MA1023 Section ATerm 2025-26

Lecture:	AL06	MTRF, 11-11:50am, Fuller Labs Perreault Hall Lower Section
Discussion:	AD14	W, 11-11:50am ET, Stratton Hall SH205
Discussion:	AD15	W, 10-10:50am ET, Olin Hall OH 223

Instructor:	Dr. William C. Sanguinet
Email:	wcsanguinet@wpi.edu
Physical Office:	SH409
Virtual Office (Zoom):	https://wpi.zoom.us/j/7387271648
Office Hours:	M, 9-9:50am, (Overflow room SL126) M, 12-12:50pm (Overflow room OH126) by appointment F T, 12-12:50pm (Overflow room UH400) by appointment R R, 1-1:50pm (Overflow room SL105)
Peer Learning Assistant (AD14, AD15):	Jack Curtis
Email:	jtcurtis@wpi.edu
In Person Office Hours Time/Location:	W, 1-2pm, SH311
In Person Office Hours Time/Location:	F, 2-3pm, SH431
Grader:	Oluwaseyi Idegbekwu
Email:	oiidegbekwu@wpi.edu
In-Person Office Hours Time/Location:	M, 10-11pm, SH429

`The information in this syllabus is subject to change as the course progresses. Please keep up to date regarding any changes.`

Severe Weather/ General Absence Accommodation Plan: Upon declaration of a "Severe Weather Impact" situation **or** a situation where I cannot personally make it to WPI (for example, due to sickness, etc.) we will have a Virtual Zoom Lecture at the normal class time in my Zoom Office unless you are otherwise notified. In the event that you cannot make it to class please let me know and we can discuss any missed work that you may have to make-up.

Contact Method: My preferred method of contact is the **Piazza discussion forum** on Canvas. Please post to Piazza if you have any questions regarding the homework, the course material, or the course logistics. Piazza is a useful tool because it allows me to answer a single persons question and simultaneously benefit the entire class. It is much more efficient than email. If you have a question of a more personal nature you can send me a *private* message in Piazza so I encourage you to do this rather than email because it is much more efficient. Alternatively, you can certainly send me or a TA/PLA an email and we will get back to you as soon as possible, but please use Piazza whenever

possible. Find our class signup link at: https://piazza.com/wpi/fall2025/20252026_aterm_ma1023_al06group6. Once you are signed up you can access the discussion forum at the following location https://piazza.com/wpi/fall2025/20252026_aterm_ma1023_al06group6/home.

Course Logistics: Course content will be organized and posted to Canvas under the **Modules** and **Pages** tabs. The course content will consist of lecture videos, notes, and/or slides as well as assigned reading material and various applets. This course will be taught in a hybrid "flipped" classroom model, with some classes presenting lecture material and some classes being active discussions. This means that students are responsible for watching any lecture videos and completing any reading assignments posted online before their assigned lecture session. During our lecture sessions, I will be reinforcing and expanding upon the material in any lecture videos assigned reading or other material. During these sessions you will have the opportunity to ask me questions regarding the material so that you get a better and deeper understanding of the material and its value to solving problems in applied mathematics/engineering. As the course progresses we will cover various book sections (click the following link https://www.wpi.edu/pages/syllabus-ma-1021-1024-using-herman-and-strang for more details). Please make sure to check Canvas/Piazza at least two times every day (e.g., morning/evening, etc.) to follow the assigned material and to stay informed about any updates to scheduling.

Course Description: Calculus is essential for majors in biology, chemistry, computer science, mathematics, physics, engineering, and environmental science and policy. This is even more true in the age of Artificial Intelligence (AI) and Machine Learning (ML) systems. The mathematics that runs these systems is based on the multivariable chain rule from MA1024, but many of the topics in this class are also useful to help understand.

This course provides an introduction to several more advanced topics in calculus. Specifically, we will cover indeterminate forms and L'Hopital's Rule(V1-4.8), improper integrals(V2-3.7), sequences(V2-5.1), series(V2-5.2), integral-test(V2-5.3), other convergence tests: comparison tests (V2-5.4), alternating series (V2-5.5), and ratio/root tests(V2-5.6), power series(V2-6.1 and 6.2), Taylor Series(V2-6.3) and applications(V2-6.4), 2D parametric curves(V3-1.1 and 1.2), polar coordinates(V3-1.3 and 1.4), vector algebra and geometry (V3-2.1, 2.2, 2.3, 2.4), lines and planes in space(2.5), and lastly curves in 3D space: motion, curvature, acceleration(V3-3.1, 3.2, 3.3, 3.4).

Recommended background: MA1021-1022. Although the course will make use of computers, no programming experience is assumed. For more information on what mathematics you should know before taking this course contact the instructor.

Text: *Calculus volume1 (V1), volume2 (V2), and volume3 (V3)*, by Herman and Strang
Author(s): G. Strang and E. J. Herman
About Text: The text for this course is Calculus (V1, V2, V3), by Herman and Strang. This is an open source textbook that is a fantastic free resource for your learning. There are many other good resources I can direct you to if you are interested, just ask me in OH.

