

MATH 302, Fall 2011 Transition to Higher Mathematics

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- OFFICE Hrs: Announced in class
- TEXT: Chartrand, Polimeni, Zhang, Mathematical Proofs: A Transition To Advanced Mathematics
Recommended: Courant, Robins, Stewart, What is Mathematics, Oxford (2nd ed)
Recommended: Ian Stewart, & David Tall, The Foundations of mathematics, Oxford
- GRADING:
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|------------|------|
| Attendance | 5 % |
| Homework | 15 % |
| Quizzes | 10 % |
| Tests (2) | 40 % |
| Final | 30 % |
- ATTENDANCE: **Required.** If your attendance is satisfactory (no more than 3 absences), you receive full credit for attendance. Use your 3 “**personal days**” wisely.
- Asking questions, providing comments and remarks should be your regular behavior during our meetings.
- HOMEWORK: Typically, homework will be assigned on Fridays and collected in a week.
- STUDYING: Besides reading and doing homework, you need to study (**rewrite, rethink, complete and master**) the material of our **every** meeting.
- QUIZZES A few pop-up quizzes will be offered. There will be **no** makeup quizzes.
- GRADE SCALE: Grades **A, B, C, D** correspond to min of **90, 80, 70, 60** %, respectively.
- WEB PAGES: Go to www.math.siu.edu . Choose “**courses**”, then “**Fall 2011**”, then “**302 Kocik.**”
You should arrive at: <http://www.math.siu.edu/kocik/classes/m302/m302.htm>
- COURSE GOALS: Transition from "problem solving" to "theorem proving." Rethinking the meaning of mathematics as a human endeavor. Learning mathematical language, communication and proof techniques. Our meetings will comprise three concurrent streams:
1. **What is mathematics** — different aspects of math; what is it, how math is possible, how is it organized (axiomatic paradigm) and other philosophical or cultural questions.
 2. **History of math** — some interesting historical issues, mathematical heritage, the place of math in the history of civilization. Also historically important theorems specially the ones that introduced new ideas to proof technique to the scope of mathematics.
 3. **Math foundations** — the rudiments of logic, set theory, relations, functions, cardinality, number systems and other basic mathematical subjects. Stressed will be: (i) techniques of proofs; (ii) the language (and symbolism) of mathematical writing; (iii) precision and correctness.