

Math 102

*Geometry:
from Euclid
to Coxeter*



Instructor: Mr. Robert Gutierrez

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Office location: FEM 1 (Math Center)

Office hours: To be announced

Textbook:

Lial. Essentials of Geometry for College Students, 2nd Edition

ISBN 0-201-74882-7

Optional reading:

cut-the-knot.org

Isaac Asimov. Realm of Numbers a clear, imaginative approach to mathematics.

Prerequisites: Math 101 or equivalent

Basic Skills Advisories: Eligibility for Engl 126

Cheating and Plagiarism:

- A student will receive no credit if the instructor believes the student has cheated or plagiarized.

Student behavior:

- Silence or turn off your cellphone or any device before entering and during class.
- Do not text message with your cellphone or any device during class. This request is redundant since you cannot use your cellphone or device during class anyway.
- Please do not arrive late nor leave class early. If at least one student begins to arrive late to class habitually, then the instructor will lock the door at about 12:00pm.
- Please do not eat nor drink (except for water) in class.
- Be considerate and polite to others.
- You may not study for another class or read a book, newspaper, magazines, etc. during class.
- Please no guests in the classroom.
- In short, be polite and see page 44 in the Reedley College Catalog.

Attendance and Participation:

- Students are expected to attend **all** class days by 11:55am for their **entirety**.
- **Three** absences may result in a drop from the course by the instructor during the first nine weeks.
- Being late twice or leaving class early counts as one absence.
- Dense fog is not a valid excuse during the winter months, but I don't want students in accidents neither. Drive carefully and slowly by leaving early.
- Contacting me about a future absence does not excuse the absence unless the absence is related to a school-related activity, family emergency, or some other valid reason.
- Not being present during class for an unnecessary amount of time, determined by the instructor, may be counted as an absence or an emergency.
- Not participating in class by ignoring the instructor or any other undesirable behavior shows an unwillingness to learn and may cause the student to be dropped from the course by the instructor.
- If you decide to drop the course, it is your responsibility to make the drop official in the Administrations and Records office or else possibly receive a grade of "F".



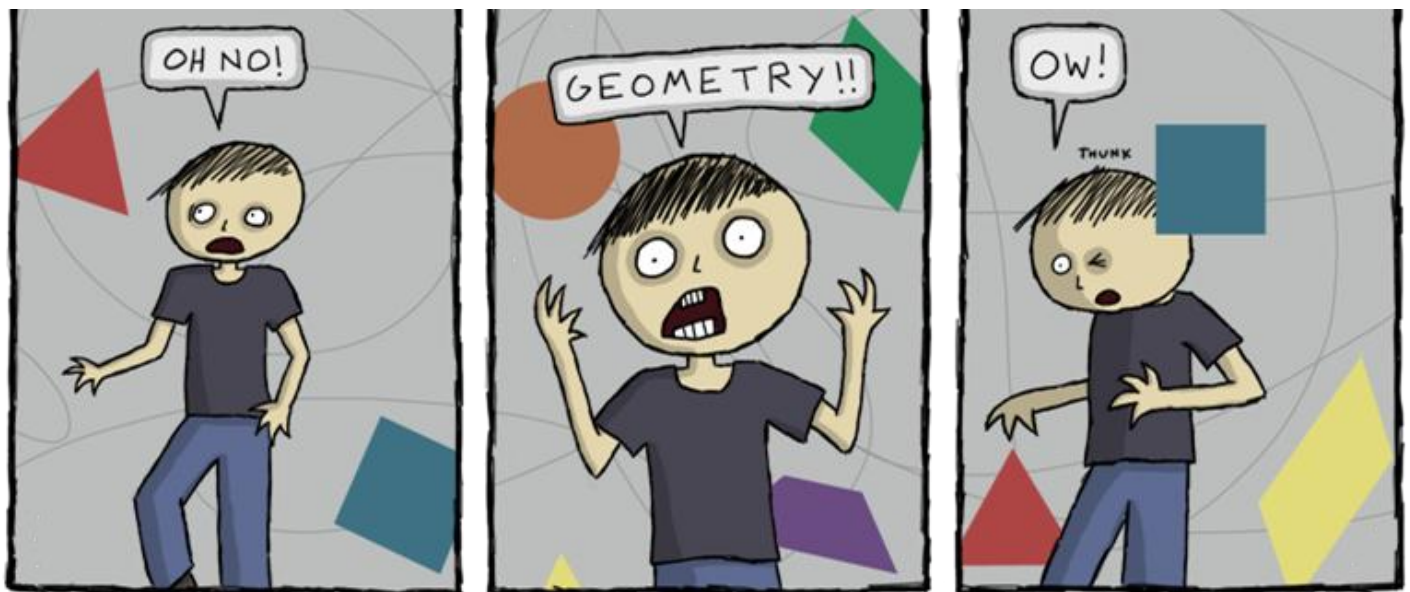
Homework:

