FLORIDA POLYTECHNIC UNIVERSITY

Welcome to Precalculus Algebra and Trigonometry

This course is part of the STEM Core, a set of critical and foundational courses consisting of mathematics, chemistry, physics, programming, and STEM applications. These courses build the skills and conceptual understanding you need to succeed in all degree programs. Data show that completing these courses in your freshman (first) year is the best path towards a high-powered STEM degree and an on-time graduation. Courses in the STEM Core share similar formats and expectations. The faculty across the STEM Core work together to help you succeed. Make these courses a priority!

Academic Integrity: Students are expected to adhere to the highest standards of academic integrity. Violations of academic integrity, particularly cheating and plagiarism, undermine the central mission of the university and negatively impact the value of Florida Poly degrees. Suspected violations will be fully investigated, possibly resulting in an academic integrity hearing and sanctions against the accused student. More information about Florida Poly's academic integrity policies and procedures can be found here: https://floridapoly.edu/wp-content/uploads/2017/07/FPU-5.005-Academic-Integrity-7.29.14.pdf#search=academic%20integrity.

Exams: Exam dates will be finalized early in the semester and those dates/times will be posted to our Canvas course site once available. Exam dates are subject to change, and you should refer to the Academic Calendar website for the most up-to-date exam schedules. Exam dates will also be announced in class at least one week prior to the scheduled event.

Official Email Address: Florida Polytechnic University email is the official method of communication for the University. Students are required to check their email frequently (at least once per day). We cannot reply to any email received from an address other than those that end in floridapoly.edu.

Course Information

- **Course Number and Title: MAC 1147 Precalculus Algebra and Trigonometry**
- **Credit Hours: 4**
- **Academic Term: Fall 2024**

Instructor Information

- **Instructor:** Dr. Bernadette Mullins
- **Office Location:** IST 2009
- **Office Hours:** Mon 3:00-4:00, Tue 1:00-1:50, Wed 12:00-1:00, Fri 11:00-12:00, and by appointment
- **Email address:** bmullins@floridapoly.edu

Course Delivery and Course Description

- **Delivery Mode**: Face-to-face
- **Class Meetings**: Section 04 meets MTWF 2:00 – 2:50 in IST-1003
- **Course Website**: Canvas course site

- **Official Catalog Course Description**: A study of families of functions, their properties, and applications. Emphasis is on linear, polynomial, rational, exponential, logarithmic, and trigonometric functions. Additional topics may include absolute values, inequalities, and systems of equations. A significant focus is on mathematical modeling and the problem-solving process. This course is intended to provide the mathematical skills and conceptual understanding of functions needed for the calculus sequence.
    - **Course Pre and/or Co-Requisites:** None
    - **Communication/Computation Skills Requirement (6A-10.030):** No

- **Required Texts and Materials:**
    - Textbook: OpenStax Precalculus, https://openstax.org/details/books/precalculus-2e
    - Online homework will be required through Edfinity. Further information, including enrollment instructions, will be provided on Canvas and by your instructor. Do not enroll until told to do so by your instructor
    - We will often need technology that can adequately run Desmos.com or Excel. Office 365 with Excel is available through the MyApps Florida Poly portal at https://apps.floridapoly.edu/.
    - Graphing calculators are not allowed.
    - The required calculator for this class is the TI-30XIIS. No other calculators are allowed.

Course Objectives and Outcomes

- **Course Objectives**:

    - Students will gain a solid foundation in mathematical reasoning by acquiring important mathematical concepts and skills. Students will apply principles of mathematical modeling, along with algebraic and trigonometric skills to solve applied problems across a variety of STEM fields.

- **Course Learning Outcomes**:

    1. Illustrate the different representations (verbal, symbolic, tabular, and graphical) of critical classes of STEM functions: linear, power, exponential, logarithmic, and trigonometric.
    2. Describe function behavior using precise mathematical language, to include domain, range, asymptotes, zeros, intercepts, and invertibility.
    3. Recognize the connections between zeros of polynomials and the factorization of polynomials, to include using the fundamental theorem of algebra to completely classify the zero set of a polynomial.
    4. Show proficiency in the algebra and function properties required to solve equations involving exponential and logarithmic functions.
    5. Construct the solution of triangles, and model sinusoidal behavior by utilizing the right triangle and unit circle representations of the sine and cosine functions.
    6. Use algebraic and graphical techniques to solve equations involving STEM functions, including linear systems of equations.

