

Texts: *Journey Through Genius*, William Dunham, Penguin 1991
Math Through the Ages, Berlinghoff and Gouvea, Oxton House Publishers, 2002

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Office Hours:
 Mon 10:00 – 11:00
 Tue 2:00 – 3:00
 Wed 10:00 – 11:00
 Fri 10:00 – 11:00, 2:00 – 3:00
 Other times gladly by appointment

Course Description :

Throughout this semester we will study mathematics topics from a historic point of view. The topics, for the most part, should be familiar so we will focus our discussion on historical contexts and connections. Specifically, our goal is that this course will

1. Expose you to the human side of mathematics and its development. Mathematics has always been part of human cultures, but its role has changed throughout history.
2. Provide you with an overview of mathematics, so you can see how your various courses fit together and where the important ideas come from.
3. Improve your written and oral communication skills in the context of mathematics.
4. Teach you how to use the mathematics material in the library and on the internet.
5. Raise your awareness of how you might use the history of mathematics in your future teaching (for those of you pursuing this route).
6. Introduce you to contributions of female and non-western mathematicians to the mathematics discipline.

This course will be run primarily in a seminar style, which places a great deal of responsibility on you. I expect that you will keep up with reading assignments, turn papers and other work in on time, organize your presentations in a responsible way, and participate fully in class discussions. The quality of your experience in this course depends on *everyone* striving to meet these expectations

Assessments:

1. Two presentations – based on chapters from *Math Through the Ages*
2. One paper – research on a math topic
3. Four tests – two on *Math Through the Ages*, two on *Journey Through Genius*
4. Book notes – one page of typed notes and 2 “exam” questions for each chapter of *Journey Through Genius*
5. Final Exam – covers it all!

Grading: There are nine assessments. I will drop the lowest grade of the nine and average together the other eight to obtain your grade for the course. The letter grade for the course is then determined on a 10-point scale:

Grade	A	A-	B+	B	B-	C+	C	D	F
Starts	93.3	90	86.7	83.3	80	76.7	70	60	0

Accommodations for Learning Disabled Students. Students who have registered with the Office of Social Equity as learning disabled and desire instructional accommodations should notify me.

Requirements for Presentations, JTG Notes, and Papers

Group Presentation Guidelines

- Presentations should be planned to last between 17 to 22 minutes. You will be asked to stop after 25 minutes regardless of whether you are done or not.
- Each person in the group should equally participate in the presentation.
- Prior to the class when you will present, make sure that your PowerPoint presentation is compatible with the computer in MCT262.
- Presentations must use PowerPoint in an effective way. Presentations must include some information or resource not directly from the book chapter.
- Presentations must engage the class in some activity or discussion (don't let this get out of hand).
- Presentations must include references and a timeline. (You don't need to spend time talking about these, but they are important for people studying your presentation later online.)
- On the same day as your presentation, send me:
 - The PowerPoint file *Chapter X Presentation.ppt* (or .pptx) for your presentation.
 - A Word document *Chapter X Presentation.doc* (or .docx or .rtf) containing
 - A paragraph briefly describing the contributions of each group member.
 - Five “exam” questions related to this chapter. The format for these questions should be True/False, Multiple Choice, Short Answer, or Matching. Don't forget to include answers to the questions!

Book Notes Guidelines

1. We will cover “The History of Mathematics in a Large Nutshell” during two classes. We'll cover pp 5-34 then pp 35-60.
2. We will cover *Journey Through Genius*, one chapter per class period, for 12 classes.
3. At the beginning of class on the day we cover a particular chapter, you are to hand in one typed page of notes for that chapter.
4. At the end of your notes, include two “exam” questions for that chapter.
5. Please allow yourself at least 3 solid hours to read a chapter, write up notes, and create questions.
6. Each page of notes will be graded out of 5 points. I will consider
 - Thorough coverage of chapter material
 - Organized notes – uses outline format
 - thoughtfulness of questions.

