Math 323 Calculus III, Spring 2025

Sections

Section Number	Instructor	Meeting times
01	Tae Young Lee	MWF 8:00-9:30, CW 212
02	Meenakshy Jyothis	MWF 8:00-9:30, CW 214
03	Meenakshy Jyothis	MWF 9:40-11:10, CW 214
04	Ryan McCulloch	MWF 11:20-12:50, CW 112
05	Gang Zhou	MWF 1:10-2:40, CW 112
06	Richard Behr	MWF 1:10-2:40, CW 214
07	Abraham Berman	MWF 2:50-4:20, CW 214
08	Ryan McCulloch	MWF 4:40-6:10, LN G412

Course coordinator: Dr. Gang Zhou

Textbook

Multivariable Calculus, 9th Edition, James Stewart
You will need an online access code to WebAssign. More info on this below.

- Chapter 12: Vectors and the Geometry of Space
- Chapter 13: Vector Functions
- Chapter 14: Partial Derivatives
- Chapter 15: Multiple Integrals
- Chapter 16: Vector Calculus

Homework and WebAssign

For each section of material covered there will be an assignment of problems on WebAssign. Your WebAssign homework counts towards your grade. Study groups are encouraged, but students should not become too dependent on others. Watching the instructor, or other students, do the problems will not be enough to learn the material. It will be necessary for you to do many exercises yourself in order to be successful on the exams. Attempts to solve homework problems provide the best way to learn the material and to prepare for exams.

WebAssign is an online homework system which includes an e-book version of our text. If you purchased the textbook package from our Bookstore or “Cengage Unlimited” when taking 226/227, then you do not need to purchase another one. If you buy the book through the Binghamton University Bookstore then it comes with an access code. If you do not wish to buy the textbook package through the Bookstore, then you can instead purchase “Cengage Unlimited” (1-semester or 4 months). This comes with the ebook and can also be purchased through our Bookstore. “Cengage Unlimited” also comes with the option to rent a hard copy of the textbook by just paying for shipping and handling. You'll have temporary free access to WebAssign for two weeks into the semester without an access code.

To gain access to your WebAssign section you need to submit the “Class Key” that you receive from your instructor. All information regarding how to login with Class Key and purchase an access code can be found here Binghamton

University WebAssign Registration

Your username is your Binghamton University username and the institution code is “binghamton”.

WebAssign Login Page

Prerequisite

Math 227 or Math 230

Course Objectives

Develop theoretical and practical skills for multivariable calculus. Specifically, students are expected to be able to demonstrate the following:

- Visualize geometry in three-dimensional space
- Find and apply vector and scalar equations of lines and planes in three-dimensional space
- Understand the calculus of vector-valued functions
- Solve unconstrained and constrained optimization problems
- Find and interpret partial derivatives, directional derivatives, and gradients
- Set up and evaluate double and triple integrals in rectangular, cylindrical, and spherical coordinates
- Set up and evaluate line and surface integrals in addition to applying Green's, Stokes', and Divergence Theorem

Evaluation

The final grade will be determined as follows:

- Test 1, 25%
- Test 2, 25%
- Final Exam, 30% (see the schedule)
- HW & Quizzes, 20% (breakdown at the discretion of the professor, e.g. HW-10%, Quizzes-10% or HW-5%, Quizzes-15%)

Tentative Schedule

Week	Dates	Sections	Topics
1	Jan 22-24	12.1	3-D Coordinates
		12.2	Vectors (Skip Physic Problems/Applications)
2	Jan 27-31	12.3	Dot Products (Skip Direction Angles)
		12.4	Cross Products (Skip Torque & Triple Product)
		12.5	Lines and Planes (Skip Distances)
3	Feb 3-7 **(Add/Drop Deadline is Feb 3)**	12.6	Quadric Surfaces
		13.1	Vector Valued Functions
		13.2	Derivatives of Vector Valued Functions

4	Feb 10-14	13.3	Arc Length Only (Skip Curvature & Normal/Binormal Vectors)
		13.4	Motion in Space (Skip Tangential & Normal Components of Acceleration)
		Review	Exam 1 Review: Chapters 12 and 13
5	Feb 17-21	**Exam 1**	Chapters 12 and 13
		14.1	Functions of Several Variables
		14.2	Limits and Continuity
6	Feb 24-28	14.3	Partial Derivatives
		14.4	Tangent Planes and Linear Approximation
		14.5	The Chain Rule
7	March 3-7	14.6	Directional Derivatives and the Gradient
		14.7	Maxima and Minima
		14.8	Lagrange Multipliers
8	March 10-14	**Spring Break**	
9	March 17-21	15.1	Double Integrals over Rectangles
		15.2	Double Integrals over General Regions
		15.3	Double Integrals in Polar Coordinates
10	March 24-28	Review	Exam 2 Review: Sections 14.1-15.3
		Exam 2	14.1-15.3
		15.6	Triple Integrals
11	March 31 - Apr 4 (**Withdraw Deadline is March 31**)	15.7	Triple Integrals in Cylindrical Coordinates
		15.8	Triple Integrals in Spherical Coordinates
		16.1	Vector Fields
12	Apr 7-11	16.2	Line Integrals
		16.3	The Fundamental Theorem of Line Integrals (FTL)
		16.4	Green's Theorem
13	Apr 14-18	**Passover Holiday**	
		16.2-16.4 Problems	More Line Integrals, FTL, Green's Theorem
		16.5	Curl and Divergence
14	Apr 21-25 **(Monday Classes Meet on Tuesday, April 22)**	**Easter Holiday**	
		16.6	Parametric Surfaces
		16.7	Surface Integrals
		16.7	Surface Integrals
15	Apr 28 - May 2	16.8	Stokes' Thm
		16.8	Stokes' Thm
		16.9	Divergence Thm
16	May 5-7	16.7-16.9 Problems	More Surface Integrals, Stokes' Thm, Divergence Thm
		Review	Final Exam Review: The test is cumulative with about 80% of the exam covering sects 15.6-16.9
		No Class	Reading Day
17	May 9-15	**Final Exam**	View Final Exam schedule

Sample Exams

Exam 1 Practice Exams

Exam 2 Practice Exams

Review Problems for Final Exam

More Review Problems for Final Exam

Help Outside of Class

There is free tutoring offered though University Tutoring Services. All information regarding tutoring can be found here: http://www.binghamton.edu/clt/tutoring-services/index.html

If you have test anxiety information about how to handle anxiety can be found here:https://www.binghamton.edu/hpps/mental-health/anxiety.html

Disability Services

If you need accommodations for a disability, please see your instructor with documentation from Services for Students with Disabilities. We will do our best to accommodate your needs.

Academic Honesty

Cheating is considered a very serious offense. According to the University Catalog, cheating consists of: “Giving or receiving unauthorized help before, during or after an examination”. The full strength of Binghamton Academic Honesty Policy will be applied to anyone caught cheating. This may include failing the course, and further disciplinary action. All students should be familiar with the University's Student Academic Honesty Code.

Other important information

The math help rooms and free tutoring from the CLT can be very useful. The very best students are the ones who ask for help.

Please note that no calculators are allowed during exams.

This course is a 4-credit course, which means that students are expected to do at least 12.5 hours of course-related work or activity each week during the semester. This includes scheduled class lecture/discussion meeting times as well as time spent completing assigned readings, studying for tests and examinations, participating in lab sessions, preparing written assignments, and other course-related tasks.