

## **MATH 350: History of Mathematics (Spring 2005)**

MWF – 12:00-12:50 in Ambrose 001

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### Overview:

This course will provide students with a general history of the important concepts, problems, and people in mathematics.

Some of the topics that will be covered:

1. What is math? Was math invented or discovered? What topics/content areas fall under “mathematics?”
2. Famous mathematicians: Who was he or she? What did he or she do? Why should we care? What impact did that person have on the field of mathematics? How was the math that this person practiced different from what we practice today?
3. Important math problems: Summarize a historically important math problem. Why is it famous? Who created the problem or the solution? How was it solved?
4. Important math concepts: Identify an important discovery/invention in math (pi, natural log, derivative, infinity, zero, probability, Pythagorean Theorem). How was this concept discovered/invented? Did this concept lead to any other important discoveries?
5. Math culture: Describe the mathematics of another culture (present or ancient cultures: Babylonian, Egyptian, Chinese, Piraha tribe of Amazonian Indians in Brazil). How do/did their mathematics (concepts, strategies) differ from ours?
6. Math education: Describe the main movements in the history of math education. How do today’s teaching methods differ from yesterday’s methods? Have math standards increased or decreased over the years? Has mathematics achievement increased or decreased? How do other nations teach mathematics to their youth? What is (or should be) the role of calculators in mathematics?
7. Modern mathematics: Identify a relatively new topic, problem, or concept in mathematics.
8. Technology in math: How have technological advancements changed mathematics? What single technological advancement has had the greatest impact on mathematics?

### Required Materials:

*Math Through the Ages: A Gentle History for Teachers and Others (Expanded edition)* (ISBN: 0-88385-736-7)

This textbook starts off with “The History of Mathematics in a Large Nutshell,” a chronological history of mathematics from its beginnings in ancient Egypt and Mesopotamia to the development of computers in the late 20<sup>th</sup> century. Additionally, this textbook provides capsules of the histories of a variety of topics, such as zero, algebraic symbols, the Pythagorean Theorem, trigonometry, and statistics. The book covers five main topics:

1. Numbers and numerical notation (1-6, 17)
2. Algebraic concepts (8-11, 13, 16, 17)
3. Geometric ideas (7, 12, 14-16, 18-20)
4. Probability & Statistics (21, 22)
5. Logic, computers, set theory (23-25)

### Prerequisites:

The written prerequisite is MATH 192. Your individual interests and goals will determine what you learn in this course.

### Course Procedures:

This course will primarily be student-driven. The specific topics we will learn depend on the interests of the students in the class. I envision the class following the following procedures:

1. General History: As a class, we will discuss the general history of mathematics. Specifically, we will attempt to figure out what math is and how it has developed over the course of history. We will also attempt to identify future trends in mathematics.
2. Textbook Summaries: Each student will be responsible for the content in three chapters of the textbook. You will develop a written summary of the chapter, answering the questions provided by the text, and prepare a presentation of the material. The goal is to present to the class a summary of the chapter along with some reason why they should care. The presentations can take a variety of forms, but I expect at least one presentation to be “formal” (involving some kind of visual display or handouts). The rest of the class (who will read the chapter before the presentation) will participate in a discussion of the topic.
3. Projects: Each student will also be responsible for completing three projects on the history of mathematics. Topics for these projects may come from the list at the top of this page or from other sources (get my permission first). Potential outputs from these projects include, but are not limited to papers and presentations. Again, I will expect one of these projects to represent your best effort.

Student Evaluation:

Your grade in this course will be based on:

20% = Participation (attendance; participation in class discussions)

30% = Textbook summaries (while you may share topics, you each have to do one unique chapter)

50% = Projects

You will be allowed to correct/modify/resubmit each project and textbook summary once.

Plagiarism:

Don't cheat. Review the Policy on Academic Dishonesty in the University Catalog. Since I doubt you actually will review the policy, let me remind you to:

1. Cite your sources. If you take any information or direct quotes from a source, give that source credit. I'm not looking for any specific style of citation (footnotes, endnotes, sidenotes) – just make sure you're not taking credit for others' ideas.
2. Do not plagiarize. While I do expect you to research the topics, I want the projects and textbook summaries to come from your personal point-of-view.

Accommodations:

Students with disabilities who believe they may need accommodations in this class are encouraged to contact the Office of Services for Students with Disabilities at 333-6275 as soon as possible to better ensure that such accommodations are implemented in a timely fashion.

Monday		Wednesday		Friday	
		1/19	Course Overview Syllabus Review	1/21	Chapter Selections
1/24	What is math? General History Invention vs. Discovery	1/26	Mathematics Map	1/28	Mathematics Map
1/31	Joe – Chapter 1 Derek – Chapter 2	2/2	Justin – Chapter 3 Ingrid – Chapter 4	2/4	Project Meetings
2/7	Kelly – Chapter 5 Curt – Chapter 6	2/9	Matt – Chapter 7 Ben – Chapter 8	2/11	Project Meetings
2/14	John – Chapter 9 Mary Kate – Chapter 10	2/16	Phyllis – Chapter 11	2/18	Project Meetings
2/21	<b>Project: Joe</b>  <b>Project: Derek</b>	2/23	<b>Project: Justin</b>  <b>Project: Ingrid</b>	2/25	<b>Project Evaluations</b>
2/28	<b>Project: Kelly</b>  <b>Project: Curt</b>	3/2	<b>Project: Matt</b>  <b>Project: Ben</b>	3/4	<b>Project Evaluations</b>
3/7	<b>Spring Break</b>	3/9	<b>Spring Break</b>	3/11	<b>Spring Break</b>
3/14	<b>Project: John</b>  <b>Project: Mary Kate</b>	3/16	<b>Project: Phyllis</b>  <b>Project: ???</b>	3/18	<b>Project Evaluations</b>
3/21	Work on chapter summaries Determine topics for next project (Group work?)	3/23	Work on chapter summaries Determine topics for next project (Group work?)	3/25	<b>Good Friday – No class</b>
3/28	<b>Easter Monday – No class</b>	3/29	Joe – Chapter 12 ??? – Chapter 13	4/1	Project Meetings
4/4	Ben – Chapter 14 John – Chapter 15	4/6	Ingrid – Chapter 16 Kelly – Chapter 17	4/8	Project Meetings
4/11	Justin – Chapter 18 ??? – Chapter 19	4/13	??? – Chapter 20 Derek – Chapter 21	4/15	Project Meetings
4/18	Matt – Chapter 22 Mary Kate – Chapter 23	4/20	Curt – Chapter 24 Phyllis – Chapter 25	4/22	Project Meetings
4/25	<b>Project: Joe</b>  <b>Project: Ben</b>	4/27	<b>Project: John</b>  <b>Project: Ingrid</b>	4/29	<b>Project: Kelly</b>  <b>Project: Justin</b>
5/2	<b>Project: Derek</b>  <b>Project: Matt</b>	5/4	<b>Project: Mary Kate</b>  <b>Project: Curt</b>	5/6	<b>Project: Phyllis</b>  <b>Prepare for final</b>