(over)

Research Project Guidelines

The purpose of this assignment is to research a very narrow topic, find all the resources you can, then report on those resources. Ideally, the topic is too narrow to be the subject of an entire book, but can be found in journal articles and in book chapters.

1. Choose a topic from the list below or suggested a topic to me for my approval.
 2. Start gathering all the sources you can find on this topic – books, websites, journal articles, etc. Make copies/printouts of your sources (the relevant parts). This may run anywhere from 15-100 pages. During this process, you'll probably want to modify your topic, based on what you can find and what interests you. Internet sites may be ok, but you must seek out non-internet sources. Search our library bookshelves, use interlibrary loan, use the library databases to find journal articles, and so forth.
 3. The write up
 - a. A page listing all your sources. By each source, write a sentence or two summarizing its content
 - b. Describe the process you used to gather sources. How did the gathering of sources influence your ultimate choice of topic?
 - c. Compare your sources: do any seem more/less trustworthy than the others? why? What do they have in common? What are the differences? How do they relate to each other? Are there any contradictions between sources? etc...
 - d. Summarize your findings. Your summary should run 800 – 1200 words (this is about 3 pages double-spaced).
 - e. Include a paragraph or two of "Personal Reflection." What surprised you? What bored you? What will you take away from this project? etc.
 4. Turn in to me:
 - a. A binder with the copies/printouts you made of *relevant* sources.
 - b. Your write-up in electronic form *Lastname Paper.doc* (or .docx or .rtf)
- References, citations, and footnotes should follow MLA guidelines as taught by the English Department. See the library's instructions for citing web pages (<http://www.ship.edu/~library/instruction/citing.html>)
 - Plagiarism of any form will not be tolerated. Students who submit another person's work as their own will be reported and dismissed from class.

Possible Topics

- History of perfect numbers
- History of the binomial theorem
- History of prime numbers
- History of the quadratic equation
- History of probability
- History of combinatorics
- The mathematics of early astronomy
- Geometry vs. arithmetic in ancient Greece
- The Goldbach Conjecture
- History of Calculus Textbooks, including work by Maria Agnesi.
- Fermat's Last Theorem, including work by Sophie Germain
- The Riemann Hypothesis
- Comparison of algebra texts: The turn of the century and today
- How new was the new math?
- American mathematics prior to 1875
- The influence of social needs on the uses of mathematics
- The history of math education
- How our view of the early history of mathematics has changed in the last 100 years
- The dark ages were dark for mathematics
- Female mathematicians in theoretical physics - Emmy Noether
- The changing notion of function
- The calculus priority dispute
- The history of linear programming
- The history of numerical analysis
- The history of statistics
- The history of statistics in sports
- Women in the area of computer science
- Navigation and mathematics
- Mathematics of calendars
- History of Hindu mathematics
- History of Japanese mathematics
- History of Chinese mathematics
- History of Islamic mathematics

Presentation Assessment Rubric

Presenters: _____ **Chapter** _____

The following rubric will be used to evaluate each presentation. This is a group grade.

_____ (8)	Presentation is prepared and delivered with all accompanying material on the assigned due date.
_____ (4)	Presentation was the appropriate amount of time.
_____ (6)	Presentation shows evidence of collaboration and shared understanding. (Collaboration paragraph, equal parts presented, and smooth transitions between speakers are sources of this type of evidence.)
_____ (6)	Presentation makes use of available materials and resources, and references are given. Additional information beyond what is in the book and references beyond a few quickly found web pages shows the effort that you put into the presentation.
_____ (6)	The presentation is well organized, the topic is thoroughly covered, and concepts are conveyed with sparkling clarity.
_____ (6)	Class is engaged in some activity or discussion relevant to the subject matter of the chapter. Directions, illustrations, and handouts are correct, clear, and appropriate to illustrate the mathematical concepts.
_____ (4)	Timeline has enough detail to be understood independently of the presentation.
_____ (6)	Test questions are correct, following the required format guidelines, clearly written, and appropriate for the chapter of the book.
_____ (4)	Intangibles for particularly effective presentations.
_____ (50)	Total Score