

# Materials Science & Engineering



Graduate Handbook  
2007-2008

# 1. Introduction

The Department of Materials Science & Engineering (MSE) offers graduate students the opportunity to conduct state-of-the-art research under the supervision of world-class faculty while pursuing Master of Science or Doctor of Philosophy degrees in the discipline. This handbook is provided to MSE graduate students to serve as a companion resource to the University of Florida Graduate Catalog. You may refer to the graduate school catalog at the following link for additional information: <http://gradschool.rgp.ufl.edu/catalog/current-catalog/2007-2008-entire-catalog.pdf>

## Research areas include:

Biomaterials	Biomedical Applications	Biomimetics
Ceramics	Characterization	Computational Materials
Corrosion	Deformation & Fracture	Devices
Electronic Materials	Fibers & Mixed Systems	Fuel Cells
Hydrogen Production	Materials Chemistry	Metals
Minerals	Nanomaterials	Nuclear Materials
Optical & Optoelectronics	Particle Science	Polymers
Processing & Synthesis	Semiconductors & Ferroelectrics	Sensors
Student Learning and Cognition	Surface Science	Thermodynamics
Thin Films	Tissue Engineering	Tribology

## 2. Department Administration

Kevin Jones Chairman 100B Rhines <a href="mailto:kjone@mse.ufl.edu">kjone@mse.ufl.edu</a> 846-3301			
Jack Mecholsky Assoc. Chair & Co-Grad. Coordinator 100D Rhines <a href="mailto:jmech@mse.ufl.edu">jmech@mse.ufl.edu</a> 846-3306		Christopher Batich Co-Graduate Coordinator 317C MAE <a href="mailto:cbati@mse.ufl.edu">cbati@mse.ufl.edu</a> 392-6630	
<h3>Student Affairs Committee (SAC)</h3>			
Jack Mecholsky SAC Member 100D Rhines <a href="mailto:jmech@mse.ufl.edu">jmech@mse.ufl.edu</a> 846-3306	Christopher Batich Co-Grad. Coordinator SAC Member 317C MAE <a href="mailto:cbati@mse.ufl.edu">cbati@mse.ufl.edu</a> 392-6630	Curriculum Chair or Representative In Students Specialization SAC Member	Martha McDonald Ex-officio SAC Member 108 Rhines <a href="mailto:mmcdo@mse.ufl.edu">mmcdo@mse.ufl.edu</a> 846-3312

### 3. Arriving in the Department

- Stop by Academic Services Office (ASO) – See Jennifer Horton, Doris Harlow or Martha McDonald (108 Rhines Hall) for entrance interview and to pick up a **New Student Welcome Checklist**
- Residency – If you are a U.S. citizen you should begin the process of applying for Florida residency prior to your first day of classes. Obtaining Florida Residency allows for a significant reduction in tuition and fees. Complete details and required forms for residency can be found at: <http://www.mse.ufl.edu/current/residency.php>. UF recommends the student complete the following:
  - Obtain Florida Drivers license (located at 5830 NW 34<sup>th</sup> Street)
  - Register to vote in Florida ([http://elections.alachua.fl.us/voting\\_registration.html](http://elections.alachua.fl.us/voting_registration.html))
  - Maintain proof of employment
  - Register your vehicle in Florida (3946 SW Archer Road or 12 SE 1<sup>st</sup> Street)
  - Open a local bank account
  - Attach a copy of your Federal Income Tax Return
  - Keep and maintain records of rental agreements, leases, and deposits on utilities
- Change of Residency
  - Complete “Request for Change in Residency Status”; you may download the form from the registrar: <http://www.admissions.ufl.edu/pdf/residencyreclass.pdf>
  - Bring originals or copies of the above documents to the ASO

### 4. Tuition Waivers, Fees, & Registration Requirements

Financially supported students (fellowships, assistantships, or sponsored research of a faculty member) may receive a tuition waiver.

