



### Course Objectives

The primary purpose of this course is to write proofs. A *proof* is a mathematical essay that demonstrates the validity of a mathematical statement in a *clear* and *convincing* way. While some proofs are computational, such as proving that “If  $x^2 - x - 6 = 0$ , then  $x = -2$  or  $x = 3$ ”, the emphasis of this course will be an introduction to *paragraph* proofs. As it is with any essay, mathematical or otherwise, students will be expected to use a modicum amount of English grammar when they compose their proofs. Topics to reinforce this skill include: propositional logic, elementary set theory, mathematical induction and other properties of the integers. Furthermore, every student will be expected prove (the single variable) **The Binomial Theorem** on the Final Exam.

### Comments on Homework

1. Homework scores tend to be low the first few weeks of this course. The reason for this is twofold. The first reason is that students are learning a skill different from what is expected of them in previous math courses, that is, writing proofs. The second reason is more universal: It generally takes a few weeks to determine your professor’s expectations and nuances. Also, I tend to be picky, sometimes on items that you might consider to be trivial, *e.g.*, “one inch margins” or “didn’t use “then” correctly”.

Don’t Panic! If you take good notes, read the comments that are provided for you on your HW, paper and then by midterm your scores should rise to a respectable level.

2. Ideally, homework should be done individually. However, your 260 professor understands the value of collaborative work (this is what the “worksheet” days are for) or receiving help from someone other than yours truly. All I ask of you is that you document those from whom you received assistance. In these cases please write at the beginning of your homework paper:

(i) “I received help (assistance, hints) on problem(s) \_\_\_\_\_ from \_\_\_\_\_.”

or

(ii) “ ‘Ethan’ and I worked together on problem(s) \_\_\_\_\_.”

If you receive help from a tutor (private or skills center), please mention this information as well. When working with a tutor, ask this person to read your notes, related handouts and pertinent sections of the textbook.

3. Homework Extra Credit.

Occasionally, I will assign an extra credit problem. You are also invited to choose a *non-routine* problem from the textbook or, better still, come up with your own non-routine problem