Math 223–109 **Fall 2023**

Instructor: Roland Baumann
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Office: Yost 202
Office Hours: TBD

Web page: All course information will be posted on Canvas.

Class Meetings: Class will be held in Nord 356 from 2:15 PM to 3:05 PM on Mondays, Wednesdays, and Fridays.

Textbook: (Online) *APEX Calculus*, by Gregory Hartman, Sean Fitzpatrick, Alex Jordan, Carly Vollet.

Course Content: Introduction to vector algebra; lines and planes. Functions of several variables: partial derivatives, gradients, chain rule, directional derivative, maxima/minima. Multiple integrals, cylindrical and spherical coordinates. Derivatives of vector valued functions, velocity and acceleration. Vector fields, line integrals, Green's theorem.

Course Structure: This class is a version of Math 223 built around the Universal Design for Learning Guidelines, emphasizing active learning and collaborative participation. Most of your learning will take place outside the classroom through the online, interactive textbook. Class time will be dedicated to group worksheets and activities. Throughout the semester, you will work in groups on a longterm project; the groups will meet weekly in class. Given the nature of active learning, you will be responsible for your own progress and for your contribution to a respectful learning environment.

Attendance Policy: You are expected to attend class every day. This is especially important for our active-learning format. Should you miss class for any reason, you are responsible for all material covered and assignments made.

Homework: Homework problems will be assigned weekly and due by the end of the week. The work will consist of a group portion and an individual submission. You are highly encouraged to use Mathematica, both in completing the homework and in preparing your submission. Late homework is not accepted.

Project: Group projects will be due by the end of the semester. You will form groups and decide on project goals together. There will be a written component and a short presentation. Details to be determined.

Exams: There will be three 50 minute exams during the semester, worth 100 points each. Test dates are tentatively scheduled for Sep. 29, Oct. 27, and Dec. 1. You will be allowed a calculator and 1 sheet of handwritten notes. The use of notes, books, cheatsheets, etc., will not be permitted on any exam. Make-up exams will only be given (at my discretion) if I am notified in advance of your absence.

Extra Credit: Before each exam, you can earn 4 points by filling out a short survey on Canvas. In total there are 12 points up for grabs. Your feedback will be important to help shape our class.

Time Commitment: Completion of the homework assignments is the *minimum* amount of work you should do outside of class. My goal is for you to master the course content, and that mastery comes only with practice. The university expects that you will put in 2–3 hours of additional work per hour of class.

Academic Integrity: Students are reminded that their behavior at all times reflects upon the college community. The minimum penalty for cheating, plagiarism, etc., is a grade of zero on the assignment. For additional information on the university's policies, read the University Statement on Ethics and the Academic Integrity Policy at

http://bulletin.case.edu/undergraduatestudies/academicintegrity/.

Disability Services: I am happy to meet with you to discuss necessary academic accommodations once I receive appropriate documentation.

Electronics: You should have a calculator for use during quizzes, exams, and the final exam. All other electronic devices must be switched off or silenced, and put away at the start of class.

Grades: Course grades will be determined as a percentage of the total possible points with letter grades assigned by the traditional 90%, 80%, 70%,... scale. There will not be any curve.

Homework, 20 points each	140
Three written exams, 100 points each	300
Final Project	200
Total	**640**

Tips for Success

1. Work on math everyday as part of your daily routine.
2. Form a study group early on and meet regularly.
3. Keep up with your assigned reading. Study the material we will cover before coming to class, and make note of any questions that come up.
4. Monitor and evaluate your own progress. If you are having difficulty keeping up, come see me.
5. Ask for help!