- Register for the correct number of hours by requisite UF deadlines to avoid unnecessary late fees or delay of your tuition waiver. Check with ASO if you have any questions.
- Some students on funding are required to pay non-matriculation fees each term
  - Fees for 2006 – 07 were: \$41.63/credit hour for students who entered Fall 2006
  - For students on assistantships taxes will be withheld
  - **Pay your portion of fees before the fee payment deadline even if your tuition waiver has not been processed; this will insure you will not be assessed late payment fees. The ASO will not process petitions for late fee payments.**
- Graduate Insurance
  - Students on appointments will receive health insurance from UF for Fall 2007. For enrollment information in Gator Grad Care, please refer to the Human Resources Website: <http://www.hr.ufl.edu/benefits/gatorgradcare.htm>
- Notify the Academic Services Office (ASO) after obtaining any type of funding
  - Graduate Research Assistantship (GRA)
  - External Fellowship

## 5. Graduate Assistants United

UF Graduate Assistants United (GAU) represents all graduate assistants employed by the University of Florida. GAU bargains for tuition waivers, health benefits, improved working conditions and pay increases. It also represents graduate assistants in workplace disputes and protect their rights as state employees. To view the Collective Bargaining Agreement, visit the following link: <http://www.ufgau.org/contract/>

Frequently referred sections of the GAU contract are

- Time Worked – Article 6
- Termination – Article 2
- Grievance Procedures – Article 11

## 6. Curriculum Planning

The responsibility of every student's curriculum planning will rest on the student and his/her advisor/supervisor. If you have not joined a faculty member's group, then you will see Dr. Jack Mecholsky (100 Rhines Hall) or Dr. Christopher Batich (317 Materials Engineering) for advisement.

- Register properly each semester for your degree program
  - Download form by following directions below:
    - Go to **MSE Website**: [www.mse.ufl.edu](http://www.mse.ufl.edu)
    - Click on **Forms** in the left-hand column
    - Click on **Academic Advisement Form** under Graduate Student Registration
  - Fill out advisement form and take to advisor/supervisor for signature
  - All on-campus graduate students must attend the Graduate Seminar (EMA 6936) each Fall and Spring. Registration for this course will depend upon your course load. (See the ASO for any exceptions)
  - Bring completed advisement form to ASO for processing

## 7. Academic Requirements: PhD, MS Non-Thesis, MS Thesis

- PhD Students for whom English is not a native language will be required to take the Test of Spoken English (TSE) within their 1<sup>st</sup> month of enrollment in MSE
- Form Supervisory Committee no later than the end of your second semester of study or after 12 credit hours in order to be able to register for a third semester

### PhD

- Required Credit Hours: 90 beyond the bachelor's degree
- Required: 18 hours EMA5000 -6000 level courses with a minimum grade of C or better and must maintain a minimum gpa of 3.0 or above
- Maximum: 6 credit hours of coursework outside the Department; of these 3 credit hours may be an undergraduate course with a course number of 3000-4999.

- Maximum: 8 credit hours of EMA 6905 - Individual Work
- Maximum: 5 credit hours of EMA 6910 - Supervised Research
- **Transfer credits** - up to 30 hours of graduate level courses from a Masters degree at another university may be transferred and will count towards the PhD degree with approval of the PhD advisor and the graduate school. All work transferred must be B or better.
- **Time Limitation** - All work for the PhD must be completed within 5 calendar years after Admission to Candidacy or the examination must be repeated
- **Supervisory Committee** – must be formed by the end of the 2<sup>nd</sup> semester or completion of 12 credit hours. Consists of 5 members who hold graduate faculty status with the Graduate School.
  - **4 Internal MSE members**
    - Chair
    - 3 additional MSE graduate faculty
  - **1 external member; this individual can not hold MSE status**
- General Rules for PhD Qualifying Exam for students who began **Summer B 2006 – Spring 2007**
  - **Time Limits:** You must complete your first attempt at both the Oral Qualifying Examination and Oral Proposal Defense no later than August 8, 2008 in order to continue in the PhD program
  - **All members of the student's Supervisory Committee must be present at proposal defense. Two internal members may be substituted if necessary.**
  - **On the day of the proposal defense the student's file and faculty signature page must be picked up by a faculty member from the ASO and then returned to the ASO on completion**
- General Rules PhD Qualifying Exam – For Students who began **Summer 2007 or later**

#### Purpose of qualifying exam

The PhD qualifying exam has three purposes:

- Ensure students have a broad, fundamental knowledge in materials science and engineering.
- Ensure students have a depth of knowledge within their specialty.
- Ensure that students have the ability to think critically within the field of materials science and engineering, i.e. to formulate a significant problem, to ask the right questions to solve that problem, and apply the correct tools to solve that problem.

