Calculus III

MTH 233 [28695], Fall 2025

Mon-Wed 10:10 - 12:05, 1S-115

Instructor: Professor Abhijit Champanerkar

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Office Hours: (In 1S-230) Mon 3:30-4:30 pm, (In Tutoring Lab 1S-214) M 2:30-3:30, Wed 2:30-3:30 pm
Class Homepage: http://www.math.csi.cuny.edu/abhijit/233/
Academic Calendar **First Day Handout**

Course Information

Course description In this course we will cover multivariable calculus. Topics include vectors in dimensions two and three, vector-valued functions, limits & continuity, partial derivatives and gradient, optimization and Lagrange multipliers, intergration in several variables, polar, spherical and cylindrical co-ordinates, vector fields, line integrals, surface intergrals, Green's, Stokes and Divergence theorems. Learning Goals

Prerequisite MTH 232.

Text Book We will use the book *Calculus - Early Transcendentals* by Rogawski, Adams & Franzosa, 4th Edition. W. H. Freeman & Co. (2019). ISBN# 978-1-319-05074-0. If you have a previous edition of the textbook, that will also work for this class. If you need to buy the book you can contact the college bookstore or any other online used book store. The online homework system we will be using for this class is Webworks

Course Syllabus We will cover Chapters 12 to 17. The topicwise course outline is given here. See below for list of topics by dates for this semester.

Homework, Quizzes and Exams

- **Homework** will be posted and graded through the online homework system Webworks
- **Quizzes** There will be **3 long quizzes** roughly 40 minutes long. I may add more quizzes depending on class performance.
- **Exams:** There will be one midterm exams during the semester and a Final exam at the end of the semester. Here are the tentative dates:
  - **Midterm Exam:** Wednesday Oct 29th, **Review:** Monday Oct 27th
  - **Final Exam:** TBA

Grading: The course grade will determined as follows:

- **Midterm Exam -** 25%
- **Quizzes -** 20%
- **Final Exam -** approximately 45%
- **Webwork Homework -** approximately 5 %

Help

- Use my office hours on Mondays and Wednesdays.
- Email me with your questions.
- Use Math tutoring Lab.
- **How to Study:** (1) **Attend class.** Attendance is mandatory. (2) **Read the text book** and the relevant solved problems. (3) **Solve problems on your own.** Do the Webwork homework first and then solve more problems given in the course outline. (4) **See me during office hours to discuss math.** (5) To study for exams, solve the problems on review sheet and DO MORE PROBLEMS from past exams, homework and textbook.

Course Policies

- Attendance is mandatory.
- Cell phone usage of any kind during class and on exams is not allowed.
- Missing the Final exam will result in an F grade. Any changes to the grading policy will be announced in the class.
- You must take the Final exams at the time scheduled by the university.
- Students are not allowed to step out of the classroom during exams, except in case of emergencies.
- **Academic dishonesty:** Cheating in any form will not be tolerated. Please see CUNY Policy on Academic Integrity.
- **Disability policy:** Qualified students with disabilities will be provided reasonable academic accommodations if determined eligible by the Center for Student Accessibility. Please provide written verification of student's eligibility from the OAS. Prior to granting disability accommodations in this course, the instructor must receive written verification of student's eligibility from the Center for Student Accessibility, which is located in 1P-101. It is the student's responsibility to initiate contact with the Center for Student Accessibility staff and to follow the established procedures for having the accommodation notice sent to the instructor.

Course schedule

- Here is a tentative list of topics by dates for this semester. The topics roughly follow the course outline.

Class	Day	Date	Topic
1/2	Wed	Aug 27	Review, 12.1, 12.2 Vectors
	Mon	**Sept 1**	**No classes**
3/4	Wed	Sept 3	12.3 Dot product
5/6	Mon	Sept 8	12.4 Cross product
7/8	Wed	Sept 10	12.5-12.6 Planes in 3-space and quadric surfaces
9/10	Mon	Sept 15	13.1-13.2 Vector-valued functions
11/12	Wed	Sept 17	13.3 Arc Length and speed **Long Quiz 1**
	Mon	**Sept 22**	**No classes**
	Wed	**Sept 24**	**No classes**
13/14	Mon	Sept 29	14.1-14.2 Function, limits and continuity
	Wed	**Oct 1st**	**No classes**
15/16	Mon	Oct 6	14.3 Partial derivative
17/18	Wed	Oct 8	14.4 Differentiability and Tangent planes
	Mon	Oct 13	**No classes**
19/20	**Tues**	**Oct 14**	14.5 Gradient and directional derivatives
21/22	Wed	Oct 15	14.6 Chain Rule **Long Quiz 2**
	Mon	**Oct 20**	**No classes**
23/24	Wed	Oct 22	14.7 Optimization
25/26	**Fri**	**Oct 24**	14.8 Lagrange Multipliers
27/28	Mon	Oct 27	**Review for Midterm Exam**
29/30	Wed	Oct 29	**Midterm Exam**
31/32	Mon	Nov 3	15.1 Integration in several variables

Class	Day	Date	Topic
33/34	Wed	Nov 5	15.2 Double Integrals
35/36	Mon	Nov 10	15.3 Triple Integrals
37/38	Wed	Nov 12	15.4 Integration in other co-ordinates
39/40	Mon	Nov 17	16.1-16.2 Vector fields and Line Integrals
41/42	Wed	Nov 19	16.3 Convervative Vector Fields **Long Quiz 3**
43/44	Mon	Nov 24	16.4-16.5 Parametrized surfaces, Surface Integrals
45/46	Wed	Nov 26	16.5 Surface Integrals
47/48	Mon	Dec 1	17.1 Greens Theorem
49/50	Wed	Dec 3	17.1 Greens Theorem
51/52	Mon	Dec 8	17.2 Stokes Theorem
53/54	Wed	Dec 10	17.3 Divergence Theorem
55/56	Mon	Dec 15	**Review for Final Exam**
			Final Exam TBA