SYLLABUS

Advanced Math II
QSI Virtual School

Semester/Term: 2022/2023
Location: Course Page https://learn.qvs.qsi.org/course/view.php?id=164

Instructor Information

Instructor: Emily Hinman

Email: emily-hinman@qvs.qsi.org

Working Hours: Grading assignments 5am – 7am GMT +1, answer questions and taking calls 7am – 10am, and again based on student schedules. I turn my computer off between 6-7PM at night and answer what was sent after that the next morning.

Preferred Method of Communication: Microsoft Teams

Course Description

QSI mathematics students take risks, collaborate, and persist to become creative problem solvers. Conceptual understandings are developed through well-designed activities allowing students to explore, communicate, and reflect on their mathematical knowledge. Students apply and connect their understandings to relevant concepts both in and out of the classroom.

The Advanced Mathematics II course is designed to continue to expand students' knowledge of functions and polynomials as they apply it to real-world situations. The course includes a review of sequences and series as well as polynomial, rational, exponential, logistic, logarithmic, and trigonometric functions and their inverses. In the Advanced Mathematics II course students are expected to engage in mathematical modeling with an emphasis on exploring and extending the ideas.

Advanced Math II is divided into 7 essential units and 3 selective units. *The normal pace and expectation for the course leads to mastery of **10 units in one school year**.* Advanced Math II is designed to use 5 class periods per week or the equivalent. A class period is a minimum of 45 minutes. Mastery of 10 units of Advanced Math II is a requirement to take AP Calculus. Advanced Math II counts as an elective credit to graduate.

Course Credit Equivalency: 1 Carnegie credit

Approximate length of the course – 35 Weeks

Prerequisites

- Algebra, Geometry, and Adv Math I

Required Materials

- *Precalculus: Graphical, Numerical, Algebraic*. Pearson, 2019 – Students need an access code from their local school. All textbook content that is needed for the course is saved within the course page. Here is the textbook website. In order for students to have access to an online textbook they need to get a access code from their local school.
- Students need to have access to a **TI-83/84 Calculator** or use of DESMOS website
- Access to IXL - https://www.ixl.com/math/precalculus - students will be provided with a login and password

Technology Information and Requirements

- Computer with internet access
- Microphone
- Camera either on a smartphone or on your computer

Course Grading

Students will be provided with a rubric at the beginning of each unit to help determine if a student has reached 'A' level mastery or 'B' level mastery. **Mastery means** that the student has learned the facts and/or concepts to such an extent that they are usable tools in future endeavors. The grade of 'A' not only indicates that the student has mastered the material well, but is able to consistently demonstrate higher order thinking and performance skills such as problem solving, analysis, creativity, *etc*. In more practical terms, students will be given specific assignments with each unit that will be labeled "A" assignments.

Students will also have specific questions on tests that are labeled "A" questions. Students will receive a "P" if they are currently working on a unit and/or need more time and practice to attain mastery.

Students will be assigned an "H" if they have worked extremely hard to master a unit but have not been able to master the content.

Students will be assigned a "D" if they do not work consistently on the course or otherwise fail to make sufficient effort towards mastering the course according to the preset schedule. If students are more than one unit behind the course pace, then a "D" will be placed on the status report until students show mastery on the unit. For example, that if the class starts unit 3 and a student hasn't finished unit 1, unit 1 will be marked with a "D" until the student earns mastery grade (B) or above mastery (A).

I will use two different types of assessments, formative and summative. There is NO concept of averaging quiz and lesson grades into a final unit grade. The final unit grade will be assessed using an end of the unit summative assessment and/or projects and will be labeled as "Unit Grading Rubric" on the course page.

Formative Assessments: Assessments that help me guide your learning

SCORM Packages – SCORM stands for Shareable Content Object Reference Model, this is just a fancy way of packaging learning content. I put images from your textbook, other useful photos, videos, and questions in one place for students to learn the TSW(s) in that lesson.

Students need to use the resources to answer the questions and earn points to unlock the next lessons or activity. If students cannot earn the points, they should contact me so I can help them.

Concept Maps - Students will be asked to create concept maps to review and summarize what was learned in all lessons.

Quizzes – Quizzes are a form a formative assessment so that I can make sure there is synthesis of TSWS. I want to be sure that students can use all of the TSWs together to finish the unit projects.

Summative Assessments: What you will do so I can fill in your unit grading rubric

Tests/Assessments - There is an end of the unit summative assessment for every unit. Any mistakes on these assessments will be analyzed. If students have strong conceptual understanding but have made a technical mistake, I will ask the student to correct the assessment. If the mistake requires the student to do relearning and reassessing, I will put all information on the grading rubric and work to make sure that each TSW has been mastered.

Projects, Presentations, Activities, and/or Graded Assignments - Projects, activities, and graded assignments are a major part of determining mastery of the course. Students will always be given a grading rubric for the projects or graded assignments.

Students should expect to receive feedback on assignments turned in within 24 hours M-Thursday. Assignments submitted on Fridays will be returned no later than by Monday and assignments on Saturday and Sunday will arrive no later than Tuesday.

Upgrading from a P to a B or from a B to an A

If you have a P and need to earn a B, I'll let you know what assignments you need to fix or complete. If you want to earn an A, then you'll need to complete the A level projects until you meet the criteria set forth in those projects and/or unit grading rubric.

Course content

Clicking on each of these links will take you to a document outlining what will be done for each unit.

