University of Wisconsin-Madison

Math 213 - Calculus and Introduction to Differential Equations

Credits: 3

Course Designations and Attributes:

Gen Ed - Quantitative Reasoning Part B
Breadth - Natural Science
Level - Intermediate
L&S Credit - Counts as Liberal Arts and Science credit in L&S

Meeting Time and Location: MWF 9:55am-10:45am

Instructional Mode: face-to-face

Specify how Credit Hours are met by the Course: The three credit hours are met by four 50-minute meetings, and a minimum of five hours of out of class student work per week for 14 weeks.

INSTRUCTORS AND TEACHING ASSISTANTS

Instructor Title and Name: Dr. Thomas Yahl

Preferred Contact: Piazza (in Canvas)

Instructor Email: Tyahl@wisc.edu

Teaching Assistants:

Emma Hayes: ehayes7@wisc.edu
Henry Lin: jlin529@wisc.edu
Kalp Jain: kjain38@wisc.edu

OFFICE HOURS

Instructor: See Canvas

TA Office/Office Hours: See Canvas

OFFICIAL COURSE DESCRIPTION

Course Description

Introduction to differential and integral calculus and plane analytic geometry; applications; transcendental functions.

Requisites

Math 211, 217, 221, or 275

LEARNING OUTCOMES

Course Learning Outcomes

- Recall the algebraic and geometric properties of polynomial and power functions and use these properties to resolve practical problems.
- Use definitions, properties, and theory related to the concept of the derivative to perform standard computations and analyze functions (e.g., implicit derivatives, use Lagrange multipliers to optimize a multivariate functions, etc.)
- Use definitions, properties and theory related to limits, sequences, and series to determine convergence, divergence, and limit values as possible (e.g., geometric sums, use limit values as approximations to long term behavior, etc.).
- Use definitions, properties, and theory related to the integral to perform standard computations and analyze functions (e.g., integration by parts, indefinite integrals, etc.).
- Use definitions, properties, and theory related to differential equations to produce families of solutions and resolve initial value problems (e.g., linear and separable ode, etc.).
- Use functions to model practical behavior, analyze those functions using calculus concepts, and interpret that analysis in a practical context (e.g., identify concavity and use it to make investment decisions, model an annuity through a geometric series and determine its total present value, determine total change from a marginal rate, etc.).
- Produce informal arguments and formal computations in English using proper mathematical terminology, notation, and logic.

GRADING

Midterm 1 - 25%

Midterm 2 - 25%

Final exam - 30%

Online homework - 10%

Discussion Participation - 10%

LETTER GRADES:

A - 92%

AB - 90%

B - 82%

BC - 80%

C - 70%

D - 60%

F - less than 60%

REQUIRED TEXTBOOK, SOFTWARE & OTHER COURSE MATERIALS

- Applied Calculus, 7th edition, ebook, by Berresford and Rockett.
- WebAssign

EXAMS, QUIZZES, PAPERS & OTHER MAJOR GRADED WORK

There will be two midterms and a final for this course. The final exam will be cumulative. The dates for these exams are

- Midterm 1: October 9, 5:45pm-7:15pm
- Midterm 2: November 13, 5:45pm-7:15pm
- Final exam: December 13, 12:25pm-2:25pm

All exams are closed book, closed notes and no calculators or electronic devices of any kind are allowed. Exams are proctored in-person. Make-up times are posted to our Canvas site.

HOMEWORK & OTHER ASSIGNMENTS

- **Homework**

  There will be weekly online homework assignments, available on the Canvas site. Since it is quite likely that in the course of the semester you will either experience a technical difficulty (e.g., missed the deadline, your computer shut down as you were submitting it, internet outage, etc) or a personal emergency (being sick, attending a funeral, etc), the four lowest HW scores will be dropped. You do not need to contact your TA or instructor if such a situation does come up. In addition to the four drops, students can submit a late HW assignment within three days. Late submissions will receive a penalty of 40% (in particular, the maximum score will be 60%).

- **Discussion Participation**

There will be handouts given during each discussion session to be worked on during your discussion session. These handouts will he turned in at the end of your discussion session to be graded by your TA. Since it is possibility that you will be unable to attend your discussion session for every week of the semester (e.g., due to transportation issues, personal emergencies, etc.), the lowest two discussion participation scores will be dropped. You do not need to contact your TA or instructor if such a situation does come up. There will be no makeup participation scores given to students that are unable to attend their discussion session, for any reason.

COURSE WEBSITE, LEARNING MANAGEMENT SYSTEM and INSTRUCTIONAL TOOLS

- Our Learning Management System is Canvas. The site for our course is: https://canvas.wisc.edu/courses/417533
- The learning software WebAssign will be used for homework sets.
- We will use Gradescope for grading exams.
- We will use Piazza. This page is a forum for you to discuss the material of this class with other students and your TAs and/or instructor. Posts to this page should be confined to questions regarding the material and logistical questions about the class (e.g., exam dates and locations). Any posts containing comments (either positive or negative) about the instructors, the class, the students, or anything else, will be deleted. Unprofessional conduct may result in disciplinary action. Please do not use email for math questions.
- Some TA and/or instructor office hours may be held remotely. Zoom or MSTeams may be used for this purpose.

