master's or doctoral degree; and (7) failing to satisfy any other academic requirement of the student's graduate degree program.

### ***Transfer of Credit***

Transfer of credit for course work completed at other institutions is approved only after the student has demonstrated the ability to do acceptable graduate work at the University of Connecticut. The maximum number of non-degree credits accepted from accredited institutions is six, provided it is of at least B (not B-) quality and contributes to the objectives of the proposed doctoral program. If you were a UConn undergraduate student, you can only transfer undergraduate course credit if it was NOT used towards your undergraduate degree requirements. Similarly, graduate course credit can only be considered for transfer if it was not already applied to a graduate degree.

### ***Department Seminars***

The Department of Materials Science & Engineering organizes a number of seminars each year, and all full-time M.S. and Ph.D. graduate students are required to attend. All full-time graduate students (M.S. & Ph.D.) must sign up for the course every semester (MSE 6401). 100% attendance of MSE program seminars is required to earn the full MSE 6401 credit. If, for any reason, a student cannot attend one or more talks, a Missed Seminar Make-up form must be submitted. Students are only allowed to miss 3 seminars and submit 3 seminar make-up forms. Acceptable reasons to miss a seminar include: (1) attendance at a scientific conference; (2) attendance at another UConn science or engineering department's seminar.

### ***Graduation Procedures***

Formal application for a degree to be conferred must be filed online by the degree candidate using the PeopleSoft system. If filing is not timely, conferral will be delayed to the next conferral period even if all other degree requirements may have been completed.

### ***New Master's Plan A Thesis Submission Procedure***

Students must go to [Digitalcommons.uconn.edu](http://Digitalcommons.uconn.edu), set up a free account, and submit papers in PDF format. Additional instructions can be found on the Digital Commons website.

### ***Non-Degree Program***

U.S. students who do not have the requirements or simply do not wish to be part of the regular graduate program can take courses under non-degree status. Applicants who do seek enrollment in the graduate program can register under this status while their ap-



## ACADEMIC POLICIES

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plication is being processed. They should, however, note that registration under this status will have no effect on the approval or denial of their application. With the approval of the student's advisory committee and the Graduate School, a maximum of two non-degree courses with grades of B or higher can be transferred to the graduate degree program. Non-degree students may register for courses in the Department of Materials Science and Engineering only with the approval of the Department Head.

### ***Provisional Admission***

Occasionally, students who hold the baccalaureate but do not fully qualify for admission under regular status are able to give evidence of their academic ability that is sufficient to warrant their provisional admission to a master's degree program. If a Provisional student's initial twelve credits of completed course work meet the minimum academic requirement of the Graduate School, the student is accorded Regular status. Otherwise, the student is subject to dismissal. In situations where special consideration is warranted, and only upon the specific request of the major advisor, the Dean may approve changing a student to Regular status if at least nine credits of advanced course work have been completed with superior grades. Regular, not Provisional, status is required for degree conferral. Students must have at least a 2.6 GPA to be considered for Provisional Admission.

### ***DEGREE CHANGES***

#### ***From M.S. to Ph.D.***

If you are currently enrolled in our M.S. program and are looking to be a Ph.D. student, you must re-apply with the Graduate School. However, if you are looking to only change the degree earned and not the program, you can call the Graduate School before applying and they will waive the \$75 application fee.

If you are an international student, a new I-20 reflecting the degree change will be generated when your application is complete.

Most of our M.S. students are not funded, so if you are planning on transferring to the Ph.D. program and would like to begin receiving funding, you will need to speak with your intended advisor. Students will not be awarded funding automatically and faculty members must contact the MSE office staff in admissions if they intend to begin funding you as a graduate student.

#### ***From Ph.D. to M.S.***

If a student is discontinuing the Ph.D. program and opts to receive their Master's degree instead, the Graduate School will require an email from the student's major advisor requesting the status change to Terminal Master's. For international students, the Graduate School will notify the international expert regarding the status change.

Remember our M. S. students are typically not funded. Therefore, if you choose to change your degree status, your advisor may opt to discontinue your funding. This should be discussed further with your advisor before making a decision.



