



## Course Syllabus



# EMA 4913 Research in Materials Science and Engineering 1

*Class #:* 13496

*Section:* 8665

*Course periods:* M 12:50 PM - 1:40 PM

*Location:* **LEI 0207** (<http://campusmap.ufl.edu/?loc=0009>) (<https://ufl.zoom.us/j/97888815389?pwd=aS9KR1dHSjJaZUZBUUJmZIBSc25XZz09>)

**Also on ZOOM** (<https://ufl.zoom.us/j/93986906567?pwd=YkE2cWZaRXRWNDViZ01lQUhLSGgyZz09>)

*Academic term:* Fall 2021

*Instructor:*

Michael Tonks

michael.tonks@ufl.edu

158 Rhines Hall

(352) 846-3779

*Office hours:* TBD (<https://ufl.zoom.us/j/91352557850?pwd=RTdOMk5CbndEZVFBeCtSSFpDWG9ldz09>)

(<https://ufl.zoom.us/j/813598087>)

## Course Description

This 1-credit course provides important knowledge and experience to help students become successful materials scientists and engineers. There are two parts to the course:

1. Class lectures and discussions
2. Mentored research

## Course Pre-Requisites

Senior-level standing

## Course Objectives

Students completing this course should have the basic skills and knowledge to be a valuable employee. These skills and knowledge will be gained through in-class lectures and discussion and through the first

semester of laboratory research. The laboratory research will continue in EMA 4914.



## Relation to Program Outcomes (ABET):

Outcome	Coverage
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.	High
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.	Low
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 Textbooks and Software

### Required Textbook

None

### Recommended Textbooks

None

### Required Software

None

## Course Schedule

*Days marked in red are when we will not have class*

Week	Date	Topic
1	8/23	Introduction



2	8/30	Career opportunities and goals
3	9/6	<i>Labor Day Holiday</i>
4	9/13	Getting jobs and internships
5	9/20	Teams, Team Dynamics and Team Building
6	9/27	Persuasive communications
7	10/4	Written communication
8	10/11	Professional Credibility
9	10/18	Working in real jobs and Networking
10	10/25	<b>Optional lecture:</b> Graduate School
11	11/1	<i>No class</i>
12	11/8	<i>No class</i>
13	11/15	<i>No class</i>
14	11/22	<i>No class</i>
15	11/29	<i>No class</i>
16	12/6	<i>No class</i>
17	12/13	FINALS WEEK

## Course Policies

### Course format

The lecture portion of this class will be taught during our assigned lecture time in our assigned classroom. The research portion of this course will depend on the project assigned to you by your research adviser. Some projects will be able to be completed remotely, while other projects will require campus access.

Our class sessions will be audio visually recorded for students in the class to refer back and for enrolled students who are unable to attend live. Students who participate are agreeing to have themselves recorded.

### Attendance Policy

You are required to attend the course lectures, and your attendance will be a primary part of your grade for the lecture portion of the course. Attendance will be taken using the in-class exercises.

If a student who is withheld from campus attends class, the student will be asked to leave the classroom and be reported to the Dean of Students Office.



## Class Demeanor

Students are expected to join class on time to participate in discussions. They must interact with Dr. Tonks and their classmates in a professional manner.

## Course Communication

E-Learning will be the primary avenue for communication and course management. All announcements for the course will be made using the announcement system on the E-Learning site. Course lecture slides will be posted on E-Learning before each lecture.

## Course Time Commitment

This course is a one-credit class and has both class and research components. The class sessions will go for 50% of the semester. This course is treated like a lab course and should require four to five hours a week. The class components will not require significant time beyond the normal class periods (about one hour a week). Therefore, on average, your typical research requirement should be:

- 8/31 - 10/19: 3 to 4 hours per week
- 10/19 - 12/9: 4 to 5 hours per week

## Meetings with Research Advisors and Supervisors

In your work on research in this class, all students will have a faculty research advisor. Some students will also have a graduate student or postdoc acting as their research advisor.

You must meet with either your research advisor or supervisor at least once every other week. You must meet with your research advisor at least monthly.

## Assignments

Assignments will be managed through CANVAS. No credit will be given for late assignments, unless they are approved by Dr. Tonks.

## Exercises

An exercise will be given each class period relating to the topic of discussion. The quizzes will not be graded for correctness, so if you complete a question you will get full credit for it. However, the exercises will only be available during class. If you took an exercise but did not attend the ZOOM class that day, you will not get credit for the exercise.

## Weekly Research Updates

Starting in Week 3 of the semester, you will fill out a research update at the end of each week.

## Exams

There are no exams in this course



## Final Exam

There is no final exam for this course

## Students Approved to use an Internship to Cover the Research Portion

Some students have approval to use an internship to cover the research portion of this course. For those students, you must attend and participate in the lecture portion of the course. You do not need to do any research. You do need to turn in the assignments, but just indicate that you are using an internship (as described in each assignment). You DO NOT need to complete the weekly research updates.

