


UNIVERSITY OF OREGON

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Math 282 Winter 2014

- Office Hours: Monday, Wednesday, Friday 0900-0950 or by appointment.
- Meets MUWF 08:00-08:50 or 14:00-14:50. Location not determined yet.
- **Text**: MultiVariable Calculus by James Stewart (Thomson Brooks/Cole) is the textbook. The 5th edition, the 6th edition, and the 7th edition are all equally acceptable for this course and previous editions are perhaps available more cheaply on the internet. Homeworks will be graded using WEBWORKS the problems will not be specific to the particular edition used -- your account will probably not be active until sometime early January 2014. You will login with your regular UO credentials (the same username and password as your UO email). The connection to the webwork server is now secure (https) so it is OK to be typing your real password to authenticate.
- **Organization**. Homework is probably the most important activity in the course in terms of helping you internalize the material. Homework will be due each Tuesday on the material of the previous week. The Monday class period will be a discussion section for the homework to be due the subsequent day by 0800 - there will be a quiz the last 20 minutes of class most Monday's.
- **Homework**: The homework will be assigned and graded using WEBWORKS. It is due at 0800 PST Tuesday morning following the week for which it was assigned. More details will be available presently.
- If you are a student with a documented disability please meet with me soon to discuss your needs. If you have not already requested a notification letter from Disability Services outlining recommended accommodations, please do so soon.
- **Grades:**

    - 100 points Homework and Quiz Average (The 2 lowest scores from the combined list of HW and QZ scores will be dropped)
    - 100 points Exam #1 Wednesday 29 January 2014
    - 100 points Exam #2 Wednesday 26 February 2014
    - 200 points Final Exam The 08:00 section will be given 10:15 Thursday, March 20 and the 14:00 section will be given 15:15 Monday, March, 17. **According to faculty legislation, final exams may not be given early under any circumstances**.
    - Your final grade will be assigned on the basis of the total point score of 500 points. Any student getting at least a B on the final will receive at least a

C- in the course; to pass the course, you must get at least a "D" on the final exam. You must bring your photo ID to all exams. You may bring a 3x5 inch index card with any formulas on it to any exam or quiz if you wish. Similarly, you may bring with you a hand held graphing calculator to any exam or quiz if you wish.

- **Teaching Associate**: Ekaterina Puffini. Additional information: Academic calendar.

Reading Assignments

- **Week 1** 6 Jan-10 Jan 2014: Read the material on Double integrals over rectangles and Iterated integrals. Sample Homework (yours will be different).
- **Week 2** 13 Jan-17 Jan 2014 Read the material on Double integrals over General Regions and on Double integrals in Polar Coordinates. Sample Homework (yours will be different).
- **Week 3** 21 Jan-24 Jan 2014 (Monday 20 January 2014 is a holiday MLK): Read the material on Applications of double integrals, Surface area, and Triple Integrals.
- **Week 4** 27 Jan-31 Jan 2014 **Exam #1 Wednesday 29 January 2014.** Read the material on Triple Integrals in Cylindrical and Spherical Coordinates
- **Week 5** 3 Feb - 7 Feb 2014. Read the material on Change of Variables in Multiple Integrals and on Vector fields.
- **Week 6** 10 Feb - 14 Feb 2014. Read the material on Line Integrals and on The fundamental theorem for line integrals.
- **Week 7** 17 Feb - 21 Feb 2014 Read the material on Green's theorem and on Curl and divergence.
- **Week 8**:24 Feb-28 Feb 2014**Exam #2 Wednesday February 27 2013** Read the material on Parametric surfaces and their areas.
- **Week 9** 3 Mar - 7 Mar 2014: Read the material on Surface integrals and on Stoke's theorem.
  Week 10 10-14 Mar 2014: Read the material on The divergence theorem.
- **Week 11**17-21 Mar 2014 Final Exam: The 08:00 section will be given 10:15 Thursday, March 20 and the 14:00 section will be given 15:15 Monday, March 17. **According to faculty legislation, final exams may not be given early under any circumstances**

