



## MAC 2313 Multivariable Calc

Section: U05

In Person

Spring Term 2024

### Course Meeting Information

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#### Class Meeting Times

In Person	
Days:	TuTh
Time:	7:40 AM - 9:20 AM
Location:	SASC 202

### Professor Information

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Tedi Draghici

**Contact:** draghici@fiu.edu

**Phone:** 305-348-2028

**Website:** <https://faculty.fiu.edu/~draghici/>

**Office:** DM 432 B

**Office Hours:**

Tuesdays and Thursdays 11:00am-12:30pm, or by appointment

## Course Prerequisites

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Prerequisite: MAC2312"C"

## Course Description and Purpose

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The course covers the differential and integral calculus of real multivariable functions and we will go through most sections from chapters 13, 14, 15, 15, 16, and 17 from the textbook. See the schedule below for more details on coverage.

## Course Goals

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The course aims to give students a good understanding of differentiation and integration for functions of two and more variables and introduce main applications of these concepts in physics and other sciences.

## Student Learning Outcomes/Objectives

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Students will be able to:

- Understand vectors, their algebraic structure, and the geometry they represent. Graph lines, planes, and simple surfaces in 3-space;
- Do calculus with vector-valued functions and know how to use them to represent an object's motion in 3-space;

- Understand the differential calculus of multivariable functions, including linearization and optimization problems;
- Compute multiple integrals in Euclidean and other coordinates and understand applications of these integrals;
- Use vector fields, their differential operators, and the integral theorems relating them, as well as applications of these theorems;
- Develop proficiency in communicating their ideas/solutions/proofs in spoken and written English.

## Expectations of the Course

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**MOST IMPORTANT: DO ALL THE HOMEWORK**, not just the online assignments, but also all the worksheets and all of the suggested exercises at the pace we cover the material. About 80% of the exam questions will be very similar to your homework exercises (online and suggested). Each exam (midterm or final) will also contain a more theoretical question (a proof), from a set of topics that will be announced in advance. You should be prepared with these theoretical topics, as they can significantly influence your grade. Generally, in mathematics courses the emphasis should be on **understanding** the material, not just mechanical memorization. When you read the notes and the textbook, try to understand and retain the main definitions and the main results (theorems) from the sections we cover.

Having a strong Calculus 1&2 background is important, **so you are expected to review differentiation techniques and basic integration before the first day of class**. Our Calculus 3 coordinator, Prof. DeCarli put together a website which is strongly recommended for your review:

<https://faculty.fiu.edu/~decarli/Calc%203-review%20web%20page/Topics-to-review.htm>

**There will be a diagnostic quiz testing your Calculus 1&2 preparation in the first week of classes.**

Even more important than your background is your attitude and effort throughout the semester. You are expected to spend a minimum of 12 hours/week reading the corresponding sections of the text and doing your homework exercises (online and suggested). Studying with a group can be very helpful and is encouraged, but be sure to do this in an **active** way. Don't let your peers (or an LA, or tutor) think and work for you. Before an exam or quiz, you should be at the point where you can work **on your own** the problems from the corresponding sections. You will often need to spend time reviewing the concepts of each lecture before you attempt the suggested homework problems. When you have questions, you are encouraged to come to my office hours, or try the free tutoring services. It is very important that you keep up with the course material and you don't fall behind.

**Attendance** is mandatory as you will often have short quizzes or class group worksheets which will count for your grade.

**No make-ups** for either worksheets, quizzes or exams will be given. If you have a **documented** medical, professional, or familial responsibility (e.g. a note from a doctor, work supervisor, or police report) for missing a test or quiz, you will be given an "excused absence". If you have an excused absence from a test, that percentage of your grade will be made up on the final. If you have an excused absence from a quiz, that quiz will not count towards your quiz average. I will also drop a couple of low scores for quizzes and worksheets. Once you have started taking a test or quiz, you cannot be excused from that test. You may not be excused from the final.

Be aware that excessive absences, even excused ones, may lead to failure of the course or an incomplete grade. To be considered for an incomplete grade, the student must have completed at least three fourths (3/4) of the course and must be passing with a grade of C or better.

**Drop deadlines:** Last day to Add/Drop with tuition refund: Tuesday, Jan. 16;

Last day to drop with a DR grade (but no refund): Monday, Mar. 19.

**Holidays:** Monday, Jan. 15 (MLK Day); **Spring Break:** Feb. 26-Mar. 3.

## Assignments

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**Your online assignments** will be available through Canvas, following the **Access Pearson** tab.

You will need a MyLab code which gives access to both the online homework and the electronic version of the textbook. You could buy the MyLab code at the FIU bookstore or, I think, directly from Pearson when you access the system the first time. Please be advised that you **MUST** purchase the MyLab code with the specific ISBN listed or it will not work for the course.

**Note:** Pearson can only support access codes purchased from the bookstore and directly through the publisher. Any issues that arise from materials purchased from a third-party vendor (Amazon, Chegg, eBay, etc) must be handled by that particular company. Access codes purchased through third-party vendors will not be replaced by Pearson. This policy includes standalone access codes and access codes included within a packaged bundle.

