

Math 2654: Calculus III Spring 2019

Instructor: Dr. Abdollah Khodkar
Office: Boyd 309
Phone: 678-839-4126
Fax: 678-839-6490
Email: akhodkar@westga.edu

Instructor Office Hours: Monday, Wednesday and Friday 1pm-3pm
If you would like to see me but cannot come during one of these times, please call first or make an appointment.

Hours Credit: 4 hours

Prerequisites: MATH 2644 with a grade of C or higher

Class Time and Place: Monday and Wednesday 9:30am-10:45am Anthropology 7,
Friday 9:55am-10:45am at Boyd 302.

Textbook: Multivariable Calculus, Early Transcendentals, 7th Edition by James Stewart

Description: This is a continuation of MATH 2644. Topics include functions of two, three, and more variables, multiple integrals, and topics in vector calculus.

In this course we cover:

Chapter 12: Section 1, 2, 3, 4, 5, 6

Chapter 13: Sections 1, 2, 3, 4

Chapter 14: Sections 1, 2, 3, 4, 5, 6, 7, 8

Chapter 15: Sections 1, 2, 3, 4, 5, 6, 7, 8, 9

Chapter 16: Sections 1, 2, 3, 4, 5, 6, 7, 8, 9

Learning Outcomes: The student will be able to:

1. Compute vector sums, difference, and scalar products ([L1](#)).
2. Compute dot products and cross products of vectors ([L1](#)).
3. Compute equations of lines and planes in space ([L1](#)).
4. Compute the unit tangent vector, the unit normal vector, the unit bi-normal vector, the curvature, and the torsion of a space curve ([L1](#)).
5. Compute the tangential and normal components of acceleration ([L1](#)).
6. Convert between Cartesian, cylindrical, and spherical coordinates in space ([L1](#)).

7. Compute the limit of a function of two or three variables ([L1](#)).
8. Determine if a function of two or three variables is continuous at a points ([L1](#)).
9. Compute partial derivatives, gradients, and directional derivatives of functions of two and three variables ([L1](#)).
10. Compute using the Chain Rule for functions of several variables ([L1](#)).
11. Demonstrate understanding of the significance of the gradient vector ([L1](#)).
12. Solve theoretical and applied max-min problems using either direct methods or the method of Lagrange multipliers ([L1](#)).
13. Find and classify critical points of functions of two and three variables ([L1](#)).
14. Set up and evaluate double and triple integrals as iterated integrals in Cartesian, polar, cylindrical, and spherical coordinates ([L1](#)).
15. Set up and evaluate double and triple integrals as iterated integrals in Cartesian, polar, cylindrical, and spherical coordinates ([L1](#)).
16. Solve applied problems involving areas, volumes, centers of mass, first, second and polar moments of inertia ([L1](#)).
17. Evaluate line integrals, including applying the Fundamental Theorem of Line Integrals ([L1](#)).
18. Demonstrate an understanding of the concepts of conservative vector fields and independence of path ([L1](#)).
19. Compute using Green's Theorem, Stokes' Theorem and the Divergence Theorem ([L1](#)).

Homework: After each lesson, I will assign homework problems (from the text) that are not to be turned in and graded but that are meant to reflect the sort of questions you can expect on tests and the final exam. I encourage you to use my office hours if you have any questions.

Attendance: If you miss a class, you are responsible for obtaining any information that you missed. If you **miss four classes** or more without a *university-approved excuse*, you may get an F in this course.

Rescheduling tests/Final: If you have a *university-approved excuse* for missing a test or the final, you may be allowed to reschedule, but you must make arrangements with me in advance.

Calculators: You are not allowed to use “**advanced**” calculators such as TI-84 plus or better in your tests or the final exam.

Important Remark: Calc III is a difficult course and students need to work hard in this course.

Tests: There will be 3 class tests. Each will be worth 25% toward your final grade.

Test 1: Friday February 1, 2019

Test 2: Friday March 1, 2019

Test 3: Friday March 29, 2019

(Tests dates are subject to change.)

Final exam: The final exam will be worth 25% toward your final grade.

The final exam will be on Wednesday, May 1, 8:00-10:00 am

Grading Scale: A: 90-100%, B: 80-89%, C: 70-79%, D: 60-69%, F: 0-59%.

Grading: Your final grade will be determined as follows: Tests: 75% and Final exam: 25%.

ACADEMIC DISHONESTY

Academic dishonesty is NOT tolerated. It will result in failure on assignment(s) as well as possible disciplinary sanction(s) as stipulated by university rules. The University of West Georgia Student Conduct Code defines academic dishonesty as cheating, fabrication, plagiarism, and facilitating or allowing academic dishonesty in any academic exercise.

Cheating: Using or attempting to use unauthorized materials, information or study aids;

Fabrication: Falsification or unauthorized invention of any information or citation;

Plagiarism: Representing the words or ideas of another as one's own. Direct quotations must be indicated and ideas of another must be appropriately acknowledged.

Academic dishonesty in any form compromises your grade and lowers the quality of your diploma. A fellow student who cheats may actually lower your grade, sometimes causing unfair and inflated grading scales. I hope each of you values your college education enough to protect yourself from dishonest classmates.

Students, please carefully review the following information at this link

<https://www.westga.edu/administration/vpaa/common-language-course-syllabi.php>

It contains important material pertaining to your rights and responsibilities in this class.

Because these statements are updated as federal, state, university, and accreditation standards change, you should review the information each semester.