MAP 2250 – Mathematical Technology

Spring 2026

Welcome to MAP 2250 – Mathematical Technology

Every STEM discipline uses advanced technological tools to aid in presentation, understanding, research, discovery, and experimentation. While technology constantly advances, there are standard programs and methods that are essential. This course includes an introduction to MATLAB, both a programming language and a symbolic and numeric platform for doing and visualizing mathematics; an introduction to LaTeX, the professional standard for typesetting mathematical writing; and an introduction to fundamental computations using Excel, including relative addressing, conditional formatting, filtering, and basic statistical functions. The course also explores collaboration with generative AI tools in programming environments.

Instructor Information

Instructor: Adam Rumpf, Ph.D.
Email: arumpf@floridapoly.edu
Office: IST 2008
Office Hours: MWF 12:00-1:00pm, TWF 2:00-3:00pm, or by appointment

Course Information

Course Number and Title: MAP 2250 – Mathematical Technology
Meeting Time and Place: Monday 2:00-2:50pm, IST 1017

Credit Hours: 1

Current Academic Term: Spring 2026

Official Catalog Course Description

This course is intended to prepare students to effectively use certain technologies while completing the degree in applied mathematics. Through online tutorials and self-paced modules, students receive an introduction to MATLAB, both a programming language and a symbolic and numeric platform for doing and visualizing mathematics; an introduction to LaTeX, the professional standard for typesetting mathematical writing; and an introduction to fundamental computations using Excel, including relative addressing, conditional formatting, filtering, and basic statistical functions. The course also explores collaboration with generative AI tools in programming environments.

Gordon Rule (6A-10.030): No
Pre-requisite: MAC 2311 – Calculus 1

Textbook Information
Textbook resources are provided through the Canvas course site free of charge.

Equipment and Material
Laptop computer and Internet access. You will need access to the following tools:

- **Microsoft Excel** (desktop or online version)
- **MATLAB** (available online through your Florida Poly student account)
- Overleaf **LaTeX editor** (you can setup a free account)
- Access to an AI tool such as **ChatGPT**

Course Objectives
Students will demonstrate basic competency in using MATLAB, LaTeX, and Excel for mathematical computations and visualizations. In addition, they will effectively use generative AI tools to assist with programming tasks.

Course Learning Outcomes

1. Write MATLAB scripts to solve mathematical problems and produce visualizations
2. Use built-in MATLAB functions for symbolic computation and matrix operations.
3. Use LaTeX to create a professional-quality document that includes equations, tables, and figures.
4. Demonstrate understanding of basic spreadsheet architecture by creating and manipulating columns of data.
5. Use Excel to implement basic statistical functions (e.g., mean, median, standard deviation).
6. Use Excel's conditional formatting and filtering to analyze datasets.
7. Use Excel to create clear, well-labeled charts and graphs.
8. Appropriately integrate AI tools to assist with various technology and programming tasks.

Class Meetings
This course will primarily use a **flipped classroom** format. Readings and assignments will be posted online before each weekly class meeting, and the class meeting, itself, will primarily be used for group discussions, group work, and help sessions rather than for presenting new material.

Grading Scale

This course uses a **standards grading** system. Throughout the semester students will attend class, complete Excel/MATLAB programming assignments, complete LaTeX typesetting assignments, and complete three unit projects. Final grades will be determined based on how many of these assessments are successfully completed across all four categories according to the table below:

Category	D	C	B	A
Excel/MATLAB Homework Completed (15 total)		7/15	9/15	11/15
LaTeX Assignments Completed (6 total)		3/6	4/6	5/6
Class Sessions Attended (13 total)	7/13	8/13	9/13	10/13
Project Points Earned (12 points total)	9/12	10/12	11/12	12/12

Earning a given letter grade requires meeting *all* criteria listed beneath it. For example, earning an overall grade of B requires:

9. Complete at least 9 MATLAB/Excel homework assignments

10. AND complete at least 4 LaTeX assignments

11. AND attend at least 9 class sessions

12. AND earn at least 11 project points

Each of these four assessment categories is explained in more detail below.

