

# **Research in Materials Science & Engineering**

**EMA 4913    Section 8665**

Class Period: M 6 (12:50PM-1:40PM)

**Location: 207 Leigh Hall**

**Academic Term: Fall 2019**

## **Instructor:**

Professor J.J. Mecholsky, Jr.

[jmech@mse.ufl.edu](mailto:jmech@mse.ufl.edu)

352 846 3306 (Office)

**Office Hours:** M-W 2 (8:30-9:20A); R – 3 (9:35AM-10:25AM) or by arrangement

**Teaching Assistants:** None

**Course Description:** (1 Credit Hour)- Short research problems in materials science & engineering, including a protocol report & final thesis. Two parts to the course: (1) class lectures and presentations; (2) laboratory research.

**Course Pre-requisites:** Senior Level Standing

## **Course Objectives:**

To present the necessary tools for successful research/design projects. To describe the presentation, writing and interviewing skills necessary for success in engineering and science fields.

## **Materials and Supply Fees:**

**Professional Component (ABET):** Contribution of course to meeting the professional component: This course provides 1 credit towards engineering sciences.

## **Relation to Program Outcomes (ABET):**

<b>Outcome</b>	<b>Coverage*</b>
1. An ability to identify, formulate, and solve engineering problems by applying principles of engineering, science, and mathematics.	Medium
2. an ability to apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors	High
3. an ability to communicate effectively with a range of audiences	High
4. an ability to recognize ethical and professional responsibilities in engineering situations and make informed judgments, which must consider the impact of engineering solutions in global, economic, environmental, and societal contexts	Low
5. an ability to function effectively on a team whose members together provide leadership, create a collaborative and inclusive environment, establish goals, plan tasks, and meet objectives	High

6. an ability to develop and conduct appropriate experimentation, analyze and interpret data, and use engineering judgment to draw conclusions	High
7. an ability to acquire and apply new knowledge as needed, using appropriate learning strategies.	High

**Required Textbook:** None

**Recommended Materials:** This course will use CANVAS. The students may access relevant course materials via the CANVAS entry link: <https://lss.at.ufl.edu/>

**Course Schedule:**

- Week 1. Overview of Senior Thesis/Literature Search/Report Writing
- Week 2. Global Awareness, Diversity and Engineering Ethics
- Week 3. Making Effective Technical Presentations
- Week 4. Interviewing Techniques
- Week 5. Experimental Design/Error Analysis
- Week 6. Safety/ Draft of Experimental Protocol Due
- Week 7. Experimental Protocol Draft Due (Written)
- Week 8. Research Presentations – 5 minute presentations
- Week 9. Protocol Report (Final)

**N.B.:** Written research or design report (**End of 2<sup>nd</sup> semester**)

**10. Conduct, Attendance and Class Expectations Policies:**

Proper behavior in class always is important and leads to a relaxed and productive educational environment. Thus, eating, drinking, texting, reading of newspapers or computer screens, working on homework for other courses, or other activities that are not part of the class, are not allowed. Students who do not comply with these requirements or who behave disorderly or disrespectfully will be asked to leave the classroom. All electronic devices (laptops, cell phones, etc.) should be turned off or in silent mode. If your cell phone rings during class, it will be confiscated for the remainder of the class period. No audio/video recording is allowed without express consent of the instructor. There will be periodic in-class quizzes which will count for attendance. Make-up Exam Policy: If a student informs me prior to the exam date that the student is to miss an exam, the exam must be taken within one week of the original date. Unusual circumstances will be considered if documented. Requirements for class attendance and make-up exams, assignments, and other work are consistent with university policies that can be found at: <https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>

**Evaluation of Grades:**

You will be graded on attendance and your oral and written protocol report. That portion will be one half your grade. The other half will be provided by your research/design mentor based on your performance in the laboratory.

You will be required to write a protocol report to be given to the instructor and to your research/design advisor by the final week of classes. The essence of that report will be

presented to the class in a (no more than) 5 minute presentation at a prescribed time to be announced after week 6. During this semester you are also expected to be working with your research/design advisor on your project. That activity will provide the input for your protocol report.

### ***Grading Policy***

The following is given as an example only.

Percent	Grade	Grade Points
92.0- 100	A	4.00
90.0 – 92.	A-	3.67
86.7 -89.9	B+	3.33
83.4 - 86.6	B	3.00
80.0 - 83.3	B-	2.67
76.7 - 79.9	C+	2.33
73.4 - 76.6	C	2.00
70.0 - 73.3	C-	1.67
66.7 - 69.9	D+	1.33
63.4 - 66.6	D	1.00
60.0 - 63.3	D-	0.67
0 - 59.9	E	0.00

More information on UF grading policy may be found at:

<https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>

### ***Students Requiring Accommodations***

Students with disabilities requesting accommodations should first register with the Disability Resource Center (352-392-8565, <https://www.dso.ufl.edu/drc>) by providing appropriate documentation. Once registered, students will receive an accommodation letter which must be presented to the instructor when requesting accommodation. Students with disabilities should follow this procedure as early as possible in the semester.

