Mechanic of Materials Laboratory
EML 3301C All Sections
Lecture Class Periods: In person, Tuesday/Thursday, 2nd period, 8:30 am-9:20 am
Lecture Location: NRN1020
Laboratory Class Periods: Tu/W/Th according to your assigned section
Lab Location: NEB 112
Academic Term: Spring 2026

It may become necessary to modify this syllabus during the semester. In this event, students will be notified, and the revised syllabus will be posted on the Canvas course web site.

Instructor:

Shannon Ridgeway
scer@ufl.edu
Office Hours: Tu/W/Th Various, during lab times NEB 112

Teaching Assistants:
Please contact through the Canvas website, under pages. Teaching assistants are a critical resource for this class, please use them.

Course Description
Experimental characterization of the mechanical properties of engineering materials, precision instruments, computer-based data acquisition, statistical uncertainty analysis, preparation of engineering reports. Credits: 3

Course Pre-Requisites / Co-Requisites
EMA 3010 and EGM 3520 with a minimum grade of C and COP 2271 and ENC 3246.

Course Objectives
In this course you will develop a working knowledge of experimental techniques and equipment commonly used in engineering practice. You will become familiar with the design and implementation of various sensors, statistical data analysis, experimental planning, uncertainty analysis, and computer-based data acquisition. You will develop and refine your report writing skills.

Materials and Supply Fees
See course catalog/UF registrar

Professional Component (ABET):
This course prepares graduates to apply knowledge of mathematics, science, and engineering, with a focus on experimental design, uncertainty, data acquisition, and technical reporting of results.

Relation to Program Outcomes (ABET):

Outcome	Coverage*
1) An ability to identify, formulate, and solve complex engineering problems by applying principles of engineering, science, and mathematics	High
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	Low
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	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	

*Coverage is given as high, medium, or low. An empty box indicates that this outcome is not significantly addressed by this course.

Required Textbooks and Software

- Mechanics of Materials Laboratory Course, Subhash and Ridgeway. ISBN: 9781681733333 Note that this textbook is the foundation of many of the labs performed, but the canvas assignment takes precedence.

- We will use LabVIEW extensively. We will provide a LabVIEW license key to you that is paid for through the course lab fee. You will be required to install a current 32 bit version on your personal Windows laptop.

Additional Recommended Materials

Statics textbook, Mechanics of Materials textbook

Required Computer:

This is discussed on both the department and college websites:

- *HWCOE Computer Requirements: https://www.eng.ufl.edu/students/advising/fall-semester-checklist/computer-requirements/*
- *Additionally, the student's computer must support 32 bit labVIEW and a 32 bit dll associated with an FTDI USB-serial converter (D2XX). Windows on an X86 architecture generally meet these requirements. The most recent Apple (ARM architecture) can support via emulation on a virtual install of Windows but does not always support. Windows on Arm may meet the requirements, but class level support is not available.*

If you chose to attempt a computer that is not fully Windows and X86 compatible, TA's will generally help, but success is not guaranteed. Arm based windows computers are not supported, the student is responsible for driver install and function.

Course Schedule Outline

A tentative course schedule will be linked on the main page of the course web site on Canvas. Any changes to the dates/times/locations of course-related events will also be communicated via Canvas. Follows is a draft valid at the beginning of the semester:

EML 3301C: MECHANICS OF MATERIALS LAB
COURSE SCHEDULE (Spring 2026)