#### Written qualifying exam

Item 1 is tested through a written exam, which you must take at the beginning of your first summer at UF. In addition, you must be registered as a student for the summer A or C semesters. The exam is based upon a set of reading materials; the list of reading materials is available from the Academic Services office. To help you prepare for the exam, two courses are taught which are also based on the reading materials. Advanced Materials Principles 1 is taught in the fall semester and Advanced Materials 2 is taught in the spring semester. These courses are not required, and you may choose to study for the qualifying exam on your own without taking the courses.

The written exam is designed to take 2 ½ hours, but you will be provided with 5 hours to complete it. The exam consists of 10 questions, of which you must answer 8. Questions will be graded solely on a pass/fail basis. You must pass 6 of the questions to pass the exam. If you do not pass on your first attempt, you may take the exam again at the

beginning of the following fall semester. Note that the exam in the fall is only for students who have failed their first attempt in the summer. If you do not pass the second attempt you will not be admitted to PhD candidacy, which means you will not be able to obtain a PhD degree from our department.

### Proposal

Items 2 and 3 are tested by having you write and defend an original research proposal. The proposal topic can be related to your anticipated PhD dissertation research topic, but must contain original ideas/hypotheses/research plans independent of input from your advisor. The proposal serves to test the your ability to formulate a significant problem, to ask the right questions to solve that problem, apply the fundamentals to your problem, and to apply the correct tools to solve that problem.

Your supervisory committee must sign the proposal topic approval form before you write the proposal. You should give the written proposal to your committee at least one week before the defense date. At the proposal defense you will present your proposal and answer questions about your proposal from your committee. The committee may also question you on topics within your specialty that may not be directly part of the proposal, but which represent knowledge required within that specialty. The scope of this examination will be determined by the PhD committee (i.e., there is no list of required areas). You should discuss the scope of the proposal defense with your advisor if you have any questions.

Passing of the proposal requires a unanimous vote of the committee. The proposal will be graded solely on a pass/fail basis. Passing can not be subject to any additional conditions, such as additional coursework. If you fail the proposal defense, you may make a second attempt. The second attempt must occur in the semester following the first attempt. If you do not pass the second attempt you will not be admitted to PhD candidacy, which means you will not be able to obtain a PhD degree from our department.

### Deadlines

The written exam must be taken at the beginning of your first summer as a PhD student in the Department Materials Science and Engineering. If you fail the first attempt, your second attempt must occur at the beginning of the following fall semester.

The first attempt at the proposal defense must be within 24 months of the date of the first day of classes of your first semester enrolled in MSE as a graduate student (even if you were initially enrolled as an MS student). If you do not pass the first attempt, the second attempt at the proposal defense must occur in the semester immediately after the first attempt.

These deadlines are absolute. If any of the deadlines are missed, you will not be admitted to PhD candidacy, which means you will not be able to obtain a PhD degree from our department.

- **Proposal Defense-** Complete the on-line form at least five days prior to the defense, by following the directions below
  - ◆ Go to the **MSE website:** [www.mse.ufl.edu](http://www.mse.ufl.edu)
  - ◆ Click on **Forms**