If you are not able to purchase an access code immediately, you can use a temporary access code. A temporary access code can be obtained directly from Pearson via the MyLab site. A temporary access code is valid for **ONLY 14** calendar days and it allows you to get started with your assignments on the first day of classes. After the code expires you will be prompted to enter the permanent code or purchase the code using a credit card. You will not be allowed to continue your online assignments until a permanent code is entered. You cannot buy/enter a permanent code until the temporary code expires.

Occasionally, some worksheets that could not be finished in class will be left as homework which you should finish at home and turn-in (sometimes as a group homework). You are responsible to review all class worksheets and quizzes, as preparation for exams.

## Assessments

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Your grade in the course is based **solely** on your overall percentage.

The following items have the corresponding weight in your grade:

1. **Online homework (MyMathLabs)– 9.5%;**
2. **Quizzes, class worksheets - 9.5%;**
3. **Three 100 minutes in-class exams (19% each) – topics TBA ;**
4. **FINAL EXAM (24%) - comprehensive exam – final exam week -- Exact date TBA.**

Tentative schedule: Exam 1 – Thursday, Feb. 8; Exam 2 – Thursday, Mar. 15; Exam 3 – Thursday, April 13.

**If beneficial to your grade, the lowest midterm will be replaced by the average of the final exam score and the score on that midterm.**

## Grading

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**Grade-scale: The following percentage guarantees the associated grade:**

**90%-100% A, 88%-90% A-, 85%-88% B+, 80%-85% B, 78%-80% B-, 75%-78% C+, 67%-75% C, 55%-67% D, 0%-55% F.**

## Textbook and Course Materials for Purchase

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If no materials listed, no items are needed.

**EBK MYLAB MATH WITH PEARSON ETEXT ACCES**

**Subtitle:** CALCULUS Early Transcendental, 3rd Edition, Briggs

**Required/Recommended:** Required

**Authors:** Briggs, Cochran, Gillett, Schulz

**Publisher:** Pearson

**Publication Date:** 2019

**Copyright Date:** 2019

**ISBN 10:** 9780134856926

**ISBN 13:** 9780134996684

**Panther Book Pack Undergraduate Rental Program**

FIU has implemented the Panther Book Pack rental program, which provides your required print and digital course materials at a flat rate of \$20 per undergraduate credit hour. When you registered for your classes this session, you were notified via email of the required course materials that are included in the Panther Book Pack. The Panther Book Pack program applies to all undergraduate credit hours per academic session. I recommend that you review the pricing for all materials across your classes this session compared to the Panther Book Pack flat rate. If the Panther Book Pack is not your best option, you may opt out up to three days after the add/drop deadline. You may opt back into the Panther Book Pack up to three days after the add/drop deadline. If you do not opt out of the Panther Book Pack rental program, you will be charged \$20 per credit hour and the course materials will be reserved for you for the undergraduate courses for which you are registered. For more details, visit [bookpack.fiu.edu](http://bookpack.fiu.edu)

**CALCULUS-(LOOSELEAF)**

**Required/Recommended:** optional

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## **Course Communication**

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The best way to reach me is through email, or via the Canvas Inbox. I will generally respond within 24 hours (except perhaps the weekend).

## **Schedule**

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Topics and Schedule: The course covers chapters 13, 14, 15, 15, 16, and 17 from the textbook. This syllabus assumes a semester with 28 instructional days. Each class period has 100 minutes.

- Chapter 13: Vectors and the Geometry of Space (4 lectures) -- Vectors in the Plane; Vectors in 3 Dimensions; Dot Product; Cross Product; Lines and Planes in Space; Cylinders and Quadric Surfaces
- Chapter 14: Vector-Valued Functions (3 lectures) -- Vector-Valued Functions (Introduction); Calculus of Vector-Valued Functions; Motion in Space; Length of Curves; Curvature and Normal Vectors



- Chapter 15: Functions of Several Variables (6 lectures) -- Graphs and Level Curves; Limits and Continuity; Partial Derivatives and the Gradient; Tangent Planes and Linear Approximation; Maximum/Minimum Problems; Lagrange Multipliers
- Chapter 16: Multiple Integration (6 lectures) -- Double Integrals Over Rectangular Regions; Double Integrals in Polar Coordinates; Triple Integrals in Cylindrical and Spherical Coordinates; Integrals for Mass Calculation; Change of Variables in Multiple Integrals
- Chapter 17: Vector Calculus (5 lectures) -- Vector Fields; Line Integrals; Conservative Vector Fields; Green's Theorem; Divergence and Curl; Surface Integrals; Stokes' Theorem; Divergence Theorem

## Policies

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As a member of the FIU community, you are expected to be knowledgeable about the behavioral expectations set forth in the [FIU Student Conduct and Honor Code](#).

In addition, the [FIU Policies and Procedures Library website](#) serves as the official repository for university-wide policies and procedures.

