

# MAT123 Precalculus Spring 2024

Welcome to Precalculus! This is an introductory course designed primarily for science, business, engineering, and technical majors to prepare for the regular calculus sequences. I hope that this course is useful for your future studies.

**Instructor:** Young-Seon Lee, PhD

**Class Hour:** Mo/We 5:00 pm ~ 6:20 pm, Recitation: Mo 12:30 pm ~ 1:25 pm

**Office:** Academic Building B609

**E-mail:** [young-seon.Lee@stonybrook.edu](mailto:young-seon.Lee@stonybrook.edu)

**Office Hours:** 11 am ~ 12 pm, 1 pm ~ 2 pm, 5 pm ~ 6 pm (Tuesday and Thursday),  
B609 or virtual (Zoom), particular times are possible by arrangement.

**TA and TA office hours:**

**Jea Na Kim** [jeana.kim@stonybrook.edu](mailto:jeana.kim@stonybrook.edu) Monday 1:30 pm - 3:30 pm

**Course Description:** We will study functions and their properties with a special emphasis on polynomial, rational, logarithmic, exponential, and trigonometric functions. We will also highlight the use of mathematical concepts, which not only allows for a deeper understanding but also allows students to express themselves accurately. All of the things combined allow for success in a calculus course.

**The goal of this course:** 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, and 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.

**Prerequisite:** C or better in MAP 103 or level 3 on the mathematics placement exam. (Prerequisite must be met within one year prior to beginning the course.)

- **Textbook:** Precalculus by Jay Abramson  
<https://openstax.org/details/books/prec calculus> (Free download)
- **Supplementary Textbook:** Precalculus by David H. Collingwood, David Prince, and Matthew M. Conroy  
<https://open.umn.edu/opentextbooks/textbooks/176> (Free download)

**Homework policy:**

1. Homework will be assigned once a week on Brightspace.
2. The lowest homework grade will be dropped before the final grading.
3. Submit one file of your homework in pdf format on Brightspace. If you are not able to submit it via Brightspace, you should submit it to me by email.
4. Organize your solutions in the same order as the problems listed.
5. You **must** write neatly and legibly so that TA can recognize your writing.
6. Late homework will **NOT** be graded for credit!

7. Collaboration with other classmates is encouraged in this course. Also, you may ask homework questions during office hours with TAs, or with me. But write-ups must be done independently.
8. Show all your work by writing all the steps to arrive at the solutions. A correct answer without the steps will receive minimal credit. This is good practice for what will be expected on exams.

**Exams:** There are two midterms and one comprehensive final exam. No make-up exams will be allowed. Calculators are **NOT** allowed in the exams. Every exam is a closed book.

- Exam 1: **March 27 (In-Class Exam)**
- Exam 2: **May 8 (In-Class Exam)**
- Final Exam: **TBA**

**Quizzes:** I will give a 10-15 minute Quiz once a week. **No** make-up quizzes will be allowed.

**Grading:** Your course grade will be determined by the following items:

Attendance = 5%, Homework = 15%, Quiz = 20%, Exam 1 = 15%, Exam 2 = 15%, Final Exam = 30%

**The final letter grade** will be determined by the following scale (%):

**A:** [93, 100], **A-:** [90, 93), **B+:** [87, 90), **B:** [83, 87), **B-:** [80, 83), **C+:** [77, 80),

**C:** [73, 77), **C-:** [70, 73), **D+:** [67, 70), **D:** [60, 67), **F:** [0, 60)

**Attendance:** You are required to attend every class regularly. The percentage of participation in each class should be more than 50% to be considered attending each class.

### **Student Attendance Policy**

1. All SUNY Korea students are required to attend every class.
2. Unexcused absences will significantly affect the student's final course grade.
3. Students who are absent without a valid excuse (see below) from more than 20% of scheduled class meetings will receive a grade of "F" for the course as follows:
  - A. For 150-minute classes meeting once a week, the 4th unexcused absence
  - B. For 75-minute classes meeting twice a week, the 7th unexcused absence
  - C. For 50-minute classes meeting three times a week, the 10th unexcused absence
  - D. For Intensive English Center (IEC) Courses, students who miss more than 40 hours during a semester will receive a grade of "F" for the course.
4. Students should report the reason for absences to the instructor in advance, or immediately after the absence.
5. Absences may be classified as "excused" at the instructor's discretion.
6. For an absence to be "excused," the student must provide the instructor with acceptable documentation for the reason for the absence.
7. The course instructor may excuse the absence if the submitted documentation fulfills the conditions below: A. Extreme emergencies (e.g., death in the family) B. Major medical reasons with doctor's note (not minor ailments) C. Very important events (e.g., national conferences, official school events)
8. At the end of the semester, the course instructor will submit the class attendance record to the Academic Affairs Office.