SO9 (unit 10) - Portfolio - A Unit that will be completed throughout the year
E01 – Functions and Graphs
E02 – Polynomial and Power Functions
E03 – Rational Functions
E04 – Exponential and Logarithmic Functions
E05 – Trigonometric Functions
E06 – Analytic Trigonometry
E07 – Discrete Mathematics (Sequences and Series)
S07 (Unit 8) - Analytic Geometry in Two and Three Dimensions
SO3 (Unit 9) - Math Investigations (Limits)

Tentative Course Schedule

Students complete IOL prior to being enrolled into their main QVS course.

Unit 1 – Weeks 1- 3
Unit 2 – Weeks 4 – 7
Unit 3 – Weeks 8 – 10
Unit 4 – Weeks 11 – 14
Unit 5 – Weeks 15 – 18
Unit 6 – Weeks 19 – 22
Unit 7 – Weeks 23 – 26
Unit 8 – Weeks 27 – 29
Unit 9 – Weeks 30 – 33
Unit 10 – Weeks 34 – 35

A maximum of 2 units can be completed in June.

Attendance Policy

Students are expected to login and work for a minimum of 225 minutes a week (equivalent to 45 minutes a day five days a week. This is a higher level mathematics class and I expect students will also use around 30 minutes of time at home to complete the class. Students will be successful if they submit work daily. When assignments are submitted in bulk feedback time may increase. At a minimum, I will grade one assignment graded per day.

Online Behavior expectations

1. Have the goal that you want to learn the course material. This is quite different from having the goal that you want to earn A's or B's. If we share the goal that you can use the content of this course in future mathematics courses, then we will always be working toward the same goal.
2. Be respectful of all students in the class. When posting on the course page keep in mind that students only know you by what you write and it is easy to misunderstand each other when we do not have body language to help guide intentions.
3. Take responsibility for your learning. It is my job to give you all the tools and content to be successful. It is your job to use the tools and want to be successful. We have to trust each other a lot in an online learning environment. I put the faith in you to follow the directions that I give in the lessons and assignments rather than trying to find a shortcut around the assignment.
4. Students should have to finish lessons including practice problems in order to unlock the next lesson. At the end of each lesson, I give students a chance to ask questions. Students need to ask questions when they do not understand something.
5. Complete practice problems from the lessons neatly in a notebook. Show what you can do without the answers provided in one color and show corrections in another color. This way you will be able to see what you need to practice more later. I will ask that you upload images of your notes and worked out problems on Friday of each week. Uploading these images will unlock the assignment on Monday morning.
6. Complete quizzes from memory or if you feel like you need to check something in your textbook then leave me a note/comment saying that you looked up something because

you forgot. Quizzes are not graded so you do not need to worry about making mistakes. I will provide students with additional explanations and practice for non-mastered skills.
7. Complete Unit Tests to a mastery level. Students need to be able to demonstrate mastery on all the essential outcomes of a unit at the same time. When students have not mastered a TSW, then I will provide additional examples, IXL practice, and/or video conferencing calls to go over the mistakes.
8. Complete any projects that are given to the standard set forth by the rubric.
9. Complete the weekly assignments by the end of each week. QSI does not believe that time should be a limitation on student learning when learning takes additional time. This is different from taking additional time because you have other "things" that you want to do. If you are struggling with a concept and it is taking you more time, tell me right away.
10. Let me know if you have a break that is different from QVS so I understand why you are not completing online assignments.

Academic honesty

Students are required to be always academically honest. Plagiarism can be defined as submitting someone else's ideas, words, images, or data without the proper acknowledgement of the source. Plagiarism is synonymous to stealing and fraud and is not tolerated at QVS.

Here are some common examples of plagiarism if the sources are not clearly cited:

- using words, phrases, or ideas that are not your own.
- paraphrasing the work of another person, even though you may have changed the wording or syntax.
- using facts or data not considered common knowledge.
- submitting a paper from an essay service or agency, even though you may have paid for it.
- submitting any work done by another person, even though he or she may have given you permission to use it.

You should also note that beyond written work, plagiarism may encompass computer data, research, musical scores, video programs, and visual arts.

Plagiarism is a serious offense, especially in an academic environment. QVS teachers must be able to rely on the students' integrity to maintain a climate for successful learning.

If you plagiarize even once, it will put into question all your previous work, so the consequences may go beyond redoing one assignment, and you may need to revisit your previously submitted work to prove mastery of your learning outcomes.

You should diligently avoid any deliberate or inadvertent plagiarism. When you are unsure if the acknowledgement of sources is needed, ask your teacher.

Regardless of whether a student has intentionally or unintentionally borrowed someone else's work without acknowledging it correctly, plagiarism will be dealt with as follows:

First offense: The student must redo the assignment(s) in question. The instructor will make sure the student understands how plagiarism came about and will give strategies to avoid it going forward. If it appears the plagiarism was intentional, parents and the director will be informed.

Second offense: The QVS director and the parent/guardian will be informed. A “D” will be assigned until the student has redone the assignment(s) in question.

Third offense: The instructor will refer the matter to the QVS director for further action.

Other Information

QVS Statement of Purpose

QSI Virtual School is a diverse international, multicultural, online learning community, offering meaningful standards-based education through mastery learning.

We prepare and develop students to have confidence to pursue their dreams and to positively impact the world.

We challenge. We question. We care.