## Technical Requirements and Skills

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One of the greatest barriers to student success is a lack of basic computer literacy. By computer literacy, we mean being able to manage and organize computer files efficiently and learning to use your computer's operating system and software quickly and easily.

Privacy Policy Statements for some of our Partners and Vendors

- [Canvas](#)
- [Microsoft](#)
- [Adobe](#)

- [YouTube](#)
- [LinkedIn](#)
- [ProctorU](#)
- [HonorLock](#)
- [Turnitin](#)
- [OpenStax](#)
- [Zoom](#)
- [Respondus LockDown Browser](#)

## **Accessibility and Accommodation**

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The Disability Resource Center collaborates with students, faculty, staff, and community members to create diverse learning environments that are usable, equitable, inclusive, and sustainable. The DRC provides FIU students with disabilities the necessary support to successfully complete their education and participate in activities available to all students. If you have a diagnosed disability and plan to utilize academic accommodations, please contact the Center at 305-348-3532 or visit them at the Graham Center GC 190.

For additional assistance please contact [FIU's Disability Resource Center](#).

Web Accessibility Statements for Partners and Vendors

- [Canvas](#)
- [Microsoft](#)
- [Adobe](#)
- [YouTube](#)
- [LinkedIn](#)
- [ProctorU](#)

- [HonorLock](#)
- [Turnitin](#)
- [OpenStax](#)
- [Zoom](#)
- [Respondus LockDown Browser](#)

Please visit [accessibility.fiu.edu](https://accessibility.fiu.edu) for additional information about accessibility at FIU.

## Academic Integrity

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Florida International University is a community dedicated to generating and imparting knowledge through excellent teaching and research, the rigorous and respectful exchange of ideas, and community service. All students should respect the right of others to have an equitable opportunity to learn and honestly demonstrate the quality of their learning. Therefore, all students are expected to adhere to a standard of academic conduct, which demonstrates respect for themselves, their fellow students, and the University's educational mission. All students are deemed by the University to understand that if they are found responsible for academic misconduct, they will be subject to the Academic Misconduct procedures and sanctions, as outlined in the Student Conduct and Honor Code.

Academic Misconduct includes:

### **Cheating**

- The unauthorized use of any materials, information, study aids, or assistance from another person on any academic assignment or exercise unless explicitly authorized by the course Instructor;
- Assisting another student in the unauthorized use of any materials, information, or study aids, unless explicitly authorized by the Instructor; and
- Having a substitute complete any academic assignment or completing an academic assignment for someone else, either paid or unpaid;

## Plagiarism

- The deliberate use and appropriation of another work without any indication of the source and the representation of such work as the Student's own.
- Assisting another student in the deliberate use and appropriation of another's work without any indication of the source and the representation of such work as the student's own.

Learn more about [Student Conduct and Academic Integrity](#).

## Panthers Care & Counseling and Psychological Services (CAPS)

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If you are looking for help for yourself or a fellow classmate, Panthers Care encourages you to express any concerns you may come across as it relates to any personal behavior concerns or worries you have, for the classmate's well-being or yours; you are encouraged to share your concerns with [FIU's Panthers Care website](#).

[Counseling and Psychological Services \(CAPS\)](#) offers free and confidential help for anxiety, depression, stress, and other concerns that life brings. Professional counselors are available for same-day appointments. Don't wait to call (305) 348-2277 to set up a time to talk or visit the online self-help portal.

## Inclusivity

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This course will serve to embrace the diversity and inclusivity found within Florida International University. We appreciate and respect diversity, equality, equity, cooperativeness, community, and sustainability within our online courses. We are committed to the ongoing education of our students and their participation within the course regardless of gender, ethnicity, age, sexual orientation, geographical location, religion, and disability. We strive in encouraging collaboration by preparing our students to value the differences in others. At the core of our intentions is the encouragement of acceptance and appreciation of differences within our student population and community.

# Copyright

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The following conduct is prohibited by the Student Conduct and Honor Code. A lack of familiarity with University policy is not a defense to a violation of this Code. Unless specifically noted, the intent is not a required element to establish a policy violation. The following conduct violation or any attempt to violate the Code will be used in charging all Students or Student Organizations;

## Section 5 | Conduct Violations - g. Computer Misuse

- vii. Unauthorized distribution or downloading of copyrighted materials, including but not limited to, unauthorized peer-to-peer file sharing. This is a violation whether the user is using their own personal computer or the University's information technology system for unauthorized distributions.

Copyright Statement: The materials and content in this course are provided solely for student use during the course. Course materials may not be shared outside of the course or with any third party without the explicit permission of the instructor or content publisher. Visit FIU [Library's Copyright Lib Guide](#) to learn more about copyright law and restrictions.

## Additional Resources:

- [Student Conduct and Honor Code](#)
- [Digital Millennium Copyright Act Policy](#)
- [FIU - Copyright Guidance for Students](#)
- [FIU Library's Copyright Lib Guide](#)