College of Engineering, Forestry, and Natural Sciences
Department of Mathematics and Statistics

MAT 137 (Calculus II) Syllabus for Spring 2014

Section 3, LEC 2044, 10:20-11:10
Section 4, LEC 2045 11:30-12:20
MTWF, Adel Math Building (AMB) 163

Instructor Information

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

Office Hours: MTWF 11:10-11:30 (in AMB 163), MWF 12:20-1:00, M 3:30-4:00, W 3:30-5:00. 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: My website is `www.nau.edu/Jim.Swift`. Follow the "Instructor Information" link for general information and a link to our class web site. I use the class web site for most electronic communication; I use BbLearn for grades and for posting documents that I don't want the world to see.

Text: We are using on-line resources. Our main source is the on-line notes by Paul Dawkins of Lamar University. There are links to these resources at our class home page. If you want a paper text, any calculus book will do, and most are very similar. Out-of-date editions of a book should be cheap.

Prerequisite: A grade of C or better in MAT 136, or satisfactory placement by the Department of Mathematics and Statistics.

Assessment of Student Learning Outcomes

Points: There will be approximately 900 "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 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 or $4 \times 100 = 300$ or 400 class points) 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.

WeBWorK: (approximately $26 \times 10 = 260$ class points) We will be using WeBWorK for most of the homework assignments. Each WeBWorK assignments is worth 10 class points. The class points are assigned with no curve; for example a WeBWorK score is 8 out of 16 earns 5 out of 10 class points.

Technology Projects/Group Work/Other Paper Assignments: (approximately $5 \times 5 = 25$ class points) These are worth 5 class points each, and will often involve technology: either graphing calculators or Mathematica.

Final Exam: (250 class points) The Final Exam will be comprehensive. The final exam is scheduled for Monday, May 5 from 10:00 to 12:00 for the 10:20 class, and Wednesday, May 7 from 10:00 to 12:00 for the 11:30 class. 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 count as extra credit class points for our class. Other extra credit opportunities may be available.

Course Policies

Calculators: Graphing or scientific calculators will be not be allowed at the exams. Students may bring a simple calculator with nothing fancier than a square root button.

Laptops and Mobile Devices: These are not allowed at exams, but you may bring them to class to take notes or do WeBWorK. No facebook, etc., please!

MAP Room and Computer Lab: The Mathematics Achievement Program room, AMB 137, is a great resource. It has tutoring available starting Wednesday, January 15, and a few computers. The departmental computer lab, in AMB 222, is available for your use for WeBWorK, Mathematica, or other applications.

Excused Absences: If you have an institutional excuse, you will not lose the attendance extra credit. If you are sick, or 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. Please 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 by 9:00 pm on the due date since the answers are made available at 11:59 pm that night.

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 Student Learning Centers have an array of free services, including drop-in or personal tutoring, and the MAP room, AMB 137.

The complete syllabus, with a third page, is available at the web site.

No Cheating: Cheating will not be tolerated. No electronic devices are allowed during tests. Do your own work during the exams. However, you may work together on the homework.

University and Departmental Policies: The web site has links to University and Departmental Policies. I draw your attention to the early Drop/Delete deadline of January 23.

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

Course Content

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, and find the value of definite integrals. They should be able to apply that knowledge to solve problems in geometry and simple physics, for example computing volumes of solids revolution or mechanical work done. They will be able to solve simple first order differential equations either analytically or numerically (with Euler's 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. In-class group work will be frequently used, and some group work will be graded 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