

Math Academy 1

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Course Information Sheet 2017

General Information

Course Overview: The topics covered in Math Academy I include a mix from Geometry, Algebra II, PreCalculus, and Statistics courses, but taught more rigorously, in more depth, and at a faster pace. The concepts and methods form a mathematical foundation that is essential in nearly all college math courses. They are also used extensively in other disciplines such as science and finance.

Units of Study: The course covers polynomials, functions, quadratics, right triangles, circles, probability, research methods, spreadsheets, and hypothesis testing.

Course Level: Math Academy I is offered as a rigorous option for freshmen intending on taking Math Academy II as a sophomore and IB Math HL as a junior and senior. Although Math Academy does cover more content than a traditional math course, the crucial differences are the additional rigor, pace, and challenge. In particular, in Math Academy:

- Topics are studied in more depth and with more rigor.
- There are projects to explore concepts and applications.
- There is a greater emphasis on applying concepts, as opposed to focusing more on applying procedures.
- Students are expected to be unimintimidated by self-directed learning and by homework problems that are not straightforward.
- Students are assumed to be fully fluent in algebraic manipulation, fractions, decimals, and other elementary and middle school topics.

Math Academy is a great opportunity for students who have been well prepared for its rigors. However, students who are pushed into an honors level prematurely often have a miserable experience that can result in a newfound dislike of math.

Dedication: Math Academy I is specifically designed for dedicated and motivated students. Those who do not take the course seriously, in terms of behavior or effort, bring the rest of the class down and should not be in an honors class. In light of this, students' semester grades can be no higher than one letter grade above their homework grade for the semester. For example, a student who turns in no homework can receive a maximum grade of D in the course.

Calculator: A graphing calculator is required. New TI-84 Plus CE calculators are available for around \$100 on Amazon, and cheaper options are also available by considering used or older models. Other brands of graphing calculators are also available, but are not recommended. Please contact me if acquiring a graphing calculator in the first few weeks of school may present a financial hardship for your family.

Assignments

Work done in class (~25%)

- **Classwork:** A set of problems aligned with each section of notes is done together as a class. In addition, a few points are given periodically for things such as class preparation and in-class practice problems.
- **Reviews:** Reviews are done in self-selected groups of four. Each group gets four different versions of the review that are very similar except for being different levels of difficulty, allowing each student to choose one that is at the level that would most help him or her prepare for the test. Reviews also serve as study guides, and students often take it upon themselves later to print one or more of the other versions at home to practice.
- **Team Quizzes:** The last week before each final, students prepare for it in teams. This provides for students struggling on specific concepts to have tutors for these concepts, and it provides strong students to solidify their understandings through explaining the concepts to others.

Work done at home (~30%)

- **Online Quizzes:** Each section has a four-question multiple-choice quiz, based directly on the online notes, to be taken before class. Online quizzes can be resubmitted until a perfect score is achieved.
- **Homework:** There are usually one or two problems sets per week. The primary purpose of the assignments is not to practice skills, but rather to be aware where weak points in conceptual or procedural understanding may lie. Each problem is individually selected, and there is almost no redundancy within assignments. Students should not be concerned if there are a small number of problems they are unsure of in an assignment, but should seek help from classmates or others before the due date if there are many problems they do not understand. Homework is graded on completeness of work shown and on corrections made in class, but not on accuracy.
- **Projects:** Projects range from abstract mathematics to mathematical application and data collection. Students can choose to work alone or in small groups.

Quizzes and Tests (~45%)

- **Quizzes:** To help students stay on top of the material, there is a mini-quiz after each section, usually the following day. The material is reviewed explicitly beforehand.
- **Chapter Tests:** Tests cover both conceptual and procedural aspects of the content. Test scores may be increased afterward by test explanations, in which students carefully explain how to do problems they had originally done incorrectly, as if they were teaching someone else.
- **Final:** Each final covers the whole semester and is worth two chapter tests.

Things to make life easier

Online Materials: Almost all aspects of the course are available at ewyner.com, including class notes, the textbook and worked out problems, and most other course materials.

Use of Resources: Notes, book, and all electronic devices may be used on all assignments except some tests.

Extensions: Students who select this option (see below) may proactively request an extension on any assignment for any reason.

Free C: Students may request a "Free C" on any nontest assignment, in person and prior to the due date, once per grading period. When the assignment is due, it can be turned in normally, or the Free C form can be submitted in its place for a score of 70%.

Score Increases: Quizzes can be retaken, until the day before the test, for one point lower than full credit. Test scores can be increased by turning in test explanations before the day of the following test.

Study Sessions: At any point, a group of 4 to 12 students can request a formal teacher-led study session, given availability.

Absences and Late Work

It is important not to fall behind, because catching up is much more difficult than keeping up. The online resources can help you keep up with the course and assignments if you are gone.

Please choose the option for late assignments that is best for you. You can switch to option two at any time.

Option One for students that do not expect to have a high number of unplanned absences: Assignments can be turned in after their due dates any time until the day before the test (but no later), and will be reduced in score by no more than 3 points, regardless of reason for lateness. You may change your due date on any assignment, for any reason, to any date before the day of the test, by getting an extension form signed by me prior to the original due date. At the end of the semester, you will receive 20 extra credit points to make up for any points lost on assignments that may have been late for legitimate reasons.

Option Two for students that expect to have a high number of unplanned absences: We will sit down with your parent to work out a personalized late-work plan that will take into account attendance concerns specific to your circumstances. We will also work out an approach for you to be able to stay caught up in class when frequent absences do occur.

Signatures

If you have any concerns, please contact me in person or by email before signing this form.

We have read and understood this course information sheet. In particular, we are aware that students who are not highly proficient in algebraic manipulation or who are not comfortable with self-directed learning will have a better experience taking a traditional math course rather than Math Academy 1.

Parent

Name: _____

Signature: _____

Student

Name: _____

Signature: _____

Please return this entire page. It is available online for later reference.