EGM3520 - Mechanics of Materials

Class Periods: Online, Asynchronous

Location: Online, Canvas LMS

Academic Term: Fall 2025

Instructor:

Dr. Daniel Dickrell III

UF Email: djd3@ufl.edu

Note: ***Canvas Mail and UF Email are separate entities. UF Email is checked daily. If your communication is of high importance please use UF Email for official course correspondence. Canvas Mail is checked sparingly.***

Office Hours Location: https://ufl.zoom.us/my/dr.djd3

Time: TBA

Phone: 352-392-1196

Teaching Assistant/Peer Mentor/Supervised Teaching Student:

Misha Abraham Email: TBA, Time/Location: TBA

James Basallo Email: TBA, Time/Location: TBA

Kevin Connell Email: k.connell@ufl.edu, Time/Location: TBA

Course Description

EGM 3520 Mechanics of Materials 3 Credits

Grading Scheme: Letter Grade

Stress and strain at a point, stress-strain-temperature relations and mechanical properties of materials. Systems subject to axial load, torsion and bending. Design concepts, indeterminate structures and applications.

Prerequisite: EGM 2511 and MAC 2313

Course Objectives

The purpose of the course is to provide students with the means of analyzing and designing various machine and load bearing structures. Upon completion of this course each student should have:

1. Basic understanding of engineering mechanics and the ability to apply this understanding to analyze and solve a given problem.
2. Basic understanding of material properties and mechanical deformation.
3. The ability to apply advanced science and engineering principles in the design and analysis of structures to support loads within a given limit of safety.

Materials and Supply Fees

n/a

Required Textbooks and Software

- MECHANICS OF MATERIALS
- BEER, JOHNSTON, DEWOLF, MAZUREK
- Edition: 7th or later
- ISBN number: 9780073398235

Required Computer

Recommended Computer Specifications: https://it.ufl.edu/get-help/student-computer-recommendations/

HWCOE Computer Requirements: https://www.eng.ufl.edu/students/advising/fall-semester-checklist/computer-requirements/

Course Schedule

Each chapter corresponds to roughly one week of the semester:

Chap 1 Concept of Stress

Chap 2 Stress and Strain

Chap 3 Torsion

Chap 4 Pure Bending

Chap 5 Analysis and Design of Beams for Bending

Chap 6 Shearing Stresses in Beams and Thin-Walled Members

Chap 7 Transformations of Stress and Strain

Chap 8 Principal Stresses Under a Given Loading

Chap 9 Deflection of Beams

Chap 10 Columns

Important Dates

October 21st, 2025 *Exam 1 (8:20-10:20 PM, TUR L007)*

December 8th, 2025 *Exam 2 (8:00-10:00 PM, MAE-B 211)*

Evaluation of Grades

Assignment	**Percentage of Final Grade**
Homework	10%
Quizzes	20%
Midterm Exam	35%
Final Exam	35%

The lowest two scores for HW and lowest Quiz will be dropped to account for travel, scheduling conflicts and illness. *Save these, they come in handy at the end.*

Grading Policy

Percent	Grade	Grade Points
92 - 100	A	4.00
90.0 – 91.9	A-	3.67
88 - 89.9	B+	3.33
82– 87.9	B	3.00
80.0 – 81.9	B-	2.67
78 - 79.9	C+	2.33
72 - 77.9	C	2.00
70.0 – 71.9	C-	1.67
68 - 69.9	D+	1.33
62 – 67.9	D	1.00
0 – 61.9	E	0.00

As the assignment deadlines will be clearly posted on the course websites, late submissions past the deadli will not be accepted. There is no excuse for missed assignments, this is your responsibility to act like a professional student. Don't ask/beg for special treatment.

GRADE DISPUTES:
If a student feels that an exam or homework was graded unfairly, or if there is an error in the grading, it should be brought to the attention of the primary instructor within ***two weeks*** after the grades are posted for that assignment. Scores will not be reconsidered beyond the two-week period.

TA's and graders don't have authority to change grades unilaterally, so please don't ask them.

Relation to Program Outcomes (ABET):

Contribution of course to meeting the professional component:

EGM 3520 supports several program outcomes enumerated in the Mission Statement of the Department ofMechanical and Aerospace Engineering (MAE). Specific MAE program outcomes

supported by this course include: Being able to work professionally in mechanical systems areas including the design and realization of such systems. (**ME Program Outcome M4**).

Mathematics (25%), Engineering Sciences (50%), Engineering Design (25%)

Relationship of course to program outcomes:

This course achieves the following Accreditation Board for Engineering and Technology (ABET) outcomes [note that the outcome number corresponds to the respective ABET outcomes (a) through (k):

(a) Apply knowledge of mathematics, science, and engineering [**high coverage; method of assessment is homework and 3 exams to measure Outcome (a)**]

(c) Design a system, component or process to meet desired needs **[low coverage; method of assessment is homework and exam problems related to design of trusses, frames and machines for desired functionalities]**

(e) Identify, formulate, and solve engineering problems [**high coverage; method of assessment is homework and 3 exams to measure Outcome (e)**]

(f) Understand professional and ethical responsibilities **[medium coverage; method of assessment is class examples and homework assignments of practical applications and designs involving professional engineering ethical application of proper engineering principles learned in statics]**

(k) Use the techniques, skills and modern engineering tools necessary for engineering practice [**low coverage, no formal assessment to measure Outcome (k)**].

Academic Policies & Resources

To support consistent and accessible communication of university-wide student resources, instructors must include this link to academic policies and campus resources: https://go.ufl.edu/syllabuspolicies. Instructor-specific guidelines for courses must accommodate these policies.

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