- ◆ Click on **Admission to Candidacy** in the SUPERVISORY COMMITTEES/DEFENSES section
- **Proposal Defense date**
  - **Entire Supervisory Committee** must attend and examine the student
    - **Chair and external may not be substituted**
    - Two internal MSE members may be substituted if necessary
      - ◆ **On the day of the defense the student's file and faculty signature page must be picked up by a faculty member from the ASO and returned within 10 business days upon completion**
- **Admission to Ph.D. Candidacy**
  - After successful completion of the written qualifying exam, topic approval and the proposal defense, a Ph.D. student will be admitted to candidacy
  - A course correction changing all EMA7979 hours to EMA7980 must be filled out with ASO at the time of the passing of the proposal defense to be processed through the Graduate School and Registrar
    - If this is done prior to the midpoint of the semester, that term will count as your first term of PhD study
    - Registration for a minimum of two semesters in EMA7980 is required to complete the degree
- **Graduation** - complete graduation check with ASO the term before you expect to graduate
  - Apply for your degree by submitting an online degree application through [www.isis.ufl.edu](http://www.isis.ufl.edu) and clicking on Degree Application within the first two weeks of the semester you plan on graduating (two days if summer term)
  - Comply with graduate school rules and graduate school thesis/dissertation and final examination deadlines
  - Register for a minimum three credits of EMA 7980 Doctoral Research in final term for fall/spring graduation (min. two credits EMA 7980 for summer grads)
  - Complete the departmental employment questionnaire and exit interview and return them to the ASO no later than two days prior to graduation. To obtain these forms, follow directions below:
    - Go to the **MSE website**: [www.mse.ufl.edu](http://www.mse.ufl.edu)
    - Click on **Forms**
    - Download both the **Exit Checklist** and the **Employment Questionnaire** in the Graduate Student portion of the EXIT INTERVIEW section

### **Guidelines for PhD Dissertation Defense**

- Notify the ASO at least five days prior to any defense **by** following the directions below
  - Go to the **MSE Website**: [www.mse.ufl.edu](http://www.mse.ufl.edu)
  - Click on **Forms**
  - Click on **Final Examinations (MS-Thesis or PhD)** in the SUPERVISORY COMMITTEES/DEFENSES section
  - Fill out the form and submit online.
- Defense date
  - Entire supervisory committee must attend and examine the student
    - Chair and external may not be substituted
    - Two internal MSE members may be substituted if necessary

- **On the day of the defense the student's file and faculty signature page must be picked up by a faculty member from the ASO and returned upon completion**
- Refer to the ETD website for submission information and current deadline dates. ETD site is located at <http://gradschool.rgp.ufl.edu>, then click on Graduate Editorial
- Original dissertation signature pages are processed in the ASO; you may request these via an email to [academics@mse.ufl.edu](mailto:academics@mse.ufl.edu)
- It is the student's responsibility to obtain all of the signatures on the signature pages

### **MS Non-Thesis**

- Required Credit Hours: 30
- Required: 18 hours EMA5000 -6000 level courses with a minimum grade of C or better and must maintain a minimum gpa of 3.0 or above
- Maximum: One 3000 level or above undergraduate course (outside the department)
- Maximum: 6 credit hours of EMA 6905 - Individual Work
- Maximum: 6 credit hours of S/U work (includes max. 5 hours of EMA 6910 - Supervised Research)
- **Transfer credits** – by petition to the graduate school, up to 9 hrs. graduate level courses, B or better may be transferred to the MS program with approval by the graduate coordinator
- **Time Limitation** - all work, including transferred credits, counted toward the master's degree must be completed during the seven years immediately preceding the date on which the degree is awarded
- **Supervisory Committee** – must have one member in MSE Dept. by the end of the 2<sup>nd</sup> semester or after 12 credit hours; if you are not working with an individual faculty member one of the graduate coordinators will supervise your MS Non-Thesis degree
  - **MSN Non-Thesis Paper** – Three weeks prior to graduation for the semester, you must email this document to the ASO. Guidelines for the paper may be found by following the directions below:
    - Go to the **MSE website**: [www.mse.ufl.edu](http://www.mse.ufl.edu)
    - Click on **Forms**
    - Click on **MS Non-Thesis Paper Guidelines** in the SUPERVISORY COMMITTEES/DEFENSES section
- **Graduation** - go through a graduation check with the ASO by the end of your second term and another check the term before you expect to graduate
  - Apply for your degree by filling out a degree application within the first two weeks of the semester (two days if summer term) you plan on graduating
  - Indicate via e-mail to ASO whether your degree is terminal
  - Register for a minimum of three credits of coursework, which will count towards your degree, in final term for fall/spring graduation (two credits in summer)
  - If the degree is terminal, complete the departmental employment questionnaire and exit interview and return them to the ASO no later than two days prior to graduation. To obtain these forms, follow directions below:
    - Go to the **MSE website**: [www.mse.ufl.edu](http://www.mse.ufl.edu)
    - Click on **Forms**
    - Download both the **Exit Checklist** and the **Employment Questionnaire** in the Graduate Student portion of the EXIT INTERVIEW section



