

Syllabus: MA 261

Multivariate Calculus, Spring 2024

Lectures (Monday, Wednesday, Friday)

Lectures will be face-to-face on Monday, Wednesday, and Friday. You are expected to attend every lecture. Lectures are run by the professors, listed below. Dr. Sunkula's Lectures will be recorded via Boilercast and posted on Brightspace and on Dr. Sunkula's webpage.

Instructor	LEC	Day	Time	Location
Dr. Mahesh Sunkula	700	MWF	7:30 am - 8:20 am	BHEE 129
Dr. Mahesh Sunkula	794	MWF	8:30 am - 9:20 am	BHEE 129
Dr. Andrew Toms	600	MWF	10:30 am - 11:20 am	CL50 224

Recitations (Tuesday)

Recitations will be face-to-face on Tuesdays. You are expected to attend every recitation session. Recitations are run by the Teaching Assistants (TAs). A complete list of the TAs and their emails is available on the class website: <https://www.math.purdue.edu/MA261>

Course Webpage & Calendar

Course information and resources, lecture Boilercast recordings, lecture notes, announcements, important links, and MyLabMath should be accessed through your lecture and recitation course pages in Brightspace. <http://purdue.brightspace.com>. In addition, some general information is also posted on <https://www.math.purdue.edu/MA261>. A detailed daily calendar for the entire semester is posted here: <https://sites.google.com/view/msunkula/teaching/ma261/Sp24/Schedule>

Communication

Due to the large number of students in this class, for most questions (in particular for questions about deadlines, grading disputes, or technical issues) it is recommended that you email your TA first. If the TA cannot answer your question, they will forward it to the instructor.

Instructors' Contact Information

Instructors' contact information and office hours are listed below. Note that office hours are subject to change and would be announced on Brightspace.

Instructor	E-mail	Office Location	Office Hours
Dr. Sunkula	msunkula@purdue.edu	MATH 842	MWF 10:00 am - 11:15 am
Dr. Toms	atoms@purdue.edu	MATH 720	TBA

Course Objectives

1. Identify and/or find the equations for lines, planes, and quadratic surfaces in three-dimensions.
2. Calculate velocity, acceleration, arclength, and curvature using vector functions and/or parameterized motion.
3. Calculate partial derivatives, gradient, and directional derivatives. Use the multivariable chain rule to find derivatives. Use derivatives to find and identify extrema of multivariable functions.
4. Compute double and triple integrals and interpret their geometrical meaning.
5. Apply Green's theorem to calculate line integrals over vector fields. Use Stokes' theorem to evaluate line integrals, surface integrals, and find circulation. Use the Divergence theorem to compute net outward flux.

Grades

Course grades will be determined from your overall score computed as follows:

Homework	20%
Quizzes	10%
Midterm Exam 1	20%
Midterm Exam 2	20%
Final Exam	30%

The maximum percentages to get each grade are:

A+	97%
A	93%
A-	90%
B+	87%
B	83%
B-	80%
C+	77%
C	73%
C-	70%
D+	67%
D	60%

For each of these grades, it's possible that at the end of the semester a somewhat lower percentage will be enough to get that grade. (In other words, the lowest percentage to get, for example, an A could be lower but will not be higher than 93%.)

Required Materials

Students are required to have an access code for the *Pearson MyLabMath* platform. A physical textbook is NOT required. A digital version of the textbook is included in MyLabMath. For

reference, the textbook is *Calculus, Early Transcendentals, (Third Edition) by Briggs, Cochran, Gillett, Schulz*. There is a two week grace period before you must purchase an access code. If you have taken more than one semester of calculus, the full access code (multi-semester) is good for all the Calculus courses (MA 16100, MA 16200, MA 16500, MA 16600, and MA 26100) since they use the same textbook.

Assessments

Homework

There are a total of 37 online assignments (numbered 1 - 37) using *MyLabMath*. *Pearson MyLabMath* is accessed through the course recitation (REC) page in [Brightspace](#). Due dates and times are listed in the MyLab Math system and on the course calendar. Generally, homework from the Friday and Monday lectures are due Tuesday at 11:59pm and homework from the Wednesday lecture is due Thursday at 11:59pm. Contact your TA if you have unresolved concerns over how a homework problem was scored. There are many questionable resources (excessive calculator use, online solvers, answer-sharing websites, etc.) that you may be tempted to utilize when completing the homework; availing yourself of these shortcuts means you are not only missing the opportunity to internalize the problem-solving concepts, but also disregarding chances to self-assess your understanding and computational fluency. Poor homework habits will show up in poor quiz and exam results.

Quizzes

There will be a quiz during recitation every Tuesday (except the first and the last weeks of the semester or when an evening exam falls on the same day as a recitation). Quizzes typically cover the lecture material from the previous week. Please see the [Course Calendar](#) for quiz schedule.

Exams

There will be two midterm exams and a final. Dates, times & locations of midterm exams are listed below:

Exam	Date	Time	Location
Exam 1	Tuesday, February 20, 2024	8:00pm - 9:00pm	Elliot Hall
Exam 2	Wednesday, April 10, 2024	8:00pm - 9:00pm	Elliot Hall

Details about the final exam will be announced later in the semester by the registrar's office.

All exams are course-wide, multiple-choice and machine-graded. There is no partial credit on the exams, only what is marked on the scantron will be graded. You are not permitted to use calculators, books, notes, electronic devices, websites, or to consult a peer or any other person on the exams. Exam scores are final and there are no exam re-takes.

