Northern Arizona University
College of the Environment, Forestry, and Natural Sciences
Department of Mathematics and Statistics

MAT 238-002 (Calculus III) Syllabus: Fall 2021

Class 2255, MTuWF 9:10-10:00 Adel Math Building (AMB) 163

Instructor Information

Instructor: `Jim.Swift@NAU.edu` AMB 110 523-6878 `www.nau.edu/Jim.Swift`

Office Hours: In AMB 110, unless otherwise noted. Please wear a mask.
M: 10:20-11:30
Tu: 12:25-12:45 in AMB 148 (between my 2 sections of MAT 239, but 238 students can come too)
W: 10:20-11:30
Th: 12:25-12:45 in AMB 148, and 2:20-3:00 in my office
F: 10:20-11:30

I will check my e-mail after 9:00pm on nights that a WeBWorK assignment is due, and reply that night.

Course Description

Recommended Text: *Calculus: Early Transcendentals, 3E*, by Rogawski and Adams. Alternatives are listed at the web site.

Prerequisite: A grade of C or better in MAT 137 or satisfactory placement by the Department of Mathematics and Statistics. You are responsible for making sure that you have met this prerequisite.

Content: Chapters 12-17 in Rogawski and Adams. Vector geometry, vector functions and multidimensional calculus; partial derivatives, gradients, optimization, multiple integrals, parametric curves and surfaces, vector calculus, line integrals, flux integral, and vector fields.

Student Learning Outcomes: Students will learn how to analyze functions with multidimensional inputs and/or outputs. An example is the function $f : \mathbb{R}^2 \to \mathbb{R}$ defied by $f(x, y) = x^2 - y^2$. We say that f is a real valued function of two variables. Another important class of examples are vector fields such as $\mathbf{F} : \mathbb{R}^2 \to \mathbb{R}^2$ defined by $\mathbf{F}(x, y) = (xy^2, y + 2)$.

Course Structure/Approach The class will use lecture-discussion format.

Assessment of Student Learning Outcomes

Points: There will be approximately 870 possible **class points**. (This depends on whether we have 3 or 4 midterm exams, and quizzes.) All class points are assigned with the scale A (90%), B (80%), C (70%), and D (60%). The timeline for assessment is this; whenever *class points* are assigned, they they are fully "curved" and will not change further. So at any point students can calculate the fraction of the assigned class points to determine their current grade. I will have at least one midterm exam before the withdrawal date.

Midterms: (100 class points each) There will be 3 midterm exams. Each exam will have a raw score and a "curved" or scaled score based on 100 possible class points. In fairness to those of you with classes before or after this one, the exam will start and end on time. I will announce the date of a midterm at least a week in advance.

Homework: (10 class points each) There will be approximately 32 WeBWorK assignments. The WeBWorK sets are the backbone of the course. I may occasionally have quizzes or short computer assignments for you to turn in on paper. The point value of the paper assignments will be announced when they are assigned.

Quizzes and/or Group Work: We might have quizzes or group work projects. These are done during the class period, and the point value will be announced at the time.

Final Exam: (250 class points) The Final Exam will be comprehensive. I reserve the right to raise your course grade from the 90/80/70 curve, based on an exceptional final exam.

The Final exam is Wednesday, December 8, from 7:30 to 9:30a.m.

Course Policies

Late Homework: I can delay your individual due date for WeBWorK assignments. I will handle requests on a case-by-case basis, but you must contact me before the due date since the answers are made available at that time.

Missed Class Days: I will allow excused absences, for extra credit purposes, for institutional excuses, illness, or other reasons that I approve. However, you must notify me of an absence by e-mail *before* class. Furthermore, if you are late and I take roll before you arrive, then you will be counted absent.

Commitment: This course is difficult and it moves quickly. You should be committed to spending at least two hours outside of class for every class period. Regular homework and regular attendance is expected.

No Cheating: Cheating will not be tolerated.

University and Departmental Policies: Our class web site has links to the Departmental and University Policies that are part of this syllabus

Amendments: Any changes to this syllabus will be announced in class, and an updated version will be posted on my website. This version was updated August 22, 2021.