

Common Syllabus

This syllabus contains information which is common to all sections of Math 0090, Introductory Calculus I, for the Fall 2013 semester. An online copy is available on the course website at <https://sites.google.com/a/brown.edu/fa13-math0090/>. Information specific to individual sections (such as contact information, lecture and recitation times, office hours, and announcements) can be found by going to the website and clicking the section link on the sidebar.

The Course Head for Math 0090 is Dan Katz. Questions about course content or everyday logistical questions should be addressed to your professor or TA. However, if you have a more unusual or difficult issue that cannot be properly handled by your professor, you should contact the course head at dkatz@math.brown.edu.

Textbook:

Thomas' Calculus: Early Transcendentals, Single Variable, 12th Edition by Thomas, Weir, Hass (ISBN: 978-0-321-62883-1)

Course

Description: Math 0090 is an introduction to calculus. Students will learn to understand, evaluate, and apply limits and derivatives of functions, as well as the basics of antidifferentiation and integration. A more detailed list of topics, and a tentative schedule, can be found on the [Homework Page](#). This course assumes knowledge of algebraic functions and trigonometry; students with insufficient background should consider taking Math 0050 and Math 0060.

Recitation:

In addition to attending lectures, every student must be registered for and attend a weekly recitation section. Each student may choose and register for any recitation, independent of which lecture section they are registered for. However, once you choose a recitation, you will need to attend at that specified time and location each week. Recitation "hopping" is not allowed.

Recitation sessions will complement the course lectures. Students will be able to review content, ask questions, and most importantly, practice solving problems. Please understand that since recitations will likely include students from multiple lectures, and not every lecturer presents material in the same way, you may not be able to ask about specific examples your professor recently covered in class; those questions are best asked in office hours or via e-mail.

In addition, quizzes will sometimes be administered during recitation. Students will receive a grade for each recitation (possibly excluding the first one or two while the course gets organized) that will be based partially on attendance, and partially on quizzes, participation, group problem-solving, or any combination of these. For more information on the recitation and recitation grading, consult the [FAQ](#).

Homework:

Homework will be assigned every week, as posted on the course [Homework Page](#). After each class, you should look at these problems and try to complete them as soon as the relevant content is covered. Most assignments are split up into two types of problems:

- *Self-Check Problems* are odd-numbered problems from the textbook. The solutions to these problems are listed in the back of the book. You do not need to hand in solutions to these problems, but you should solve them and check your answers to ensure you understand the course content.
- *Collected Problems* are even-numbered problems from the textbook. You are expected to write legible and complete solutions to these problems and hand them in during recitation; they will be graded and returned to you. If you are submitting multiple pages, please staple them together.

It may be tempting to skip the Self-Check Problems because they are not turned in. However, the primary goal of this course is to learn the material and demonstrate that knowledge on exams, and the best way to accomplish this goal is by *completing all of the homework*. The Collected Problems alone are not intended to give you enough practice to learn calculus, so if you ignore the Self-Check Problems, you will make the course far more difficult for yourself.

In order to ensure that assignments are graded promptly, and to discourage students from falling behind, **LATE ASSIGNMENTS WILL NOT BE ACCEPTED UNDER ANY CIRCUMSTANCES**. However, in

recognition of the fact that unavoidable issues sometimes arise, the lowest of each student's homework grades (including zeros for unsubmitted assignments) will be dropped when calculating final semester grades. Despite this policy, you should complete every assignment, even if you miss a deadline, because understanding the homework will help you perform well on exams.

Exams:

There will be two midterm exams, tentatively to be held in the evening on Wednesday, October 9 and Wednesday, November 13, and a cumulative final exam on Tuesday, December 17 at 9am. If you have a conflict with either midterm exam, you must submit it to your instructor at least one week in advance. If you have legitimate conflicts, you may be able to arrange to take midterm exams earlier on the same day. However, the final exam schedule is set by the University, and rescheduled final exams will only be held in extreme/emergency situations (or if there is a conflict with another exam). The use of calculators is not permitted during exams. More information on the exams can be found on the [Exam Information](#) page.

