Course Outline: This course will cover the same material as 18.01, but in a more rigorous manner. We will emphasize careful and precise mathematical reasoning. Topics: Axioms for the natural and real numbers, the Riemann integral, limits, theorems on continuous functions, derivatives of functions of one variable, the fundamental theorems of calculus, Taylor's theorem, power series, rigorous treatment of the elementary functions.


Prerequisite Knowledge: I will assume you have had some exposure to elementary calculus concepts. Prior exposure to proof-writing is not assumed, nor is it necessary to succeed in this course.

Grading: I will assign weekly problem sets each Friday, and these will be due next Friday at Noon in room E18-366. You will each take turns presenting solutions to your classmates and to me! I will grade you on coherence and clarity of your argument and on your ability to defend your solution should questions or concerns arise. We will have two in-class midterms and one three-hour comprehensive, open book final on dates to be announced in week one.

I will evaluate you according to the following table:

<table>
<thead>
<tr>
<th>Component</th>
<th>Percentage</th>
</tr>
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<tbody>
<tr>
<td>Problem Sets</td>
<td>30%</td>
</tr>
<tr>
<td>Presentations/Participation</td>
<td>10%</td>
</tr>
<tr>
<td>Two Midterms</td>
<td>40%</td>
</tr>
<tr>
<td>Cumulative Final</td>
<td>20%</td>
</tr>
</tbody>
</table>

I will grade you on a 10-point scale: A 100-90, B 89-80, C 79-70, D 69-60, F 59-0. The lowest problem set grade will be dropped.

Calculator and Testing Policy: For in-class midterms, I will not allow calculators or other handheld devices. Unless otherwise noted, you may not use any notes during in-class midterms. I will provide you with scratch paper; you may not use your own. I may change my policy to allow outside materials at my discretion.

Makeup Policy: My policy is simple. I will not give makeup exams except under extreme and verifiable circumstances. If you have a (verifiable) conflict with any test date, inform me beforehand to make arrangements.

Classroom Participation: I welcome, prefer, and recommend a high degree of classroom participation. I will ask many questions to the class throughout the semester. Do not be afraid to offer incorrect answers. Incorrect answers provide me the opportunity to correct misconceptions that many other classmates may hold. Incorrect answers are much more instructive to the class as a whole than having one or two people immediately responding with the correct answers to every question. I will never make you feel inadequate for offering any input in my class. On the contrary, you may find I become very excited...
Sigh, I Already Know All This: If you find yourself bored because you already understand much of the course material or many of the answers to my questions, please try to give others the opportunity to participate, and do not fret. Rest assured you will have ample opportunity to share your knowledge. There will be many creative outlets for you throughout the semester!

Academic Integrity: For your weekly psets, I encourage you to collaborate with your classmates and utilize any available reference. You must, however, write up your own solutions, and you will acknowledge any help you have received at the top of your assignment. If you consulted no sources, then write “no sources” at the top of your pset writeup. Failure to follow this policy will result in a pset grade of 0.

Email Policy: I welcome all your questions via email, but understand that it may be prohibitively difficult for me to answer your mathematical questions in such a format. Therefore, I am most likely to look over your questions and answer them at the beginning of our next class meeting.

Students Disability Services: MIT is committed to the principle of equal access. Students who need disability accommodations are encouraged to speak with Kathleen Monagle, Associate Dean, prior to or early in the semester so that accommodation requests can be evaluated and addressed in a timely fashion. Even if you are not planning to use accommodations, it is recommended that you meet with SDS staff to familiarize yourself with the services and resources of the office. You may also consult with Student Disability Services in 5-104 or at 617-253-1674. If you have already been approved for accommodations, please together to get your accommodation logistics in place.

Student Support Services: If you are dealing with a personal or medical issue that is impacting your ability to attend class, complete work, or take an exam, please discuss this with Student Support Services (S3) then discuss with you how to address the missed work. Students will not be excused from coursework without verification from Student Support Services. You may consult with Student Support Services in 5-104 or at 617-253-4861. Also, S3). The deans in S3 will verify your situation, and has walk-in hours Monday-Friday 9:00-10:00am.

Resources: Keep in mind these fantastic references and resources at your disposal.

- My office hours and your recitation leader’s office hours:
  TBA

- Outside Office Hours: I welcome your questions and generally enjoy helping students with any concerns. If your schedule conflicts with mine, contact me and we will attempt to arrange a convenient meeting time.

- Math Learning Center (Second week of classes on): Monday to Thursday, 3:00pm to 5:00pm and 7:30pm to 9:30pm

- MIT OCW 18.014 by Christine Breiner:
  http://ocw.mit.edu/courses/mathematics/18-014-calculus-with-theory-fall-2010/

- James McKernan’s tips for writing proofs
  http://math.mit.edu/~mckernan/Teaching/08-09/Autumn/18.700/tips.pdf