NAU NORTHERN ARIZONA UNIVERSITY

Course Title: MAT 137 Calculus II

Term: Fall 2022

Instructor: TBA

Course Credit: 4

Mode of Instruction: Online

Course Description:

This class provide the introduction to functions of several variables and the gradient, multiple integrals and the Jacobian, line integrals, Green's theorem, divergence and curl of a vector field, surface integrals, Stokes' theorem and the divergence theorem (and how they are applied in an application context).

Course Prerequisites:

MAT 136 Calculus I

Learning Outcomes:

By the end of the course, the student should be able to:

A. Prepare for further study in technological disciplines and more advanced mathematics courses.

B. Illustrate the utility of learning multivariable calculus to solve problems in engineering and the sciences,

C. Demonstrate mastery of the topics covered by testing with common exams and common grading.

D. Use mathematical software, in problem solving, to allow the solution of more complex problems and provide nvisualization of the mathematical concepts in three dimensions.

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Course Material:

Briggs, Cochran and Gillett: ***Calculus for Scientists and Engineers: Early Transcendentals***, 1st Edition.

Evaluation:

- Assignments [20%]
- Quizzes [20%]
- Mid-term Exam [25%]
- Final Exam [35%]

Description of the Evaluation tasks:

Assignment/ Essay/ ... : During the term, students will be required to finish several evaluation tasks within due date. All the tasks are linked with specific course topics/outcomes and will adequately assess students' competence and learning outcomes. Students are encouraged to meet with instructor about these tasks at any point.

Mid-term/ Final Exams/ Quiz/... : There may be periodic quizzes given at the beginning of lecture sessions; the feedback from these quizzes will monitor the progress of the learners and help to set learning priorities. There will be mid-term exam/ final exam for the course. They are the basic criteria for the evaluation of students' learning outcomes and final grade.

Grading Policy:

Students are supposed to finish each online lecture. Prior to each class, students should finish the required readings. During the class time, students are encouraged to make use of all relevant online course resources and communicate with the instructor. Students' grades are accumulated based on the cumulative evaluations.

Students' letter grade will be assigned according to the following scale:

A+ 90-100	A 85-89	A- 80-84
B+ 77-79	B 73-76	B- 70-72
C+ 67-69	C 63-66	C- 60-62
D+ 57-59	D 53-56	D- 50-52
F < 50		

Academic Integrity:

Students must strictly adhere to the university's academic integrity rule; and all essays, exams and any other form of academic assignments must adhere to these rules. Any form of plagiarism, cheating, or misappropriation of materials will be considered a violation of academic integrity and will be punishable by the university.

Withdrawal from the Course(s):

Students will be able to apply for a transfer or withdrawal within 3 days of the starting date of the course. If a withdrawal is applied for within 3 working days, the tuition fee will be fully refunded. After 3 days, the tuition fee will not be refunded. If a withdrawal is applied for in the first two weeks, it will be recorded as W (Withdraw) on the course transcript. After this initial two-week period, the class will be recorded as F (Fail).

Tentative Schedule:

Week 1

1	Course Introduction
2	Functions of Several Variables
3	Limits and Continuity
4	Partial Derivatives **Quiz 1**
5	The Chain Rule

Week 2

6	Directional Derivatives and the Gradient

7	Parametric Equations and Polar Coordinates
8	Parametric Curves **Assignment 1**
9	Vectors and the Geometry of Space
10	Three-Dimensional Coordinate Systems

Week 3

11	Equations of Lines and Planes **Quiz 2**
12	Integrating Functions of Several Variables
13	Multiple Integrals
14	Double Integrals in Polar Coordinates
15	**Mid-term Exam**

Week 4

16	Vector Calculus
17	Vector Fields
18	Line Integrals
19	The Fundamental Theorem for Line Integrals
20	Green's Theorem **Assignment 2**

Week 5

21	Surface Integrals
22	Stokes' Theorem
23	Gauss Theorem
24	Final Exam Reviews
25	**Final Exam**