The following is a list of the Graduate Faculty for Materials Science Engineering. These individuals may serve as principle advisors for graduate students in MSE. Additional faculty members, and other qualified professionals, may serve as co-advisors per the graduate school and MSE regulations.

## DEPARTMENT HEAD

Bryan D. Huey

## DISTINGUISHED PROFESSORS

Pamir Alpay  
Harold D. Brody  
Cato Laurencin

## PROFESSORS

Mark Aindow  
Puxian Gao  
Rainer Hebert  
Radenka Maric  
Prabhakar Singh  
Steven L. Suib

## ASSOCIATE PROFESSORS

Avinash M. Dongare  
Menka Jain  
Yusuf Khan  
Sangamesh Kumbar  
Seok-Woo Lee  
Lakshmi Nair  
Serge M. Nakhmanson  
Syam Nukavarapu  
Volkan Ortalan  
George Rossetti Jr.

## ASSISTANT PROFESSORS

Lesley D. Frame  
Jasna Jankovic  
Yuanyuan Zhu

## STAFF CONTACT INFORMATION FOR QUESTIONS REGARDING

### ***Payroll and Purchasing (MSE Accounts)***

Lorri Lafontaine  
IMS, Room 110  
Phone: 860.486.4621  
E-mail: [lorri.lafontaine@uconn.edu](mailto:lorri.lafontaine@uconn.edu)

### ***Graduate Program Information and Travel (MSE Accounts)***

Sarah Moore  
IMS, Room 111  
Phone: 860.486.4620  
E-mail: [sarah.e.moore@uconn.edu](mailto:sarah.e.moore@uconn.edu)

### ***Purchasing and Shipping (IMS Accounts)***

Lena Mastrangelo  
IMS, Room 101  
Phone: 860.486.6968  
E-mail: [lena.mastrangelo@uconn.edu](mailto:lena.mastrangelo@uconn.edu)

### ***Assignment of Office & Desks, Building Issues, Lab Access, Lab Key, IMS Safety Officer, Security Issues, General Purchasing Questions***

Joshua Strecker  
IMS, Room 121  
Phone: 860.486.2496  
E-mail: [joshua.strecker@uconn.edu](mailto:joshua.strecker@uconn.edu)

## RESEARCH AND LAB RESOURCES

Extensive additional resources are available to MSE researchers in the Institute of Materials Science, Technology Park, and several targeted centers in Storrs and the UConn Health Center. This includes administrative support as well as technical expertise, facilities and training.

More information can be found at the following weblinks:

<http://www.ims.uconn.edu/>

<http://www.energy.uconn.edu/>

<http://techpark.uconn.edu/>

<https://health.uconn.edu/>



# GENERAL INFORMATION

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## OTHER INFORMATION

### **Important Semester Dates**

Academic calendars can be found on the Registrar's website at [www.registrar.uconn.edu/calendar.htm](http://www.registrar.uconn.edu/calendar.htm). Please check registration deadlines as well as important holiday and exam dates.

### **Faculty Advisor**

While some students admitted to our program may have permanent pre-assigned advisors, most students will be admitted to our program with the program directors as their default assigned advisor. During the first few weeks of your arrival to MSE you will have the opportunity to meet and to learn about our faculty members and their current research projects. You will have the chance to 'choose' an advisor based on mutual interest and the availability of funds. To change your advisor you must go to the Graduate School's website and print and submit the 'Change of Advisor' form.

### **Pay**

Students admitted with a Graduate Assistantship may still have tuition costs listed on their fee bill. In order to waive tuition costs you must be enrolled in six credits and complete the necessary payroll documents such as the I-9 form and CT and Federal W-4 forms. Forms are located in the CoreCT payroll system at [ess.uconn.edu](http://ess.uconn.edu) under the Payroll section. If you are an international student, you must contact Jennifer Martin ([jennifer.m.martin@uconn.edu](mailto:jennifer.m.martin@uconn.edu)) to complete the tax forms. Fees and Housing costs are NOT covered by assistantships – please refer to the Fees & Tuition section of the handbook for further information.