    Additionally:

    7. Effectively use calculators and visualization software to explore mathematical ideas and to assist in solving problems.
    8. Clearly communicate solutions to multi-step mathematics problems through careful, organized, and well-annotated work.

- **This course supports the following General Education competencies:**

    - Demonstrate fluency in mathematical concepts.
    - Interpret quantitative data to derive logical conclusions.
    - Determine appropriate mathematical and computation models and methods in problem-solving.
    - Apply appropriate mathematical and computational models and methods in problem-solving to produce valid results

Course Policies

Attendance

- Students are expected "to attend all of their scheduled University classes and to satisfy all academic objectives as defined by the instructor" (University Policy, FPU-5.0010AP).
- Attendance will be tracked using the A+ Attendance system. Coming to class to get the attendance code and then leaving is not permitted. Furthermore, obtaining the attendance code from another student and submitting it when not in class is a violation of the Academic Integrity Policy.

Participation

- Students are expected to participate in the classroom experience. The use of earbuds/headphones during class is specifically not allowed and students who engage in this behavior may be 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.

Grading Scale

Grade	A	B+	B	B-	C+	C	D	F
Percentage	90%	87%	83%	80%	77%	70%	60%	< 60%
GPA	4.0	3.33	3.0	2.67	2.33	2.0	1.0	0.0

Assignment/Evaluation Methods

Written homework	10%
Edfinity online homework	10%
Quizzes	12%
Attendance / participation	3%
Midterm exams	45% (3 exams @ 15% each)
Comprehensive final exam	20%
Total	**100%**

- **Written homework**: Written homework will be required approximately weekly to be submitted through Canvas. See the Guidelines for Written Homework Submission on Canvas for details. At the end of the semester, your one lowest written homework score will be dropped to allow for occasional extenuating circumstances (student illness, family emergencies, technical difficulties, etc.)

- **Edfinity online homework**: Online homework will be required approximately four times per week through Edfinity. Your four lowest Edfinity online homework scores will be dropped to allow for occasional extenuating circumstances.

- **Quizzes**: Individual quizzes will be given in class approximately weekly. Your two lowest quiz scores will be dropped to allow for occasional extenuating circumstances.

- **Midterm exams**: There will be three evening midterm exams given on the common exam schedule.

- **Comprehensive final exam**: There will be a common, comprehensive exam at the end of the semester given at the time listed on the final exam schedule. Your lowest exam score may be replaced by your final exam score if that would improve it, up to a maximum of 80%. The final exam score still counts for the final exam portion of the course grade listed above. Note: The final may not be used to replace a missed exam or a score of zero. It may only be used to replace a score for an exam on which you made a legitimate effort.

Late Work/Make-up work

- Written homework submitted up to 24 hours late will be accepted with a 20% penalty. No submissions will be accepted more than 24 hours late. Failing in submitting by the deadline due to technical issues is still considered a late submission. It is your responsibility to ensure that you are sending the correct file. You will not be able to submit the correct file after the due date passes regardless of the reason why you submitted the incorrect one in the first place.
- Edfinity online homework will not be accepted late.
- Make-up exams/quizzes will be given only in extreme circumstances with a documented excuse. Communicate with your instructor before the exam. If you will miss an exam because you are participating in a college-sponsored activity, inform your instructor before the exam and provide them with documentation.
- Due dates for assignments are posted on Canvas. Students are responsible for checking Canvas regularly to be aware of assignment deadlines and other class information. Extensions without penalty may be granted on a case-by-case basis. Please communicate with your instructor.

Course Schedule (Subject to Change)

