

18.022 SYLLABUS

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1. BASIC INFORMATION

- (1) Class meets Tuesdays at 1, Thursdays at 1, and Fridays at 2.
- (2) Office hours, 2-376, 11-12pm on Thursdays, or by appointment, Math is easier to explain in person, so for involved math questions, coming to office hours is better than emailing.
- (3) You can reach me at aaronl@mit.edu.
- (4) We will use the following textbook: Colley, Susan Jane. Vector Calculus. 4th ed. Upper Saddle River, NJ: Pearson Prentice Hall, 2006. ISBN: 9780131858749. We will also follow notes by James McKernan at <https://ocw.mit.edu/courses/18-022-calculus-of-several-variables-fall-2010/pages/lecture-notes/>

1.1. Grading.

- (1) 40% problem sets
- (2) 35% midterm exams
- (3) 25% final exam

The three midterms will be weighted equally. Grades will not be curved. Due to the class participation component, it is in your interest to help your classmates improve. I will assign grades using that A lies in the range 90% – 100%, B lies in the range 80% – 90%, C lies in the range 70% – 80%, D lies in the range 60% – 70%, and F lies in the range 0% – 60%. However, if I reserve the right to lower these cutoffs in order to help the students' grades if I decide to do so

1.2. **Homework.** There will be two types of homework. First, we will have mitx problems due on Tuesday by 12:45pm. Second, we will have homework from the textbook due every week on Thursday by 12:45pm on Gradescope. Late homeworks are **not accepted** because solutions will be posted immediately after the problem sets are due. To allow some flexibility, the lowest problem set will be dropped.

1.3. **Exams.** There will be three 50-minute midterm exams in class and one final exam. The times of the midterm exams will be:

- (1) Friday September 29 at 2pm
- (2) Friday October 20 at 2pm
- (3) Tuesday November 14 at 1pm

The date of the final exam has not yet been determined. Please do not make travel plans for winter break before the final exam date has been announced, and be present to take the exam during its scheduled time. Your grade will be negatively impacted if you are not present to take the final exam.

There will be make up exams. If you have an approved reason to take a make up exam, you may take it in lieu of the regular exam. Approval must be obtained at least 48 hours in advance, except in cases of unforeseen emergencies.

If you miss or do not do well on a regular exam, you can take the make up exam, but the best score you can obtain in that case is the minimum passing grade.

Each exam will be cumulative, testing knowledge of all the material that proceeds it.

1.4. Course overview. We will cover calculus in several variables. The topics are similar to 18.02. Topics include vector algebra, dot product, matrices, determinants, functions of several variables, continuity, differentiability, derivatives, parameterized curves, arc length, curvature, torsion, vector fields, gradient, curl, divergence, multiple integrals, change of variables, line integrals, surface integrals, and Stokes' theorem.

1.5. Website. <https://canvas.mit.edu/courses/21436>

2. POLICIES, LOGISTICS, AND RESOURCES

2.1. Policies.

- (1) It is important that we listen to each other in class. For this reason, please keep your phones out of sight. It is not only distracting for yourself, but also for others sitting behind you and the speaker. If you prefer to take notes on your computer, that is acceptable, but please do not use computers for reasons other than taking notes. In particular, do not use the computer to browse the internet during class.
- (2) I recommend problem sets be typed in latex. However, this will not be required. As mentioned above, late problem sets are not accepted because solutions will be posted immediately after the problem sets are due.
- (3) You must write up problem sets by yourself. You are, however, encouraged to discuss them with classmates.
- (4) Write in complete sentences whenever reasonable.

2.2. Further logistics.

- (1) If you have an extended illness or serious personal problem, one that may cause you to miss completing an assignment, then please discuss this with Student Support Services (S3). Here is what to do if you have an illness or a personal situation that makes you miss homework or miss an exam or just makes it hard to keep up in the class:
 - (a) Get in touch with S3, student support services. You may consult with S3 in 5-104 or call 617-253-4861. The deans in S3 will verify your situation, and then discuss with you how to address the missed work. Students will not be excused from coursework without verification from S3.
 - (b) Email Aaron and your TA and let us know that something is going on. You don't have to give any more details than you're comfortable with. Let us know who you met with at S3, or even better, cc them.
 - (c) Based on a recommendation from S3, we can arrange an extension on homework or a makeup exam at a later time. Also if you can't take an exam because of a significant conflict, then email the course admin and we will arrange for you to take a makeup exam.
- (2) If you have some other kind of conflict (e.g., varsity sports game), email only me (not a dean) as far in advance as possible, at least 48 hours in advance, and I will make a decision on how to proceed. If you have a conflict with an exam, in order to

ensure there is enough time for me to process the conflict, you must inform me at least 48 hours before the start of the exam.

- (3) It is your responsibility to email me as far in advance as possible in case you find yourself struggling with the course for any reason.
- (4) If you have emergency medical information you wish to share with me, or if you need special arrangements in case the building must be evacuated, please inform me immediately: feel free to talk to me privately after class or in my office.

2.3. **Resources.** There are lots of resources around MIT to help with different issues you may run into. Here are a few important ones.

- (1) If you experience personal issues, illness, or stress, it is very helpful to talk with S3 – student support services. They are thoughtful, helpful, and practical. <https://studentlife.mit.edu/s3/about-us>
- (2) If you experience accessibility issues or if you may need accommodations, talk with DAS. Try to do this right at the start of the term. Space is tight on campus, and we need two weeks notice to set up testing accommodations. <https://studentlife.mit.edu/das> Here are some resources for studying for this class:
- (3) Office hours! We would be happy to talk with you. You can find the office hours schedule on our webpage.
- (4) The Math Learning Center has tutors available to discuss this class Monday-Thursday afternoon and evening. You can come by yourself or with a group, and you can ask questions and study in a welcoming space. <https://math.mit.edu/learningcenter/>
- (5) TSR2 (Talented Scholar Resource Room) offers problem set nights, facilitated study groups, and one-on-one appointments. During pset nights, you can drop in and ask questions and study in a welcoming space. You can sign up for a facilitated study group for this class. It will be a group of 3-6 students and a mentor that meet every week to study for the class together. You can also make a one-on-one appointment to work on this class with a TSR2 mentor. <https://ome.mit.edu/programs-services/talented-scholars-resource-room-tsr2>
- (6) The math department has built a pset partners website that is designed to help you find people in the class to study with. <https://psetpartners.mit.edu>