Week	Lecture	Lab	Lab Reports	Due*
1 12-Jan	Drop add / Intro to MOM lab, LabVIEW, Data Acquisition	No Lab		
2 19-Jan	Lab 1 Background, Uncertainty, Lab report format	SADI Data Acqusition Distribution, LabVIW Install	Lab-1 Report (LR 1)	
3 26-Jan	Lab 1, LabVIEW, Uncertainty, Lab report format	Lab 1		
4 2-Feb	Lab 2 intro	Lab 1 Draft		
5 9-Feb	Strain gages (I), Wheatstone Bridge, LabVIEW	Instrumented cantilever beam Scale Experiment, LabView VI	Lab-2 Report (LR 2)	LR-1
6 16-Feb	Strain gages (II), Wheatstone Bridge	Instrumented cantilever beam Scale Experiment, LabView VI		
7 23-Feb	Lab 2 Uncertainty	Lab 2 Draft		
8 2-Mar	Lab 3 background, Tensile test theory (MoM review)	Tensile / compression testing of metals, ceramics and composites, adhesive specimens		LR 2
9 9-Mar	Tensile test theory	Lab 3 Draft	Lab-3 Report	
10 16-Mar	Spring Break	Spring Break		
11 23-Mar	Lab 4, UTM Testing:cAdhesive shear strength	Lab 4 Specimen Prep	Lab-4 Report	LR-3
12 30-Mar	Lab 4, UTM Testing:cAdhesive shear strength	Lab 4 testing	Final Project Reprot (FPR)	LR-4
13 6-Apr	**Final Project**	Lab 4 Draft/FP		
14 13-Apr	Final Project	FP		
15 20-Apr	Final Project	FP		
27-Apr	**Final Project Report due on 4/22 5 pm**			FRP

In Lab attendance Required for Lab
Secondary week of a lab, lab will be staffed for questions, BUT attendance is not required.
Final Project, the group must attend at their schedule. The work may take more than one week

Class Implementation: Attendance Policy, Class Expectations, and Make-Up Policy
Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies. Click here to read the university attendance policies: https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/ . Excused absences must be consistent with university policies in the undergraduate catalog and require appropriate documentation.

Labs:
You are responsible for participating in lab, staying up-to-date on all announcements, in-class lectures, posted video lectures, reading assignments, and homework, to facilitate proper preparation for lab. Course notes may not always be supplied on the Canvas webpage. A late policy concerning missed Canvas submission deadlines may be imposed (see later).

Makeup labs are sometimes possible, but not likely and at the discretion of the instructor, irrespective of the cause.

Group participation is required for the project. Individual grades for project assignments are subject to change (+/-) based on peer feedback.

Lectures:

As in all courses, unauthorized sharing of recorded materials is prohibited.

Office hour access to instructors and TA's will sometimes be held in place of conventional lab sections, with duration based on utilization.

It is the student's responsibility to attend lectures and attend lab sessions. Exercises will be assigned that require the utilization of the background and knowledge presented. Some lectures will be dedicated to questions. Students that do not attend lecture typically perform one or two letter grades below students that do. Some announcements will be made in lecture and may not be conveyed on Canvas or in notes. These hold the same weight as announcements via Canvas or contained in notes.

The course web site, accessible through Canvas (elearning.ufl.edu) via your Gatorlink login, will be the primary point of contact and support for students. Course announcements, class discussions, laboratory assignments, and grades will be posted on the course website.

Lab Work:

The course will utilize a lab kit to be distributed as needed to perform several experiments. Instructor generated experimental results will sometimes be utilized for experiments. It is the student's responsibility to ensure the lab kit functions in a timely manner, to allow sufficient time to address deficiencies.

Each lab will require at least one in person lab session to complete (most will require more). Makeups are not generally provided for.

Evaluation

Assignment	Total Points	Percentage of Final Grade
Homework, Prelabs, and in-class quizzes	Varies By Assignment	20%
Lab Reports (Lab 1-4)	Varies By Assignment	60%
Final Project Report	100	20%
		100%

Grading Policy

Percent	Grade	Grade Points
90 - 100	A	4.00
87 - 89.99	B+	3.33
80. - 86.99	B	3.00
77 - 79.99	C+	2.33
70.0 – 76.9	C	2.00
67 – 69.99	D+	1.33
60.0 – 66.99	D	1.00
0 – 59.99	E	0.00

More information on UF grading policy may be found at:
https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx

Homework/Quiz/Pre-lab: The Homework/Quiz/Pre-lab grade will be used to address issues as they arise. Any pre-labs assigned must be completed before lab work starts (you may not be allowed to enter the lab if the work is not finished). Pacing quizzes may be used to ensure students are keeping up with lectures/assignments.

