

EMA 5095: Critical Analysis of Research in Materials Science & Engineering
EMA 5095 Section 1FE 2;2FED;CAMP
Class Periods: M-W-F 2 (8:30 AM- 9:20 AM);
Location: CSE E 118
Fall 2023

Instructor:

Professor J. J. Mecholsky, Jr.

jmech@mse.ufl.edu

352 846 3306 (Office)

Office Hours: M- 7 W -3 or by arrangement

Teaching Assistants: None are assigned.

Course Description (3 credit hours) – Critical methods for reviewing technical papers, for writing effective technical papers, and for developing meaningful research projects, in the field of materials science and engineering.

Co-requisite: EMA 6313 or equivalent, knowledge of materials.

Course Objectives :

At the end of this course the student should be able to review technical journal papers in a critical manner to be able to distinguish properly presented data from poorly obtained data. The student should also be able to formulate critical questions regarding his/her own research topic so as to be able to create a research project to answer posed questions.

Material and Supply Fees – none

Textbooks and Software Required - none

Recommended Reading : Assigned papers

Course Schedule:

Week 1	Effective Technical Paper Dissection/ Mecholsky
Week 2	Effective Technical Paper Dissection/ Mecholsky
Week 3	Tools for Critical Analysis/ Mecholsky
Week 4	Distinguishing effective and non-effective technical papers/Mecholsky
Week 5	Distinguishing effective and non-effective technical papers/ Mecholsky
Week 6	Selecting Research Topics/Unit Test/ Mecholsky
Week 7	Selecting research topics/Draft Outline/Mecholsky
Week 8	Effective research paper writing/ Mecholsky
Week 9	Leadership/Team Work-Stagl
Week 10	Student Technical Presentations
Week 11-13	Student Technical Presentations (Proposal Due Nov. 24)
Week 14	Unit Test (Dec. 1)
Week 15	Summary

Attendance Policy, Expectations and Make-up Policy:

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.

I expect students to attend the class in person. 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:

Assignment	Total Points	Percentage of Final Grade
Homework (~ 10)	100 each	20 %
Class Participation	100	10%
Quizzes (Random)	P/F	10%
Unit Tests (2)	100 Points	40%
Proposal	100 Points	20%

Grading Policy:

Percent	Grade	Grade Points
90.0 - 100.0	A	4.00
87.0 - 89.9	A-	3.67
84.0 - 86.9	B+	3.33
81.0 - 83.9	B	3.00
78.0 - 80.9	B-	2.67
75.0 - 79.9	C+	2.33
72.0 - 74.9	C	2.00
69.0 - 71.9	C-	1.67
66.0 - 68.9	D+	1.33
63.0 - 65.9	D	1.00
60.0 - 62.9	D-	0.67
0 - 59.9	E	0.00

“Undergraduate students, in order to graduate, must have an overall GPA and an upper-division GPA of 2.0 or better (C or better). Note: a C- average is equivalent to a GPA of 1.67, and therefore, it does not satisfy this graduation requirement. Graduate students, in order to graduate, must have an overall GPA of 3.0 or better (B or better). Note: a B- average is equivalent to a GPA of 2.67, and therefore, it does not satisfy this graduation requirement. For more information on grades and grading policies, please visit: <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/>.

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
- Curtis Taylor, Associate Dean of Student Affairs, 352-392-2177, taylor@eng.ufl.edu
- Toshikazu Nishida, Associate Dean of Academic Affairs, 352-392-0943, 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:

UF Counseling Services –Resources are available on-campus for students having personal problems or lacking clear career and academic goals. The resources include:

- UF Counseling & Wellness Center, 3190 Radio Rd, 392-1575, psychological and psychiatric services.
- Career Resource Center, Reitz Union, 392-1601, career and job search services.