

Euclid's *Elements* Syllabus

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Course Description

In the history of education perhaps the most enduring text throughout the ages, other than God's Word, is Euclid's classic text, the *Elements*. Written almost 2,500 years ago, it has only been in the last 50 years or so that this text has been sidelined for more "practical" geometry texts. Because the text has been relegated by most to the back shelves of the library, its tremendous value is unfortunately unknown to most people. By contrast, the *Elements'* value was not missed by most past educational institutes. Over the doorway of Plato's Academy was written: "Let no one come to our school who has not learned geometry." In an effort to emulate the Academy, many scholastic institutes have written over their doors a slightly modified version of Plato's requirement: "Let no one come to our school who has not learned the *Elements* of Euclid."

Of all the texts or subjects to master, what is it about geometry – and by implication the *Elements* – that is so important that Plato and others would hold it in such high regard? This is a question to ponder for the first day of class! Perhaps the answer lies somewhere in the comments and works of great men. Jonathan Edwards – the great preacher of the 18th century – said, "When I am violently beset with temptations, or cannot rid myself of evil thoughts, [I resolve] to do some arithmetic or geometry, or some other study, which necessarily engages my thoughts, and unavoidably keeps them from wandering." Abraham Lincoln's education as a backwoods, shy boy was composed of three things: the Bible, the complete works of Shakespeare, and Euclid's *Elements*.

Course Requirements

It will be expected of each student to be fully prepared for each class meeting. This will be accomplished by reading the assigned material and/or doing all of the assigned problems. Assignments will generally be given 1-3 class periods before their due date. **If a student is not present at a class to receive an assignment, it is the student's responsibility to get the assignment, either from the tutor or another student.** NO extensions will be given if effort is not taken to get assignments missed in class! The expectation of a fully completed assignment at the beginning of class will also apply to those students that have missed the previous class(es).

Propositions

Students will be assigned 1-3 proofs out of Euclid's *Elements* per class. There is nothing to solve. The student is actually looking at the solution, where Euclid is trying to justify a proposition he has made. The student's task is to understand Euclid's solution well enough that given the same proposition, the student could go to the board and justify the proposition to the rest of the class – *without looking at the book!* Students will generally be selected randomly, but the tutor reserves the right to call on someone at their discretion as well. A student's grade is determined largely by whether they are prepared to lead the class through the solution, how well they explain the solution, and how much they involve their class in the process of completing the proposition (Socratic Method). The larger the class, the less opportunity the student will have to go to the board during the semester. **The student should therefore be prepared – an entire semester's grade could be determined by their preparation for only a few classes!**

Grading Percentages

A student's grade can be broken down as follows:

Participation	30%
Propositions	30%
SAT / Calculus / Compass	30%
The Megaproblem	10%

Homework and quizzes will count for 70% of a student's grade (project grade). Class participation will make up the remaining 30%. Mastery is achieved by obtaining an 85% overall percentage in the class. Mastery Qualifying (MQ) is achieved by obtaining a 92.5% average for the first semester. Mastery with Honors (MH) is achieved by maintaining this average in the second semester and completing a Mastery with Honors project of at least 20 hours.

Grading System

MCA utilizes a web-based grading program, *Gradespeed*. This is a valuable tool for both parents and students to get timely feedback on a student's standing in his or her classes. There, details can be found about current grades, absences, tardies, participation, assignments given/received, and also some brief descriptions of a student's conduct in class. As such, parents are strongly encouraged to use Gradespeed on a regular basis as a way of keeping up with your child's progress and to communicate with the tutor frequently via email, phone, or office visit in the event of any questions or confusion.

An "OS" will be given in the "note" section to indicate a student's original score. "EC" will be given to indicate any extra credit points the student earned on that assignment.

Revision Policy

Most assignments given are revisable, with the exception of proposition presentations, **which are in no way revisable**. Through revisions, a student can earn back 70% of the points lost on an assignment, and may do revisions **twice** to regain all of the possible points. However, students are strongly encouraged to maintain awareness of revision deadlines (given in syllabus), after which point revisions will not be accepted. Revisions are due by the end of the school day on the posted date. If an assignment is handed in late, the points deducted for being late are not revisable.

Late Assignment Policy

Assignments are due at the beginning of class, after which point they are considered "late." If the late assignment is handed in anytime during the following 7 days, 10% will be deducted, 20% for the following 7 days, and so on, until the one month deadline has taken effect. After one month, an assignment will be entered as "missing." This grade is irrevocable.

Tardy Policy

Class will begin precisely at the scheduled time. A student arriving late to class will be required to go to the upper school front desk to obtain a tardy slip from one of the administrators. The first tardy in a given week ensures that a student cannot earn a participation grade higher than 7 out of 10. A student with two tardies in one week cannot earn a participation grade higher than 5 out of 10. A student with three tardies in one week will earn a participation grade of "0" for that day.

Extra Credit Policy

Extra credit opportunities will be available throughout the school year, but most of them are assigned and only available for a limited time. Students are encouraged to take advantage of these opportunities as they come along, as there are very few available as the end of the school year approaches.

Book List

Euclid: The Thirteen Books of the Elements, Vol. 1; Dover Publications; 2 edition, 1956

Euclid: The Thirteen Books of the Elements, Vol. 2; Dover Publications; 2 edition, 1956

Flatland: A Romance of Many Dimensions, Edwin A. Abbott; Dover Publications, 1992

Assignment for the First Day of Class

- Read through the entire course description and be prepared to discuss the question posed on the first page of the course description. Please bring your copy of the course description to the first day of class.
- Read the “Lines and Angles” handout. Complete the 10 problems at the end of this handout. Show all work neatly on a separate sheet of paper to hand in. Work must be shown in order to receive credit! Do not write your answers on the handout!

Supply List

- Pencil
- Engineering Paper (preferred, but loose leaf paper acceptable)
- scientific calculator (graphing calculator optional)
- Drawing Compass
- 1 Composition book (7 1/2 x 9 3/4 - most are black and white, non-spiral, and lined)