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MATH 248-01: Methods of Proof in Mathematics
Spring 2008

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Instructor: Dr. S. Cooper
    Office: 25-320   *Email*: sucooper@calpoly.edu   *Phone*: 756-1679
    Office Hours: MW 9:00 am – 10:00 am, T 1:30 pm – 2:30 pm & by appointment.
    Correspondence: The best way to reach me is via email. However, emails will only receive
    a reply if they include an appropriate title and the sender's full name.

Class Times & Location: MTWR 8:10 am – 9:00 am, Building 38 – Room 201.

Required Background: MATH 143 or consent of instructor.

Course Webpage: www.calpoly.edu/~sucooper/courses_spring08/coursedetails.html & blackboard.

Textbook: *A Transition to Advanced Mathematics*, 6$^{\text{th}}$ Ed., Smith-Eggen-St. Andre, Brooks/Cole, 2006.

Content: We will cover much of the material in Chapters 1 – 5 of the textbook, as well as selected topics from Chapters 6 and 7.

Learning Objectives: The student should be able to read and write proofs of elementary propositions in set theory, number theory, geometry, analysis, and algebra.

Dictionary Project: It would be incredibly challenging to survive in our society without knowing and understanding the meanings of commonly used words in the English language. The same is true for communicating mathematics. The mastery of writing proofs requires knowing and understanding many definitions. You will be required to construct and maintain a working dictionary. This will be submitted on an announced date near the end of the quarter. *No late submissions will be accepted.*

Quizzes: A quiz will be given on the first class meeting of most weeks (see "Dates to Remember"). Quizzes will be short in length (one short proof, a definition, etc.). The material covered will be taken from the lessons in the previous week. These quizzes will help us gauge your progress with the material and prepare you for the exams.

Homework: Homework questions will be assigned each lecture. Homework will be collected essentially every Thursday (see "Dates to Remember"). This is a major aspect of the course. A part of mathematics is thinking and presenting ideas in a calm and clear fashion. In order to do this successfully you need to learn the basic vocabulary and speak the language of mathematics as often as possible. Like learning many other subjects, it is not possible to learn to write proofs by watching others do it. Indeed, you must practice the act of writing yourself and as often as possible.

Many students find it difficult to write proofs. As such, you should start your homework several days in advance of submitting it. Some homework problems may require thinking for a long time before you can compose a final solution; this is normal and can be frustrating. The process of working through homework exercises is a critical part of mastering the material in a mathematics course. Although you can discuss the exercises with classmates and myself, please hand in solutions that are written in your words. Please come to office hours if you have questions. *No late submissions will be accepted.*

Exams: There will be 2 in-class exams given. Also, there will be a cumulative final examination.

Course Grades:
      Dictionary Project   5 %

Dictionary Project	5 %
Quizzes (Best 6 out of 7)	10 %
Homework	20 %
Exams 1 & 2	20 % each
Final Exam	25 %

* At the instructor's discretion, the lower of the two exam scores may be dropped, and the weight transferred to the final. The weight of the final will not be reduced.

Missed Quizzes & Exams: There will be no make-up quizzes for *any* reason. If you have to miss a quiz then a grade of zero will be given and this will count as your dropped quiz. A missed exam will count as zero unless alternate arrangements are made *before the test* or acceptable official documentation (such as a doctor's note) explaining the situation is presented.

Academic Dishonesty: You will be expected to submit only work that is your own. This will help us gauge your understanding, progress, and abilities for the material. If any dishonesty is caught, then a grade of F will be given in the course.

Dates to Remember (Homework, Quizzes, Exams, and Holidays):

Thursday, April 3	Homework 1
Monday, April 7	Quiz 1
Thursday, April 10	Homework 2
Monday, April 14	Quiz 2
Thursday, April 17	Homework 3
Monday, April 21	Quiz 3
Thursday, April 24	EXAM 1
Thursday, May 1	Homework 4
Monday, May 5	Quiz 4
Thursday, May 8	Homework 5
Monday, May 12	Quiz 5
Thursday, May 15	Homework 6
Monday, May 19	Quiz 6
Thursday, May 22	EXAM 2
Monday, May 26	No Class (Memorial Day)
Thursday, May 29	Homework 7
Monday, June 2	Quiz 7
Thursday, June 5	Homework 8
Monday, June 9	FINAL (7:10 am – 10:00 am, Building 38 – Room 201)

Expectations & Tips on How to be Successful in MATH 248:
∗ An essential part of the learning process occurs during class. You are expected to attend classes.
∗ Starting with the first class, study in-depth and regularly. You are expected to study *25 – 35 hours a week outside the classroom*. Thus, at a minimum you should be studying *2 hours for every one hour of class*. Read "University Expectations*"* on the course webpage for more ideas.
∗ You are expected to read the material to be covered *before* the lecture and to do the assigned exercises *before* the next class period.
∗ Be an active participant and considerate to others during class discussions.
∗ Do not rely on solution manuals! Struggling through the exercises on your own is an important phase of the learning process.
∗ Get help as soon as you need it: ask questions in class and office hours; form a study group.
∗ For exam preparation, practice exercises that have not been assigned.
∗ Everyone wants you to succeed. Please speak with me regarding any concerns you may have.
∗ Relax and have fun with the course!