Calculus II Syllabus

Math 125, Kowalski

Essentials

- Math 125, Calculus II
  SDSMT, Summer 2011, 4 credits

- Section 4 meets Monday, Tuesday, Wednesday, and Thursday from 1–2:50 PM in McLaury 310.

- The course text is Calculus (first edition), by Rogawski. We will cover Chapters 7, 8, 9, 11 and 13 with a few additions and some omissions.

- A tentative course outline can be found on the class webpage.

Instructor information

- Dr. Travis Kowalski. “Travis,” “Dr. K,” or “The Doctor” (for sci-fi fans) are fine.

- Office: McLaury 314D
  Phone: (605) 394-6146
  Email: travis.kowalski@sdsmt.edu

- Webpage: http://www.mcs.sdsmt.edu/tkowalsk/
  You should visit this every day... including today!

- Office hours: Official hours are available at the website above. I have an open-door policy, however: if my door is open, you may come in and ask me anything. You can also always make an appointment with me individually; just contact me by email or after class.

Course objective and description. Calculus II is a continuation of the study of calculus, including the study of sequences, series, basic matrix concepts, techniques of integration, applications of integration, indeterminate forms, and improper integrals.

Prerequisites. There are two:

1. Trigonometry: A Math 120 grade of “C-” or better, or an acceptable score on the COMPASS test.

2. Calculus I: A Math 123 grade of “C-” or better.

In general, you cannot dual-enroll in both Math 125 (Calculus II) and Math 120 (Trigonometry) simultaneously.

Technology. I will be making only minimal use of the Tablet PC during the summer semester, so you need not worry about bringing it to class every day. However, we will be using Maple (one of the programs installed on the Tablet PC) in this class. Graphing calculators are not required, nor will be permitted on exams.

Grading. The grading is based on the following:

Assignments: 150 points
4 exams: 100 points (each)

Letter grades will be assigned according to the following scale:

A: 495-550 points
B: 440-494 points
C: 385-439 points
D: 330-384 points
F: less than 330 points

Plus or minus grades are not allowed (Board of Regents policy, Fall 2003). I reserve the right to lower these values as I see fit. Extra credit will be offered a few times during the semester; but they will only be added after a student has earned 420 points.
About the class

Math 125, Kowalski

Instruction and attendance. Class will take the form of lecture and discussion. Your daily attendance is expected, though not required. I will not take attendance, nor will I note frequent absences, as I am not your mother. However, you will turn in a quiz problem (almost) every day in class, and make-ups will not be permitted. I work strictly on the “you snooze, you lose” policy. Moreover, as you attend class, be sure you are on-time and ready to participate for the duration of class. I work hard to make class useful and informative for you, and will strive to make calculus, if not fun exactly, then at least engaging. Arriving to class late or attempting to pack up early are extremely disrespectful behaviors, both towards the instructor and to other students, and I have little patience for either. Further details about classroom behavior are outlined below.

Assignments. The only way to learn mathematics is to do mathematics. As a result, I will challenge you with frequent assignments to help you develop skill and proficiency with calculus. Assignments will come in three flavors:

- Bookwork. I will assign textbook problems for you to work on every day in class. These problems will give you the best training in the mechanical aspects of the course. However, while I expect you to do these problems, and will be happy to discuss any of them in class, I will not grade any of them. They are for your practice and self-assessment only.

- Quiz problems. In addition, each day I will assign 3 or 6 “quiz problems,” which I expect you to work on in a dedicated homework folder. These problems will allow me to gauge your understanding of the mechanics of the course, and will provide you with feedback to prepare for the exams. You will turn in your quiz problems from time to time, and I will grade 1 from each topic.

- Additional assignments. During the semester you will have occasional computer assignments as well, typically working out a few problems using Maple. These will be turned in using Submit it! or by hardcopy.

It is expected that you should spend at least 2 hours of study for every hour in class. Due to the accelerated nature of the class, late homework assignments or projects will not be accepted.

Examinations. There will be four hour-long examinations over the semester (one every two weeks) that will test your mastery of the course material. My exams have a reputation for being long and difficult, since they are designed to test not only your ability to efficiently solve standard problems (such as basic homework problems), but also your ability to synthesize new ideas and use your calculus skills in novel ways. Examinations will be announced at least one week prior to the exam. Details regarding the exams will be made available as they approach.

Make-up exams. It is the your responsibility to check about missed class or examinations, especially when the problem is known previous to the absence. If you have an excused absence to an exam, then the final will be weighted more heavily to make up for the missed exam. Departmental policy prohibits final exams be given early, so plan your summer vacation travel accordingly.

Special needs. Students with special needs or requiring special accommodations should contact the instructor and/or the campus ADA coordinator, Dr. Jolie McCoy, at 394-1924 at the earliest opportunity.
Most of these policies are common sense and are associated with being a responsible adult at an institution of higher learning.