- Homework is assigned nearly everyday and will be due either in class at 12:00pm the next class day or at the math center by 4:00pm at a later date.
- “mymathlab” or any similar paid program will NOT be used in the class. Geogebra, a free program, provided by the instructor will be used.
- Homework will be graded by the instructor for completeness, understanding, effort, and following instructions.
- Homework will come from the textbook, the instructor, and maybe other sources.
- LATE HOMEWORK IS NOT ACCEPTED. Tougher make-up assignments are created by the instructor's discretion.
- Collectively, all homework assignments are worth about 20% of the total grade.

Homework format:

If you do not follow these instructions, then you receive **ZERO** credit.

- Homework will be written legibly on clean unwrinkled 8.5 by 11 inch blank paper; paper torn from a spiraled notebook is NOT accepted.
- Homework problems will be written on both sides of a page and written on the page in a certain arrangement provided by the instructor via a “template”, a pdf file posted on blackboard in a homework folder, in order to speed up the instructor's grading and to maintain his sanity.
- Homework will be written with a sharpen pencil (preferably a mechanical pencil) or with only a black or blue pen. I highly recommend that the student writes the homework with a mechanical pencil since one cannot generally erase ink and it is professional in appearance.
- Homework written on two or more sheets of paper will be STAPLED in the upper left-hand corner. Staples and a stapler are not always provided by the instructor. Fastening homework in another manner is not acceptable.
- It is recommended the student submits his second or third draft of the homework and not his rough draft.
- Show all appropriate work for each problem. Only writing an answer will result in **ZERO** credit.



Tests:

- Every test is made of stapled paper, provided by the instructor, and conducted in class or potentially outside of class. The student does not need to purchase a “blue book” or any similar item.
- There are about six regular tests and one final test.
- One or two of the lowest test scores (only among the regular tests) will not be used in the final grade.
- Calculators can be used if permitted by the instructor.
- Notes can be used if permitted by the instructor.
- Cellphones or any other electronic devices are **NOT** allowed during any test. Otherwise, you receive zero credit for the test.
- If a student must absolutely be absent on any test day, then discuss taking the test at another time with the instructor.
- **THE FINAL TEST WILL BE CUMULATIVE AND MUST BE ATTENDED AS SCHEDULED.**
- The final test grade will be used in the final grade.
- Collectively, all tests are worth 80% of the total grade.

Why you are in this class?

- Learn more about geometry used in more-or-less everyday life.
- Learn the basics of the axiomatic system through geometry which how to argue better.
- Learn that math problems are **never usually** solved in a one, quick, easy, and/or painless way.
- Another class has math 102 as a prerequisite.
- Other reasons.

Class structure:

• Class notes:

Your instructor believes paying attention in class is more important than purely writing notes and not understanding what one is writing. However, writing notes is important. Consequently, outlines of class notes are provided by the instructor (to the best of his ability) to ensure that note taking is less of a chore and to increase the student's ability to pay more attention during class. However, these provided notes are **not complete**. The student **must** attend class to understand what mathematical ideas the notes convey. Although, the student should still bring plenty of paper to class regardless.

• Class format:

Your instructor believes more in active learning than in passive learning. Only sitting and barely thinking about the math presented in class (passive activities) will most likely result in lower grades due to a poor understanding of the mathematics. Thus, your instructor will ask questions during class to encourage a class dialogue and ask you to do problems by yourself or with others in class. On occasion, the instructor will use his strange witty humor to figuratively shock the class. If you are offended, please talk to the instructor after class. We are all in the same boat when learning mathematics.

