MAC 2313 CALCULUS 3, FALL 2025

SYLLABUS/CALENDAR

Instructor

Dr. Scott Keeran

Lecture: MWF Period 6 (12:50 – 1:40AM) in CAR 100

Office: Little Hall 309 Office Hours: T P3 and P4, R P3

Email: keeran@ufl.edu

Dr. Jesse Kim

Lecture: MWF Period 9 (4:05 – 4:55 AM) in NRN 1020

Office: Little Hall 441 Office Hours: M/W/F P8

Email: jesse.kim@ufl.edu

Dr. Alex York

Lecture: MWF Period 2 (8:30 – 9:20 AM) in LIT 101

Office: Little Hall 437 Office Hours: M/W/F P3

Email: a.york@ufl.edu

Instructor/Coordinator

Dr. Missy Shabazz

Lecture: MWF Period 8 (3:00 – 3:50 PM) in CSE

Office: Little Hall 374 Office Hours: M P7, W P7, R P3 on Zoom

Email: shabazzm@ufl.edu

The course homepage is located in e-Learning Canvas.

When emailing the course coordinator, write **your lecture period and TA's name** in the subject line.

Discussion Leaders (TA)

TA	Office	email	Discussion Periods
Van Rensburg	LIT 429	lodewyk.jansenva@ufl.edu	R 2, 4, 6
Abby Owens	LIT 457	aowens2@ufl.edu	R 2, 5, 7
Christian Austin	LIT 463	christianaustin@ufl.edu	R 3, 5, 6
Dmitrii Smorchkov	LIT 459	dsmorchkov@ufl.edu	T 2, 3, 4
Dylan Connell	LIT 455	dylan.connell@ufl.edu	T 3,6
Xiaochen Duan	LIT 429	duanxiaochen@ufl.edu	T 4, 6
Harris Barton	LIT 481	harrisbarton@ufl.edu	T 5, 7
Vincent Holmlund	LIT 429	vincent.holmlund@ufl.edu	T 7, 8, 9
Umesha Wijerathne	LIT 477	u.wijerathne@ufl.edu	T 9
Teresa Castano	LIT 435	t.castano@ufl.edu	T 5, 7, 8
Jiun Cho	LIT 479	jiuncho@ufl.edu	R 2, 4, 7
Michael Waite	LIT 473	michael.waite@ufl.edu	R 8, 9, 10
Alexander Wong	LIT 475	awong3@ufl.edu	R 7, 11
Theodosios Aivalis	LIT 455	aivalis.t@ufl.edu	T 5, 8, 9
Jasen Lai	LIT 459	lai.jasen@ufl.edu	R 8, 9, 10
Kushagri Sharma	LIT 481	kushagrisharma@ufl.edu	R 9

1	22	F	L1	3-D Rectangular System
2	25	M	L2	Vectors
	27	W	L3	Dot Product
	29	F	L4	Cross Product
		T/R		No Quiz
3	1	M		Labor Day
	3	W	L5	Lines and Planes
	5	F	L6	Quadratic Surfaces
		T/R		Quiz 1 (L1-3)
4	8	M	L7	Vector Valued Functions
	10	W	L8	Arc Length and Curvature
	12	F	L9	Motion in Space
		T/R		Quiz 2 (L4-6)
5	15	M		Review
	16	T		Exam 1
	17	W	L10	Functions of Several Variables
	19	F	L11	Limits and Continuity
6	22	M	L12	Partial Derivatives
	24	W	L13	Tangent Planes and Linear Approximations
	26	F	L14	The Chain Rule
		T/R		Quiz 3 (L10-11)
7	29	M	L15	Directional Derivatives and Gradients
	1	W	L16	Gradients and Tangent Planes
	3	F	L17	Maximum and Minimum Values
		T/R		Quiz 4 (L12-14)
8	6	M	L18	Lagrange Multipliers