## Grade Appeal

50% of your grade for this course will be based on your participation in the course and your completion of the course assignments. 50% of your grade for this course will be determined by your research adviser. To appeal any course grades, please contact Dr. Tonks before 10/26. To appeal your research grade, contact Dr. Tonks before the end of finals week.

## Grading Scheme

Grade	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	F
Score	>93	>90	>87	>83	>80	>77	>73	>70	>67	>63	>60	<60

Note that the score listed on the table for each grade is the lower bound for that grade.

## Students Requiring Accommodations

Students with disabilities requesting accommodations should first register with the [Disability Resource Center \(http://www.dso.ufl.edu/drc/\)](http://www.dso.ufl.edu/drc/) (352-392-8565) 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 professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at <https://gatorevals.aa.ufl.edu/students/>. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via <https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/public-results/>.



# COVID-19

- You are expected to wear approved face coverings at all times during class and within buildings even if you are vaccinated.
- If you are sick, stay home and self-quarantine. Please visit the [UF Health Screen, Test & Protect website \(https://coronavirus.ufhealth.org/screen-test-protect-2/\)](https://coronavirus.ufhealth.org/screen-test-protect-2/) about next steps, retake the questionnaire and schedule your test for no sooner than 24 hours after your symptoms began. Please call your primary care provider if you are ill and need immediate care or the UF Student Health Care Center at 352-392-1161 (or email [covid@shcc.ufl.edu \(mailto:covid@shcc.ufl.edu\)](mailto:covid@shcc.ufl.edu)) to be evaluated for testing and to receive further instructions about returning to campus.
- If you are withheld from campus by the Department of Health through Screen, Test & Protect, you are not permitted to use any on campus facilities. Students attempting to attend campus activities when withheld from campus will be referred to the Dean of Students Office.
- [UF Health Screen, Test & Protect \(https://coronavirus.ufhealth.org/screen-test-protect-2/\)](https://coronavirus.ufhealth.org/screen-test-protect-2/) offers guidance when you are sick, have been exposed to someone who has tested positive or have tested positive yourself. Visit the [UF Health Screen, Test & Protect website \(https://coronavirus.ufhealth.org/screen-test-protect-2/\)](https://coronavirus.ufhealth.org/screen-test-protect-2/) for more information.
- Please continue to follow healthy habits, including best practices like frequent hand washing. Following these practices is our responsibility as Gators.

## In-Class Recording

Students are allowed to record video or audio of class lectures. However, the purposes for which these recordings may be used are strictly controlled. The only allowable purposes are (1) for personal educational use, (2) in connection with a complaint to the university, or (3) as evidence in, or in preparation for, a criminal or civil proceeding. All other purposes are prohibited. Specifically, students may not publish recorded lectures without the written consent of the instructor.

A “class lecture” is an educational presentation intended to inform or teach enrolled students about a particular subject, including any instructor-led discussions that form part of the presentation, and delivered by any instructor hired or appointed by the University, or by a guest instructor, as part of a University of Florida course. A class lecture does not include lab sessions, student presentations, clinical presentations such as patient history, academic exercises involving solely student participation, assessments (quizzes, tests, exams), field trips, private conversations between students in the class or between a student and the faculty or lecturer during a class session.

Publication without permission of the instructor is prohibited. To “publish” means to share, transmit, circulate, distribute, or provide access to a recording, regardless of format or medium, to another person (or persons), including but not limited to another student within the same class section. Additionally, a recording, or transcript of a recording, is considered published if it is posted on or uploaded to, in whole or in part, any media platform, including but not limited to social media, book, magazine, newspaper, leaflet, or third party note/tutoring services. A student who publishes a recording without written consent

may be subject to a civil cause of action instituted by a person injured by the publication and/or disclosure under UF Regulation 4.040 Student Honor Code and Student Conduct Code.



## 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 TA 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 ([advising@mse.ufl.edu](mailto:advising@mse.ufl.edu) (<mailto:advising@mse.ufl.edu>)) or Undergraduate Program Coordinator ([mse-ugradcoordinator@mse.ufl.edu](mailto:mse-ugradcoordinator@mse.ufl.edu) (<mailto:mse-ugradcoordinator@mse.ufl.edu>))
- Jennifer Nappo, Director of Human Resources, 352-392-0904, [jpennacc@ufl.edu](mailto:jpennacc@ufl.edu) (<mailto:jpennacc@ufl.edu>)
- Curtis Taylor, Associate Dean of Student Affairs, 352-392-2177, [taylor@eng.ufl.edu](mailto: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) (<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: <http://registrar.ufl.edu/catalog0910/policies/regulationferpa.html>  
(<http://registrar.ufl.edu/catalog0910/policies/regulationferpa.html>)

## Campus Resources:

### Health and Wellness

U Matter, We Care:

If you or a friend is in distress, please contact [umatter@ufl.edu](mailto:umatter@ufl.edu) or 352 392-1575 so that a team member can reach out to the student.