Classroom behavior. The Student Handbook prohibits the disruption or obstruction of teaching. Activities that are disruptive and/or obstructive to teaching will include, but are not limited to, the following:

- **Disruptive talking in class.** Students who hold conversations with each other in the middle of class disrupt other student’s ability to listen to the lecture. Please be courteous of each other and quiet down at the start of lecture. If I need to specifically quiet a group of students in class, they must pay the Fine.

- **Electronic disruptions.** The use of cell phones, pagers, PDAs, or other associated electronics during class in prohibited. Such devices should be set to vibrate or turned off. If an electronic device disrupts class then the owner must pay The Fine.

The Fine is either a 10-point deduction in your grade, or the purchase of cookies for the entire class.

Email etiquette. I am more than happy to take questions or suggestions by email, and email is one of the best ways to contact me. However, keep in mind the following.

- If you are writing about issues relating to the class, make sure the subject line reads MATH 125: (subject info) so that my email filter does not junk your email.

- I am your professor, not your BFF LOL ZOMG!!! Emails written without a salutation, reasonable grammar, your proper name, and respectful tone of voice will be promptly ignored.

Academic dishonesty. All students will be held to the institutional standard for academic honesty and integrity. I have a zero-tolerance policy with cheaters. All assignments and exams will have clear instructions as to permissible behaviors. If you cheat on a test or assignment, you will earn a grade of 0 and I will report you to the Dean of Students. If you cheat a second time, I will fail you outright and will report you to the Dean a second time. The following are the relevant sections taken from the student handbook (SD BOR policy), which states that acts of academic dishonesty will include, but are not limited to, the following:

- **Cheating,** which is defined as, but not limited to, the following: (1) the use or giving of any unauthorized assistance in taking quizzes, tests, or examinations; (2) the use of sources beyond those authorized by the instructor in writing papers, preparing reports, solving problems, or carrying out other assignments; or (3) the acquisition, without permission, of tests or other academic material belonging to a member of the institutional faculty or staff.

- **Plagiarism,** which is defined as, but is not limited to, the following: (1) the use, by paraphrase or direct quotation, of the published or unpublished work of another person without full and clear acknowledgement consistent with accepted practices of the discipline; (2) the unacknowledged use of materials prepared by another person or agency engaged in the selling of term papers or other academic materials.

State Policy on “Freedom in Learning.” Students are responsible for learning the content of any course of study in which they are enrolled. Under Board of Regents and University policy, student academic performance shall be evaluated solely on an academic basis and students should be free to take reasoned exception to the data or views offered in any course of study. Students who believe that an academic evaluation is unrelated to academic standards but is related instead to judgment of their personal opinion or conduct should contact the dean of the college which offers the class to initiate a review of the evaluation.

Official policies. You can read the official Board of Regents student policies at

Outcomes and assessment

**Student learning outcomes.** This course is intended for students majoring in mathematics, physics, chemistry, engineering and related fields. It has two main objectives:

1. The student will continue to learn differentiation and integration techniques, building on the skills learned in Calculus I,

2. The student will learn basic concepts dealing with infinite sequences and series, and

This course meets GenEd Goal #5: Students will understand and apply fundamental mathematical processes and reasoning. As a result of taking a course meeting this goal, students will:

- Use mathematical symbols and mathematical structure to model and solve real world problems.
  
  **Assessment.** Students will identify, interpret, and correctly apply standard mathematics symbols to solve problems requiring differentiation and integration techniques. This will be demonstrated on quizzes, labs, homework, and/or exams.

- Demonstrate appropriate communication skills related to mathematical terms.
  
  **Assessment.** Students will correctly use functional notation of algebra, trigonometry, and calculus. This will be demonstrated on quizzes, labs, homework, and/or exams.

- Demonstrate the correct use of quantifiable measurements of real world situations.
  
  **Assessment.** Students will apply their knowledge of calculus in one-variable, infinite sequences and series, and parametric equations in applications such as area computation, function approximation, and arc-length computation. This will be demonstrated on quizzes, labs, homework, and/or exams.

A student who successfully completes this course should, at a minimum, be able to:

1. differentiate exponential and logarithmic functions and integrate the corresponding functions
2. differentiate inverse trigonometric functions and integrate the corresponding functions
3. appropriately use various integration techniques, including integration by parts and partial fractions
4. evaluate limits of infinite sequences, including how and when to use L'Hôpital's Rule
5. evaluate improper integrals
6. recognize common infinite series, including the geometric and harmonic series
7. appropriately use various tests for convergence of infinite series, such as the Ratio Test, the Alternating Series Test, and Comparison Tests
8. determine the interval of convergence for a power series
9. use infinite series such as the Taylor Series or Fourier Series to approximate functions
10. use the elimination method for solving linear systems
11. perform basic matrix arithmetic, such as addition, multiplication, and inversion

**Official outcomes.** Visit