	8	W	L19	Double Integrals over Rectangles
	10	F		Review
		T/R		Quiz 5 (L15-17)
9	13	M		Exam 2
	15	W	L20	Double Integrals over General Regions
	17	F		Homecoming - No Class
10	20	M	L21	Change of Coordinates
	22	W	L22	Change of Variables in Multiple Integrals
	24	F	L23	Double Integrals in Polar Coordinates
		T/R		Quiz 6 (L19-20)
11	27	M	L24	Triple Integrals in Rectangular Coordinates
	29	W	L25	Triple Integrals in Cylindrical Coordinates
	31	F	L26	Triple Integrals in Spherical Coordinates
		T/R		Quiz 7 (L21-23)
12	3	M	L27	Vector Fields
	5	W		Review
	7	F		Exam 3
13	10	M	L28	Line Integrals
	12	W	L29	Fundamental Theorem of Line Integrals
	14	F	L30	Green's Theorem
				No Class
14	17	M	L31	Parametric Surfaces
	19	W	L32	Surface Integrals
	21	F	L32	Surface Integrals
		T/R		Quiz 8 (L27-30)
15	1	M	L33	Stokes' Theorem
	3	W	L34	Divergence Theorem

	5	F		Reading Day
	8	M		Final Exam

1. INTRODUCTION

1a <u>COURSE CONTENT:</u> MAC 2313 is the third semester in the calculus sequence and it gives a thorough introduction to multivariable calculus. The course is divided into four modules.

- Module 1 (Lectures 1 - 9) Geometry of Space & Vector Functions
- Module 2 (Lectures 10 - 18) Differentiation of Functions of Several Variables
- Module 3 (Lecture 19 - 26) Multiple Integration
- Module 4 (Lectures 27 - 34) Vector Calculus including line integrals, surface integrals, Green's Theorem, Stokes' Theorem, and the Divergence Theorem

1b <u>PREREQUISITES:</u> MAC 2312 with a minimum grade of C.

To be successful in this course, you should have mastery of precalculus algebra and trigonometry. Students should be able to do arithmetic without a calculator. It is assumed that students are proficient in standard Calculus 1 and 2 topics, including limits, continuity, differentiation, and integration techniques.

<u>General Education Objectives and Learning Outcomes</u>

- Students will identify, describe, and visualize equations in 3-space.
- Students will use contour maps for functions of two or three variables to analyze the functions.
- Students will use the algebra of vectors to study geometry in 3-space.
- Students will use the calculus of vector-valued functions to analyze motions in 3-space.
- Students will find and interpret the unit tangent and unit normal vectors and curvature.
- Students will compute limits and partial derivatives of multivariable functions and use them to analyze and interpret the way a function varies.
- Students will compute and interpret the gradient and directional derivatives for a function at a given point.
- Students will compute the total differential of a function of several variables and use it to approximate incremental change in the function.
- Students will analyze and solve optimization problems using the Second Derivative Test and Lagrange multipliers.
- Students will evaluate multiple integrals either by using iterated integrals or approximation methods.
- Students will evaluate multiple integrals using polar coordinates.
- Students will relate rectangular coordinates in 3-space to spherical and cylindrical coordinates and use spherical and cylindrical coordinates as an aid in evaluating multiple integrals.
- Students will model applied problems using multiple integrals.

- Students will evaluate multiple integrals using a change of variables and the Jacobian.
- Students will define a line integral and use it to find the total change in a function given its gradient field.
- Students will analyze and apply the Fundamental Theorem for line integrals.
- Students will analyze and apply Green's Theorem.
- Students will calculate and interpret curl and divergence for a vector field.
- Students will define a surface integral, and use it to find the flux of a vector field over a surface.
- Students will analyze and apply Stoke's Theorem.

1c REQUIRED MATERIALS :

Textbook: There are no required textbooks for this course. For anyone who wishes to study from a textbook, we suggest this free online textbook Openstx Calculus Volume 3. Additionally, you may find any edition of the Calculus textbooks by Stewart, or Rogawski, helpful.

Computer access and requirements: A reliable internet and a computer are required. All assignments should be taken on a computer, not cell phone or tablet, since there may be compatibility issues with Canvas. The recommended browser for this course is Chrome.

NO CALCULATORS are allowed on quizzes or on exams. A graphing calculator and Wolframalpha are useful as a study and learning tool when used appropriately, but are not essential. Graphing in 3-dimensional space can be challenging sometimes. We recommend online graphing calculators, GeoGebra or CalcPlot3D, to help you at the beginning of learning 3D graphs. Remember that Calculus is a collection of ideas that are not mastered through calculator skills.

1d E-LEARNING CANVAS: All course information including lecture outlines, lecture videos, office hours, and exam reviews is posted on Canvas.

All grades are posted in the Canvas gradebook You are responsible for verifying that those grades are accurate. **You have one week after a score has been posted to contact your TA to resolve any grade concerns.** Any grade concerns must communicate through Canvas emails due to security/privacy issues. We will not consider any grading disputes nor make any grades adjustment at the end of the semester.

TURN ON NOTIFICATIONS in your Canvas account so that you can receive timely alerts in your UF email. See the instructions for Canvas Notification settings.

Check Canvas course homepage regularly for announcements. Due to the volume of email instructors receive, we cannot reply to each request for information that is already posted online. When you email the coordinator, please be sure to write down your lecture period, section number, and TA's name in the subject line in all mail correspondence.

1e LECTURES meet during the designated period (check your class schedule on ONE.UF). Attendance is strongly encouraged. All lectures will be recorded and the recording links will be posted on Canvas. You are responsible for learning lecture material missed due to an absence. Students can print out the lecture outlines from Canvas through **Lectures/Discussions** tab. You may also purchase a hard copy from Target Copy Center.

We recommend students to start Lecture Questions (LQ) on Canvas after each lecture and complete the LQ before the next class, so you can familiar with the recent covered material.

1f DISCUSSIONS, which meet once a week either Tuesday or Thursday,

give you a valuable opportunity for open discussion of the lecture material and assigned problems in a smaller online class setting. **Attendance in discussion is required.**

Your main resource person is your TA. She/he is available during office hours or by appointment to answer your questions about the course material.

You should check Canvas regularly and consult with your TA if you have any questions about posted grades. **All grade concerns must be taken care of within one week of receiving the score.** If you have concerns about your discussion class which cannot be handled by your TA please contact the course coordinator Dr. Shabazz by email.

1g GETTING HELP: All instructors' online office hours will be posted on Canvas at the end of the first week. You may go to anyone's office hours that fit your schedule. We encourage you to use this valuable resource to help you stay on track and succeed. In addition to instructors' office hours, the following aids are available online.

- The Math Lab in Little 215 is open for drop-in assistance Monday through Friday. It is staffed by mathematics graduate students and undergraduate assistants.
- The Teaching Center Math Lab in SE Broward Hall is a tutorial service staffed by trained math and science students to provide help with your calculus questions and homework. You can also request free one-on-one tutoring.
- Office of Academic Support offers free one-on-one and small group tutoring sessions to any UF students.
- U Matter, We Care provides students in distress with support and coordination of the wide variety of appropriate resources. A nighttime and weekend crisis counselor is available by phone at 352-392-1575. Remember that asking for help is a sign of strength. In case of emergency, call 9-1-1.
- UF Counseling Center provides information and helps students who are experiencing test-related stress and anxiety or having any other concerns.

1h <u>SUCCESS</u> in MAC 2313 depends largely on your attitude and effort.

- **Engage (participate and be proactive)** in class and discussion boards.
- **Complete assignments** on time. Get an early start on all assignments. If you get stuck, watch the lecture again and/or attend office hours for timely help. Do not let questions go unanswered.
- **Keep up with the pace** of the course and do not fall behind.

We want you to be successful! Remember that you are the only person who can walk the path to your success. Your TA and I are there for you, but you need to stay on top of what's going on in class and take the initiative to reach out when you need help.

1i <u>STUDENTS WITH LEARNING DISABILITIES:</u> Students requesting class and exam accommodations must register with the Disability Resource Center(DRC) by providing appropriate documentation. An accommodation letter must be sent to Dr. Shabazz once approved by DRC, and students with disabilities should follow the DRC procedure as early as possible in the semester since the accommodations are not retroactive.

DRC ATR policy: Students who wish to take an exam at DRC must submit your accommodated test request (ATR) at least four business days in advance of the exam. This does not include the day of the exam, weekends, or holidays.

1k <u>ACADEMIC HONESTY:</u> All students are required to abide by the Academic Honesty Guidelines which have been accepted by the University. The academic community of students and faculty at the University of Florida strives to develop, sustain and protect an environment of honesty, trust, and respect. Students are expected to pursue knowledge with integrity. Exhibiting honesty in academic pursuits and reporting violations of the Academic Honesty Guidelines will encourage others to act with integrity. Violations of the Academic Honesty Guidelines shall result in judicial action and a student being subject to the sanctions in paragraph XIV of the Student Code of Conduct. The conduct set forth hereinafter constitutes a violation of the Academic Honesty Guidelines (University of Florida Rule 6C1-4.017).

The UF Honor Code specifies a number of behaviors that are in violation of this code and the possible sanctions. We are bound by university policy to report any instance of suspected cheating to the proper authorities. In addition, we remind you that lectures given in this class are the property of the University/faculty member and may not be may not be used for any commercial purpose. Students found to be in violation may be subject to discipline under the Student Conduct Code.

2. TESTING

2a <u>EXAMS:</u> There will be three 90-minute unit exams and one 2-hour final exam, all mandatory. The unit exams are assembly exams which begin at 8:30PM, consists of

multiple choice and free-response questions; the final exam time may change each term, consists solely of multiple choice questions. All exam dates and time are specified in the course calendar and they must be taken at the assigned date and time.

2b <u>IMPORTANT EXAM POLICIES:</u> MAC 2313 requires that students take evening exams on the listed dates. Students with conflicts, including regularly scheduled classes or traveling, must make advanced arrangements to be present at the test.

The following applies to all exams:

(1) Students are responsible for material covered in lectures, NYTI, and assignments. **Exam coverage and format may vary from semester to semester.**

(2) Bring only the following to the exam:

- Soft lead graphite pencils (number 2 lead or softer) for bubbling your scantron
- Ink Pen (To sign your test)
- Knowledge of your SECTION NUMBER and UF ID number
- Picture ID (UF Gator One card or your state driver's license) with a **legible signature**

Cell phones and other electronic devices must be turned off and out of sight. If any such device rings, buzzes, or otherwise causes a distraction during the exam, your test will be considered to be compromised and your test score will be 0.

(3) Students should be at the exam location at least 10 minutes early. No one will be admitted to the test **10 minutes** after the starting time of the test. No one will be permitted to leave the test until 30 minutes after the stated start time.

(4) The **Test Form Code**, as well as **your UFID**, name, and section number must be encoded correctly or you will lose <u>3 points</u>. You must also take the test in your assigned test location or you will lose <u>3 points</u> on your test.

(5) An answer key will be posted on CANVAS within one day after each exam. To check your answers, record them on the test or scratch paper that you keep after turning in your scantron and tearoff sheets.

(6) Graded tearoff sheets will be returned in discussion. You then have **one week** to see your discussion leader if you have questions about your exam grade.

See Section 3e for the Exam Conflict and Makeup Policies.

3. GRADING

Assignments	
Xronos Homework	15%
Lecture Quizzes	10%
Quizzes	15%
3 semester exam scores (15% each)	45%
Final exam	15%
Total:	100%

A	90% - 100%	C		67% - 72.9%
A−	87% - 89.9%	C−*		64% - 66.9%
B+	84% - 86.9%	D+		62% - 63.9%
B	80% - 83.9%	D		57% - 61.9%
B−	76% - 79.9%	D−		56% - 56.9%
C+	73% - 75.9%	E	less than	or below 56%

There will be no additional curve in this course, and extra assignments for individual students to improve a grade are NOT possible.

***NOTE:** A grade of C− DOES NOT give Gordon Rule or General Education credit!

3b LECTURE QUESTIONS: There are 34 sets of lecture questions (LQ) on Canvas given on the material of the lectures. They are untimed, open book and open notes. You have three attempts for each LQ. Students are expected to work individually on these assignments, and the due date for each LQ is indicated on the course calendar. The two lowest LQ grades will be dropped at the end of the semester.

3c HOMEWORK ASSIGNMENTS: In this course we will utilize the online platform Xronos which is developed by the math department at UF. Online homework assignments will be assigned for each lecture and they must be completed by the dates shown on the course calendar. The two lowest online homework grades will be dropped at the end of the semester.

IMPORTANT: You MUST access Xronos via Canvas **Assignments** tab every single time for each Xronos homework assignment. If you do not – your homework grade will not be synced back to the Canvas gradebook, and therefore, you will not receive credit for the problems you solve.

Do not try to complete an assignment in one sitting; start early instead of waiting until the due date to avoid missing the deadline.

Remember that the **Due Date** is not the **Do Date**. DO NOT wait until the last hour to complete your assignment since internet sometimes is not reliable, and no extension will be offered due to tech issues.

3d QUIZZES: Your TA will administer ten quizzes in class on the dates listed in the course calendar.

Your TA will provide more information on quizzes during the first discussion class.

3d EXTRA CREDIT: You may earn up to 3% extra credit in the following ways:

• SYLLABUS QUIZ: After reading the course syllabus carefully, you have a chance to bonus points by completing the syllabus quiz on Canvas before the deadline. Students understand and agree to follow our course policies when submitting this quiz.

• Extra credit is its own weighted category worth up to 3% toward your overall grade

• EXAM PREPARATION : A practice exam will be posted on Canvas a few days before each test. You can earn up to 10 bonus points by completing it on Canvas before its due date. Practice exams can used to assess your readiness for the coming exam.

• Other extra credit assignments will be announced on Canvas.

3e MAKE-UP POLICIES: All make-up work must be approved by the course coordinator and you must provide documentation of your absence. **The deadline to sign up for a make-up exam/quiz is Friday, September 6th.**

- **Exam Conflicts – The UF during Term Assembly Exam Policy:** "Exams may be held Monday – Friday from 8:30 – 10:00PM for the fall and spring terms. If other classes are scheduled during an exam time, instructors must provide make-up class work for students who miss class because of an assembly exam. If two exams are scheduled at the same time, assembly exams take priority over time-of-class exams. When two assembly exams conflict, the higher course number takes priority. Instructors giving make-up exams will make the necessary adjustments."

  If MAC 2313 is the lower course number, students must sign up with the course coordinator by the deadline so that appropriate accommodations can be made.

- **Make-up Exams:** If you are participating in an official UF activity (such as music performances, athletic competition or debate) or religious observance, you may make up an exam only if you sign up for a make-up exam with the course coordinator by the deadline. You must present documentation of an official UF activity. A make-up exam may be given soon after the exam date or during the last week of classes.

  If illness or other extenuating circumstances cause you to miss an exam, contact the course coordinator immediately (no later than 24 hours after the exam) by email. Then, as soon as possible after you return to campus, bring the appropriate documentation to the course coordinator. A make-up exam will be given during the last week of classes.

- **Missing an exam** – There is a 10% penalty for missing an exam due to negligence.

- **Quizzes:** There are no make-ups, unless,

  1) you are participating in an official UF activity, for which you must bring your documentation to the course coordinator during the first three weeks of

the semester.
2) you miss because of a religious holiday. You must notify the course coordinator within the first three weeks of the semester if you will be missing a quiz due to a religious holiday.
3) you miss due to illness or other extenuating circumstances. You must contact the course coordinator immediately (within 24 hours of missing a quiz) by email, and bring the appropriate documentation to the course coordinator as soon as you return to campus.

Your TA cannot give makeups without the authorization of the course coordinator.

- **Lecture Questions and Xronous HW:** no make-ups unless you have a legitimate reason stated in the UF attendance policies and you must contact the course coordinator within 24 hours of missing an assignment.

  Note that there are 2 drops on LQ, Xronos assignments, and one Quiz. For issues with technical difficulties for Canvas, please contact the UF Help Desk or call (352) 392-HELP(4357). Any requests for make-ups due to technical issues MUST be accompanied by the ticket number received from the Help Desk when the problem was reported to them. The ticket number will document the time and date of the problem. You MUST e-mail the course coordinator within 24 hours of the technical difficulty if you are eligible for a make-up.

- **Lecture Questions late submission:** An LQ assignment can be submitted late with a 10% penalty for each day beyond the due date.
- **Extra Credit Assignments:** no make-ups on any extra credit assignments

3f 10-MINUTE POLICY: Only the students who are present in the first 10 minutes of the class and stay for the entire period will be allowed to participate in the class activities including taking a quiz.

3g ONE WEEK POLICY: All grades are posted in the Canvas gradebook. You are responsible for verifying all grades are accurate. You have one week after a score is available to discuss any grade concerns with your instructor. There is no grades dispute after one week.

3h INCOMPLETE: A student who has completed a major portion of the course with a passing grade but is unable to complete the final exam or other course requirements due to illness or emergency may be granted an incomplete, indicated by a grade of "I". This allows the student to complete the course within the first six weeks of the following semester. The student must contact the course coordinator to sign the incomplete grade contract, and must provide documentation of the extenuating circumstances preventing him or her from taking the final exam. The grade of "I" is never used to avoid an undesirable grade, and does not allow a student to redo work already graded or to retake the course. See the official incomplete grade policy for details.

4. ONLINE COURSE EVALUATION

Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at https://gatorevals.aa.ufl.edu/students/. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or via https://ufl.bluera.com/ufl/. Summaries of course evaluation results are available to students at https://gatorevals.aa.ufl.edu/public-results/.

This syllabus is subject to change. You will be notified if any changes are made.
Updated on 8/1/2025