Laboratory Reports: A laboratory report is associated with most laboratory class meetings. Each assignment will be posted on the Canvas course website before the laboratory class dealing with the material topic occurs. Assignments will also be submitted via the course website and will be due according to the date shown on the website. Assignment format will be covered in class and a template will be provided. The format is to follow published formatting rules available on the class website. A maximum word length may be set in the lab report assignment. Discussion items detailed in the lab assignment are to be covered in the report. An overall grade will be assigned to the report work, and the average of the overall lab report grade makes up 60% of the course grade.

A lab report will not be graded (grade of 0 assigned) if it is not reviewed by "Turn It In"(this may include instances where tables or equations are images and cannot be checked). Work submitted that is not readable will receive a zero. In the case where a submission is not readable and/or not readable by "Turn it In", the student may attempt to provide a copy of the work that has not been modified since the assigned due date. It is left to the student to provide convincing evidence to the instructor. A grade reduction up to and including assigning a 0 is possible based on un-original content found by turn-it-in.

Final Project report: A report will be submitted detailing the work done for the final project. The report is to follow published formatting rules available on the class website, and cover instructions provided in the final project assignment posted on the class website. Failure to submit a final project report will result in failure of the class.

It is the student's responsibility to honor and respect the given deadlines and meeting times.

Canvas submission late policy (does not apply to quizzes), Unless otherwise noted in the assignment:

If you do not submit your assignment when it is due, you can still submit it via Canvas for two more days (unless the assignment restricts/modifies this policy). Unless you have prior written (email is appropriate) permission to submit a late assignment, the penalties for late submission will be as follows:
- Late submissions within one hour of the deadline: 5% of your earned grade.
- Late submissions past one hour but within 24 hours of the deadline: 20% of your assessed grade.
- Late submissions past 24 hours but within 48 hours of the deadline: 40% of your assessed grade.
- Past 48 hours, your assignment will not be graded.

Writing Requirement:

The writing assignments/student products for this course are designed to meet the minimum requirements of the University Writing Requirement credit of **6,000 words**. **The writing requirement ensures students both maintain their fluency in writing and use writing as a tool to facilitate learning. Course grades have two components: a letter grade and an S/U writing requirement. To receive writing credit, a student must receive a "C" or better in the class.**

The instructor will evaluate and provide feedback on the student's written assignment in accordance with both the UF writing rubric and the course content rubric for that particular assignment, including, but not limited to, grammar, punctuation, usage of standard written English, clarity, coherence, and organization.

Writing Resources, Style, and Format:

- Reports for this course will follow the format posted on the class website.
- The writing style manual by Alley is recommended for student use:

  The Craft of Scientific Writing by Michael Alley, 3rd Edition, Springer, 1998.
  This writing reference may also be accessed online at http://www.writing.engr.psu.edu/csw.html.

- Students are also encouraged to utilize the university's Writing Studio for assistance as needed. More information on the Writing Studio is available at this link: www.writing.ufl.edu.

Questions regarding grades must be brought following instructions on the course website on Canvas. For more details, see the canvas page on Grading Feedback.

Academic Policies & Resources
To support consistent and accessible communication of university-wide student resources, the following are extensions of policies found at: https://go.ufl.edu/syllabuspolicies.

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 Conduct Code (https://sccr.dso.ufl.edu/process/student-conduct-code/) specifies a number of behaviors that are in violation of this code and the possible sanctions. If you have any questions or concerns, please consult with the instructor or TAs in this class.

Note that plagiarism is considered a violation of the honor policy. Plagiarism associated with Lab Reports will result in a grade modification up to and including a 0 on the submitted work. It is required that students generate the reports they submit. If significant content is found to be generated by other than the student, it will not be considered in the assessment process.

Commitment to a Positive Learning Environment

The Herbert Wertheim College of Engineering values varied perspectives and lived experiences within our community and is committed to supporting the University's core values.

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

- Your academic advisor or Undergraduate Coordinator
- HWCOE Human Resources, 352-392-0904, student-support-hr@eng.ufl.edu
- Pam Dickrell, Associate Dean of Student Affairs, 352-392-2177, pld@ufl.edu