

Math 3510-021: History of Mathematics

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Summer II 2008

History and philosophy of mathematics are very interesting. They are also important. It is clear to me that our knowledge or ignorance of these affects our teaching. Here are some of the things I have learned by studying the history and philosophy of mathematics:

- History does not lead to us.
- There is more than one way to do it.
- Everyone does mathematics.

You may come away with very different conclusions than mine. In any event I hope studying history is as fun and as useful for you as it has been for me.

Text and other resources

I have chosen a book written primarily with teachers in mind: *Math through the Ages* (expanded edition), by W Berlinghoff and F Gouvêa. It begins with a quick overview of mathematical history, with primary emphasis on western culture. The main part of the book is a series of short, in-depth sketches of important mathematical developments.

Other resources:

- MacTutor: <http://www-history.mcs.st-and.ac.uk>
- Wikipedia: <http://wikipedia.org>
- V Katz, *A History of Mathematics*, Addison-Wesley, 1998.
- V Katz, *Using History to Teach Mathematics*, Math Assoc of America, 2000.
- GG Joseph, *The Crest of the Peacock*, Princeton Univ Press, 2000.

There is also a section “What to read next” at the end of the text.

Outline

The first day we will look at a useful tool for placing historical events in context: the space-time plot. This is an idea borrowed from Otto Neugebauer. It helps organize in our minds a jumble of names, dates, and events.

The remainder of the first week we will get a sweeping overview of mathematical history from the text's "History of mathematics in a large nutshell". We will draw many space-time plots to help us keep our bearings in this whirlwind.

The remaining 20 days of the course will be devoted to the 25 historical sketches in the text's second part.

Quizzes

Every day there will be a 5-point multiple-choice quiz based on the assigned reading. Every day in class I will assign the next day's reading.

Your 20 best quiz scores will count towards your final grade. I will not give make-up quizzes under any circumstances.

Assignments

I will assign 2 or 3 problems from each of the 25 historical sketches. These may require that you investigate beyond the text, using other resources such as those listed above. You will be required to present 5 problems at the blackboard. Your presentations must include a space-time plot, to help us put your presentation in context. After your presentation we will have a period for questions.

Each presentation is worth 40 points, for a total of 200 points. Your participation in all of the question/answer periods is worth another 100 points.

Final exam

There will be an optional, comprehensive final exam, worth 200 points, on Thursday, 31 July, 2:00–4:00pm, UHall 5260.

Office hours

I will be in my office, UHall 4080e, Monday–Thursday, 4:15–5:15pm. You can either call or stop by. My phone number there is 419-530-2975. My email address is paul.hewitt@utoledo.edu.

Grades

Your final grade will be determined by the percentage of total points earned, on the following scale:

A: 90%, B: 80%, C: 70%, D: 60%.

I give '+' and '-' grades only sparingly.