

Course Outline
Math 308 - Historical Development of Mathematical Concepts and Ideas
Spring 2007

Instructor: Prof. John A. Pelesko

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Course Web Pages: www.math.udel.edu/~pelesko

Meeting Times: MWF 11:15-12:05

Office Hours: MWF 10:00-11:15 or by appointment.

This is a course in the history of ideas, specifically the key ideas and concepts of mathematics. We will examine these ideas by reading the *primary literature* on a range of topics. This course will put you in touch with the great minds of mathematics – not filtered through intermediaries, but directly. We will read selections from mathematicians such as Archimedes, Laplace, Fourier, Newton, and Turing. It will not always be easy going; but you can expect to sharpen and refine your reading skills. In addition to reading, you will be writing and speaking about mathematical ideas and the people behind them. By the end of the course you should have the confidence and skills to trace the history of a mathematical idea through the mathematical literature on your own.

If you choose to take this class you will need to:

- *Read regularly and critically* – While there is no text for this course, reading is central to your success. You will have notes that I prepare, references from your classmates, yourself, and me. In most cases you will be reading the primary mathematical literature on a subject. This is not easy reading! You will most likely have to work to develop your reading skills. In order to master these skills it is necessary that you read regularly and critically.
- *Write* – Forty percent of your grade in this class is based on writing assignments. These form the heart of this course. You should start early, research your work thoroughly, and take advantage of every opportunity you have to revise and edit your work. In addition to writing about topics, you will often lecture on topics. Between the written assignments and your lectures, 65% of your grade is accounted for.

- *Attend Class* - If you choose to take this class, you'll need to attend. Don't decide to take this class without committing yourself to attending each and every class.
- *Complete Problem Sets and Exams* – You will have homework assignments, quizzes, and exams based on the material presented by your classmates and myself. The due date for each homework assignment is firm; no late homework will be accepted. You should write your answers clearly. If I cannot understand an answer, it is wrong.

Tentative Schedule:

Exam dates are firm.

Date	Key events & topics
2/7	Orientation and introduction to course.
2/9	Reading (Selection from Euler should be read prior to this class.)
2/12	Writing, Assignment #1 Email Response Due
2/14	Speaking
2/16	Selected Readings
2/19	Selected Readings, Assignment #1 Formal Response Draft Due
2/21	Selected Readings
2/23	Selected Readings
2/26	Student Presentations, assignment #1
2/28	Student Presentations, assignment #1
3/2	Exam #1, Assignment #1 Formal Response Due
3/5	Student Presentations, assignment #1
3/7	Student Presentations, assignment #1
3/9	Student Presentations, assignment #1
3/12	Selected Readings
3/14	Selected Readings
3/16	Selected Readings
3/19	Selected Readings
3/21	Selected Readings
3/23	Selected Readings
3/26-3/30	Spring Break (Math History contest deadline 3/31)
4/2	Selected Readings

4/4	Selected Readings
4/6	Selected Readings, Assignment #2 - Part One Due
4/9	Exam #2
4/11	Selected Readings
4/13	Selected Readings, Assignment #2 - Part Two Due
4/16	Selected Readings
4/18	Selected Readings
4/20	Selected Readings
4/23	Selected Readings
4/25	Selected Readings
4/27	Assignment #2 - Part Three Due
4/30	Student Presentations
5/2	Student Presentations
5/4	Honor's Day, no class
5/7	Student Presentations
5/9	Student Presentations
5/11	Student Presentations
5/14	Student Presentations
5/16	Assignment #2 - Due, Exam #3 (Last day of class)

Assessment: Your final grade will depend on each of the components in the course. In particular,

Writing Assignments	40%
In-class exams (3 X 8 1/3%)	25%
Presentations (2 X 12 1/2%)	25%
Homework & Quizzes	10%

Resources: There are many resources available to you as you conduct your research for your writing assignments. Check the class web page for Internet resources. Some particularly valuable books are:

1. *God Created the Integers*, edited by Stephen Hawking
2. *The World of Mathematics*, by James R. Newman
3. *Mathematical Thought from Ancient to Modern Times*, by Morris Kline
4. *The Works of Archimedes*, edited by T.L. Heath
5. *A History of Greek Mathematics*, by T.L. Heath

Math History Competition: Each year, the History of Mathematics Special Interest Group of the Mathematical Association of America sponsors a

student paper contest in the history of mathematics. This contest is open to all undergraduate students. The entry date of March 31 fits nicely into our semester. I will encourage all of you to enter this competition. A win would look great on your resume (and probably guarantee an A in the course)!