Instructor Information

**Instructor:** Jim Swift  
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**Office Hours:** Mon. 2:30-3:00, Tu. 11:15-12:15, Wed. 3:30-5:00, and Th. 10:20-11:20, 3:30-4:00. If these times are inconvenient, you can make an appointment, or drop by my office any time. 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:** www.nau.edu/Jim.Swift is my web site. Follow the “Teaching” link. On the instructor information page, there is a link to the web site for this class. The website has the course outline in the form of a day-by-day schedule that we will follow.

**Text:** We will use on-line notes by Paul Dawkins of Lamar University, freely available at [http://tutorial.math.lamar.edu/Classes/CalcII/CalcII.aspx](http://tutorial.math.lamar.edu/Classes/CalcII/CalcII.aspx). There is a link to these note at our class home page, and the notes come up first with a google search for **Paul Calculus II**.

**Prerequisite:** A grade of C or better in MAT 136 (or transfer credit), a 3 or better on the AP Calculus AB exam, a 3 on the AP Calculus BC exam, or at least 50 on the CLEP Calculus exam. (A score of 4 or 5 on the AP Calculus BC exam places you into MAT 238.). You are responsible for making sure that you have met this prerequisite.

**Content and Course Objectives:** MAT 137 is a four credit hour course that meets 200 minutes each week. The course continues the study of calculus with emphasis on techniques of integration, applications of integration (more of them), differential equations, sequences and series, and vectors and an introduction to 3 dimensional space. The class website has a tentative schedule showing what sections in the on-line text we will cover.

**Student Learning Outcomes:** Upon completion of the course, students will be able to integrate functions using simple techniques, tables of integrals, hand calculators or tables of integrals, and find the value of definite integrals. They should be able to apply that calculational knowledge to solve problems in geometry and simple physics, for example volumes of revolution or work. They will be able to solve simple first order differential equations either analytically or numerically (with Eulers method) and apply the ideas of differential equations to compartmental analysis, falling bodies and a number of other situations. They will understand what it means for an infinite series to converge and be able to
apply a number of tests to determine if the series converges or diverges. They will be able to to arithmetic with vectors and use dot and cross products and apply these products to geometric and simple physics situations.

**Course Structure** The class will mostly use lecture-discussion format. There will be one or two in-class group work projects. Students will apply what they have learned to solve homework problems on WebWorK.

**Course Outline:** We will cover the following topics (in order)

- Techniques of Integration
- Applications of Integration
- Differential Equations
- Sequences and Series
- Vectors and coordinates in 3 dimensional space; equations of lines and planes

**Assessment of Student Learning Outcomes**

**Points:** There will be 815 or 820 “class points” possible. All class points are assigned with the scale A (90%), B (80%), C (70%), and D (60%).

The timeline for assessment is simple; 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.

**Midterms:** (3 × 100 = 300 class points) 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 with classes before or after ours, the exams will start and end on time.

**Homework:** (260 class points) We will be using WeBWorK for most of the homework assignments. There are approximately 26 WeBWorK assignments, and each is worth 10 class points.

**Technology Projects/Group Work:** (5 or 10 class points) These are worth 5 class points each, and will usually involve technology: either graphing calculators or our computer lab. Some assignments will be done in class and turned in at the end of class, others are to be finished outside of class.

**Final Exam:** (250 class points) The Final Exam will be comprehensive. The final exam is scheduled for Monday, May 4 from 10:00am to 12:00 noon. I reserve the right to raise your course grade from the 90/80/70 curve, based on an exceptional final exam.

**Extra Credit:** At each midterm exam I will give you 3 points if you had no unexcused absences since the previous exam. Any points that you get for the math department’s “Problem of the Week” will be credited to this class. Other extra credit opportunities may be available.
Course Policies

Calculators: Calculators will be not be allowed at the first midterm exam. Any calculator will be allowed on the other three midterm exams. The final exam will have a component where no calculators are allowed, but calculators will be allowed for the majority of the exam.

These exceptions are due to the availability of TI-89 and TI-Nspire calculators which can do symbolic differentiation and integration. A TI-83 Plus, TI-84 Plus, or TI-86 is sufficient for this course and beyond. Other makes of calculators are also fine. The CAS (computer algebra system) power of the TI-89 and TI-Nspire are also available in computer packages such as Mathematica, Matlab and Maple. All CENS students can use Mathematica and Matlab through the secure global desktop http://sgd.cefns.nau.edu/.

Computer Lab: The departmental computer lab, in AMB 222, is available for your use starting the second week of classes. (The hours are to be announced.)

Excused Absences: If you have an institutional excuse, you will not lose the attendance extra credit. If you have feel you deserve an excused absence for some other reason contact me by e-mail, phone, or in person. Do so before the absence, if possible. Makeup exams will be given only in extenuating circumstances. Contact me before an exam if you must miss it.

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.

Commitment: This course is difficult and it moves quickly. You should be committed to working an average of at least two hours a day, six days a week, outside of class. Regular homework and regular attendance is expected.

Help: If you need help the first person to contact is me. I am you personal tutor at no charge. You can come to my office hours or contact me via e-mail. There is a button in WeBWorK for sending me e-mail. The math department also has a list of tutors for hire, available from the department office. The Learning Assistance Center (www4.nau.edu/lac) has an array of services.

No Cheating: Cheating will not be tolerated. No cell phones usage is allowed during tests. No connection to the internet is allowed during tests. You may work together on the homework.

University and Departmental Policies: A separate sheet of University and Departmental Policies is on the back of page 1.

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