### **Direct Deposit**

As a GA, you will receive payment in the form of bi-weekly checks. Once you have set up a bank account, it is best to sign up for direct deposit to minimize chances of lost checks. Students (both International and Domestic) can sign up for bank accounts at any time. Please complete the Direct Deposit request at [ess.uconn.edu](http://ess.uconn.edu).

### **International Orientation**

It is mandatory that all international students and transfer international students attend the International Orientation. International Orientation always takes

place the week before the start of classes. Please visit their website at [iss.uconn.edu](http://iss.uconn.edu) for further information. Note that it is the responsibility of the student to cover his/her personal orientation expenses.

### **International Teaching Assistant (ITA) and TA Orientation**

All students admitted to the Ph.D. program must complete at least two semesters as a Teaching Assistant. Students are not asked to TA during their first semester with the MSE Department. The MSE Department will pay the ITA/TA teaching fees exam the first time, but any exam that needs to be re-taken is at the expense of the student.

Orientations are offered for both the fall and spring terms. We recommend that all admitted students wait until the beginning of their second semester to register for the ITA/TA orientation. Students should take the TA exam as soon as possible to maximize re-take opportunities (if necessary).

### **Materials Science & Engineering Orientation**

The MSE Department hosts its own orientation in addition to the International Orientation. The MSE orientation will give students the opportunity to meet current students and staff, tour our facilities, and take the safety exam for building and lab access. The date is assigned based around the date of the International Orientation so that they do not overlap. The admissions coordinator will provide students with more information as the date approaches.

### **Social Security Number (International Students)**

International students have the opportunity during the International Orientation scheduled weekly events to sign up for a social security number. It will still take a few weeks to receive the official Social Security number and Card. Until then, students use their temporary Social Security number (998-\*\*-\*\*\*\*) when filling out payroll paperwork. As of recent, the international office also gives you a second temporary Social Security Number which is different than your 998 number please be aware of this when filling out payroll paperwork with the MSE office staff.



## **Medical Benefits**

All students who are admitted as Graduate Students to the University of Connecticut have the option of purchasing the University of Connecticut's Health Insurance (as shown on the fee bill). If the student already has health insurance or is a GA (see below), the insurance fee can be waived by logging in to the Student Administration (PeopleSoft) system and navigating to > SA Self Service > Learner Services > Finance > UC Health Insurance Waiver.

If a student is funded as a GA, the University provides an opportunity to purchase highly subsidized health insurance under the Graduate Assistant plans. Information about the medical and dental insurance plans is available at the following website: <http://www.hr.uconn.edu/ct-partnership-health-benefits>.

## **NetID**

A student's personal NetID is assigned by the University Information Technology Services. The NetID is necessary for signing up for housing, HuskyCT, and University email. NetIDs are emailed to students 14 days after they confirm their decision to join UConn. If this has not yet been received via UConn email address, contact the UITs directly at 860.486.4357, [helpcenter@uconn.edu](mailto:helpcenter@uconn.edu), or <https://netid.uconn.edu>.

## **Housing**

On-campus graduate housing is no longer available. Helpful housing information can be found at the following links.

- UConn sponsored off campus student housing: <http://www.offcampushousing.uconn.edu/>
- Off campus student services: <http://www.offcampus.uconn.edu/>
- Off campus renter's directory for Storrs, CT: <http://www.therentersdirectory.com/storrs.html>
- Colonial Townhouse Apartments: <http://www.forrent.com/apartment-community-profile/1000069088.php>

We also encourage you to contact one another for house-sharing, etc.

## **Student ID Card**

All University of Connecticut students are issued a student ID card from the One Card Office, which is located in the Student Union, Room 228. Students do

not have to pay for this card. However, if it is lost or broken, there is a replacement fee. Student IDs are used to enter the gym, dining halls, and to grant eligibility to pay student prices for University events.

## **Parking**

Parking Services offers parking passes to all students. For rates, visit their website at <http://park.uconn.edu/>. Be sure to pay careful attention to which parking areas are designated for your specific type of pass, because UConn police ticket regularly.

## **Traveling**

Many students ask how to get around the area. Students who come here without a license can either go through the process of procuring a license and a car, or rely on friends and classmates for transportation.