- **Course objective**: Students should be able to evaluate integrals of functions over regions in the plane and in space both as iterated integrals and by applying the change of variable theorem. Spherical coordinates, cylindrical coordinates, polar coordinates, elliptical coordinates, and toroidal coordinates are common transformations. Applications include determination of the center of mass, of the moment of inertia, and of the total mass of a region with a variable mass density. Certain improper integrals can be evaluated. Students should be able to evaluate surface area integrals, arc length integrals, line integrals, and flux integrals. Applications include work done and mass flow across a membrane as well as center of gravity and total mass of a thin wire or a membrane. Students should be able to compute the gradient, curl, and divergence of vector fields. Students should be able to determine if a vector field is conservative and, if so, to find the potential function. Applications include evaluating certain line integrals. Students should be able to understand and to compute both sides of the equations in Green's theorem, Stoke's theorem, and Gauss's theorem. Being able to state the hypotheses for these three theorems and to determine if they apply in various settings is crucial. In

addition, students should be able to use these 3 results to push curves around and surfaces around to evaluate flux and line integrals of certain vector fields. Students should be able to use Green's theorem to evaluate certain area integrals in the plane and find their centers of gravity and make other simple applications of these theorems and to understand the conservation theorems that result thereby. Must be able to make calculations correctly or substantially correctly.

Mathematics Department Undergraduate Grading Standards November 2011. There are two important issues that this grading policy recognizes.

1. Mathematics is hierarchical. A student who is given a grade of C- or higher in a course must have mastery of that material that allows the possibility of succeeding in courses for which that course is a prerequisite.
2. Some mathematics courses are primarily concerned with techniques and applications. In such courses student success is measured by the student's ability to model, successfully apply the relevant technique, and bring the calculation to a correct conclusion. The department's 100-level courses and most calculus courses are examples in this category although these are not the only examples.

Rubric for Math 282:

- A: Consistently chooses appropriate models, uses correct techniques, and carries calculations through to a correct answer. Able to estimate error when appropriate, and able to recognize conditions needed to apply models as appropriate.
- B: Usually chooses appropriate models and uses correct techniques, and makes few calculational errors. Able to estimate error when prompted, and able to recognize conditions needed to apply models when prompted.
- C: Makes calculations correctly or substantially correctly, but requires guidance on choosing models and technique. Able to estimate error when prompted and able to recognize conditions needed to apply models when prompted.
- D: Makes calculations correctly or substantially correctly, but unable to do modeling.
- F: Can neither choose appropriate models, or techniques, nor carry through calculations.

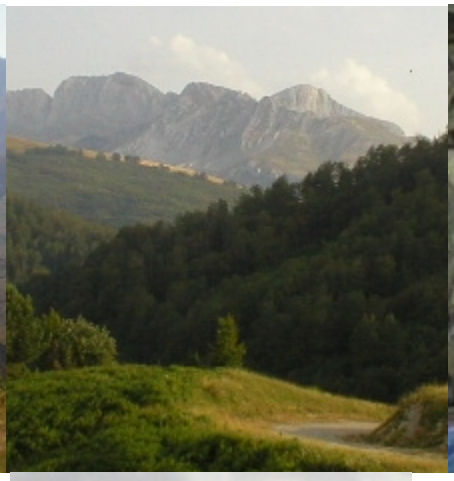
Modeling, in mathematical education parlance, means the process of taking a problem which is not expressed mathematically and expressing it mathematically (typically as an equation or a set of equations). This is usually followed by solving the relevant equation or equations and interpreting the answer in terms of the original problem.

Detailed interpretation of the rubrics depends on the content and level of the course and will be at the discretion of instructors. Whether to award grades of A+ is at the discretion of instructors.

An incomplete can be assigned when the quality of work is satisfactory but a minor yet essential requirement of the course has not been completed for reasons acceptable to the instructor. NOTE: this grade requires a contract to be completed. No student can pass the course unless they receive a grade of D or better on the (cumulative) final exam.

Academic dishonesty

Academic Misconduct: The University Student Conduct Code (available at conduct.uoregon.edu) defines academic misconduct. Students are prohibited from committing or attempting to commit any act that constitutes academic misconduct. By way of example, students should not give or receive (or attempt to give or receive) unauthorized help on assignments or examinations without express permission from the instructor. Students should properly acknowledge and document all sources of information (e.g. quotations, paraphrases, ideas) and use only the sources and resources authorized by the instructor. If there is any question about whether an act constitutes academic misconduct, it is the studentsÕ obligation to clarify the question with the instructor before committing or attempting to commit the act. Additional information about a common form of academic misconduct, plagiarism, is available at http://library.uoregon.edu/guides/plagiarism/students/index.html see also http://uodos.uoregon.edu/StudentConductandCommunityStandards/AcademicMisconduct/tabid/248/Default.aspx.

To rest on the blue of the day, like an eagle rests on the wind, over the cold range, confident on its wings and its breadth.

Web page updated on 18 May 2013 by Peter B Gilkey 202 Deady Hall, Department of Mathematics at the University of Oregon, Eugene OR 97403-1222, U.S.A. Phone 1-541-346-4717 Email:peter.gilkey.cc.67@aya.yale.edu of Deady Spider Enterprises