Math 10B
Methods and Techniques of Calculus (2)
Fall 2019 Section 2: MWTh 9:00AM-9:50AM

Instructor: Jiajie Zheng
Office: Goldsmith 106
e-mail address: zhengjiajie@brandeis.edu
Office hours: MW 10-11am Th 2-3pm

Text


Prerequisites

A grade of C- or above in Math 10A or a satisfactory score on the calculus placement exam at http://www.brandeis.edu/registrar/newstudent/testing.html#mathtest. You must also know the material in Section 4.8 of your textbook, which was covered in Math 10A.

Exams

There will be two midterm exams and a final exam.

- Exam 1: Friday, 10/4, 2-4:00 pm, location TBD.
- Exam 2: Friday, 11/1, 2-4:00 pm, location TBD.
- Final Exam: During Math Common Exams block, as scheduled by the registrar.

Midterm exams are outside of class since 10B is a multi-section course. If you have an academic conflict (such as a class, lab, or another exam) with a midterm, inform your instructor at least one week before the exam. If the conflict can’t be resolved, we will offer you a make-up exam.

Grades

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

(1) Homework
- Homework assignments will be collected once or twice a week.
• Out of fairness to everyone, and because of the difficulty in getting late homework graded, no late homework will be accepted. But your three lowest homework grades will be dropped, so that only your best scores count.

• You are absolutely encouraged to discuss homework problems with your classmates, but you must write up your own solutions. You may not use any solution manuals.

(2) Quizzes
• Short quizzes will be given regularly.

• The lowest 25% of your quiz grades will be dropped. Unexcused missed quizzes will count as zeros.

(3) Two midterm exams
(4) Final exam

Your grade for the course will be computed by taking the maximum of the following two numbers:

• Homework (10%), quizzes (10%), both midterms (25% each), final exam (30%)
• Homework (10%), quizzes (10%), highest midterm (25%), final exam (55%)

Calculators

You should have access to a scientific calculator (an online one is OK). Calculators are not allowed during exams or quizzes. You do not need a graphing calculator.

LATTE

All course materials for Math 10B will be available online on LATTE. Log in at http://latte.brandeis.edu using your Unet username and password.

Self-quizzes

There is a link called “Self-quizzes” on your Math 10B LATTE coursepage. The Math 10B self-quizzes cover all the material being studied in Math 10B. Complete solutions to each self-quiz are given. These self-quizzes are optional and for your use only, and have no effect on your grade.

Office hours

You are encouraged to use your instructor’s office hours whenever you have questions about the course material. If you can’t attend office hours, don’t hesitate to ask for an appointment at another time.

Evening help sessions

You are welcome attend the Math Department’s evening help sessions whenever you have questions or would like help with problems. These are drop-in sessions that are available to students in Math 5A, 10A and 10B every Monday, Tuesday, Wednesday and Thursday evening anytime between 7:00 pm and 9:00 pm. Help sessions are held in Goldsmith 101 and will begin Tuesday, Sept 3.
Four-credit course (with three hours of class time/week)

Success in this 4 credit hour course is based on the expectation that students will spend a minimum of 9 hours of study time per week in preparation for class (readings, papers, discussion sections, preparation for exams, etc).

Students with disabilities

If you are a student who needs academic accommodations because of a documented disability you should contact Professor Keith Merrill and present your letter of accommodation as soon as possible. Professor Merrill’s email is merrill2@brandeis.edu. If you have questions about documenting a disability or requesting academic accommodations you should contact Beth Rodgers-Kay in the Office of Academic Services 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/srsrc/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

Students in Math 10B will:

- Identify and apply key ideas and concepts, including:
  1. Understand the definition of the definite integral, and its interpretation in terms of area and net change.
  2. Understand the relationship between differential and integral calculus (The Fundamental Theorem(s) of Calculus).
  3. Learn to compute elementary integrals and to use the following techniques of integration: substitution, integration by parts and partial fractions.
  4. Understand improper integrals and learn to determine if an improper integral converges.
  5. Understand some of the applications of integration, including area, volume, arc length and average value of a function.
  6. Learn what a differential equation is, and how to solve simple differential equations (including separable equations).
  7. Understand the definition of an infinite series and how to test a series for convergence.
8. Understand the definition of a power series and learn to find the interval of convergence of a power series.

9. Learn to find the Taylor series of a function.

- Hone quantitative reasoning skills by solving problems that present familiar material in new ways.
- Practice breaking down a complicated problem into simpler pieces, solving those pieces, and re-assembling them. This skill will help you in all your science courses.
- Gain confidence by employing a large number of techniques to solve commonly occurring types of problems.

**Topics (order may change)**

<table>
<thead>
<tr>
<th>Section</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.6</td>
<td>Inverse Trig Functions and their Derivatives</td>
</tr>
<tr>
<td>Appendix F</td>
<td>Sigma Notation</td>
</tr>
<tr>
<td>5.1</td>
<td>Areas and Distances</td>
</tr>
<tr>
<td>5.2</td>
<td>The Definite Integral</td>
</tr>
<tr>
<td>5.4</td>
<td>The Fundamental Theorem of Calculus (FTC I)</td>
</tr>
<tr>
<td>5.3</td>
<td>The Fundamental Theorem of Calculus (FTC II)</td>
</tr>
<tr>
<td>5.5</td>
<td>Integration by Substitution</td>
</tr>
<tr>
<td>5.6</td>
<td>Integration by Parts</td>
</tr>
<tr>
<td>5.7</td>
<td>Additional Techniques of Integration (Partial Fractions)</td>
</tr>
<tr>
<td>5.9</td>
<td>Approximate Integration (Midpoint and Trapezoidal Rules)</td>
</tr>
<tr>
<td>5.10</td>
<td>Improper Integrals</td>
</tr>
<tr>
<td>6.1</td>
<td>More about Areas</td>
</tr>
<tr>
<td>6.2</td>
<td>Volumes (Disks and Washers)</td>
</tr>
<tr>
<td>6.4</td>
<td>Arc Length</td>
</tr>
<tr>
<td>6.7</td>
<td>Applications to Economics and Biology</td>
</tr>
<tr>
<td>7.1</td>
<td>Introduction to Differential Equations</td>
</tr>
<tr>
<td>7.2</td>
<td>Solving Separable Differential Equations</td>
</tr>
<tr>
<td>8.1</td>
<td>Sequences</td>
</tr>
<tr>
<td>8.2</td>
<td>Introduction to Series</td>
</tr>
<tr>
<td>8.3</td>
<td>The Integral Test</td>
</tr>
<tr>
<td>8.4</td>
<td>Other Convergence Tests (Alternating Series Test and Ratio Test)</td>
</tr>
<tr>
<td>8.5</td>
<td>Power Series</td>
</tr>
<tr>
<td>8.6</td>
<td>Representations of Functions as Power Series</td>
</tr>
<tr>
<td>8.7</td>
<td>Taylor and MacLaurin Series</td>
</tr>
</tbody>
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*About me:* Hi! I’m a second-year PhD student at the department of mathematics. My research interests lie in the field of dynamical systems, especially the applications in number theory. I prefer to be called either Jiajie or JJ. I am really looking forward to working with you in the coming semester! My office is at Goldsmith 111 and please drop by and say hi! Thank you!