Resources:

If you are struggling with the homework, there are several places to obtain help:

- All professors and TAs hold office hours at least once per week; you may also be able to contact them for help outside of these hours, though how and when they are available may vary from section to section.
- The math department operates a [Math Resource Center](#) on weeknights. This is a good place to work on homework problems and have tutors available to answer questions when you get stuck.
- Finally, the [Office of Co-Curricular Advising and Tutoring](#) organizes group and drop-in tutoring sessions. A schedule for math drop-in tutoring can be found [here](#).

Grading:

Your final grade for the course will be determined based on a numerical weighted average calculated as follows:

- 10% - Recitation
- 20% - Homework
- 20% - Midterm Exam 1
- 20% - Midterm Exam 2
- 30% - Final Exam

Math 0090 is offered with S/NC grading only. The minimum percentage to earn an S (passing) grade will be determined based partially on the distribution of student grades this semester, and partially on typical percentage grades from previous semesters of the course. This minimum percentage will be no higher than 65%, and will most likely fall somewhere between 55% and 60%. An "S with distinction" grade can also be given for standout performance at the instructor's discretion.

There are no opportunities for "extra credit" in this course. Grades are not based on the amount of time or effort you apply to the course, although if you apply that time and effort *productively*, it should improve your homework and exam grades.

Collaboration Policy and the Academic Code: While students are allowed (and even encouraged) to work together and/or ask each other questions about homework problems, it is unacceptable to copy or submit another student's work, calculations, or final answers without solving the problem yourself. The best practice to obey this policy is to start each problem on your own, seek help if you run into difficulties, and then use that help to finish the problem on your own. Violation of this policy, cheating on exams, or any other form of academic dishonesty is prohibited by Brown's [Academic Code](#). All students should be aware of this code, and they should understand that violating the code can have serious consequences.

Accessibility Services: Brown is committed to providing support for students with learning differences, physical impairments, and other disabilities. If you think you may need accommodations due to one of these conditions, contact [Student and Employee Accessibility Services](#) for more information.

Homework Page

This is the homework page for Math 0090, Introductory Calculus I, in the Fall 2013 semester. All students should complete the problems below, which are listed by the week in which the relevant content will be covered. Self-Check Problems are not to be handed in; students should solve these, check their answers in the textbook, and seek help if necessary. Collected Problems should be written up and turned in during recitation, on the date specified.

Assignments on this page are subject to change. The website is always the most accurate source for assignments, so if you print out a copy of this page early, check the web each week to make sure the problems have not been changed. In general, if anything is changed less than a week before a due date, your teacher will call attention to it. (Also, if previously posted problems are changed, they will be marked in bold.)

IMPORTANT! For submitted problems, students are expected to show work and justify their answers. If a problem legitimately yields an answer in one step (which is rare!), it's fine to write down the result, but if a problem involves intermediate steps, an answer that does not include the reasoning behind it may be given no credit.

***Note About Weeks 1-4:** Any problems from sections before 3.3 that refer to slope, rate of change, or derivatives are intended to be solved **without** using shortcut derivative rules such as the Power Rule and Chain Rule, which we will develop later. Even if you already know these rules from a previous calculus class, you will need to solve problems from these early sections by evaluating limits in order to receive credit.

Week 1 (Sep 2 - Sep 6): Exponents & Logarithms (1.5, 1.6)
[Semester begins on Wed Sep 4]

Self-Check Problems*: 1.3 - 7, 11, 47, 53 / 1.5 - 11, 15, 29, 33 / 1.6 - 21, 31, 39, 45, 51, 55, 59
Collected Problems (due Tue Sep 10)*: 1.3 - 10, 50, 54 / 1.5 - 14, 18, 36 / 1.6 - 22, 40cdf, 50, 60cef

Week 2 (Sep 9 - Sep 13): Limits (2.1, 2.2, 2.4)