Excel/MATLAB Homework

Online assignments will be used to provide training and practice working with Excel and MATLAB. The course will begin with an Excel unit during which students will complete assignments that involve setting up and performing computations in Excel spreadsheets. These assignments will be submitted through Canvas and graded for correctness. Later in the course we will move onto a MATLAB unit, which will primarily be driven through online training modules through MathWorks. These modules will be automatically graded for completion.

In both cases, assignments will be graded out of a holistic credit/no credit system with no partial credit possible. Earning credit requires that an assignment be completed in its entirety with no substantive errors. Reassessment opportunities may be offered on a case-by-case basis.

Attendance

Students are expected to attend class regularly to participate in group discussions. Attendance will be taken during each weekly class meeting. Absences may be excused on a case-by-case basis if a good-faith effort is made to inform the instructor ahead of time (or as soon as possible afterwards in case of emergency).

LaTeX Assignments

LaTeX readings and assignments will be assigned periodically throughout the semester. Each assignment will require typesetting a document to create a PDF. Source files and PDF outputs will be submitted through Canvas and graded for correctness. Like the Excel and MATLAB assignments, a credit/no credit scale will be used.

Projects

Three major projects will be assigned throughout the semester, including one Excel assignment and two MATLAB assignments. Each assignment will require completing a set of programming problems and writing a report about the results. Source files and a report PDF (typeset using LaTeX) will be submitted through Canvas and graded out of a 4-point scale for correctness and presentation. Projects will be worked on primarily outside of class, though some class days are set aside to act as help sessions for these projects.

Tentative Schedule

Important Dates: https://floridapoly.edu/academics/academic-calendar/index.php

Assignment dates, as well as the topic schedule, are subject to change. Refer to the course Canvas page regarding quizzes and exams and the Academic Calendar website for the most up-to-date final exam schedule.

Week/Date	Topics	Assignments Due
Week 1 Jan 12	Introduction to Excel Introduction to LaTeX	
Week 2 Jan 19	Martin Luther King Jr. Day (no classes)	Excel Homework 1-2 LaTeX Assignment 1
Week 3 Jan 26	Excel Formulas and Charts LaTeX Equations and Tables	Excel Homework 3-4 LaTeX Assignment 2
Week 4 Feb 2	Excel Advanced Functionality	Excel Homework 5
Week 5 Feb 9	Project 1 Help Session	**Project 1**
Week 6 Feb 16	Introduction to MATLAB LaTeX Figures	MATLAB Homework 1 LaTeX Assignment 3
Week 7 Feb 23	MATLAB Plots and Desktop Tools LaTeX Lists and Matrices	MATLAB Homework 2-3 LaTeX Assignment 4

Week 8 Feb 27	MATLAB Vectors and Matrices	MATLAB Homework 4-5
Week 9 Mar 9	Project 2 Help Session	**Project 2**
Week 10 Mar 16	Spring Break (no classes)	
Week 11 Mar 23	MATLAB Tables LaTeX Preamble and Sectioning	MATLAB Homework 6 LaTeX Assignment 5
Week 12 Mar 30	MATLAB Data Filtering MATLAB Programming Constructs	MATLAB Homework 7
Week 13 Apr 6	MATLAB Flow Control	MATLAB Homework 8-9
Week 14 Apr 13	MATLAB 3D Visualization LaTeX References	MATLAB Homework 10 LaTeX Assignment 6
Week 15 Apr 20	Project 3 Help Session	**Project 3**

Civility and Collegiality

Faculty and students come to the university for the same reason, which is to participate in a highly professional educational environment. To that end, both students and faculty are expected to treat each other with mutual regard and civility. In more general terms, collegiality means respecting the right of both faculty and students to participate fully and fairly in the educational enterprise.

Participation

Students are expected to participate in the classroom experience. The use of earbuds, headphones, or any other unauthorized technology during class is specifically not allowed and students who engage in this behavior may be marked as absent and/or asked to leave the class for the day (noting exceptions for authorized accommodations). Persistent problems with participation may result in a code of conduct referral.