### ***Course Evaluation***

Students are expected to provide feedback on the quality of instruction in this course by completing online evaluations at <https://evaluations.ufl.edu/evals>. Evaluations are typically open during the last two or three weeks of the semester, but students will be given specific times when they are open. Summary results of these assessments are available to students at <https://evaluations.ufl.edu/results/>.

## ***University Honesty Policy***

UF students are bound by The Honor Pledge which states, “We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code. On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: “On my honor, I have neither given nor received unauthorized aid in doing this assignment.” The Honor Code (<https://www.dso.ufl.edu/sccr/process/student-conduct-honor-code/>) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor or TAs in this class.

## ***Commitment to a Safe and Inclusive Learning Environment***

The Herbert Wertheim College of Engineering values broad diversity within our community and is committed to individual and group empowerment, inclusion, and the elimination of discrimination. It is expected that every person in this class will treat one another with dignity and respect regardless of gender, sexuality, disability, age, socioeconomic status, ethnicity, race, and culture.

If you feel like your performance in class is being impacted by discrimination or harassment of any kind, please contact your instructor or any of the following:

- Your academic advisor or Graduate Program Coordinator
- Robin Bielling, Director of Human Resources, 352-392-0903, [rbielling@eng.ufl.edu](mailto:rbielling@eng.ufl.edu)
- Curtis Taylor, Associate Dean of Student Affairs, 352-392-2177, [taylor@eng.ufl.edu](mailto:taylor@eng.ufl.edu)
- Toshikazu Nishida, Associate Dean of Academic Affairs, 352-392-0943, [nishida@eng.ufl.edu](mailto:nishida@eng.ufl.edu)

## ***Software Use***

All faculty, staff, and students of the University are required and expected to obey the laws and legal agreements governing software use. Failure to do so can lead to monetary damages and/or criminal penalties for the individual violator. Because such violations are also against University policies and rules, disciplinary action will be taken as appropriate. We, the members of the University of Florida community, pledge to uphold ourselves and our peers to the highest standards of honesty and integrity.

## ***Student Privacy***

There are federal laws protecting your privacy with regards to grades earned in courses and on individual assignments. For more information, please see: <https://registrar.ufl.edu/ferpa.html>

## **Campus Resources:**

### ***Health and Wellness***

#### **U Matter, We Care:**

Your well-being is important to the University of Florida. The U Matter, We Care initiative is committed to creating a culture of care on our campus by encouraging members of our community to look out for one another and to reach out for help if a member of our community is in need. If you or a friend is in distress, please contact [umatter@ufl.edu](mailto:umatter@ufl.edu) so that the U Matter, We Care Team can reach out to the student in distress. A nighttime and weekend crisis counselor is available by phone at 352-392-1575. The U Matter, We Care Team can help connect students to the many other helping resources available including, but not limited to, Victim Advocates, Housing staff, and the Counseling and Wellness Center. Please remember that asking for help is a sign of strength. In case of emergency, call 9-1-1.

**Counseling and Wellness Center:** <http://www.counseling.ufl.edu/cwc>, and 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

#### **Sexual Discrimination, Harassment, Assault, or Violence**

If you or a friend has been subjected to sexual discrimination, sexual harassment, sexual assault, or violence contact the [\*\*Office of Title IX Compliance\*\*](#), located at Yon Hall Room 427, 1908 Stadium Road, (352) 273-1094, [title-ix@ufl.edu](mailto:title-ix@ufl.edu)

#### **Sexual Assault Recovery Services (SARS)**

Student Health Care Center, 392-1161.

**University Police Department** at 392-1111 (or 9-1-1 for emergencies), or <http://www.police.ufl.edu/>.

## ***Academic Resources***

**E-learning technical support**, 352-392-4357 (select option 2) or e-mail to Learning-support@ufl.edu. <https://lss.at.ufl.edu/help.shtml>.

**Career Resource Center**, Reitz Union, 392-1601. Career assistance and counseling. <https://www.crc.ufl.edu/>.

**Library Support**, <http://cms.uflib.ufl.edu/ask>. Various ways to receive assistance with respect to using the libraries or finding resources.

**Teaching Center**, Broward Hall, 392-2010 or 392-6420. General study skills and tutoring. <https://teachingcenter.ufl.edu/>.

**Writing Studio, 302 Tigert Hall**, 846-1138. Help brainstorming, formatting, and writing papers. <https://writing.ufl.edu/writing-studio/>.

**Student Complaints Campus:**

[https://www.dso.ufl.edu/documents/UF\\_Complaints\\_policy.pdf](https://www.dso.ufl.edu/documents/UF_Complaints_policy.pdf).

**On-Line Students Complaints:** <http://www.distance.ufl.edu/student-complaint-process>.