



Bridgewater State University
MATH 261: Multivariate Calculus (Calculus III)
Summer 2023 Syllabus

Place/Time: Online	Instructor: TBA
Duration: May 29– June 23, 2023	Office Hours: TBA (Or by appointment)
Course Credits: 4	E-mail : TBA

Course Catalog Description

This course is a continuation of the MATH 161/161E – MATH 162 Single Variable Calculus I-II sequence. Topics will include parametric and polar equations, derivatives and integrals of multivariable functions, and vector analysis.

Prerequisite

MATH 162 Single Variable Calculus II or consent of department.

Textbook

Calculus – Early Transcendentals (With **WebAssign**), 9th edition, by James Stewart.
The hardcopy of textbook is optional. Access to WebAssign includes access to an electronic version of the textbook.

Topic Calendar

No.	Sections Covered (Tentative)	Week
1	Review of Calculus I & II	Week 1
2	10.1 Curves Defined by Parametric Equations	Week 1
3	10.2 Calculus with Parametric Curves	Week 1
4	10.3 Polar Coordinates	Week 1
5	10.4 Calculus in Polar Coordinates	Week 1
6	10.5 Conic Sections	Week 1
7	10.6 Conic Sections in Polar Coordinates	Week 1



8	12.1 Three-Dimensional Coordinate Systems	Week 1
9	12.2 Vectors	Week 1
10	12.3 The Dot Product	Week 1
11	12.4 The Cross Product	Week 1
12	12.5 Equations of Lines and Planes	Week 1
13	12.6 Cylinders and Quadratic Surfaces	Week 1
14	13.1 Vector Functions and Space Curves	Week 2
15	13.2 Derivatives and Integrals of Vector Functions	Week 2
16	13.3 Arc Length and Curvature	Week 2
17	13.4 Motion in Space: Velocity and Acceleration	Week 2
18	14.1 Functions of Several Variables	Week 2
19	14.2 Limits and Continuity	Week 2
20	14.3 Partial Derivatives	Week 2
21	14.4 Tangent Planes and Linear Approximations	Week 2
22	14.5 The Chain Rule	Week 2
23	14.6 Directional Derivatives and the Gradient Vector	Week 2
24	14.7 Maximum and Minimum Values	Week 2
25	14.8 Lagrange Multipliers & Midterm Exam Review	Week 2
26	15.1 Double Integrals over Rectangles	Week 3
27	15.2 Double Integrals over General Regions	Week 3
28	15.3 Double Integrals in Polar Coordinates	Week 3
29	15.4 Applications of Double Integrals	Week 3
30	15.5 Surface Area	Week 3
31	15.6 Triple Integrals	Week 3
32	15.7 Triple Integrals in Cylindrical Coordinates	Week 3
33	15.8 Triple Integrals in Spherical Coordinates	Week 3



34	15.9 Change of Variables in Multiple Integrals	Week 3
35	16.1 Vector Fields	Week 4
36	16.2 Line Integrals	Week 4
37	16.3 The Fundamental Theorem for Line Integrals	Week 4
38	16.4 Green's Theorem	Week 4
39	16.5 Curl and Divergence	Week 4
40	16.6 Parametric Surfaces and Their Areas	Week 4
41	16.7 Surface Integrals	Week 4
42	16.8 Stokes' Theorem	Week 4
43	16.9 The Divergence Theorem & Final Exam Review	Week 4

Course Outcomes

By the end of this course, you will be expected to:

- Understand the parametric equations of curves in high dimensions.
- Apply and interpret basic properties of vectors.
- Perform calculus operations on vector-valued functions, such as derivatives, integrals, velocity, acceleration, etc.
- Describe and sketch graphs of functions using polar and cylindrical systems.
- Find extrema and tangent planes.

Homework

Homework problems are online, we will use the online resource [WebAssign](#) for weekly homework assignments and tutorial videos. Make sure to select the correct course, the url for this section [link](#).

Please refer to WebAssign Instruction on the blackboard for more details. Some written homework may also be collected.

NO LATE HOMEWORK WILL BE ACCEPTED.

Blackboard

Grades and additional course content will be uploaded to [Blackboard](#). Make sure to check it regularly for updates.

Attendance



Attendance for the course videos posted on WebAssign. For each section, videos with questions are available on WebAssign. Please complete all the videos and corresponding questions to receive the full attendance credits.

Midterm Exams

You will take 1 midterm exam during the summer semester. Exam is given online, time will be limited to class time. Each will involve a mix of mechanical skills and conceptual reasoning. The best possible preparation for them is regular attendance and completion of assigned homework. You may have 1 page 8x11 of hand written notes (1 side only) on each exam, including a final exam, specific problems solved can not be included. Make-up exams are only given in case of documented emergencies.

Final Exam

The final exam will take place on online on Blackboard. The official BSU Final Exam Schedule is [here](#).

Grading

Your final course grade will be determined by

- Homework: 30%
- Attendance: 20%
- Midterms: 25%
- Final Exam: 25%

Grading Scale:

Letter grades will be assigned as follows:

A	93-100	C	73-76
A-	90-92	C-	70-72
B+	87-89	D+	67-69
B	83-86	D	63-66
B-	80-82	D-	60-62
C+	77-79	F	below 60

THE ACADEMIC ACHIEVEMENT CENTER (AAC) provides students with academic services and resources that propel them toward successful and timely degree completion. With all services available online for the fall, the AAC is the largest hub of student academic services on campus. The AAC is comprised of four major support areas: [Academic Advising](#) (first-semester freshmen), [Disability Resources and Student Accessibility Services](#), [Learning Assistance](#) (Academic Coaching and Tutoring), and [Testing Services](#).

[Learning Assistance \(LA\)](#) consists of both [Academic Coaching](#) and Tutoring. Tutoring areas include: [Math Services](#), [the Accounting & Finance Lab](#), [Writing Studio](#), [Tutoring](#)



[Central](#) (100/200 introductory and Core Curriculum courses), and [Second Language Services](#). All LA services for the fall 2020 semester are being offered online. To use the virtual drop-in tutoring or to make an appointment for Tutoring or Academic Coaching, please sign into our platform, [Accudemia](#), using your BSU credentials, or bookmark the link: <https://bridgew.accumedia.net>.

Academic Conduct

The academic integrity policy of Bridgewater State University will be strictly enforced. This policy can be found in the BSU Student Handbook. Specifically, the policy requires that students do not cheat, fabricate, plagiarize, or facilitate academic dishonesty. Students who passively engage in cheating (i.e. allowing others to cheat off them) may receive the same consequences as the person copying. Violations will be handled in accordance with BSU's [academic integrity policy](#).

Student Accessibility Services

Bridgewater State University is committed to providing equal access to students with documented disabilities. If you have a disability that may impact your experience in this class and for which you may require accommodations, please see the [Student Accessibility Services](#) (SAS) office so that such accommodations can be considered. The SAS can be reached at SAS@bridgew.edu or 508.531.2194. If you are granted accommodations, please meet with me confidentially to review how they will be applied in this course.

*** This syllabus may be amended during the semester.**