

APMA E2001: MULTIVARIABLE CALCULUS RECITATION

Fall 2019

Instructor:	Jessie Oehrlein	Please call me:	Jessie
Email:	jeo2136@columbia.edu	Pronouns:	she/her/hers

Recitation Sections:

Section	Time	Location
R01	Thursday 2:40-3:30	602 Northwest Corner
R05	Thursday 4:10-5:00	304 Hamilton
R08	Friday 11:40-12:30	307 Pupin

NOTES: This is a required mathematics course for engineering undergraduate students, mostly first- and second-years. That's why I tried to be very clear about who and what office hours are for, and my goal was that, broadly, talking to me/other members of the teaching staff comes through strongly here as something that students can and should do.

The recitation for this course is mostly a problem-solving session, and the main goal is for students to think about how the broad ideas or techniques they're learning connect to the problems they see on homework, quizzes, and exams. Everything in the bulleted list under "Getting the Most Out of Recitation" is aimed at helping students to achieve that goal. In the first couple weeks of recitation, I plan to facilitate short class discussions around the questions "What habits make someone good at math?" and "What leads to a good group experience in math?" to build on these ideas a bit more.

Some of the "Communication" section is repeated from the main course syllabus, in particular the bits about Courseworks and Piazza. But I wanted this here to mention that recitation-specific announcements, as well as broader course ones, would go on Courseworks, and to further reinforce the idea of asking questions. The rest of the section is about how I'm available. My hope is that this gives students ways to make concrete plans to talk to me with reasonable expectations about what that will look like. I'm also hoping that setting those boundaries helps me to *have* them.

Student Hours:

DATES/TIMES/LOCATIONS TBD. These are times when I'm available specifically to work with you. Come by if you have questions, insights, or concerns about the coursework or material, if there's something I can help you with, or just to say hi! You can also always feel free to email me to set up a meeting outside of these times. You are also free to attend the office hours of the other TAs for this course, Judah Ryoo and Hwi Lee.

What Will Recitation Be Like?:

Most recitation sessions will begin with a short quiz over material covered on the previous homework assignment. You will generally spend the rest of class time working on problems from or related to that week's homework, often in small groups. There will also be full-group discussions and mini lectures on these problems.

Getting the Most Out of Recitation:

Attendance at recitation is strongly encouraged. The time spent working with others on problems and the opportunity to ask questions will help you in the course, and quizzes are administered in recitation.

There are several ways to prepare and participate that will make recitation more helpful to you:

- Start thinking about and working on the homework before recitation.
- Come to class with questions in mind based on the lectures, readings, and problems.
- Share ideas about approaches to problems with the peers you're working with, and listen to their ideas.
- After you solve each problem, think about the ideas you used. What were the key steps? How might those ideas help you on other problems?

Communication:

Course announcements (including recitation-specific ones) will be made on Courseworks, so please check it regularly! If you have questions about the course, Piazza (connected to Courseworks) is a great place to ask and get a prompt reply.

If you have questions, concerns, or need to talk to me for any other reason, you can come to office hours, talk to me after class, or email me. If you send an email between 9AM and 6PM on a weekday, I will respond that day. Otherwise, I will respond on or before the next weekday.

Student Well-Being:

Mathematics is a human activity, and my goal is always to support you as a person, student, and mathematician in the classroom. If there is any way that I can better do that by changing some aspect of my teaching, classroom procedures, or classroom culture, please let me know! You are welcome to talk to me in-person in public or private or via email.

Your well-being is of utmost importance. If you are facing challenges to your mental/physical health or obstacles like food or housing insecurity, please don't hesitate to get in touch so that we can find appropriate resources and put you in the best position to succeed.

First Day Plan

- Class name, section, my name and pronouns and what to call me, all both spoken and written on the board.
- Throughout class: if someone reports out from a small group, talks in full-class discussion, etc., ask for them to say their name.
- Briefly talk about purpose of recitation: working on problems, applying ideas from recitation, connecting different pieces together. And format: quiz to start, problem solving after, with mix of small groups and full-class discussion and mini-lectures.
- Form groups of 3-4 for the day.
- Pose question of “What habits make someone good at math?” (Potential framing: think of times when you’ve felt successful at math, or think of someone you know who you think of as good at math. What did you/they do to make you/them successful?) Discuss in small groups for a few minutes (with group members introducing selves to each other first), each try to come up with 3-ish answers, (Circulate and eavesdrop.) then have groups report out. Try to decide on a list of 5-6 as a full class.
- Discuss as group how those connect with how students can prepare for and use recitation. Pass out policy sheet.
- Activity based around first homework. Based on last year’s first HW, maybe a dot product-related problem string? Imagining that this would start with three or so problems (building on each other) as a full class, with some time to think individually/with a partner, and then one problem to work on in groups, come back together briefly to discuss, and then groups could work on relevant homework problem(s). (Maybe coming back to discuss again later.) Lots of floating, eavesdropping, “what are you thinking about?” and also asking names. Whenever discussing a problem in full group, make sure discussion closes with something like “What were the key ideas/steps here?” Prompt small groups to consider the same.
- Exit ticket: UNI, name they want to be called. Optional: pronouns, major(s) they’re considering, anything I should know to help them be successful.
- Brief reminder at end of any preparation habits we talked about?

NOTES: This is a required mathematics course for engineering undergraduate students, mostly first- and second-years. The large number of first-year students is one of the reasons for the discussion around habits here, and then in the rest of the class some of those can be modeled/reinforced. I intentionally chose a framing of habits to emphasize success in math as something that is not innate.

There will already be a homework set, with a quiz the next week, so getting to some amount of math is really important. (It also makes the first class more representative of the course, which seems important to me.) A problem string is more guided/structured than having groups immediately start working on particular problems on their own, but it’s helpful for connecting algebraic and geometric representations, which is really important in this course and worth directing student attention to early.

I feel like I need to know what students want to be called, and connecting that with their UNI is a practical thing. The rest of the information on the exit ticket is information that I want to know, but students will have varying levels of certainty on those answers or comfort with sharing, and making them optional is an acknowledgement of that. I’ll need to work on a framing of those questions that will encourage answers from those comfortable while not pressuring those who aren’t.