Late Work/Make-up work

Students are expected to turn in assignments on time. The course has regular due dates for multiple assignments throughout the semester. It is the responsibility of the student to be aware of the deadlines and turn in work accordingly.

Academic Support Services

There are several resources available for student to find extra help:

13. **Library**: Students can access the Florida Polytechnic University Library through the University website and Canvas, on and off campus. Students may direct questions to library@floridapoly.edu.
14. **Tutoring and Learning Center**: The Tutoring and Learning Center (The TLC) provides tutoring to all Florida Poly students who may need additional academic support. The TLC is staffed by students who have excelled in the courses they tutor. They offer support by reviewing concepts and materials from class, clarifying points of confusion and providing assistance with learning strategies. While the focus of TLC is to provide support to students in freshman-level courses, upper-level courses are also tutored at the Center. The TLC is located in the IST Commons (second floor).
15. **Knack Tutoring**: Students looking for additional assistance outside of the classroom are advised to consider working with a peer tutor through Knack. Florida Polytechnic University has partnered with Knack to provide students with access to verified peer tutors who have previously aced this course. To view available tutors, visit floridapoly.joinknack.com and sign in with your student account.
16. **Academic Success Coaches**: All students at Florida Poly are assigned an Academic Success Coach. Your Academic Success Coach can assist you with academic success strategies. Please visit the Student Success Center on the second floor of the IST building to meet with an Academic Success Coach.
17. **Writing Center**: Located on the second floor of the IST (2059/2061), the Writing Center helps students to develop their writing and presentation skills. Consultations are available in person and virtually. For more detail, visit https://floridapolytechnic.libguides.com/writingservices

University Policies

Reasonable Accommodations

The University is committed to ensuring equal access to all educational opportunities. The University, through the Office of Disability Services (ODS), facilitates reasonable accommodations for students with disabilities and documented eligibility. It is the student's responsibility to self-identify as a student with disabilities and register with ODS to request accommodations.

If you have already registered with ODS, please ensure that you have requested an accommodation letter for this course through the ODS student portal and communicate with

your instructor about your approved accommodations as soon as possible. Arrangements for testing accommodations must be made in advance. Accommodations are not retroactive.

If you are not registered with ODS but believe you have a temporary health condition or permanent disability requiring an accommodation, please contact ODS as soon as possible.

The Office of Disability Services (ODS):
DisabilityServices@floridapoly.edu
(863) 874-8770
The Access Point
https://floridapoly.edu/studentlife/disability-services/

Accommodations for Religious Observances, Practices and Beliefs

The University will reasonably accommodate the religious observances, practices, and beliefs of individuals in regard to admissions, class attendance, and the scheduling of examinations and work assignments. (See University Policy.)

Title IX

Florida Polytechnic University is committed to ensuring a safe, productive learning environment on our campus that prohibits sex discrimination and sexual misconduct, including sexual harassment, sexual assault, dating violence, domestic violence and stalking. Resources are available if you or someone you know needs assistance. You may speak to your professor, but your professors have an obligation to report the incident to the Title IX Coordinator. Please know, however, that your information will be kept private to the greatest extent possible. You will not be required to share your experience. If you want to speak to someone who is permitted to keep your disclosure confidential, please seek assistance from the Florida Polytechnic University Ombuds Office, BayCare's Student Assistance Program, 1-800-878-5470 and locally within the community at Peace River Center, 863-413-2707 (24-hour hotline) or 863-413-2708 to schedule an appointment. The Title IX Coordinator is available for any questions to discussion resources and options available.

Academic Integrity

The faculty and administration take academic integrity very seriously. Violations of academic integrity regulation include actions such as cheating, plagiarism, use of unauthorized resources (including but not limited to use of Artificial Intelligence tools), illegal use of intellectual property, and inappropriately aiding other students. Such actions undermine the central mission of the university and negatively impact the value of your Florida Poly degree. Suspected violations will be fully investigated, possibly resulting in an academic integrity hearing and sanctions against the accused student if found in violation. Sanctions range from receiving a zero on the exam or

assignment, to expulsion from the university. Repeat offenders are subject to more severe sanctions and penalties.