Self-Check Problems*: 2.1 - 5, 11, 17, 21 / 2.2 - 3, 19, 25, 33, 39, 53, 61, 65 / 2.4 - 3, 7, 17
Collected Problems (due Tue Sep 17)*: 2.1 - 10, 22 / 2.2 - 2, 28, 32, 34, 42, 60, 64 / 2.4 - 4, 18

Week 3 (Sep 16 - Sep 20): Limits, Definition of the Derivative (2.5, 2.6, 3.1)

Self-Check Problems*: 2.5 - 13, 21, 29, 41, 47, 55 / 2.6 - 17, 25, 29, 39, 45, 57 / 3.1 - 7, 9, 13, 19, 25, 27
Collected Problems (due Tue Sep 24)*: 2.5 - 6, 16, 30, 48 / 2.6 - 16, 28, 42, 54 / 3.1 - 6, 14, 24, 30

Week 4 (Sep 23 - Sep 27): Derivative Rules (3.2, 3.3, 3.4, 3.5)

Self-Check Problems*: 3.2 - 3, 15, 33 / 3.3 - 5, 11, 21, 31, 45, 55, 59, 61 / 3.4 - 5, 9, 17 / 3.5 - 3, 9, 29, 33, 59, 61
Collected Problems (due Tue Oct 1)*: 3.2 - 6, 32 / 3.3 - 10, 16, 24, 46, 56a, 62 / 3.4 - 4, 18 / 3.5 - 12, 16, 20, 56

Week 5 (Sep 30 - Oct 4): Chain Rule, Implicit Differentiation (3.6, 3.7)

Self-Check Problems: 3.6 - 13, 29, 31, 49, 63, 71, 87, 99 / 3.7 - 3, 7, 19, 23, 27, 41, 47
Collected Problems (due Tue Oct 8): 3.6 - 28, 36, 40, 56, 76, 88cde, 94 / 3.7 - 6, 14, 26, 34, 44

Week 6 (Oct 7 - Oct 11): Derivatives of Logarithms, Inverse Trig Functions, Related Rates (3.8, 3.9, 3.10)
[EXAM 1 tentatively on Wed Oct 9 at 6:30pm]

Self-Check Problems: [Problems]
Collected Problems (due Tue Oct 15): [Problems]

Week 7 (Oct 14 - Oct 18): Related Rates, Extreme Values (3.10, 4.1)
[No classes on Mon Oct 14]

Self-Check Problems: [Problems]
Collected Problems (due Tue Oct 22): [Problems]

Week 8 (Oct 21 - Oct 25):	Mean Value Theorem, Concavity (4.2, 4.3, 4.4)	Self-Check Problems: [Problems] Collected Problems (due Tue Oct 29): [Problems]
Week 9 (Oct 28 - Nov 1):	L'Hopital's Rule, Curve Sketching (4.4, 4.5)	Self-Check Problems: [Problems] Collected Problems (due Tue Nov 5): [Problems]
Week 10 (Nov 4 - Nov 8):	Optimization, Antiderivatives (4.6, 4.8)	Self-Check Problems: [Problems] Collected Problems (due Tue Nov 12): [Problems]
Week 11 (Nov 11 - Nov 15):	Definite Integrals (5.1, 5.2, 5.3) <i>[EXAM 2 tentatively on Wed Nov 13 at 6:30pm]</i>	Self-Check Problems: [Problems] Collected Problems (due Tue Nov 19): [Problems]
Week 12 (Nov 18 - Nov 22):	The Fundamental Theorem of Calculus, Substitution (5.4, 5.5, 5.6)	Self-Check Problems: [Problems] Collected Problems (due Tue Nov 26): [Problems]
Week 13 (Nov 25 - Nov 29):	Areas, Volumes (5.6, 6.1) <i>[Thanksgiving Break begins Wed Nov 27 at noon]</i>	Self-Check Problems: [Problems] Collected Problems (due Tue Dec 3): [Problems]
Week 14 (Dec 2 - Dec 6):	Volumes (6.1, 6.2) <i>[If time allows, some/all sections may cover Applications to Work (6.5)]</i>	Self-Check Problems: [Problems]