Counseling and Wellness Center:

<http://www.counseling.ufl.edu/cwc> (<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:

392-1111 (or 9-1-1 for emergencies), or <http://www.police.ufl.edu/> (<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](mailto:Learning-support@ufl.edu). <https://lss.at.ufl.edu/help.shtml>  
(<https://lss.at.ufl.edu/help.shtml>).

Career Resource Center



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



## Library Support

<http://cms.uflib.ufl.edu/ask> (<http://cms.uflib.ufl.edu/ask>). There are 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/>  
(<https://teachingcenter.ufl.edu/>).

## Writing Studio

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

## Student Complaints

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

# Course Summary:

Date	Details	Due
Mon Aug 23, 2021	<a href="https://ufl.instructure.com/calendar?event_id=2150075&amp;include_contexts=course_437588">EMA4913 - Research Materials Science 1</a> ( <a href="https://ufl.instructure.com/calendar?event_id=2150075&amp;include_contexts=course_437588">https://ufl.instructure.com/calendar?event_id=2150075&amp;include_contexts=course_437588</a> )	12:30pm to 1:45pm
	<a href="https://ufl.instructure.com/courses/437588/assignments/4803703">Exercise 1</a> ( <a href="https://ufl.instructure.com/courses/437588/assignments/4803703">https://ufl.instructure.com/courses/437588/assignments/4803703</a> )	due by 1:40pm
Mon Aug 30, 2021	<a href="https://ufl.instructure.com/calendar?event_id=2150076&amp;include_contexts=course_437588">EMA4913 - Research Materials Science 1</a> ( <a href="https://ufl.instructure.com/calendar?event_id=2150076&amp;include_contexts=course_437588">https://ufl.instructure.com/calendar?event_id=2150076&amp;include_contexts=course_437588</a> )	12:30pm to 1:45pm
	<a href="https://ufl.instructure.com/courses/437588/assignments/4803699">Research Advisor</a> ( <a href="https://ufl.instructure.com/courses/437588/assignments/4803699">https://ufl.instructure.com/courses/437588/assignments/4803699</a> )	due by 11:59pm
Fri Sep 3, 2021	<a href="https://ufl.instructure.com/courses/437588/assignments/4803710">Research Project Selection</a> ( <a href="https://ufl.instructure.com/courses/437588/assignments/4803710">https://ufl.instructure.com/courses/437588/assignments/4803710</a> )	due by 11:59pm



Date	Details	
Mon Sep 6, 2021	 <a href="#">EMA4913 - Research Materials Science 1</a> ( <a href="https://ufl.instructure.com/calendar?event_id=2150077&amp;include_contexts=course_437588">https://ufl.instructure.com/calendar?event_id=2150077&amp;include_contexts=course_437588</a> )	12:30pm to 1:45pm
Mon Sep 13, 2021	 <a href="#">EMA4913 - Research Materials Science 1</a> ( <a href="https://ufl.instructure.com/calendar?event_id=2150078&amp;include_contexts=course_437588">https://ufl.instructure.com/calendar?event_id=2150078&amp;include_contexts=course_437588</a> )	12:30pm to 1:45pm
	 <a href="#">Week 3 Research Update</a> ( <a href="https://ufl.instructure.com/courses/437588/assignments/4807517">https://ufl.instructure.com/courses/437588/assignments/4807517</a> )	due by 11:59pm
Mon Sep 20, 2021	 <a href="#">EMA4913 - Research Materials Science 1</a> ( <a href="https://ufl.instructure.com/calendar?event_id=2150079&amp;include_contexts=course_437588">https://ufl.instructure.com/calendar?event_id=2150079&amp;include_contexts=course_437588</a> )	12:30pm to 1:45pm
	 <a href="#">Week 4 Research Update</a> ( <a href="https://ufl.instructure.com/courses/437588/assignments/4807519">https://ufl.instructure.com/courses/437588/assignments/4807519</a> )	due by 11:59pm
Mon Sep 27, 2021	 <a href="#">EMA4913 - Research Materials Science 1</a> ( <a href="https://ufl.instructure.com/calendar?event_id=2150080&amp;include_contexts=course_437588">https://ufl.instructure.com/calendar?event_id=2150080&amp;include_contexts=course_437588</a> )	12:30pm to 1:45pm
	 <a href="#">Week 5 Research Update</a> ( <a href="https://ufl.instructure.com/courses/437588/assignments/4807591">https://ufl.instructure.com/courses/437588/assignments/4807591</a> )	due by 11:59pm
Mon Oct 4, 2021	 <a href="#">EMA4913 - Research Materials Science 1</a> ( <a href="https://ufl.instructure.com/calendar?event_id=2150081&amp;include_contexts=course_437588">https://ufl.instructure.com/calendar?event_id=2150081&amp;include_contexts=course_437588</a> )	12:30pm to 1:45pm
	 <a href="#">Week 6 Research Update</a> ( <a href="https://ufl.instructure.com/courses/437588/assignments/4807593">https://ufl.instructure.com/courses/437588/assignments/4807593</a> )	due by 11:59pm
Mon Oct 11, 2021	 <a href="#">EMA4913 - Research Materials Science 1</a> ( <a href="https://ufl.instructure.com/calendar?event_id=2150082&amp;include_contexts=course_437588">https://ufl.instructure.com/calendar?event_id=2150082&amp;include_contexts=course_437588</a> )	12:30pm to 1:45pm
	 <a href="#">Week 7 Research Update</a> ( <a href="https://ufl.instructure.com/courses/437588/assignments/4807622">https://ufl.instructure.com/courses/437588/assignments/4807622</a> )	due by 11:59pm



