

Northern Arizona University
College of Engineering, Forestry, and Natural Sciences
Department of Mathematics and Statistics
MAT 238-003 (Calculus III) Syllabus: Spring 2018
Class 2855, MTWF 10:20-11:10 Adel Math Building (AMB) 162

Instructor Information

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

Office Hours: Mon 12:30-1:00, Wed 12:00-1:00, Fri 11:30-3:00. I will be in my office or AMB 137 (the MAP room) during office hours. If these times are inconvenient, you can make an appointment, or drop by my office. E-mail is always a good way to contact me. I will check my e-mail after 9:00pm on nights before a WeBWorK assignment is due, and reply that night.

Websites: Go to my home page (www.nau.edu/Jim.Swift) and follow the “Instructor Information” link. That page has a link to the web site for this class.

Course Description

Text: *Calculus Early Transcendentals*, by Rogawski and Adams. You may also use on-line notes by Paul Dawkins of Lamar University.

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 $f : \mathbb{R}^2 \rightarrow \mathbb{R}$ defined 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 $\mathbf{r} : \mathbb{R}^2 \rightarrow \mathbb{R}^2$ defined by $\mathbf{r}(x, y) = \langle xy^2, y + 2 \rangle$.

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

Assessment of Student Learning Outcomes

Points: There will be approximately 800 or 900 possible **class points**. (This depends on whether we have 3 or 4 midterm exams.) The percentage grade will be computed with both weights of the final exam, and you will get the higher grade.) 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 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 or 4 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 20 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.

Group Work: (10 class points each) If time permits, we will have a few group work projects. These are done during the class period.

Final Exam: (300 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 Monday, May 7, from 10:00 to 12:00noon

Extra Credit: At each midterm exam, and at the final exam, I will give you 3 class points if you had no unexcused absences since the previous exam. You can get up to 3 class points per week for doing the math department’s “Problem of the Week.”

Course Policies

Calculators, laptops: No calculator will be allowed at the exams. During other class days, you may use calculators, laptops or phones during class for math-related activities, such as group work or WeBWorK.

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. No cell phones, mp3 players, etc. are allowed during tests, as stated in the Department Policy on Use of Portable Electronic Devices. Furthermore, calculators are not allowed at tests in this class.

University and Departmental Policies: Our class web site has links to the Departmental and University Policies at www.nau.edu/Jim.Swift/classes/MathDepartmentPolicies.pdf (including Portable Electronic Devices) and <https://nau.edu/university-policies/>.

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