**Absence due to officially approved trips:** The person responsible for a student missing class due to a trip should notify the instructor of the departure and return schedule in advance of the trip. The student may not be penalized and is responsible for the material missed.

**Concerns:** If you have ANY problem related to the course, please feel free to discuss it with us. We truly want you to succeed in this course and will do whatever we can to help resolve the problem. You can talk to me before or after class, during office hours, or via email.

### **Students with Disabilities:**

If you have a physical, psychological, medical, or learning disability that may impact your course work, please contact One-Stop Service Center, Academic Building A201, (82) 32-626-1117. They will determine with you what

accommodations if any, are necessary and appropriate. All documentation regarding your personal information will be kept confidential.

**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. Faculty in the Health Sciences Center (School of Health Technology & Management, Nursing, Social Welfare, Dental Medicine) and School of Medicine are required to follow their school-specific procedures. 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. Faculty in the HSC Schools and the School of Medicine are required to follow their school-specific procedures.

**Conduct:**

Stony Brook University expects students to maintain standards of personal integrity that are in harmony with the educational goals of the institution; to observe national, state, and local laws and University regulations; and 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. Faculty in the HSC Schools and the School of Medicine are required to follow their school-specific procedures.

**Course Evaluations**

Stony Brook University values student feedback in maintaining the high-quality education it provides and is committed to the course evaluation process, which includes a mid-semester assessment as well as an end-of-the-semester assessment, giving students a chance to provide information and feedback to an instructor which allows for development and improvement of courses. Please click the following link to access the course evaluation system: <http://stonybrook.campuslabs.com/courseeval>

## *Tentative Class Schedule:*

**MAT123**

**Spring 2024**

<b>Week</b>	<b>Date (M/W)</b>	<b>Topics</b>	
<b>1</b>	Feb 26, Feb 28	Functions and function notation, Domain and Range, Composition of functions	1.1, 1.2, 1.4
<b>2</b>	Mar 4, Mar 6	Transformations, Absolute Value Functions, Inverse Functions	1.5, 1.6, 1.7,
<b>3</b>	Mar 11, Mar 13	Linear equations, and graphs, Modeling with linear functions,	2.1, 2.2, 2.3
<b>4</b>	Mar 18, Mar 20	Complex numbers, Quadratic functions, Power functions, and polynomial functions	3.1, 3.2, 3.3
<b>5</b>	Mar 25, Mar 27	Exam 1 Review  <b>Exam 1</b>	
<b>6</b>	Apr 1, Apr 3	Graphs of Polynomial Functions, Dividing Polynomials, Inverses and Radical Functions	3.4, 3.5, 3.8
<b>7</b>	Apr 8	Inverses, and Radical Functions, Exponential functions, Graphs of Exponential Functions, Logarithmic functions	3.8, 4.1, 4.2, 4.3,
<b>8</b>	Apr 15, Apr 17	Graphs of Logarithmic functions, Logarithmic Properties, Exponential and Logarithmic Equations	4.4, 4.5, 4.6
<b>9</b>	Apr 22, Apr 24	Exponential and Logarithmic Models, Angles, Unit Circle: Sine and Cosine Functions	4.7, 5.1, 5.2
<b>10</b>	Apr 29, May 1	The other Trigonometric Functions, Right Triangle Trigonometry  Exam 2 Review	5.3, 5.4,
<b>11</b>	May 8	<b>Exam 2</b>	
<b>12</b>	May 13 May 14  (Correction Day)	Graphs of the Sine and Cosine Functions, Graphs of the Other Trigonometric Functions, Inverse Trigonometric Functions	6.1, 6.2, 6.3
<b>13</b>	May 20, May 22	Solving Trigonometric Equations with identities, Sum and Difference Identities, Double Angles and Half Angles,	7.1, 7.2, 7.3,

<b>14</b>	May 27, May 29	Sum-to-Product and Product-to-sum formulas, Solving trigonometric equations,	7.4, 7.5
<b>15</b>	June 3, June 5	Modeling with Trigonometric Equations, Final Exam Review	7.6
<b>Final Exam: TBA</b>			