MA-331 (W,05)

Geometry I: Meets MWThF in NS 1205 at 2 p.m.

Instructor: Bob Myers NS1135 Office hours are on my door and on my home page.
Office Ph: 227-1610 Home Ph: 249-1137 E-mail address: rmyers@nmu.edu
Web Site URL: http://euclid.nmu.edu/~rmyers/

Text: Elementary Geometry from an Advanced Standpoint, 3rd Ed. E. E. Moise

Prerequisites: MA-211 or consent of instructor.

Graded Activities: There will be at least three units, each with a unit score. For each unit, there will be an exam which will usually count about three-quarters of the unit score. There will also possibly be a few quizzes. Finally, there will probably be collected assignments. There will also be opportunities to submit Extra Credit (EC) work. I'll explain in class how the test, quiz, homework and EC points will be used to compute your unit grades.

Your prefinal score will be a weighted average of the unit scores. The final exam will count 20% or 50% of your final grade, whichever is more beneficial for you. (Proviso: for the 50% option to hold, you must take all the exams and you must satisfy the attendance requirement. Also, if you do not take the final exam, the zero you get will count 50% of your grade.) The lower cutoffs for A-'s, B-'s, etc. will be 90%, 80%, etc.

Attendance: Required. You may take at most five unexcused absences.

Content: This course provides an introduction to classical Euclidean and non-Euclidean geometry. We will also study the axiomatic development of the real number system as an example of many of the concepts and methods used in the study of geometry. The following chapters in Moise will be covered -- though not in the order given and not necessarily in their entirety: 1-7, 9-14, 16, 19, 21, and 23. Here are some of the things I expect you to learn about in this course:

--Geometry as an axiomatic-deductive structure.

--Some logic and some philosophy of mathematics.

--Some new geometric theorems and many new proofs of familiar theorems.

--A bit of the history of geometry and the role it played in the development of modern mathematics.

Expectations: I'll expect you to know (i.e., memorize) the axioms, definitions and theorems of geometry (and of the real number system) and be able to reproduce (possibly with some assistance) the proofs of most of the major theorems proved in the course. (This is not to be blind memorization. Your goal should be to understand the proofs, in both overview and detail, to such a degree that reproducing a proof is like presenting your solution to a previously solved problem.) You will also be expected to do proof-type problems. Moreover, **you must have an overview** of the material we cover.

Notes and Notetaking: In the past, I've provided daily notes for this class and I will do so this semester as well. Often the notes will contain just a brief suggestion of a definition or theorem with a comment that you should get the careful definition from the text. Sometimes I might just sketch a proof in the notes, leaving the details to be done in class or done by you at home. I'd suggest that, in conjunction with the notes and the text, you keep a notebook in which you state carefully the axioms, definitions and theorems for the real numbers and geometry. You should also include your own proofs of the major theorems. How you organize your notebook is up to you.

Studying and Learning: In class, and while studying, you should be an active learner. This means that, for example, in class you should try to anticipate what will come next in my presentation of a definition or a proof. And when you're reading the text, you should cover up the author's proof (or parts of the proof) and try to anticipate what will come next. Obviously, this means drawing your own pictures, restating things in your own words, stating things more precisely (in the case that the statement in the text is imprecise), etc. Once you've understood the author's proof, you should cover it up and try to reproduce the major parts of the proof on your own.

Precision in the use of language and symbols is critical in mathematics. In this course, it is not sufficient just to have "the right idea;" you must also be able to express the idea in precise terms. This comes with practice.

Working together in this class is encouraged. However, **any work that you submit for grading must ultimately be written up on your own.** For example, a group of you may jointly discover a proof, but then you must write up your version of the proof individually if it is to be submitted for credit. [It is also useful sometimes to have your colleagues proofread your work and make suggestions about things like introducing symbols, clarifying your presentation, etc. Obviously, you are expected to proofread your own work before you turn it in.]

Disabilities: If you have a need for disability related accommodations or services, please inform me or the Office of Student Support and Disability Services at 405 Cohodas (Phone: 227-1550). Reasonable and effective accommodations and services will be provided to students if requests are made in a timely manner, with appropriate documentation, in accordance with federal, state, and university guidelines.

Index Card: Please fill out the card with this information:

1. Name & E-mail Address
2. Year in school
3. Major
4. Minor
5. Previous college math courses and grades. Which of these did you take at NMU?
6. Do you plan to teach mathematics in high school?
7. If it's not evident from the above, why are you taking this course?

(Answer 8 and 9 on the other side of the card.)

8. Which high school math course did you like the most and which did you like the least? Which college math course like the most and which did you like the least?
9. In which college math course have you been required to do proofs? How do you feel about doing proofs?