RULES, RIGHTS & RESPONSIBILITIES

- See the Guide's Rules, Rights and Responsibilities

COLLABORATION

We encourage you to discuss topics from the course with other students. In particular, you may collaborate on the homework and modules/module quizzes. Collaboration is NOT allowed during discussion quizzes and/or exams.

ACADEMIC INTEGRITY

By enrolling in this course, each student assumes the responsibilities of an active participant in UW-Madison's community of scholars in which everyone's academic work and behavior are held to the highest academic integrity standards. Academic misconduct compromises the integrity of the university. Cheating, fabrication, plagiarism, unauthorized collaboration, and helping others commit these acts are examples of academic misconduct, which can result in disciplinary action. This includes but is not limited to failure on the assignment/course,

disciplinary probation, or suspension. Substantial or repeated cases of misconduct will be forwarded to the Office of Student Conduct & Community Standards for additional review. For more information, refer to studentconduct.wiscweb.wisc.edu/academic-integrity/.

ACCOMMODATIONS FOR STUDENTS WITH DISABILITIES

McBurney Disability Resource Center syllabus statement: "The University of Wisconsin-Madison supports the right of all enrolled students to a full and equal educational opportunity. The Americans with Disabilities Act (ADA), Wisconsin State Statute (36.12), and UW-Madison policy (Faculty Document 1071) require that students with disabilities be reasonably accommodated in instruction and campus life. Reasonable accommodations for students with disabilities is a shared faculty and student responsibility. Students are expected to inform faculty [me] of their need for instructional accommodations by the end of the third week of the semester, or as soon as possible after a disability has been incurred or recognized. Faculty [I], will work either directly with the student [you] or in coordination with the McBurney Center to identify and provide reasonable instructional accommodations. Disability information, including instructional accommodations as part of a student's educational record, is confidential and protected under FERPA." http://mcburney.wisc.edu/facstaffother/faculty/syllabus.php

DIVERSITY & INCLUSION

Institutional statement on diversity: "Diversity is a source of strength, creativity, and innovation for UW-Madison. We value the contributions of each person and respect the profound ways their identity, culture, background, experience, status, abilities, and opinion enrich the university community. We commit ourselves to the pursuit of excellence in teaching, research, outreach, and diversity as inextricably linked goals.

The University of Wisconsin-Madison fulfills its public mission by creating a welcoming and inclusive community for people from every background – people who as students, faculty, and staff serve Wisconsin and the world." https://diversity.wisc.edu/

COURSE EVALUATIONS

Students will be provided with an opportunity to evaluate this course and your learning experience. Student participation is an integral component of this course, and your feedback is important to me. I strongly encourage you to participate in the course evaluation.

Digital Course Evaluation (AEFIS)

UW-Madison now uses an online course evaluation survey tool, AEFIS. In most instances, you will receive an official email two weeks prior to the end of the semester when your course evaluation is available. You will receive a link to log into the course evaluation with your NetID where you can complete the evaluation and submit it, anonymously. Your participation is an integral component of this course, and your feedback is important to me. I strongly encourage you to participate in the course evaluation.

Teaching & Learning Data Transparency Statement
The privacy and security of faculty, staff and students' personal information is a top priority for UW-Madison. The university carefully evaluates and vets all campus-supported digital tools used to support teaching and learning, to help support success through learning analytics, and to enable proctoring capabilities. View the university's full teaching and learning data transparency statement.

Privacy of Student Records & the Use of Audio Recorded Lectures Statement
View more information about FERPA.

Lecture materials and recordings for this course are protected intellectual property at UW-Madison. Students in this course may use the materials and recordings for their personal use related to participation in this class. Students may also take notes solely for their personal use. If a lecture is not already recorded, you are not authorized to record my lectures without my permission unless you are considered by the university to be a qualified student with a disability requiring accommodation. [Regent Policy Document 4-1] Students may not copy or have lecture materials and recordings outside of class, including posting on internet sites or selling to commercial entities. Students are also prohibited from providing or selling their personal notes to anyone else or being paid for taking notes by any person or commercial firm without the instructor's express written permission. Unauthorized use of these copyrighted lecture materials and recordings constitutes copyright infringement and may be addressed under the university's policies, UWS Chapters 14 and 17, governing student academic and non-academic misconduct.

Academic Calendar & Religious Observances
Pursuant to university policy UW-880 (see the link below), students are required to inform their instructors during the first two weeks of class about religious conflicts with quizzes and exams taking place during the semester. Students who will miss quizzes and/or exams during the semester because of religious holidays/observances must email their instructor to inform them of possible conflicts. The instructor will work with the individual student to find suitable alternatives that adhere to university and departmental guidelines. Note that if a conflict is not raised during the initial 2 week period then we cannot guarantee that suitable accommodations will be provided. Because of this, it is vital that students with religious conflicts contact their instructor in a timely manner during the first two weeks of class.
The university policy UW-880 can be found here: https://policy.wisc.edu/library/UW-880