

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

## Math 137 (Calculus II) Syllabus for Fall 2013

Section 05, Class Number 2727, ADEL MATH BUILDING (AMB) 223, 12:40-1:30

**Instructor:** William C. Schulz    william.schulz@nau.edu    AMB 135

**Office Hours:** 1:45-2:45 MTWF

FYLI<sup>®</sup>

First Year Learning Initiative

**Website:** <http://www.cefns.nau.edu/~schulz>. There are links there to the problems sets.

**Text:** There is no official text. However I will be following the on-line text

<http://tutorial.math.lamar.edu/Classes/CalcII/CalcII.aspx>

**Prerequisite:** A grade of C or better in Math 136 or satisfactory official placement by the Department of Mathematics and Statistics.

**Content and Course Objectives:** MAT 137 is a four credit course that meets 200 minutes per week. The course continues the study of calculus with emphasis on techniques of Integration, more applications of Integration, a short introduction to Differential Equations, Sequences and Series, and an introduction to the theory of three dimensional space using Vectors.

**Additional Information:** This course fulfills a requirement in the Science/Applied Science distribution block in the University Liberal Studies program. It is a Certified First Year Learning Initiative course.

**Student Learning Outcomes:** Upon completion of the course students will be able to integrate functions using simple techniques, tables of integrals, hand calculators or their own brute force efforts, and use these indefinite integrals to compute definite integrals. They will be able to apply this computational knowledge to solve problems in geometry and simple physics, for example volumes of revolution and work. They will be able to solve first order differential equations either analytically or numerically (by Euler's method) and apply these methods to compartmental analysis (tanks of water), falling bodies, and some other situations. They will understand what it means for an infinite series to converge and be able to apply a number of convergence tests to determine if a given series converges or diverges. They will be able to find the Taylor's series of simple functions, including the binomial series. They will be able to use vectors and their dot and cross products to solve simple geometry problems in three dimensions involving lines, planes, areas and volumes and some simple applications to physics if time permits.

**Course Structure:** The class will use the lecture discussion format. Students will apply the knowledge they learn in class to homework problems and also will solve problems on WeBWork.

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

- Techniques of Integration
- Applications of Integration
- Differential Equations

Sequences and Series  
Three dimensional space using Vectors

## Assessment of Student Learning Outcomes

**Course Points:** There will be a total of 679 course points. These will be accumulated in the following way:

- Fours midterm tests which may be partially take home at 100 points each.
- A final worth 135 points
- Homework worth 72 points.
- Short quizzes worth 36 points.
- Attendance points worth 36.

Naturally you are expected to take the tests on time and turn in homework in a timely manner. The WeBWorK part of the homework has a cutoff time and if you miss that kiss the points goodbye. Students often leave the WebWorK assignments till the last minute and thus do a poor job. Work on WeBWorK in a timely manner. Makeups for tests will be given for Institutional Excused Absences. If other things occurs make arrangements with me in advance.

**Assignment of Grades:** Grades will be assigned according to

- 90% to 100% gets grade of A
- 80% to 89.9% gets grade of B
- 70% to 79.9% gets grade of C
- 50% to 69.9% gets grade of D
- 0% to 49.9% gets grade of F

I reserve the right to modify these somewhat so that I may give a better grade than the system suggests. For example a student with 79.7% MIGHT get a B. However, I will not give you a worse grade than your percent indicates.

**Final:** The final is worth 135 points and will be given on the scheduled day. That day is Friday 13 December at 12:30 - 2:30. If you need to leave town before this date your final grade is 0 out of 135.

**Midterms:** Each Midterm is worth 100 points. The midterms will have problems similar to the homework. I will review before each test and you will know in general what kinds of problems to expect. There may be a take home component. In this case you may work together on the take home component. For the in class component you are expected to do your own work and not copy off your neighbors' papers.

**Excused Absences:** If you are going to miss a Midterm be sure it is an institutional excused absence and tell me in advance. Do not expect to make up your test because the dog ate the cheat sheet you were going to use.

**Computer Lab:** The department maintains computer labs for you to work on WeBWorK and other stuff, but you are free to use your own computer to do the work.

**Calculators:** Before each test ask what the calculator policy for that test will be. For example the first test on techniques of integration will be a NO calculator test, since the calculator can do the

problems.

**University and Departmental Policies:** A separate sheet of University and Departmental Policies will be posted in several places. Note the drop deadline to drop without a Withdraw showing on your transcript is 9 Sept. Final drop deadline is 30 October. After that it takes very special circumstance like a brain injury to withdraw.