Policy on Missed Homework, Quiz & Exam

Timely submission of homework is required; late submissions will not be accepted. No makeup quizzes will be provided. To accommodate the challenges of a course of this scale, at the conclusion of the semester, the three lowest homework scores and two lowest quiz scores will be omitted. This accounts for unforeseen circumstances such as appointments, oversights, accidents, illnesses, or emergencies that may cause students to miss class or a homework deadline, aligning with the universal “drop” policy.

Students compelled to miss class due to approved absences by the Office of the Dean of Students (e.g., grief, military service, jury duty, university athletics, or quarantine) should promptly reach out to the office of the Dean of Students, the lecturer, and the TA. Quizzes missed due to approved absences may be exempted by the TA from the overall total.

Negotiations for alternate exams due to exceptional circumstances should be conducted with the lecturer, with in 24 hours of the exam start time. Students arriving more than 20 minutes late to an exam will not be permitted to take it. They must immediately contact the lecturer to seek permission for a makeup exam, and grade penalties may apply.

Important Dates

Last day to drop the course without it being recorded: **Monday, January 22**

Last day to drop the course and receive a W: **Friday, April 12**

Please see the [Purdue University Academic Calendar](#) for other important dates.

Transfers

If you transfer recitation sections of MA 16100, it is your responsibility to notify the TA of the new section so that he or she can ensure that your MyLabMath scores are transferred.

Calculators

Calculators are not allowed on exams or quizzes. It is important that you learn to do simple manipulations by hand.

TA Office Hours

You may attend any of the [scheduled hours](#) in the Math Resource Room. The purpose of the MRR is to foster student learning. The MRR is a space for students to work collaboratively and for instructors to answer questions over course material and go through similar homework problems. The instructors will not do your exact homework problems. Instead, they will go through a similar problem with you to give you another example to work through. This is more beneficial for you, since it better prepares you for quizzes and exams.

Supplemental Instruction:

There are Supplemental Instruction (SI) study sessions available for this course. These study groups are open to anyone enrolled in this course who would like to stay current with the course material and understand the material better. Attendance at these sessions is voluntary, but extremely beneficial for those who attend weekly. Times and locations for the study session can be found here: www.purdue.edu/si. Students who attend these interactive sessions will find themselves working with peers as they compare notes, demonstrate and discuss pertinent problems and concepts, and share study and test-taking strategies. Students are asked to arrive with their student ID card, lecture notes and questions to these informal, peer-led study sessions.

Tutoring

“Women in Science and Engineering Tutoring Program” offers free evening tutoring. “COSINE” offers free evening tutoring for Math, Biology, and Chemistry in Shreve Hall’s University Residences Support Center. Here is a list of math tutors for hire: www.math.purdue.edu/academic/tutor/.

Academic Adjustments for Students with Disabilities

Purdue University strives to make learning experiences accessible to all participants. If you anticipate or experience physical or academic barriers based on disability, you are welcome to let your instructors know so that we can discuss options. You are also encouraged to contact the Disability Resource Center at: drc@purdue.edu or by phone: 765-494-1247. If you have been certified by the Disability Resource Center (DRC) as eligible for accommodations, you should contact your recitation TA to discuss your accommodations as soon as possible. You should send your Course Accessibility Letter to your recitation TA and also to the professor; here are instructions for how to do this www.purdue.edu/drc/students/course-accessibility-letter.php

CAPS Information

Purdue University is committed to advancing the mental health and well-being of its students. If you or someone you know is feeling overwhelmed, depressed, and/or in need of support, services are available. For help, such individuals should contact Counseling and Psychological Services (CAPS) at (765)494-6995 and www.purdue.edu/caps during and after hours, on weekends and holidays, or by going to the CAPS office, room 224 of the Purdue University Student Health Center (PUSH) during business hours.

Commercial Note Taking in Classes

Notes taken in class are generally considered to be “derivative works” of the instructor’s presentations and materials, and they are thus subject to the instructor’s copyright in such presentations and materials. No individual is permitted to sell or otherwise barter notes, either to other students or to any commercial concern, for a course without the express written permission of the course instructor. See University Senate Document 03-9, April 19, 2004.

Academic Dishonesty

Academic integrity is one of the highest values that Purdue University holds. Individuals are encouraged to alert university officials to potential breaches of this value by either emailing integrity@purdue.edu or by calling 765-494-8778. While information may be submitted anonymously, the more information that is submitted provides the greatest opportunity for the university to investigate the concern.

Purdue prohibits “dishonesty in connection with any University activity. Cheating, plagiarism, or knowingly furnishing false information to the University are examples of dishonesty.” [Part 5, Section III-B-2-a, University Regulations] Furthermore, the University Senate has stipulated that “the commitment of acts of cheating, lying, and deceit in any of their diverse forms (such as the use of substitutes for taking examinations, the use of illegal cribs, plagiarism, and copying during examinations) is dishonest and must not be tolerated. Moreover, knowingly to aid and abet, directly or indirectly, other parties in committing dishonest acts is in itself dishonest.” [University Senate Document 72-18, December 15, 1972]. For more details about the Purdue Policy on academic dishonesty see: <http://www.purdue.edu/odos/academic-integrity/>

Course and Instructor Evaluations

During the last two weeks of the semester, you will be provided an opportunity to evaluate this course and your instructor(s) through online course evaluations. On Monday of the 14th week of classes, you will receive an official email from evaluation administrators with a link to the online site. You will have two weeks to complete this evaluation. Your participation in this evaluation is an integral part of this course. Your feedback is vital to improving education at Purdue University. We strongly urge you to participate in the evaluation system.

Other Issues

In the event of a major campus emergency, course requirements, deadlines and grading percentages are subject to changes that may be necessitated by a revised semester calendar or other circumstances beyond the instructor’s control. To get information about changes in this course please check Brightspace regularly.