Course Overview
The History of Mathematics class aims to give seniors an understanding of the development of mathematics as an international, ongoing endeavor of the human imagination. To emphasize the imaginative quality of mathematical progress, this class will focus on the historical context of the great mathematical thinkers.

This class will utilize as a guide Victor Katz’ *A History of Mathematics* and will depend much more on reading assignments and class discussion than the average math class.

ASSESSMENTS

- **TESTS**
  In addition to frequent reading quizzes, a test will be given after each major topic to ensure mastery of concepts. Students will be tested on their knowledge of the relevant history, challenged to apply mathematical techniques of the era, and prompted to respond to short-answer analysis questions.

  Students’ notebooks are also graded on neatness, completeness, and organization, and these will factor into their test score.

- **Mid-Term/Final**
  A semester exam will be given at the end of the first semester (Mid-Term) and is cumulative to the beginning of the year and again at the end of the year (Final) which is also cumulative to the beginning of the year. 20% of the semester grade is from the mid-term and final grade.
  As a class which fuses elements of the humanities with those of math, one half of the Mid-Term and Final exams (10% of the semester grade) will consist of a research project—two projects total; one for each semester. The student will choose one major mathematician and groundbreaking development from the periods studied in that semester and write a 3- to 5-page research paper. The student will also present his or her findings to the class, just as mathematicians present new and exciting proofs to their colleagues.

Semester Grades
The semester 1 grade is calculated by:
40% Quarter 1
40% Quarter 2
20% Mid-term
The semester 2 grade is calculated by:
40% Quarter 3
40% Quarter 4
20% Final

LESSONS
Normal lessons will consist of a lecture based on the reading assignment and discussion of the material (i.e. historical mathematical techniques and their place in society). The class will proceed according to this outline:

Quarter 1
Ancient Mathematics
- Egypt & Mesopotamia
- Early Greek Mathematics
  o Plato, Aristotle
  o Euclid
  o Archimedes & Apollonius
  o Ptolemy
  o Nicomachus, Diophantus, & Pappus

Quarter 2
Medieval Mathematics and the Beginnings of Internationalization
- Indian Mathematics
- Islamic Mathematics
- European Mathematics

Quarter 3
Early Modern Mathematics
- Renaissance Algebra
- Practical Needs for Mathematics
  o Navigation & Geography
  o Astronomy
- 17th Century Development of Algebra, Geometry, & Probability
- Beginnings of Calculus
- Newton & Leibniz

Quarter 4
Modern Mathematics
- 18th Century Development
  o Analysis
  o Probability & Statistics
  o Algebra & Number Theory
  o Geometry
- 19th Century Development
Analysis
Probability & Statistics
Algebra & Number Theory
Geometry
- Current and Future Mathematics

GRADING POLICY
Assessments.................................................................35% of the quarter grade
Participation.................................................................30% of the quarter grade
Homework/Classwork....................................................35% of the quarter grade

GRADING SCALE
Benjamin Franklin High School utilizes the following grading scale:
• 90 - 100% A
• 80 - 89% B
• 70 - 79% C
• 60 - 69% D
• 0 – 59% F

HOMEWORK POLICY
Be prepared for a homework assignment every night including weekends and holidays. Homework shall consist mainly of reading assignments, every one of which is subject to verification via a short reading quiz (35% of the quarter grade).

ABSENT AND LATE WORK
It is required that all assignments be completed. All students shall be provided two days for each day of absence to make up missed assignments. Work not completed by the assigned time shall be considered late.

PARTICIPATION
From Mr. McAfee:
The term class participation is a bit of a misnomer. A more accurate term might be “Student Engagement” or “Scholarship.” One of the greatest gifts we can bequeath to our students is the skill set that will set them up for success in their future academic endeavors. Consequently, this grade consists not only of participating in classroom discussions, but also: coming to class prepared, listening attentively to the teacher and other students when they are speaking, having a good attitude, being on task, asking quality questions, delivering quality and thoughtful answers, etc. When a student employs these techniques and is incentivized to do so, their academic skill set improves and thus they experience success.

I want students to participate so they can learn from each other. We know that active involvement in learning increases what is remembered, how well it is assimilated, and how the learning is used in new situations. In making statements to peers about their own thoughts on a class topic, students must articulate those thoughts and also submit them to (hopefully constructive) examination by others. In listening to their peers, students hear many different ways of interpreting and applying class material, and thus are able to integrate many examples of how to use the information. Especially in a course that stresses application of material, extensive
participation in class discussions is an essential element of students’ learning.

Our job as educators is to take students – whatever level they may be – and move them forward. We use time honored and tested techniques to do so. College-prep schools that employ the Socratic Method also follow this formula – because it works!

What is a Class Participation Grade?
- Bringing required materials to class
- Frequency and Quality of participation
- Prepared for classroom discussions due to having done his/her reading/studying
- Relevant comments based on assigned material
- Group dynamic is improved by student’s presence
- Engaged in classroom discussion and able to give cogent answers when called upon
- Does not disrupt class and classroom discussion
- Any notes that are required are complete and neat
- Comments in class and possible disagreements with the teacher and other students are handled with maturity and sensitivity
- Shows an interest in and respect for others’ contributions

What Participation IS NOT
- Raising of the hand in an attempt answer every question whether or not you have anything of quality to offer
- Interjecting in class discussion purely to be “seen” or “counted”
- Talking incessantly, rambling or making tangential comments

What takes away from Class Participation?
- Coming to class ill prepared
- Being disrespectful to students or staff
- Disrupting the learning environment by actions or talking out of turn
- Belittles the opinions of others
- Not following the conversation and thus is not prepared to answer questions when called upon or is off topic
- Discourages and disrupts others that are attempting to participate
- Not taking notes
- Not having homework complete and thus not able to contribute to class discussion of said homework

In History of Mathematics class, each student begins with 240 out of 300 possible Participation points. This is a low B. Points are awarded and deducted based on the student’s participation. Students are permitted, and indeed encouraged, to communicate openly and directly with Mr. Duttlinger about their Participation grades.

REQUIRED MATERIAL
Each day, each student should bring:
- Several Pencils and/or Pens (blue or black ink) - for taking rigorous notes.

- Led (if pencils are mechanical)

- Erasers

- Red Correcting Pens

- 3-Ring Binder for well-organized storage of handouts and notes (Students are required to have a 3-ring binder for handouts) and, optionally, an additional notebook for the student’s notes (e.g. spiral ring)

- White, Lined, College-Ruled Paper

- At least a scientific calculator (says "Scientific" on the packaging, available at any Wal-Mart or similar store for around $15).

INSTRUCTIONS & PROCEDURES

· Upon entering the classroom, the student shall immediately follow entering procedures, and prepare for a possible quiz. When finished, the student shall produce the reading assignment and prepare to discuss and take notes.

WEEBLY

The teacher website is www.bfhsduttlinger.weebly.com. This website was created to keep both parents and students informed. On the website there is a contact form for Mr. Duttlinger, the school calendar, and other important information. However, the website is not the final word on class happenings, nor is it designed to be a crutch that students may lean on in order to miss class without consequence. History of Mathematics class is not terribly complex, and there is a clear, predictable rhythm to the homework assignments and our path through the material. Anything said in class or written on the board supersedes anything that may or may not be written on the website, and the website is subject to change without notice at any time.

Mr. Duttlinger's History of Mathematics Syllabus

Your signature below verifies that you have read and understood the course requirements, procedures, and policies: