



Course Syllabus

Calculus with Analytic Geometry III

MAC 2313 / 81188 / Fall 2026

4 credit hours

Pre-requisite: Minimum grade of "C" in MAC 2312.

Contact Information

Instructor

Hadley Pridgen
Professor/Chair, Mathematics
hpridgen@gulfcoast.edu
850-872-3852

SUW 288
See Canvas for Office Hours
Response Time: Within 2 business days

Division Chair

Hadley Pridgen
Chair, Mathematics
hpridgen@gulfcoast.edu
(850)872-3852

Division Administrative Assistant

Scott Spencer
Academic Technology Specialist
sspencer@gulfcoast.edu
(850)747-3229

Course Information

Catalog Description:

This course affords students a mastery of foundational mathematical and computation models and methods by applying such models and methods in problem solving. 1. Review of functions 2. Limits and continuity 3. The derivative 4. Differentiation of algebraic functions 5. Differentiation of transcendental functions 6. Mean-value theorem and intermediate value theorem 7. Extrema and graph sketching 8. Area and the definite integral 9. Antidifferentiation 10. Fundamental theorem 11. Inverse functions 12. Arc length 13. Techniques of integration 14. Parametric equations and polar coordinates 15. Taylor's formula, infinite sequences and series 16. Vectors in the plane and 3-space 17. Topics from plane and solid analytic geometry 18. Directional derivatives and curvature 19. Differential calculus of functions of several variables 20. Multiple integration. A graphing calculator is required. The TI-83/84 are the only allowable calculators for test days. If a student wishes to use any other calculator, they must see their instructor in advance for approval.

Student Learning Outcomes:

Students will:

- Demonstrate calculations involving properties and applications of vectors
- Solve problems involving vector-valued functions
- Find arc length and curvature
- Demonstrate calculations involving partial derivatives and their applications
- Evaluate multiple integrals
- Demonstrate calculations involving the principles of vector analysis

Course Materials & Resources:

Calculus ETF, Larson/Edwards, 8th edition, 2024, Cengage. ISBN 9780357759325

TI 83/84 Graphing Calculator

Delivery Method:

This course meets face to face. Course material, assignments, and announcements may be offered via Canvas as a supplemental approach to learning at the discretion of the instructor. Please make sure that you have access to a computer with a webcam and internet service, in the event a change in course delivery is needed.

Student Expectations

In this course, communication and feedback will occur through various channels, including GCSC email, Canvas Inbox, Canvas Announcements, Canvas Discussions, Microsoft Teams or Zoom, assignment feedback, and instructor office hours. Review the statements below so that you understand the expectations for communication.

As a student at Gulf Coast State College, you are expected to:

- **Adhere to Course Guidelines:** Follow the guidelines detailed in the course syllabus, along with any additional instructions provided by the instructor. This includes understanding and complying with the course objectives, grading criteria, and academic policies.
- **Maintain Regular Contact:** Keep in touch with your instructor and classmates via your GCSC email or other designated communication channels. Regular contact helps clarify doubts, share ideas, and foster a collaborative learning environment.
- **Active Participation:** Engage actively in class discussions and submit assignments on time. Your active participation is crucial for your academic success and contributes to a vibrant learning community.

As your instructor, my commitment to you is to:

- **Provide Timely Feedback:** I will review and provide feedback on your assignments and submissions promptly. My goal is to help you understand your strengths and areas for improvement, which is crucial for your academic growth.
- **Respond Via Canvas Inbox:** I will respond to your emails or messages within 24-48 hours (excluding weekends), unless otherwise noted. I understand the importance of clear and timely communication in addressing your questions and concerns.
- **Maintain Weekly Office Hours:** I will maintain regular weekly office hours, but I can also be available by appointment. This is to ensure I'm available for any questions or concerns that may come up during the week.

Course Schedule

This course will cover 5 units of material. Within each unit, homework will be assigned by section. Additionally, for each unit there will be a study guide that will be completed prior to a unit test. A comprehensive final exam will be given at the end of the semester. Most class periods will focus on one to two sections within each unit.

Unit 1:

- 11.1 Vectors in the Plane
- 11.2 Space Coordinates and Vectors in Space
- 11.3 Dot Product of Two Vectors
- 11.4 Cross Product of Two Vectors in Space
- 11.5 Lines and Planes in Space
- 11.6 Surfaces in Space
- 11.7 Cylindrical and Spherical Coordinates

Unit 2:

- 12.1 Vector-Valued Functions
- 12.2 Differentiation and Integration of Vector-Valued Functions
- 12.3 Velocity and Acceleration
- 12.4 Tangent Vectors and Normal Vectors
- 12.5 Arc Length and Curvature
- 13.1 Introduction to Functions of Several Variables
- 13.2 Limits and Continuity

Unit 3:

- 13.3 Partial Derivatives
- 13.4 Differentials
- 13.5 Chain Rules for Functions of Several Variables
- 13.6 Directional Derivatives and Gradients
- 13.7 Tangent Planes and Normal Lines
- 13.8 Extrema of Functions of Two Variables
- 13.10 Lagrange Multipliers

Unit 4:

- 14.1 Iterated Integrals and Area in the Plane
- 14.2 Double Integrals and Volume
- 14.3 Change of Variables: Polar Coordinates
- 14.4 Center of Mass and Moments of Inertia
- 14.5 Surface Area
- 14.6 Triple Integrals and Applications
- 14.7 Triple Integrals in Other Coordinates

Unit 5:

- 15.1 Vector Fields
- 15.2 Line Integrals
- 15.3 Conservative Vector Fields and Independence of Path
- 15.4 Green's Theorem
- 15.5 Parametric Surfaces
- 15.6 Surface Integrals
- 15.7 Divergence Theorem
- 15.8 Stokes's Theorem

Grading

GCSC Grading Scale

The college catalog will be used to convert the numerical average to a letter grade. The college grading scale is: A (100-90), B (89-80), C (79-70), D (69-60), and F (59-0).

Calculation of Grades

There will be five in-class tests for this course. Each test will be worth 12.5% of your final grade and cover material from the previous unit. At the end of the course, there will be a comprehensive final exam worth 25% of your final grade. The final exam may replace the lowest unit test grade. The final exam will not be returned. The remaining 12.5% of your grade will be formative assessments consisting of quizzes, review material, or graded in-class assignments.

Incomplete Grades

Grades of Incomplete in any course can only be assigned to students who have an emergency arise during the last two weeks of the course. To receive an Incomplete, students must:

- Submit a written request to the instructor prior to the last face-to-face class meeting. For online courses, a written Incomplete request must be received no later than the week before the Final Exam period begins.
- Have completed no less than 60 percent of the course requirements and be passing the course at the time the request for an Incomplete is submitted.

Important Note: The Incomplete option provides 30 days from the date grades are due to make up any missing work; if work is not submitted during this period, the grade will automatically change to an "F" in Lighthouse.

Course Policies

Accessibility Statement

Gulf Coast State College supports an inclusive learning environment for all students. If there are aspects of the instruction or design of this course that hinder your full participation, reasonable accommodations can be arranged. Prior to receiving accommodations, you must register with Student Accessibility Resources. Appropriate academic accommodations will be determined based on the documented needs of the student. Please visit [GCSC's Student Accessibility Resource \(SAR\) webpage](#) to learn more. For information regarding the registration process, email sar@gulfoast.edu or call 850-747-3243.

Attendance Policy

Regular class attendance and participation are significant factors that help to promote success in college. Students are expected to attend all class meetings of all courses for which they are registered.

You are expected to know the instructor's specific attendance policy, as stated in the syllabus for each course. In the event of absence, you should contact your instructor as soon as possible to indicate the reason and to inquire whether make-up work is possible. (Make-up work is offered solely at the discretion of your professor.)

If your absences in a class become excessive, as stated in the course syllabus, your professor may contact you, indicating that further absence may result in your withdrawal from the course. Your professor can withdraw you from a course for excessive absences without your permission.

Instructors will monitor attendance at the beginning of each semester. If you are not in attendance during this period, you may be withdrawn from the course. You will be financially responsible for the course and a "W or NS" will appear on your transcript. Withdrawal from a course may also have implications for financial aid.

Make-Up Work Policy

If a unit test is missed, this test will count as the lowest test and can be replaced by the final exam. No formative assignments will be accepted late.

Withdrawal Policy

Two withdrawals are permitted per credit course. After that, a grade will be assigned. Please be concerned about withdrawals. When admitting students into certain programs, universities may calculate withdrawals as grades. It is your responsibility to verify the effects of enrollment and/or withdrawal upon your financial assistance (financial aid, scholarships, grants, etc.). There are two kinds of withdrawals---student and administrative.

- *Student Withdrawal (W1)* - Students wishing to withdraw must complete the online Student Withdrawal Form before the scheduled withdrawal deadline as published in the College catalog. Student withdrawals initiated prior to the scheduled withdrawal deadline will be recorded as a grade of "W." The withdrawal deadline for an off-term or condensed term is one week after midterm.
- *Administrative Withdrawal (W2)* – A faculty member may withdraw a student up to the published withdrawal deadline for violation of the class attendance policy in which case the student will receive a grade of "W." The withdrawal deadline for an off-term or condensed term is one week after midterm.

Students cannot withdraw from developmental studies courses (college-preparatory classes) after the drop/add period without written permission from their instructor and/or their academic advisor.

Academic Integrity

Honest participation in academic endeavors fosters an environment in which optimal learning can take place and is consistent with the college's mission. Academic misconduct, including cheating or plagiarism, is destructive to the spirit of an educational environment. GCSC professors report every instance of student academic misconduct to the college for inclusion on the student's records. Most course syllabi include an academic honesty policy and the consequences for violating this policy. Familiarize yourself with course policies regarding authorized or unauthorized use of AI to avoid the pitfalls of academic dishonesty.

The following definitions will apply:

"Cheating"

includes but is not limited to use of any unauthorized assistance in taking quizzes, tests, or examinations; dependence upon the aid of sources beyond those authorized by the instructor in writing papers, preparing reports, solving problems, or carrying out other assignments; the acquisition without permission of tests or other academic materials belonging to a member of the College's faculty.

"Plagiarism"

includes, but is not limited to, the use by paraphrase or direct quotation of the published or unpublished work of another person without full and clear acknowledgment as well as the purchase of papers or projects. It can also include overuse of an editing program like Grammarly or submitting work written by

an Artificial Intelligence (AI) generator like ChatGPT. Make certain to consult your course syllabi for your instructor's guidelines of AI material.

"Self-plagiarism"

occurs when a student submits the same or considerably similar document to fulfill requirements in different classes. For example, if a student submits a term paper in Religion they originally wrote for an English class, this is self-plagiarism. Once a paper receives a grade in one class, it cannot be submitted again for another class.

"Generative Artificial Intelligence (AI)"

is technology that uses machine learning to create new content, such as text, images or code, based on user input. These systems are trained on vast amounts of data, including large language models and image or code generators. Common examples include ChatGPT, GitHub, Copilot, Google Gemini, Perplexity, and the Grammarly AI function.

Sanctions for incidences of academic misconduct, depending on the severity of the incidence and/or its repetition, may range from receiving an F grade (or 0) for the test, assignment, or activity, to failure of the course, to suspension or dismissal from the college.

Classroom Recording

In accordance with federal and state privacy laws, students may record class lectures for their own personal educational use, in connection with a complaint to the college, or as evidence in internal or external legal proceedings. Students may not publish or upload the recordings or any components thereof without the knowledge and written permission of the faculty member. Failure to obtain permission to publish could lead to the students' having to pay damages, attorney fees, and court costs. For more information about what can be recorded, please see the guidelines in the GCSC Student Handbook.

Generative Artificial Intelligence (AI) Policy

The use of generative AI tools in academic work requires clear guidelines to maintain academic integrity. Please review the policy selected for this course regarding the use of AI tools such as ChatGPT, Copilot, Grammarly's AI features, and similar platforms for assignments, research, and other coursework.

See the student handbook for further information. Students with questions about acceptable use should consult their instructor.

Limited Assistive Use Only

Students may use basic assistive technologies for spelling, grammar, and formatting (e.g., PaperRater or SpellCheckPLUS); however, the use of AI tools (e.g., ChatGPT, Copilot, Grammarly's AI function, etc.) for generating, rewriting, or enhancing content is not permitted. All work must reflect the student's original ideas and writing. Representing work created by AI as one's own is a violation of academic integrity and may result in penalties, including a zero on the assignment and additional disciplinary actions as outlined in the college's academic integrity policy.

Anti-Discrimination Policy

Gulf Coast State College does not discriminate against any person in its programs, activities, policies or procedures on the basis of race, ethnicity, color, national origin, marital status, religion, age, gender, sex, pregnancy, sexual orientation, gender identity, genetic information, disability, or veteran status. All questions or inquiries regarding compliance with laws relating to non-discrimination and all complaints regarding sexual misconduct or discrimination may be directed to Amanda Reed, Executive Director of Human Resources/Title II/504/Title IX Coordinator and Employment Equity Officer, Gulf Coast State College, 5230 W. US Highway 98, Panama City, FL 32401; 850-769-1551, ext. 3516. Rules, policies, fees, and courses described in this catalog are subject to change without notice.

Syllabus Policy

For any syllabus posted prior to the beginning of the term, the instructor reserves the right to make minor changes prior to or during the term. The instructor will notify students via e-mail or Canvas announcement when changes are made in the requirements and/or grading of the course.

Student Support Resources

Gulf Coast State College is committed to providing you with the resources you need for success as a student and beyond. View all the academic and student support resources provided at GCSC on the [Student Services web page](#).

Course Technology & Support

To successfully participate in this online course, students must have basic computer and digital information literacy skills and meet the following technology requirements:

- **Computer:** Up-to-date web browser that supports the Canvas learning management system; please refer to the system requirements for compatibility and information on using the Canvas app on mobile devices.
- **Internet Speed:** Minimum bandwidth of 8 Mbps upload/download speed to effectively engage in online activities and access multimedia.
- **Office 365 software:** Available for free download through GCSC Information Technology Services (ITS).

If you need technical support, contact the ITS Help Desk, available 24/7 at (850) 913-3303.