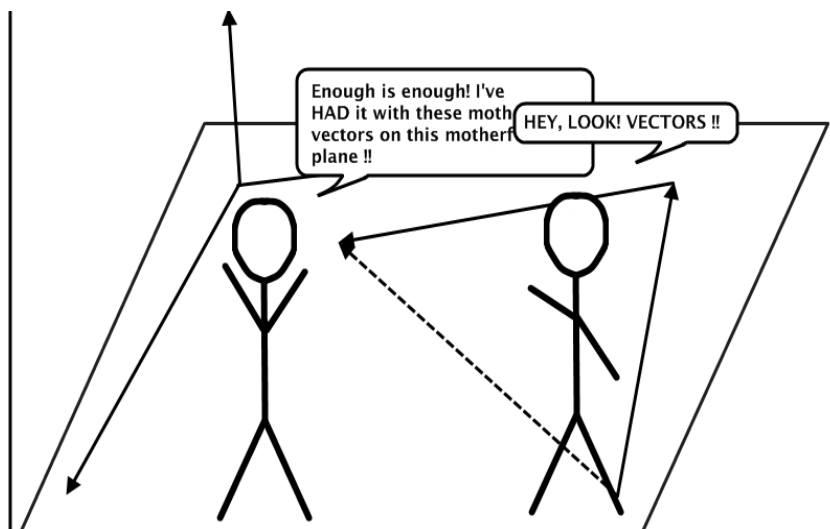


Course goals:

- Reasoning
 1. Undefined vs Defined terms
 2. Circular definition, circular logic, infinite regress
 3. Basics of the axiomatic system
- Triangles
 1. Vocabulary
 2. Congruence
 3. Similarity
 4. Angle sum equals 180 degrees
 5. Orthocenter, Incenter, Centroid, Circumcenter
 6. Morley's theorem
- Parallel lines
- Quadrilaterals
 1. Parallelograms
 2. Rhombi
 3. Kites
 4. Trapezoids
 5. Rectangles and squares
- Ratio and Similarity
- Pythagorean Theorem
- Triangle Inequality
- Circles
- Arc length
- Area
 1. Rectangle
 2. Triangle and Heron's theorem
 3. Quadrilaterals and Polygons and Pick's theorem
 4. Circles and Sectors
- Polyhedrons and Spheres and maybe other solids
 1. Prisms vs Pyramids
 2. Area vs Volume
- Trigonometry
 1. sin vs cos vs tan
 2. solve problems using basic trigonometry

Class materials:

- Blank, graph, and lined paper
- Pencils. Have at least three different colors.
- Pencil erasers and sharpener
- Three-ring binder or folders
- Small stapler with extra staples
- Bow compass
- Protractor
- 12 inch ruler with metric
- Calculator, details below
- Access to a computer and the internet either at home or at school.
- Other materials to be announced



Calculator:

- A small calculator with only add, subtract, multiply, and divide buttons is fine and dandy, but trouble might occur when working on some extra credit
- A graphing calculator is great, especially if spending \$100 is fine for you, but the instructor does not want you to spend too much money on a device that you will only use for one semester and never use again, especially if you do not plan to explore later math classes. Furthermore, typical graphing calculators such as the TI-83 are essentially run by technology circa 1997, quite out-of-date by today's standards.
- A scientific calculator is a good balance and should cost around \$20 or so.

Important Dates:

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|-----------------------------------|---|
| • Monday, January 16: | Martin Luther King Jr. Day (no class) |
| • Friday, February 17: | Lincoln's Day (no class) |
| • Monday, February 20: | Washington's Day (no class) |
| • Saturday, March 10: | Last day to drop the class |
| • The week of April 2 to April 6: | Spring break (no class) |
| • Friday, May 11: | Last day of class |
| • Monday, May 14: | Final test at 12:00pm to 1:50pm in FEM 4E |

Students with Disabilities:

If you have a verified need for an academic accommodation or materials in alternate media (i.e., Braille, large print, electronic text, etc.) per the Americans with Disabilities Act (ADA) or Section 504 of the Rehabilitation Act, please contact me as soon as possible.

Grading scale: $89\% \leq A \leq 100\%$ $78\% \leq B < 89\%$ $67\% \leq C < 78\%$ $56\% \leq D < 67\%$ $0\% \leq F < 56\%$

Disclaimer:

Due to time constraints and/or unforeseen circumstances during the semester, your instructor reserves the right to alter anything in the syllabus when deemed necessary for the educational welfare of the students.