## MS Thesis Degree

- Required Credit Hours: 30
- Required: 18 hours EMA5000 -6000 level courses with a minimum grade of C or better and must maintain a minimum gpa of 3.0 or above
- Maximum: One 3000 level or above undergraduate course (outside the Department)
- Maximum - 6 credit hours of EMA 6971 - Master's Research
- Maximum - 8 credit hours of EMA 6905 - Individual Work
- Maximum - 8 credit hours of EMA 6938 – Special Topics
- Maximum - 5 credit hours of EMA 6910 - Supervised Research.
- **Transfer credits** - by petition to the graduate school, up to 9 hrs. graduate level courses, B or better may be transferred to the MS program with approval by the graduate coordinator
- **Time Limitation** - all work, including transferred credits must be completed during the seven years immediately preceding the date on which the degree is awarded
- **Supervisory Committee – consultation with your Supervisory Committee as necessary is strongly encouraged**
  - Committees must consist of three members in MSE department and be formed by the end of the 2<sup>nd</sup> semester or after 12 credit hours. To form or modify the committee, follow directions below:
    - Go to the **MSE website**: [www.mse.ufl.edu](http://www.mse.ufl.edu)
    - Click on **Forms**
    - Click on **Supervisory Committee Form** under SUPERVISORY COMMITTEES/DEFENSES and follow the directions listed on the website.
  - Turn in signed form to ASO
- **Thesis defense** - write and defend a written thesis acceptable to the Supervisory Committee and the Graduate School
- **Graduation** - go through a graduation check with the ASO by the end of your second term and another check the term before you expect to graduate
  - Apply for your degree by filling out a degree application within the first two weeks of the semester (two days if summer term) you plan on graduating
  - Comply with Graduate School rules, thesis/dissertation and final examination deadlines
  - Refer to the ETD website for submission information and current deadline dates. ETD site is located at <http://gradschool.rgp.ufl.edu>, then click on Graduate Editorial
  - Register for a minimum three credits EMA 6971, MS Research, in final term for fall/spring graduation (two credits EMA 6971 for summer)
  - Complete the departmental employment questionnaire and exit interview and return them to the ASO no later than two days prior to graduation. To obtain these forms, follow directions below:
    - Go to the **MSE website**: [www.mse.ufl.edu](http://www.mse.ufl.edu)
    - Click on **Forms**
    - Download both the **Exit Checklist** and the **Employment Questionnaire** in the Graduate Student portion of the EXIT INTERVIEW section

### Guidelines for MS Thesis Defense

- Graduate students must notify the ASO at least five days prior to any defense for preparation of the appropriate paperwork. To notify ASO, please follow directions below:
  - Go to the **MSE website**: [www.mse.ufl.edu](http://www.mse.ufl.edu)
  - Click on **Forms**
  - Click on **Final Examinations (MS-Thesis or PhD)** in the SUPERVISORY COMMITTEES/DEFENSES section
  - Fill out the form and submit online.
- Defense date
  - Entire Supervisory Committee must attend and examine the student
  - Chair may not be substituted
  - One internal MSE member may be substituted if necessary
  - **On the day of the defense the student's file and faculty signature page must be picked up by a faculty member from the ASO and returned upon completion**
- Submit a completed and defended thesis per graduate school requirements and deadlines; refer to the ETD site located at <http://gradschool.rgp.ufl.edu>, then click on Graduate Editorial for more information