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Spring 2020

AQR

Advanced Quantitative Reasoning
Spring Semester 2020

Welcome to AQR! This is a class unlike any math class you have ever taken. It is an exciting and dynamic course in which you will use the skills learned in Algebra I, Geometry, and Algebra II in relevant, engaging topics. You will also develop college and career skills such as collaborating, conducting research, and making presentations. This class is **heavily** project based, and it is essential that you are here **every** day to work with your teams.

Prerequisite:

Students must have passed Algebra II in order to take AQR.

Second Semester Topics Covered / Units of Study

- **Unit IV:** Using Recursion in Models and Decision Making
  - Relationships in Data
  - Recursion in Exponential Growth and Decay
  - Recursion Using Rate of Change
  - Recursion in Cyclical Models
- **Unit V:** Analyzing Numerical Data
  - Regression in Linear and Nonlinear Functions
  - Cyclical Functions
  - Step and Piecewise Functions
- **Unit VI:** Decision Making in Finance
  - Future Value of an Investment
  - Present Value of an Investment
  - Building an Investment
  - Using Credit
- **Unit VII:** Networks and Graphs
  - Circuits, Paths, and Graph Structures
  - Spanning Trees
  - Graph Coloring
  - Program Evaluation and Review Technique Charts

EXPECTATIONS FOR STUDENTS

You will actively participate in class.
You will work in teams with other students.
You will make written and oral presentations.
Your work will be of the highest quality.
You will contribute to successful problem solving.

Attendance / Missed Assignments:

Much of what you will learn in AQR will come from in-class projects, group discussions, and collaborative efforts; therefore, *regular attendance is crucial to your success.* In the event of an absence, it is your personal responsibility to obtain any missed / make-up work. If you are absent on the day of your team's presentation, you will give an individual presentation the day you return. Please refer to the Math Department Policies letter. Be sure to let me know if you know you will be absent so that we can make necessary arrangements!

Supplies:

- 3-ring binder devoted to AQR (recommend 2.5inch-3inch)
- Notebook paper / Graph paper / Dividers
- Graphing Calculator (TI-84) – optional but highly recommended

Classroom Expectations:

Please refer to the Math Department Policies letter.

Because this is a college preparatory class, the following will also be required:

- All assignments will be headed properly in order to receive full credit
  - Full name, assignment name, period, and date
- Show respect at all times for whomever is addressing the class
- Make-up work is awarded half credit until the last day of that unit
- Know what is due when and make arrangements to get work to me in the event that you are absent
- Communication is key: if you have a question or know you will be gone for the next class, e-mail me beforehand to let me know

Grading:

Grades in AQR are determined largely by your effort and participation on projects. Most work will be done as teams, so your input affects team presentations. There will also be some individual projects and quizzes and a test over each unit. Grades are determined as follows:

- Coursework (80%)
  - 50% projects / tests / quizzes
  - 50% team participation / in class activities / worksheets
- Final Exam (20%)

I anticipate this class being a lot of fun. You will be using the math skills you have acquired to tackle some interesting and brain-stretching projects. My hope is that you enjoy discovering new ways to apply what you already know.

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