WebWork Homework: There will be weekly online homework assignments using the WebWork system. This is free of charge, and is another great way that you will be able to practice the concepts introduced in the text and in class. It is important that you **only** access these assignments through the dedicated link in Canvas.

Written Homework: There will be written homework assignments that will be assigned weekly via Canvas. It is your responsibility to work on these assignments over the week and complete them before by the time they are due. This is because there will be a quiz during your discussion session on the material contained in these assignments.

Computer Labs: There will be three computer labs due during the semester. The computer labs are an important part of the course and will connect selected course content to real world applications. Lab #1 (**due September 3rd, 11am**), Lab #2 (**due September 17th, 11am**), and Lab #3 (**due October 1st, 11am**) will be posted one week before the due date and discussed in your individual lab section the week prior. The lab page is accessible via Canvas and each student has a different lab section which starts with X****.

Final Exam: There will be one final exam at the end of the term on **Thursday, October 9th, 5-6:30pm EST** . The location of this final exam will be announced later in the term.

The final is cumulative, but post-midterm material will be emphasized. The tests are closed book and one note sheet (front+back!) will be provided to you by me. You can leave your answers in terms of algebraic expressions on tests.

Project: There will be a final project will need to complete and turn in. This project is an important part of the course and will connect selected course content to real world applications. The final project will be due on the final day of class.

Time and Study: Besides the time for classes, you will spend time on reading the text, doing the assignments, and studying for tests. It is important that you keep up with the assigned reading and lecture material to do well in this course. It is also very important that you attend class and ask questions of the instructor.

For more detail about how to study mathematics, see About studying mathematics in general, and Calculus in particular.

Grade Distribution:
Your final course average will be based on the following percentages: 18% for online homework (WebWork) average, 26% for the quiz average (lowest grade dropped), and 28% for the final exam, 18% for the final project, and 10% for the computer labs.

Course Policies:

- **Accessibility Services:** The University is committed to providing students with documented accommodations equal access to all university programs and facilities. If you require academic accommodations, you must register with The Office of Accessibility Services (OAS). If you are registered with OAS, and qualify for accommodations that you would like to utilize in this course, please request those accommodations through OAS in a timely manner. For information, please contact the director of OAS at WPI.
- **Grades**
  - Grades in the **C** range represent performance that **meets or is below expectations**, on a standard curve this is typically 70%-79%; Grades in the **B** range represent performance that is **meets or is better** than expectations, on a standard curve this is typically 80%-89%; Grades in the **A** range represent work that is **better than or substantially exceeds** expectations, on a standard curve this is typically 90%-100%.
- **Assignments**
  - Students are expected to work independently. **Offering** and **accepting** solutions from others is an act of **plagiarism**, which is a serious offense and **all involved parties will be penalized according to the Academic Honesty Policy**. Discussion among students is encouraged, but when in doubt, direct your questions to the professor or teaching assistant.
- **Attendance and Absences**
  - Students are responsible for all missed work, regardless of the reason for absence. It is also the absentee's responsibility to get all missing notes or materials.

Course Assistance: If you are having any difficulties in the course, there are many resources available to help you succeed. In addition to my lecture and personal office hours (every class day), there is a TA and a PLA that can help you with the material. There are also various other resources on Campus such as the Math Tutoring Center(MTC), and the Academic Resources Center (ARC).

Academic Honesty Policy Summary:

Introduction

In addition to skills and knowledge, WPI aims to teach students appropriate ethical and professional standards of conduct. The academic integrity policy (AIP) exists to inform students and faculty of their obligations in upholding the highest standards of professional and ethical integrity. All student work is subject to the AIP. Professional and academic practice provides guidance about how to properly cite, reference, and attribute the intellectual property of others. Any attempt to deceive a faculty member or to help another student to do so will be considered a violation of this standard.

Instructor's Intended Purpose

The student's work must match the instructor's intended purpose for an assignment. While the instructor will establish the intent of an assignment, each student must clarify outstanding questions of that intent for a given assignment.

Unauthorized/Excessive Assistance

The student may not give or get any unauthorized or excessive assistance in the preparation of any work. This includes the use of modern Artificial Intelligence (AI) and/or Machine Learning (ML) tools and similar resources.

Authorship

The student must clearly establish authorship of a work. Referenced work must be clearly documented, cited, and attributed, regardless of media or distribution. Even in the case of work licensed as public domain or Copyleft, (See: http://creativecommons.org/) the student must provide attribution of that work in order to uphold the standards of intent and authorship.

Declaration

Online submission of, or placing one's name on an exam, assignment, or any course document is a statement of academic honor that the student has not received or given inappropriate assistance in completing it and that the student has complied with the AIP in that work.

Consequences

An instructor may impose a sanction on the student that varies depending upon the instructor's evaluation of the nature and gravity of the offense. The full procedure can found at the Conduct Forms link. Possible sanctions include but are not limited to, the following: (1) Require the student to redo the assignment; (2) Require the student to complete another assignment; (3) Assign a grade of zero to the assignment; (4) Assign a final grade of "NR" for the course.

The full text of the Academic Honesty Policy can be found at the following link https://www.wpi.edu/about/policies/academic-integrity.