Hours and Location: Weekdays 1:25 - 3:20 pm, Bruininks Hall 123

Instructor: Brittany Baker
Office: 526 Vincent Hall
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Course website: Moodle

Office hours: Daily 12:00 - 1:00 pm

Description: This is part of the standard 2nd-year calculus course for students outside of CSE. This course is divided into two topics: Linear Algebra and Ordinary Differential Equations (ODEs). In detail, we will cover the following topics:
Linear Algebra: Matrices and matrix operations, Gaussian elimination, matrix inverses, determinants, vector spaces and subspaces, linear independence, Wronskian, dimension of a vector space, eigenvalues, eigenvectors, diagonalization of a matrix.
Ordinary Differential Equations: Separable and first-order ODEs, second-order linear ODEs with constant coefficients, method of undetermined coefficients, the harmonic oscillator, $2 \times 2$ and $3 \times 3$ linear systems of ODEs with constant coefficients, solution by eigenvalues and eigenvectors, nonhomogeneous linear systems, phase-plane analysis of $2 \times 2$ nonlinear systems near equilibrium.

We are packing a semester's worth of material into 8 weeks, so you will need to stay on top of the material and assigned work and ask questions as soon as you do not understand something. We will be learning a new topic every day of the course (see course schedule), so getting behind will be very detrimental to your learning.


Prerequisites: Grade of at least C- in Math 1272, 1282, 1372, or 1572. Credit will not be granted if credit has been received for: Math 2373, 2471, or 2574H.

Grades:
Grades will be based on homework, quizzes, three midterm exams, and a final exam, each of which are given the following point values:

<table>
<thead>
<tr>
<th>Homework</th>
<th>7 points each</th>
<th>(50 points total)</th>
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</thead>
<tbody>
<tr>
<td>Quizzes</td>
<td>8 points each</td>
<td>(200 points total)</td>
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<tr>
<td>Midterms</td>
<td>150 points each</td>
<td>(450 points total)</td>
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<tr>
<td>Final Exam</td>
<td>300 points</td>
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<tr>
<td>Total</td>
<td>1000 points</td>
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Homework:
There will be daily homework assignments, which will be graded for completion. You must attempt all problems to receive credit for your homework. It is possible to get 56 points total for completing homework assignments, but homework will be worth only 50 points, so the extra 6 points can be considered extra credit for the course. There is homework assigned for every section of the textbook which we study. You will be given a homework packet on Monday which will be due the following Monday. Homework is due by the beginning of class (1:25 pm) and no late homework will be accepted. If you are late to class, your homework will be considered late. Getting together with other students (that is, in study groups) is a very effective way to do homework. If you do not do homework on a regular basis, you should expect to do poorly in the course.
Quizzes:
There will be a short quiz at the beginning of most class periods (except after each exam). The first quiz will be on Tuesday, June 13. Problems on the quizzes will come directly from the assigned homework problems (see packet to determine appropriate problems) and the worksheets from the previous day. Looking up solutions to homework problems in the Student’s Solutions Manual could be damaging to your performance on quizzes and exams: if you do not get to practice solving problems independently by doing homework, you will not be ready for the tests. Your highest 25 quiz scores will count toward your final grade.

Exams:
There will be three 50-minute midterm exams. They are scheduled for Friday, June 24th, Tuesday, July 11th, and Monday, July 24th. The cumulative final exam will take place during the last class session of the summer: 1:25 - 3:20 pm Friday, August 4th.
If you have a conflict with any of these dates, please contact the instructor immediately.

Make-up Exams:
No make-up exams or quizzes will be given. Missing a midterm is permitted only for the most compelling reasons. Except in extraordinary situations, you should obtain permission from the instructor to miss an exam in advance (the sooner the better); otherwise you will be awarded a 0. If you are excused from taking a midterm, your course grade will be determined by giving extra weight to the final exam. Except in extremely exceptional situations, all students missing the final exam will fail the course.

Attendance and Participation:
Attendance in class is not mandatory; however, missing only one day of class would mean missing a quiz and up to two sections of new material. If you must miss class, make sure to get the notes and handouts from one of your classmates as soon as possible. Class participation is expected in the form of group work on worksheets. Class participation may be taken into account for grades in marginal cases. Experience shows that poor attendance and participation most often results in a poor grade.

Getting Help:
- Work in study groups and learn from each other. Various rooms throughout the Twin Cities campuses are available for small groups of students to work together or individual study.
- Come to my office during office hours or by appointment to discuss a homework problem or any aspect of the course.
- E-mail: Send questions to me at bake0573@umn.edu. Expect a response within 24 hours.
- The library course page offers additional study resources, such as sample final exams, alternative textbooks, and study guides. The Instructional Center at the Multicultural Center for Academic Excellence also has sample finals and other study resources.
- Free tutoring services are offered by the SMART Learning Commons at Walter and Wilson Libraries. There is also a similar Multicultural Center for Academic Excellence, which offers tutoring, a place where students can study together, review sessions before exams, and more.
- If you would like to hire an outside tutor (for a fee), you can find a list of such people through the undergraduate mathematics office 115 Vincent Hall or ugrad@math.umn.edu

Calculators:
During exams and quizzes you will be allowed to use basic or scientific calculators, but not graphing calculators. A scientific calculator is one that can calculate the values of standard functions, but cannot display the graphs of functions, or perform symbolic manipulations. You may also not use a cell phone, computer, or tablet as a calculator.
Drop Deadlines:
The schedule for drop deadlines can be found at the following site:
https://onestop.umn.edu/dates-and-deadlines/canceladd-deadlines

Disability Accommodations:
If you feel that you have a learning disability that would prevent you from doing your best on quizzes or exams within the time frame, you should immediately contact the Office for Students with Disabilities to see if they can authorize accommodations for you. Reasonable accommodations will be provided for students with disabilities on an individualized and flexible basis. The staff at Disability Services will determine said accommodations through consultation with the student. Information is available on their website at https://diversity.umn.edu/disability/ by calling 612-626-1333 (for both voice and TTY), or by sending an email to drc@umn.edu.

University Grading Policies: http://policy.umn.edu/education/gradingtranscripts

Student Conduct and Scholastic Dishonesty:
The University of Minnesota Student Conduct Code governs all activities in the University, including this course. Students who engage in behavior that disrupts the learning environment for others may be subject to disciplinary action under the Code. This includes any behavior that substantially or repeatedly interrupts either the instructor’s ability to teach or student learning. The classroom extends to any setting where a student is engaged in work toward academic credit or satisfaction of program-based requirements or related activities. Students responsible for such behavior may be asked to cancel their registration (or have their registration canceled).

Scholastic dishonesty includes plagiarizing, cheating on assignments or exams, using a calculator while taking an exam or quiz, engaging in unauthorized collaboration on academic work, and taking, acquiring, or using exam materials without faculty permission. Scholastic dishonesty in any portion of the academic work for a course shall be grounds for awarding a grade of F or N for the entire course. For more information see http://www.oscai.umn.edu.