

**About this course:** The goal of this course is to ensure that you have a proper background to take calculus at Stony Brook. This means that we will need to accomplish several things:

- Ensure that you have fluency with a variety of topics, such as trigonometry, exponentials and logarithms, algebraic functions (polynomials and rational functions).
- Ensure that you are comfortable and conversant with the underlying concepts such as functions, domain, range, inverse functions, functional composition, and so on.
- Ensure that you have mastered the various means of manipulating functional and algebraic expressions, solving basic equations, and their graphical representations.
- Be able to apply the above to problems both within and outside of mathematics. Part of this is a deeper understanding of functions, whether viewed as graphs, tables, or formulae. Fluency in understanding the language of mathematics is essential for success in the sciences or engineering.

**Text:** *Precalculus: a Prelude to Calculus (2nd edition)*, by Sheldon Axler.

Use of [WebAssign](#) is required. There are many options regarding the text other than from the bookstore; please see the page [about the text](#) on the class web page for details.

**Course Prerequisites:** In order to take MAT123, you must have either

- Passed [MAP103](#) with a grade of C or better, or
- Received a score of level 3 or better on the [math placement exam](#).

**Before class:** Most weeks, one or more videos will be posted. The material in the videos is also covered in the textbook. **Watch the videos and read the text before the lecture!** This will greatly increase your comprehension, and enable you to ask intelligent questions in class. Furthermore, the lectures will assume you have prepared for class by doing this.

**Examinations and grading:** There will be two evening exams, and the ever-popular final exam. The dates and times are listed below; the locations will be announced later. Part of your grade will be based on class participation in both recitation and lecture.

What	When	% of Final Grade
Exam 1	Wednesday, September 30 8:45–10:15 pm	25%
Exam 2	Thursday, October 29 8:45–10:15 pm	25%
Final Exam	Wednesday, December 9 2:15–5:00 pm	35%
homeworks (WebAssign and paper)		10%
participation in lecture and recitation		5%

Make sure that you can attend the exams at the scheduled times; **make-ups will not be given**. If you have evening classes, resolve any conflicts *now*. If one midterm exam is missed because of a serious (documented) illness or emergency, the semester grade will be determined based on the balance of the work in the course.

**Exam format:** Each of the midterms and the final will be in two parts: the first part will consist of a number of basic problems to ensure that you have minimal mastery of the subject. The second part will contain more challenging problems, similar to the harder problems from the homework and requiring a deeper mastery of the material. Your grade on the exams will be based on the combination of both, **you cannot get a grade of C or higher unless you pass the first part of the exams**. Since everybody

messes up sometimes, students will have more than one attempt to pass part 1 of each exam (with different questions).

**Homework:** You *can not* learn mathematics without working problems. Expect to spend at least 8 hours a week solving problems; do all of the assigned problems, as well as additional ones to study. If you do not understand how to do something, get help from your TA, your lecturer, your classmates, or in the Math Learning Center. You are encouraged to study with and discuss problems with others from the class, but write up your own homework by yourself, and make sure you *understand* how to do the problems. Specific problem assignments can always be found on the [class web page](#).

There will be weekly homework assignments, in two parts. One part will be done online in WebAssign and a separate assignment will be handed in on paper; see the [class web page](#) for details. WebAssign homeworks are due **every wednesday in the morning** (think “Tuesday before I go to sleep”); problems solved at least 2 days before the due date get extra credit. Paper homeworks will be due during recitation each week.

**Calculators:** A calculator is **not required** for this course, but you may find using a graphing calculator helpful. (I prefer a laptop). However, be careful how you use it. Many students become dependant on their calculators, and wind up being unable to do anything without them. In this course, **no calculators will be allowed on exams**.

**Office Hours:** All lectures and TAs must hold at least three scheduled office hours per week. They are there to help *you*, so make use of these hours. You may go to any hours for any of the people associated with the course; the various office hours are listed on the [Teaching Staff](#) section of the class web page. You can also make appointments at other times. Note that one or two of these hours each week may be in the Math Learning Center.

**Math Learning Center:** The [Math Learning Center](#), in Math S-240A, is there for you to get help with Calculus. It is staffed most days and some evenings— your lecturer or TA may hold some of his or her office hours there. A schedule of the hours can be found [on the web](#).

**Learning outcomes:** This course is certified to fulfill the requirements of **DEC C** and the **Master Quantitative Problem Solving (QPS)** objective of the Stony Brook Curriculum. These include the following learning outcomes:

1. Interpret and draw inferences from mathematical models such as formulas, graphs, tables, or schematics.  
This includes understanding the features of different formulas / graphs such as linear formulas / lines (slope and intercepts), trigonometric formulas (period, peaks, troughs, amplitude, ...), and quadratic functions (vertex of a parabola, ...), as well as more general features (domain and range, discontinuities, vertical and horizontal asymptotes, etc.)
2. Represent mathematical information symbolically, visually, numerically, and verbally.  
This includes graphing functions given as equations, converting between different descriptions of functions (e.g., explicit equations versus implicit descriptions such as inverse functions), and finding the appropriate equations and graphs from a verbal description (i.e., “word problems”).
3. Employ quantitative methods such as algebra, geometry, calculus, or statistics to solve problems. Students will learn how to use models such as linear models and exponential models to understand real-world phenomenon such as compound interest, population growth, and radioactive decay.
4. Estimate and check mathematical results for reasonableness. Students will learn how to perform “consistency checks” to test solutions, e.g., plugging in points to check the equation of a graph obtained from an affine linear transformation (horizontal / vertical translations and scalings).’
5. Recognize the limits of mathematical and statistical methods. Students will learn the limits of simplified mathematical models (such as exponential population growth).

**Disabilities:** If you have a physical, psychological, medical, or learning disability that may impact your course work, please contact Disability Support Services at <http://studentaffairs.stonybrook.edu/dss/> or (631) 632-6748. They will determine with you what accommodations are necessary and appropriate. All information and documentation is confidential.

Students who require assistance during emergency evacuation are encouraged to discuss their needs with their professors and Disability Support Services. For procedures and information go to the following website:

<http://www.stonybrook.edu/ehs/fire/disabilities.shtml>

**Academic Integrity:** Each student must pursue his or her academic goals honestly and be personally accountable for all submitted work. Representing another person's work as your own is **always** wrong. Faculty are required to report any suspected instances of academic dishonesty to the Academic Judiciary. For more comprehensive information on academic integrity, including categories of academic dishonesty, please refer to the academic judiciary website at

<http://www.stonybrook.edu/uaa/academicjudiciary/>

**Critical Incident Management:** Stony Brook University expects students to respect the rights, privileges, and property of other people. Faculty are required to report to the Office of Judicial Affairs any disruptive behavior that interrupts their ability to teach, compromises the safety of the learning environment, or inhibits students' ability to learn.