Course Meeting Times and Locations:

Lecture: MWF 9:10am-10:10am HI 208
Lab: T 8:00am-10:05am HI 208
Recitation: R 8:45am-10:05am HI 208

Instructional Team:

Dr. Lisa Abrams Mr. Leroy Long
Assistant Professor Graduate Teaching Assistant
abrams.34@osu.edu long.914@osu.edu
Office hours: R 1:00-2:00pm HI 179 Office hours: T, R 10:10-11:40am HI 342

Mrs. Lisa Barclay Ms. Lianna Brown
Associate Director, MEP Undergraduate Teaching Assistant
barclay.4@osu.edu brown.5491@osu.edu
Office hours: R 10:30-11:30 HI 185

Objectives: The objective of this course is to increase student retention, motivation and success in engineering through an application-oriented, hands-on introduction to engineering mathematics. This course will provide an overview of the salient math topics most heavily used in beginning engineering courses. All math topics will be presented within the context of an engineering application, and reinforced through extensive examples of their use in the core engineering courses.

Prerequisites: Course Code N on the Mathematics Placement Test

Learning Outcomes: Upon completing this course, students will be able to:

- Solve problems involving applications of algebra and trigonometry in engineering.
- Solve problems involving applications of vectors and complex numbers in engineering.
- Solve problems involving applications of systems of equations and matrices in engineering.
- Solve problems involving applications of derivatives in engineering.
- Solve problems involving applications of integrals in engineering.
- Solve problems involving applications of differential equations in engineering.
- Use MATLAB to solve a variety of introductory engineering mathematics problems.
- Conduct a variety of physical experiments using engineering laboratory equipment.
- Write proper technical executive summaries for engineering laboratory assignments.
Texts:

Grade Distribution:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homework/In class problems/Quizzes</td>
<td>10%</td>
</tr>
<tr>
<td>Lab</td>
<td>20%</td>
</tr>
<tr>
<td>In-Class Participation/Attendance/Reflections</td>
<td>5%</td>
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<tr>
<td>Exams (3 Exams; 20% each)</td>
<td>60%</td>
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<tr>
<td>Lab Final</td>
<td>5%</td>
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**Homework:** Homework is assigned each day in lecture (M, W, F). Unless otherwise noted, all homework for the week is due within the first ten minutes of class on the following Monday. All problems will be collected but only one problem for each day will be graded for full credit. The rest will be graded for completion. Late homework may be turned in by the next lecture (Wednesday) for a 30% penalty. In-class problems are due at the end of the class during which they are assigned. No in-class problems will be accepted late. Since homework is a mandatory component of this course, a passing grade in homework/in class problems/quizzes is required for a passing course grade.

**Labs:** Unless otherwise noted, lab assignments are due within the first ten minutes of lab the following week (Tuesday). Late labs may be turned in by the next lecture for a 30% penalty. Since the laboratory is a mandatory component of this course, the completion of all lab assignments is required for a passing course grade.

**Reflections:** You are responsible for responding to reflection prompts each week through Carmen. See the Dropbox section each week for the reflection prompt. Online responses are due by the beginning of class every Thursday. All responses are kept confidential among the instructional team. Unless otherwise specified, reflections should be double-spaced, typed, not less than ½ page, but not more than 1 page.

**Attendance:** Attendance at all lectures, labs, and recitations is required. Each unexcused absence will result in a 1% deduction from the attendance grade. More than 5 unexcused absences will result in a failing grade for the course. Excused absences for illness, personal/family emergency or academic commitments will be granted at the discretion of Dr. Abrams. Contact her as soon as you know you will not be attending class. Homework/in class problems/quizzes will be handled on a case by case basis by Dr. Abrams.

**Exams:** Exams are closed books, closed notes, closed outside resources. The only materials permitted for each exam is a calculator and a formula sheet which will be provided with the exam. The formula sheet must be returned with the exam.
**MATLAB/Excel**: This course will also provide an introduction to MATLAB/Excel, which is used in the engineering curriculum. Time constraints will prevent a formal instruction during lecture, but application of the software will be integrated with each lab assignment. In addition, required reading and problems may be assigned. MATLAB/Excel concepts introduced through homework and labs will be reinforced through a series of separate MATLAB/Excel sessions in lab. These sessions will form the basis for the lab final which will be administered during the last lab session and is worth 5% of the total course grade.

**Make-Up Lab/Exam Policy and Guidelines**: You are expected to take each exam and participate in every lab at the regularly scheduled time. Accommodations may be made for the following reasons:

1. **ILLNESS OR EMERGENCY ON LAB/EXAM DAY**: Students who are ill or have a family emergency (death or serious illness of a close family member) on the day of a lab/exam will be allowed to take a make-up. Written documentation is required. You must contact the instructor as soon as possible and certainly WITHIN 24 HOURS after the lab/exam. (The make-up lab/exam must be completed as soon as possible)

2. **UNAVOIDABLE CONFLICTS WITH LAB/EXAM TIME**: Such conflicts include military duty or an out-of-town interview. Documentation of the conflict with the regularly scheduled lab/exam time must be provided in writing one week prior to the day of the regularly scheduled lab/exam. If you miss a lab/exam without a legitimate, documented excuse, you may receive a score of zero for that lab/exam. Exceptions will be made only under unusual circumstances approved by the instructor.

3. **LATENESS**
A student who is late for his/her scheduled exam should take a seat quietly and begin the exam regardless of how much time remains; no additional time will be granted; no penalty will be applied to the exam score. If a student may be late due to a job interview, he/she should notify the instructor one week prior to the exam.

**Professional Conduct**: Students are expected to conduct themselves in a professional manner and to abide by the provisions in the Code of Student Conduct. Students should appreciate diversity, and they should conduct themselves professionally with members of the opposite gender and/or from different cultures. Any forms of sexual harassment or intimidation will not be tolerated. The University’s Code of Student Conduct and Sexual Harassment Policy are available on the OSU web page. Harassment can occur between two or more students and between students and faculty, and the actions can take place in physical, verbal, or written forms. When a complaint is received, the situation will be investigated by the department and possibly by the police even if the harassment was done anonymously or possibly as a jest. Being found guilty of harassment, even if it was nominally done in jest, can be professionally damaging.
Students are also reminded to represent themselves in a professional manner in any information that they wish to share with the public. This includes information on personal forums available inexpensively on the web. Examples are Twitter, Instagram, and Facebook. Information on these pages is often screened by potential employers, and unprofessional material can have a negative impact on job prospects.

**Academic Misconduct**, such as cheating or plagiarism, will be reported using official University procedures. Policies and procedures can be found in the Code of Student Conduct available online in several places including [http://studentaffairs.osu.edu/resource_csc.asp](http://studentaffairs.osu.edu/resource_csc.asp).

**For Students with Disabilities:** Please note that course materials and exercises can be made available in alternative formats. Please contact the instructor or the Office for Disability Services (292-3307) for further information.

**First-Year Engineering Computer Lab (HI 324):** In addition to your classrooms and labs, you will have access to the First-Year Engineering Computer Lab located in Hitchcock Hall Room 324. This lab can be used for assignments and lab reports, as it contains MATLAB, Excel, and Word. You may not install any software onto, or copy any software from the lab computers. Food and drink are not permitted in the lab. Violation of these policies will result in expulsion from the lab. The door is unlocked the following hours: Monday - Thursday 7:30 am – 5:30pm and is accessible using your BuckID during other hours. Tutor Table: There is a free tutoring service offered to First Year Engineering students M-F in HI 324 per the posted schedule. The tutors may not answer direct homework or lab questions, but can assist your understanding of concepts.