Math Academy 1

Erik Wyner • ewyner@scottsvalleyusd.org • ewyner.com

General Information

Course Overview: Math Academy 1 is the first year of a two-year course that covers content from Math 2, Math 3, and Statistics & Research Methods, and more, but faster and more rigorously than in these courses.

Course Level: Math Academy 1 is offered as a rigorous option for freshmen intending on taking Math Academy 2 as a sophomore and IB Math HL as a junior and senior. Math Academy covers more content than traditional math courses, but the more significant 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.
- Students are expected to be unintimidated by self-directed learning.
- There is a greater emphasis on applying concepts as opposed to focusing on procedures.
- 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, whether by parents, peer pressure, or personal expectations, may have a miserable experience that can result in a lasting dislike of math.

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

Assignments

Work done in class (~20%)

- **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:** Students prepare for each final in teams. This allows for the dual purposes of providing for students struggling on specific concepts to have tutors for these concepts and enabling strong students to solidify their understandings through explaining the concepts to others.

Work done at home (~25%)

- **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:** There is a project for each chapter. Projects range from abstract mathematics to mathematical application and data collection and analysis. Students can choose to work alone or in small groups.

- **Study Guide:** An example of each topic covered in class throughout the semester is included in the study guide. Full solutions and explanations of these are in the online notes.

Quizzes and Tests (~55%)

- **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.

- **Final:** Each final covers the whole semester and is worth two chapter tests.

Required Materials

Calculator: A graphing calculator is required for this course and will be used for most or all future math classes (high school and college) as well. New TI-84 Plus CE calculators are available for around $120 at local stores or on Amazon. New or used Texas Instruments graphing calculators below the TI-84 Plus CE may not look as nice, but their functionality and syntax are essentially the same, making them perfectly fine for the course yet considerably cheaper. Other brands such as Casio, or more advanced models such as the TI-89, are significantly different and should not be used for this course unless you are willing to frequently consult the manual on your own. There are a limited number of graphing calculators available for families who may not be able to get their own this month.

Computer: Starting this year, SVHS students are required to bring a Chromebook or other laptop to their classes. You can make arrangements with the school to borrow one if you do not have one and are not able to get one.

Other: Bring whatever you would like to write with and stay organized.

Things to make life easier

Online Materials: Almost all aspects of the course are available at ewyner.com, including class notes, the textbook, 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 may request a new due date on any assignment for any reason, so long as the request is made in person before the original due date and the requested due date is before the date of the test.

Late work: Students can turn in late work any time they are ready, up until the day before the test, and it will be marked down only minimally (or not at all if it has an extension). To regain missed points for legitimate excused absences, students can choose to either attach a readmit slip to each assignment when turning it in or to have a total of 20 points added at the end of the semester.

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 for one point lower than full credit. There are not test retakes, but test scores may be increased through test explanations, in which students carefully explain how to do problems they had originally done incorrectly, as if they were teaching someone else. Quiz retakes and test explanations can be turned in any day before the day of the next test.

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

Signatures

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 instead of Math Academy 1.

Parent

Name: _____

Signature: _____

Student

Name: _____

Signature: _____