

Course Syllabus

Course: Mathematics 3141.001.

Course Title: Advanced Calculus I.

How this course will be taught: This course will be taught synchronously throughout the semester during its regularly schedule time (lectures: TR 2:00-3:20 pm, recitation: W 8:00-8:50) using Zoom. The link to the Zoom meeting will be posted on Canvas. Attendance is required. (Not our case, but in-person activities and instruction for the fall 2020 semester will end Nov. 20, at the start of the fall break. The remaining week of classes, study period and finals will be conducted remotely.)

Time: Lectures: TR 2:00-3:20. Recitation: W 8:00-8:50.

Place: All lectures and recitation will be held online via Zoom. The Zoom link is posted on the Canvas page for the course.

Instructor: Gerardo A. Mendoza.

Instructor Office: Wachman 618.

Instructor Email: gerardo.mendoza@temple.edu

Instructor Phone: 1-5053.

Course Web Page: <http://math.temple.edu/~gmendoza>, also Canvas.

Office Hours: By appointment, arranged one day in advance. But if I am in my office and have time to see you, I will.

Prerequisites: Math 0127, Calculus III, with a grade of C or higher and either Math 3051, Theoretical Linear Algebra, with a grade of C- or higher or Math 2101, Linear Algebra, or Math 2103, Linear Algebra with Computer Lab, with a grade of C or higher.

Textbook:

Main textbook:

William F. Trench, Introduction to Real Analysis, online at
http://ramanujan.math.trinity.edu/wtrench/texts/trench_real_analysis.pdf

Additional resource:

Jiří Lebl, Basic Analysis I, online at
<https://www.jirka.org/ra/realanal.pdf>

Optional:

Jerrold E. Marsden and Michael J. Hoffman, Elementary Classical Analysis, 2nd ed, W. H. Freeman and Co, 1993.

Technology specifications for this course: A working computer with a reliable internet connection, a Webcam, and audio capability. Recommended Internet Speed: 8mbps download & 5mbps upload. You can test your connection at <https://www.speedtest.net>. Please note: Hard-wired connections are more consistent than Wi-Fi for Zoom sessions. A scanning app such as AdobeScan or CamScanner is required as is access to Zoom and Canvas (the Canvas app is also recommended).

Limited resources are available for students who do not have the technology they need for class. Students with educational technology needs, including no computer or camera or insufficient Wifi-access, should submit a request outlining their needs using the Student Emergency Aid Fund form. The University will endeavor to meet needs, such as with a

long-term loan of a laptop or Mifi device, a refurbished computer, or subsidized internet access.

Course Goals: By the end of the semester you should have acquired a rigorous foundation of topics such as limits, infinite series, continuity, differentiation and integration in \mathbb{R} and \mathbb{R}^n . In addition, you should have gained additional knowhow, through practice, in writing down reasonably rigorous and clearly written proofs in real analysis.

How to get there: It is of fundamental importance that you attend classes (I know you do, but I have to say it) and keep up with the material. Doing weekly homework will help you maintain discipline. Do not be afraid to ask questions: I expect them, after all, you are learning; take advantage of me being there. Keep in mind that your teachers are there to help you. But learning is something only you can do.

When writing up your homework, take the point of view that what you are doing is explaining your ideas to someone (and not to me). Think: is this a clear, convincing argument? Would my classmates be able to follow me? Doing this when you write your final version of the homework will help you clarify your own ideas. And please, do not hand in 'first drafts.' That does not help you (or me).

Topics Covered: This is the first semester of a two semester course in real analysis. Topics for the first semester include: sets and functions, the real numbers, sequences and their limits, series, metric and point set topology, functions and their limits, continuity, differentiation and integration in \mathbb{R} .

Course Grading: The grade will be heavily tilted towards homework (60%), and there will be a written final exam (40%) at the regularly scheduled time, Tuesday, December 15, from 1:00-3:00 pm.

Exam Dates: We will have no midterm exams. Instead, you are required to do the homework (60%). Your work will be judged according to quality of your mathematical arguments, writing, and (written) presentation. The homework problems (typically ϵ - δ problems from the book) will be posted once per week. I'll send e-mail as soon as it becomes available. They will be due the following week, the specific due date will be included in the posted list of problems. There will be a written final exam (40%) at the regularly scheduled time, Tuesday, December 15, from 1:00-3:00 pm.

For the final exam you will have to log into the course Zoom session with two devices, your computer and some other device (smartphone, tablet, iPad or iPod Touch, another computer). The computer's camera must be placed so that your face is visible to the proctor all the time, and your other device must point to the page you are working on to make it visible.

