Instructor: Professor Susan Parker, Goldsmith 114, x63053, parker@brandeis.edu.


Syllabus. The course will cover the following sections of the text: Sections 1.1–1.5, 1.7, 1.8, 1.10, 2.1–2.6, 4.1–4.5 and selected sections from Chapters 5 and 6.

Prerequisites. There are no prerequisites for Math 5a. Students who are unsure or their placement and are considering Math 10a should take the calculus placement exam at http://www.brandeis.edu/registrar/newstudent/testing.html#mathtest.

Exams & Quizzes. There will be two midterm exams (both in the evening), one in-class quiz and a final exam.

- Thursday February 11, 7:00-9:00 pm
- Exam 2: Thursday March 17, 7:00-9:00 pm
- In-class quiz: Wednesday, April 20, 11:00-11:50 am
- Final Exam: Monday, May 9th, 9:15am–12:15pm (to be confirmed by the registrar)

Midterm exams are in the evening. If you have an academic conflict (such as a class, lab, or another exam) with a midterm exam, inform me at least one week before the exam. If the conflict can’t be resolved, I will offer you a make-up exam. No makeup exams or quizzes will be given because of travel plans.

Grades. Your grade in the course will be based on the following:

1. Homework (10% of your grade).
   - Homework assignments will be collected twice a week.
   - No late homeworks will be accepted, but your five lowest homework grades will be dropped.
   - We encourage you to discuss homework problems with your classmates, but you must write up your own solutions. You may not use any solutions manuals.

2. Reading quizzes (10% of your grade).
   - You must read each section of the text before it is covered in class. On the days when a reading assignment is due, On the days when a reading assignment is due, there will be an online reading quiz online, which must be done at least one hour before class.
   - Late reading quizzes are not accepted, but the lowest 25% of your reading quiz grades will be dropped.

3. In-class quiz (5% of your grade).
4. Two midterm exams (each 25% of your grade).
5. Final exam (25% of your grade).
Calculators. You should have access to a scientific calculator (an online one is fine). You do not need a graphing calculator in Math 5a. Calculators are not allowed during exams or quizzes.

LATTE. All course materials for Math 5a will be available online on LATTE. Log in at http://latte.brandeis.edu using your Unet username and password.

Math 5a Selfquizzes. There is a link called Selfquizzes on your Math 5a LATTE coursepage. The Math 5a selfquizzes cover all the material being studied in Math 5a. Complete solutions to each selfquiz are given. These selfquizzes are optional, to help you study for exams, and they have no effect on your grade.

Office hours. Your are welcome to come to my office hours at any time, and in particular if you have questions about the course material. If you can’t attend office hours, don’t hesitate to make an appointment for another time!

Evening help sessions. You are welcome attend the Math Department’s evening help sessions whenever you like. These are drop-in sessions that are available to students in Math 5a, 10a and 10b every Monday, Tuesday and Wednesday evening between 7:00 pm and 9:00 pm. Help sessions are held in Goldsmith 101 and will begin on Tuesday, January 19th.

Work load. Math 5a is a four-credit course, which means that we expect students to spend a minimum of 9 hours per week outside of class working on the course material (reviewing class notes, doing homework problems, preparing for quizzes and exams, etc.)

Students with disabilities. If you are a student who needs academic accommodations because of a documented disability you should contact me and present your letter of accommodation as soon as possible. My email is parker@brandeis.edu and my extension is 63053. If you have questions about documenting a disability or requesting academic accommodations you should contact Beth Rodgers-Kay in Undergraduate Academic Affairs at 63470 or at brodgers@brandeis.edu. Letters of accommodations should be presented at the start of the semester to ensure provision of accommodations. Accommodations cannot be granted retroactively.

Academic Integrity. You are expected to follow the University’s policy on academic integrity, which is distributed annually as section 4 of the Rights and Responsibilities Handbook (see http://www.brandeis.edu/studentaffairs/srcs/rr/index.html). Instances of alleged dishonesty will be forwarded to the Department of Student Development and Conduct for possible referral to the Student Judicial System. Potential sanctions include failure in the course and suspension from the University. If you have any questions about how these policies apply to your conduct in this course, please ask.

Learning Goals for Math 5a. The learning goals for Math 5a include the following. Students will:

- Solidify their knowledge of algebra: working with exponents and radicals, simplifying polynomials and rational expressions, and solving polynomial and rational equations and inequalities.

- Understand the definition of a function, and learn to identify the domain and range of a function and graph a number of basic functions.
• Learn to find and work with combinations and transformations of functions.
• Learn to solve applied problems involving functions.
• Learn to work with exponential, logarithmic and trigonometric functions and their graphs.
• Learn to solve exponential, logarithmic and trigonometric equations and inequalities.

**Topics covered in Math 5a (Prealculus)**

Section 1.1   Real Numbers
Section 1.2   Exponents and Radicals
Section 1.3   Algebraic Expressions
Section 1.4   Rational Expressions
Section 1.5   Equations
Section 1.7   Inequalities
Section 1.8   Coordinate Geometry
Section 1.10  Lines

Section 2.1   What Is a Function?
Section 2.2   Graphs of Functions
Section 2.3   Getting Information from the Graph of a Function
Section 2.4   Average rate of Change of a Function
Section 2.5   Transformations of Functions
Section 2.6   Combining Functions
Appendix     Modeling with Functions

Section 4.1   Exponential Functions
Section 4.2   The Natural Exponential Function
Section 4.3   Logarithmic Functions
Section 4.4   Laws of Logarithms
Section 4.5   Exponential and Logarithmic Equations

Section 6.1   Angle Measure
Section 6.2   Trigonometry of Right Triangles

Section 5.1   The Unit Circle
Section 5.2   Trigonometric Functions of Real Numbers
Section 5.3   Trigonometric Graphs
Section 5.4   More Trigonometric Graphs