Free shuttles provide transportation around the Storrs campus and to surrounding apartment complexes. There is also a WRTD shuttle which brings students from the Storrs campus to and from Willimantic, CT. This shuttle will help if you want to go to the local Eastbrook Mall, buy groceries, or go out to eat with friends.

Bus services are available for travel to larger cities such as NYC and Boston. Megabus and Peter Pan will pick you up on campus and take you to and from a major city in the area at minimal cost. In addition, the Storrs campus airport shuttle provides transportation to and from Bradley International Airport. More about these bus services can be found at [transpo.uconn.edu](http://transpo.uconn.edu).

## **Meal Plans**

All students can sign up for the meal plan that best suits them. For students who live on campus, it may be wise to get a meal plan for times when going off campus to buy groceries is difficult or if they would like a meal without having to cook. Visit the Dining Services website at [www.dining.uconn.edu](http://www.dining.uconn.edu) to choose a plan that suits your personal needs.

## **Safety Exam, Keys, Student Offices & Laboratory Usage**

All students enrolled in the MSE Department, regardless of funding, need to take the Safety Exam. This is



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a legal requirement and students need to pass the exam in order to be allowed into the IMS laboratories and use the equipment. Students are then given keys to IMS and assigned a student office in the IMS Gant Plaza. Safety exam materials will be emailed to students as the fall semester approaches. There will be an assigned date and time during your first week at UConn to take this closed-book exam with Joshua Strecker. If you cannot attend during the assigned date, you can make an appointment with Joshua Strecker to arrange another time to take the exam.

### ***Email Account***

Each student entering UConn is given a University email account. Additionally, graduate students in the MSE Department will be given an engineering email account. Typically, these accounts receive less spam mail.

### ***Mailbox***

All students are assigned a mailbox, located near IMS room 100. Mail is sorted by last name.

**Personal mail shipments should NOT be made to MSE but rather your place of residence; MSE mailboxes are for business use only.**

Your MSE address is:

University of Connecticut  
Materials Science and Engineering  
Unit 3136  
97 North Eagleville Road  
Storrs, CT 06269 - 3136

### ***Stockroom & Supplies***

The IMS stockroom is located next to IMS room 20. Its hours are posted. There students will find safety glasses, gloves, and common lab supplies. If students need safety equipment that cannot be found there, notify Joshua Strecker and it will be ordered. Stockroom supplies are charged to the faculty advisor, so be certain that the advisor is aware of the purchases. Other supplies can be obtained from the on-campus Central Stores or from a designated outside vendor. Purchasing procedures and forms must be reviewed with Joshua Strecker before ordering.

### ***Meningitis Clinic***

Connecticut state law requires that any college or university student under 29 years of age and residing in university housing be vaccinated against meningitis. Meningitis immunization verification must be listed on the student's Health History Form. Students who have not submitted verification or an exemption form will not be permitted to check into on-campus housing. If a student needs to have the meningitis shot done on campus, call Student Health Services at 860.486.4700 to make an appointment.

### ***Ordering Supplies***

Ordering forms are available online at <https://ims.uconn.edu/wp-content/uploads/sites/3020/2021/08/IMS-Order-Request-Form-1.pdf>.

Completed forms, with your advisors signature should be submitted electronically. The request then goes to IMS purchasing (Lena Mastrangelo). Products can be picked up in her office, IMS room 101 upon delivery.

**MSE Department Head**

Professor Bryan Huey  
IMS, Room 112  
Phone: 860.486.3284  
E-mail: [bhuey-MSEhead@uconn.edu](mailto:bhuey-MSEhead@uconn.edu)

**Interim Associate Department Head**

Serge Nakhmanson  
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Phone: 860.486.5252  
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**Administrative Coordinator**

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**Director of Graduate Studies**

Avinash Dongare  
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**Administrative Services Assistant**

Sarah Moore  
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Phone: 860.486.4620  
E-mail: [sarah.e.moore@uconn.edu](mailto:sarah.e.moore@uconn.edu)