Week	Date			Section
1	M	Aug	19	No classes
	T	Aug	20	1.1 Functions, first day of classes
	W	Aug	21	1.2 Domain and Range
	F	Aug	23	1.3 Rates of Change and Behavior of Graphs
2	M	Aug	26	1.4 Composition of Functions
	T	Aug	27	1.5 Transformation of Functions, Quiz 1
	W	Aug	28	1.5 Transformation of Functions
	F	Aug	30	1.6 Absolute Value Functions
3	M	Sep	2	Labor Day--no classes
	T	Sep	3	1.7 Inverse Functions, Quiz 2
	W	Sep	4	2.1-2.3 Modeling with Linear Functions
	F	Sep	6	2.1-2.3 Modeling with Linear Functions
4	M	Sep	9	2.4 Fitting Linear Models to Data
	T	Sep	10	Review, Quiz 3
	W	Sep	11	Approximate Exam 1 date (exact date to be announced)
	F	Sep	13	
5	M	Sep	16	3.1 Complex Numbers
	T	Sep	17	3.2 Quadratic Functions
	W	Sep	18	3.2 Quadratic Functions
	F	Sep	20	3.7 Rational Functions
6	M	Sep	23	3.9 Modeling Using Variation
	T	Sep	24	4.1 Exponential Functions, Quiz 4
	W	Sep	25	4.2 Graphs of Exponential Functions
	F	Sep	27	4.3 Logarithmic Functions
7	M	Sep	30	4.4 Graphs of Logarithmic Functions
	T	Oct	1	4.5 Logarithmic Properties, Quiz 5
	W	Oct	2	4.6 Exponential and Logarithmic Equations
	F	Oct	4	4.7 Exponential and Logarithmic Models
8	M	Oct	7	4.7 Exponential and Logarithmic Models
	T	Oct	8	Review, Quiz 6
	W	Oct	9	Approximate Exam 2 date (exact date to be announced)
	F	Oct	11	

9	M	Oct	14	5.1 Angles, Midterm grades due
	T	Oct	15	5.2 Unit Circle: Sine and Cosine Functions
	W	Oct	16	5.2 Unit Circle: Sine and Cosine Functions
	F	Oct	18	5.3 The Other Trigonometric Functions
10	M	Oct	21	5.4 Right Triangle Trigonometry
	T	Oct	22	5.4 Right Triangle Trigonometry, Quiz 7
	W	Oct	23	6.1 Graphs of the Sine and Cosine Functions
	F	Oct	25	6.1 Graphs of the Sine and Cosine Functions
11	M	Oct	28	6.2 Graphs of the Other Trigonometric Functions
	T	Oct	29	6.3 Inverse Trigonometric Functions, Quiz 8
	W	Oct	30	6.3 Inverse Trigonometric Functions
	F	Nov	1	7.5 Solving Trigonometric Equations
12	M	Nov	4	7.5 Solving Trigonometric Equations
	T	Oct	5	Review, Quiz 9
	W	Nov	6	Approximate Exam 3 date (exact date to be announced)
	F	Nov	8	
13	M	Nov	11	Veterans' Day--no classes
	T	Nov	12	7.1 Solving Trigonometric Equations w/Identities
	W	Nov	13	7.2-7.3 Sum, Difference, Double- and Half-Angle, Reduction Identities
	F	Nov	15	7.6 Modeling with Trigonometric Functions
14	M	Nov	18	7.6 Modeling with Trigonometric Functions
	T	Nov	19	8.8 Vectors, Quiz 10
	W	Nov	20	8.8 Vectors
	F	Nov	22	9.1 Systems of Linear Equations: Two Variables
15	M	Nov	25	9.2 Systems of Linear Equations: Three Variables
	T	Nov	26	9.2 Systems of Linear Equations: Three Variables, Quiz 11
	W	Nov	27	Thanksgiving break--no classes
	F	Nov	29	Thanksgiving break--no classes
16	M	Dec	2	Review
	T	Dec	3	Quiz 12, 13, 14
	W	Dec	4	Review, last day of classes

Academic Support Resources

- **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.

- **Peer Learning Strategists (PLS)**: Are specially trained student leaders who help their peers strategize approaches to course content and work through solution methods. PLS work in collaboration with the courses they support so the content and methods are aligned with your instructors' expectations. Students can meet with a PLS in The Learning Center, which is located on the first floor of the Innovation, Science and Technology (IST) building in room 1019.

- **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.

- **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://floridapoly.edu/writingcenter.

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.

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
ODS website: www.floridapoly.edy/disability

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.

Recording Lectures

Students may, without prior notice, record video or audio of a class lecture for a class in which the student is enrolled for their own personal educational use. Recordings may not be used as a substitute for class participation or class attendance. Recordings may not be published or shared in any way, either intentionally or accidently, without the written consent of the faculty member. Failure to adhere to these requirements is a violation of state law (subject to civil penalty) and the student code of conduct (subject to disciplinary action).

Recording class activities other than class lectures, including but not limited to lab sessions, student presentations (whether individually or part of a group), class discussion (except when incidental to and incorporated within a class lecture), and invited guest speakers is ***prohibited****.*