ADVANCE QUANTITATIVE REASONING (AQR)

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Office Hours: Monday ~ 3:25 – 4:10 PM; Tuesday-Friday ~ 1:50 – 2:35

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WELCOME to Advanced Quantitative Reasoning (AQR):

The AQR class will allow students to explore Mathematics and its use in the "Real World". Students will use previously acquired Mathematics skills to solve engaging problems that exist in everyday life. Topics will include Financial applications, Statistics, Algebra, Geometry, Trigonometry and models from Discrete Mathematics. Lessons and activities will focus on exploration and research with some project-based learning. "ImagineMath", "KhanAcademy" and other texts/tools will be used to further student learning. Digital, verbal and writing skills will be enhanced with reports and presentations.

Advanced Quantitative reasoning Topics:

Unit 1: Students study future value to build investments for Decision Making in Finance.
Unit 2: Students study present value to build investments for Decision Making in Finance
Unit 3: Create, represent, and analyze mathematical models for Building an Investment
Unit 4: Create, represent, and analyze how Using Credit works.
Unit 5: Analyze Numerical Data by Estimating Large Numbers using proportionality
Unit 6: Analyze Numerical Data using ratios
Unit 7: Analyze Numerical Data using Weighted Sums and Averages
Unit 8: Analyze Numerical Data to validate identification numbers
Unit 9: Analyze Venn Diagrams and tree diagrams to determine probabilities
Unit 10: Analyze probabilities involving everyday events and decisions
Unit 11: Analyze expected values for mathematical fairness
Unit 12: Investigate data, analyze for accuracy and bias
Unit 13: Analyze the appropriateness and usefulness of graphical displays
Unit 14: Investigate sources of statistical bias and variability
Unit 15: Study recursion relationships in data and various representations from linear models.
Unit 16: Study recursion relationships in data and various representations from exponential models
Unit 17: Study recursion relationships in data and various representations in data and various representations with rate of change
Unit 18: Study recursion relationships in data and various representations from cyclical models
Unit 19: Study regression relationships in linear and nonlinear functions
Unit 20: Study regression relationships in cyclical functions
Unit 21: Study regression relationships in linear, nonlinear and cyclical functions
Unit 22: Develop networks and graphs to solve real-world situations.
Unit 23: Develop graphs and spanning trees to solve real-world solutions
Unit 24: Create maps conforming to coloring properties.
Unit 25: Analyze activity graphs using Program Evaluation and Review Technique (PERT) charts

Six Weeks Grading Policy:

50%   Classwork/Homework/Mini Projects

30%   Major Grades (Tests, Quizzes, Major Projects)

20%   Daily Grades/participation

Homework:

Expect to have AT LEAST 5 homework assignments per cycle and at least 1 mini and 1 major project per semester. Attempt ALL assignments and put forth your best student scholar effort. SHOW work as appropriate and when applicable – "*No work, no credit*" (NWNC). Attempting all in-class and homework problems as well working on projects as appropriate will have a positive correlation with higher quiz and test grades. *Any work not turned in will result in a zero and will have a detrimental impact to students' grade*.

Absences:

If you are absent, **it is your responsibility** to discuss make-up work with your teacher.

1. If you are absent the day an assignment is **due**, it must be turned in the first day you return.

2. If you are absent the day an assignment is **assigned**, it will be due the following day you return to class after the assignment is received.

Class Materials:

Each student must maintain an AQR notebook for study and documentation. Every student must bring a fully charged laptop to the class every day. All returned work should be placed in the notebook within the specific section, not loosely in binder or backpack. The supplies needed are:

1. Three-ring binder w/ paper	4. Colored markers/ highlighter (optional)
2. Or Spiral Notebook	5. Fully Charged Laptop
3. #2 pencils	6. TI-82+/Scientific Calculator (optional; not needed)

Note: If you know that you will have difficulty acquiring these materials, please notify me IMMEDIATELY. Do not wait! We will come up with a solution for you to obtain the required supplies in a reasonable amount of time.

Classroom Projects:

A major project and some minor projects will be assigned each semester. Projects are group or individual depending on the topic. Students will be awarded a Major grade for the projects

Calculator:

A TI-84 Plus will be used in the classroom. A classroom set of calculators may be used while in class – each one assigned by number. Students may also be encouraged to download the calculator app on their laptop.

Classroom Norms:

- ✓ Be respectful to everyone and yourself
- ✓ When virtual, please remember to mute your microphones and be mindful of your surroundings
- ✓ Be on time – Tardies are unacceptable
- ✓ Be well prepared – Bring **adequately charged Laptop and all class materials daily**
- ✓ Follow oral and written directions
- ✓ Put forth your **best EFFORT;** always.
- ✓ No cell phone use during class time. Your phone will be confiscated if you use them while class is in session. Parent conference may be required for non-compliance.
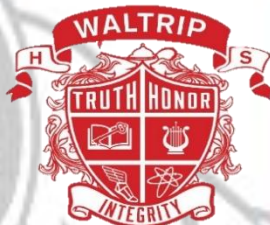
Advanced Quantitative Reasoning
Course <u>Student and Parent</u> Signature Form

I have read and discussed the **Advanced Quantitative Reasoning Syllabus** and accept responsibility for meeting these expectations in class. Please complete all lines of this form.

_____

Student Name (print)   Date

_____

Student Signature   Date

_____

Parent/Guardian Signature   Date

Parent/Guardian daytime phone _____ (work) _____ (cell)

Relation to student: _____

Parent/Guardian's e-mail address: _____