**Webmaster & Publicist**

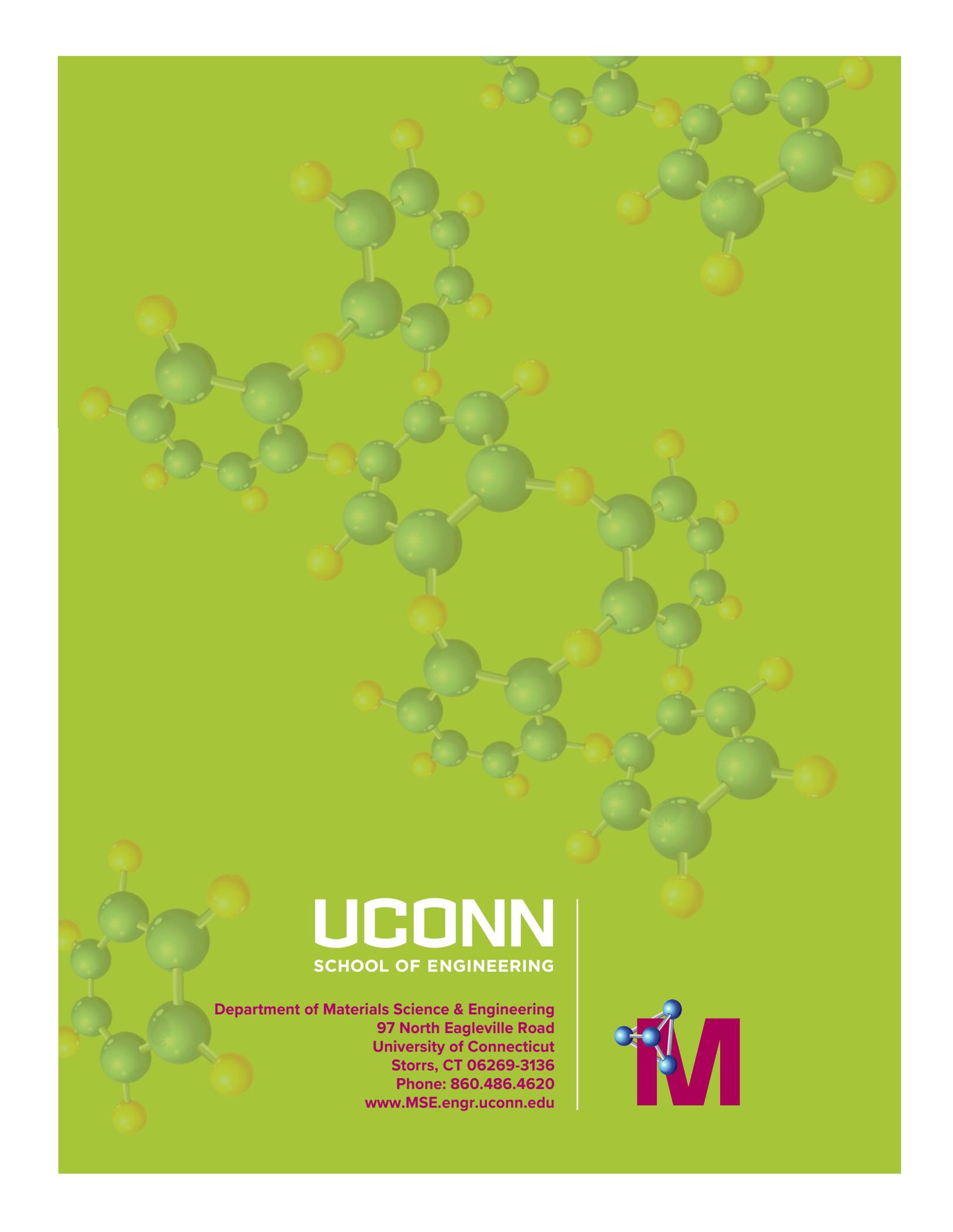
Heike Brueckner  
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E-mail: [heike.brueckner@uconn.edu](mailto:heike.brueckner@uconn.edu)

**Director of the Institute of Materials Science**

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The background of the entire page is a light green color with a faint, repeating pattern of a molecular structure. The structure consists of green spheres connected by grey rods, with yellow spheres attached to the green ones. The pattern is slightly offset and faded, creating a subtle texture.

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