

John Kaminsky

From: John Kaminsky
Sent: Tuesday, November 7, 2023 12:11 PM
To: Hazel Goetsch
Subject: RE: Question on Adv. Topics Preparedness for College Courses?

Hello Hazel,

I'm glad to hear you are doing well and that you are finding Calc I relatively straightforward despite the grad student. Be easy on whoever it is. Grad students often are only teaching courses because they have no other choice and get no training from the university.

If you want to bang through your required classes quickly, I think you would be able to handle all three courses. Calc II would be the equivalent of Adv. Calc here at EPS and should be fairly smooth for you. It will also help prep you for the second half of Calc III.

Linear Algebra should be similar to what I taught here at EPS. The spectral theorem is an extension of eigenvalues, so it shouldn't be that beyond what you have already learned, although I imagine there would be a good amount of time devoted to building up to it. In all honesty, the main reason I have seen as to why it is considered a hard class is that you need to change the way you think about math in that class and you already have a jumpstart on that process.

Calc III, especially the back half, will be challenging. If there is a reason to put off either Linear Algebra or Multivariable, it is wanting to devote more time to the back half of multivariable. Double and triple integrals get nasty very quickly. I think you can handle it, but the visualization aspect is tough and the actual computations can be rough. Line and surface integrals are similar, and then the theorems relate all these integrals together.

Hope this helps. If you want an idea of multivariable integrals, Paul's notes goes all the way through the integral theorems.

Sincerely,
Dr. Kaminsky

From: Hazel Goetsch <hgoetsch@alumni.eastsideprep.org>
Sent: Tuesday, November 7, 2023 10:24 AM
To: John Kaminsky <jkaminsky@eastsideprep.org>
Subject: Question on Adv. Topics Preparedness for College Courses?

Hi Dr. Kaminsky,

Long time no see! I hope you're doing well, and that the new seniors aren't treating you too badly. (I refuse to believe the former sophomores aren't. In which case, consider defecting to Rice? I have a grad student as my instructor for Calc I this fall and if I hadn't already known calculus I'd be lost. You'd love his homework assignments though.)

Jokes aside, I'm currently doing spring course registration and I'd really appreciate your opinion. Due to prerequisites, the only required courses I can take next semester are math courses, so I'm considering taking Multivariable Calc and Linear Algebra in addition to Calc II this spring since they were both touched on in Adv. Topics, but I'm unsure whether that's a good idea.

Multivariable would presumably have the most new content, as we only spent half a trimester on it in Adv. Topics. Its topics are "vectors, partial derivatives and gradients, double and triple integrals, vector fields, line and surface integrals, Green's theorem, Stokes's theorem, and Gauss's theorem", which sounds halfway familiar.

Meanwhile, the only Linear Algebra topic that I don't immediately recognize is Spectral Theorem, so while this course may go into a little more depth per topic, the concepts would be familiar. However, everybody complains about how hard this class is, which makes me wary.

Having been my teacher for Adv. Calc and Adv. Topics, does it sound reasonable for me to take Calc II, Multivariable, and Linear Algebra together, or would you recommend I drop one and take an extra elective instead? All of these classes only have around 25-30 seats taken, so I'm not fighting the masses.

Thank you for any insight you might have, and thank you for teaching me math well the first time around so the grad students can't hurt me.

Have a good day,
Hazel