For example use a gadget similar to

<https://www.amazon.com/Slopehill-Gooseneck-Samsung-Bedroom-Bathroom/dp/B07VBDJM5K/>

Please note that you are not required to buy this particular device: if you have a way to hold your phone steady above your work area, that is fine.

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If you are not logged in with both devices during an exam, your exam will not be accepted.

Finally, to send back a scan of the exam, please download the AdobeScan app (Android or iOS). Use it to scan and upload your exam via Canvas. Only pdf format is acceptable

Remote proctoring statement: Zoom, Proctorio or a similar proctoring tool may be used to proctor exams and quizzes in this course. These tools verify your identity and record

online actions and surroundings. It is your responsibility to have the necessary government or school issued ID, a laptop or desktop computer with a reliable internet connection, the Google Chrome and Proctorio extension, a webcam/built-in camera and microphone, and system requirements for using Proctorio, Zoom, or a similar proctoring tool. Before the exam begins, the proctor may require a scan of the room in which you are taking the exam.

Attendance Policy: Attendance is required.

Attendance Protocol and Your Health: If you feel unwell, you should not come to campus, and you will not be penalized for your absence. Instructors are required to ensure that attendance is recorded for each in-person or synchronous class session. The primary reason for documentation of attendance is to facilitate contact tracing, so that if a student or instructor with whom you have had close contact tests positive for COVID-19, the university can contact you. Recording of attendance will also provide an opportunity for outreach from student services and/or academic support units to support students should they become ill. Faculty and students agree to act in good faith and work with mutual flexibility. The expectation is that students will be honest in representing class attendance.

Expectations for Class Conduct: In order to maintain a safe and focused learning environment, we must all comply with the four public health pillars: wearing face coverings, maintaining physical distancing, washing our hands and monitoring our health. It is also important to foster a respectful and productive learning environment that includes all students in our diverse community of learners. Our differences, some of which are outlined in the University's nondiscrimination statement, will add richness to this learning experience. Therefore, all opinions and experiences, no matter how different or controversial they may be perceived, must be respected in the tolerant spirit of academic discourse.

Treat your classmates and instructor with respect in all communication, class activities, and meetings. You are encouraged to comment, question, or critique an idea but you are not to attack an individual. Please consider that sarcasm, humor and slang can be misconstrued in online interactions and generate unintended disruptions. Profanity should be avoided as should the use of all capital letters when composing responses in discussion threads, which can be construed as "shouting" online. Remember to be careful with your own and others' privacy. In general, have your behavior mirror how you would like to be treated by others.

Statement on recording and distribution of recordings of class sessions: Any recordings permitted in this class can only be used for the student's personal educational use. Students are not permitted to copy, publish, or redistribute audio or video recordings of any portion of the class session to individuals who are not students in the course or academic program without the express permission of the faculty member and of any students who are recorded. Distribution without permission may be a violation of educational privacy law known as FERPA as well as certain copyright laws. Any recordings made by the instructor or university of this course are the property of Temple University.

Any student who has a need for accommodations based on the impact of a documented disability or medical condition should contact Disability Resources and Services (DRS) in 100 Ritter Annex (drs@temple.edu; 215-204-1280) to request accommodations and learn more about the resources available to you. If you have a DRS accommodation letter to share with me, or you would like to discuss your accommodations, please contact me as soon as practical. I will work with you and with DRS to coordinate reasonable accommodations for all students with documented disabilities. All discussions related to your accommodations will be confidential.

Freedom to teach and freedom to learn are inseparable facets of academic freedom. The University has adopted a policy on Student and Faculty Academic Rights and Responsibilities (Policy # 03.70.02) which can be accessed [here](#).

Students will be charged for a course unless dropped by the Drop/Add deadline date. Check the University calendar for exact dates.

During the Drop/Add period, students may drop a course with no record of the class appearing on their transcript. Students are not financially responsible for any courses dropped during this period. In the following weeks prior to or on the withdrawal date students may withdraw from a course with the grade of “W” appearing on their transcript. After the withdrawal date students may not withdraw from courses. Check the University Calendar for exact dates. (Policy # 02.10.14).

The grade “I” (an “incomplete”) is only given if students cannot complete the course work due to circumstances beyond their control. It is necessary for the student to have completed the majority of the course work with a passing average and to sign an incomplete contract which clearly states what is left for the student to do and the deadline by which the work must be completed. The incomplete contract must also include a default grade that will be used in case the “I” grade is not resolved by the agreed deadline. See the full policy by [clicking here](#).