Date	Details
Mon Oct 18, 2021	<b>EMA4913 - Research Materials Science 1</b> <a href="https://ufl.instructure.com/calendar?event_id=2150083&amp;include_contexts=course_437588">https://ufl.instructure.com/calendar?event_id=2150083&amp;include_contexts=course_437588</a> 12:30pm to 1:45pm
Mon Oct 25, 2021	<b>Week 8 Research Update</b> <a href="https://ufl.instructure.com/courses/437588/assignments/4807626">https://ufl.instructure.com/courses/437588/assignments/4807626</a> due by 11:59pm
Mon Oct 25, 2021	<b>Week 9 Research Update</b> <a href="https://ufl.instructure.com/courses/437588/assignments/4807627">https://ufl.instructure.com/courses/437588/assignments/4807627</a> due by 11:59pm
Mon Nov 1, 2021	<b>Week 10 Research Update</b> <a href="https://ufl.instructure.com/courses/437588/assignments/4807628">https://ufl.instructure.com/courses/437588/assignments/4807628</a> due by 11:59pm
Mon Nov 8, 2021	<b>Week 11 Research Update</b> <a href="https://ufl.instructure.com/courses/437588/assignments/4807629">https://ufl.instructure.com/courses/437588/assignments/4807629</a> due by 11:59pm
Mon Nov 15, 2021	<b>Week 12 Research Update</b> <a href="https://ufl.instructure.com/courses/437588/assignments/4807630">https://ufl.instructure.com/courses/437588/assignments/4807630</a> due by 11:59pm
Mon Nov 22, 2021	<b>Week 13 Research Update</b> <a href="https://ufl.instructure.com/courses/437588/assignments/4807633">https://ufl.instructure.com/courses/437588/assignments/4807633</a> due by 11:59pm
Mon Nov 29, 2021	<b>Week 14 Research Update</b> <a href="https://ufl.instructure.com/courses/437588/assignments/4809146">https://ufl.instructure.com/courses/437588/assignments/4809146</a> due by 11:59pm
Mon Dec 6, 2021	<b>Week 15 Research Update</b> <a href="https://ufl.instructure.com/courses/437588/assignments/4809147">https://ufl.instructure.com/courses/437588/assignments/4809147</a> due by 11:59pm
Wed Dec 8, 2021	<b>Week 16 Research Update</b> <a href="https://ufl.instructure.com/courses/437588/assignments/4809168">https://ufl.instructure.com/courses/437588/assignments/4809168</a> due by 11:59pm
	<b>End-of-Semester Progress Report</b> <a href="https://ufl.instructure.com/courses/437588/assignments/4803708">https://ufl.instructure.com/courses/437588/assignments/4803708</a> due by 11:59pm
	<b>Exercise 2</b> <a href="https://ufl.instructure.com/courses/437588/assignments/4803706">https://ufl.instructure.com/courses/437588/assignments/4803706</a>
	<b>Exercise 3</b> <a href="https://ufl.instructure.com/courses/437588/assignments/4803705">https://ufl.instructure.com/courses/437588/assignments/4803705</a>

**Date****Details****Exercise 4**

<https://ufl.instructure.com/courses/437588/assignments/4803701>

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**Exercise 5**

<https://ufl.instructure.com/courses/437588/assignments/4803707>

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**Exercise 6**

<https://ufl.instructure.com/courses/437588/assignments/4803700>

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**Exercise 7**

<https://ufl.instructure.com/courses/437588/assignments/4803704>

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**Interest in Technical Electives  
in the Spring Semester**

<https://ufl.instructure.com/courses/437588/assignments/4803702>

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**Research Evaluation**

<https://ufl.instructure.com/courses/437588/assignments/4803709>

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