

## Mathematics 3810H – Ancient and classical mathematics

TRENT UNIVERSITY, WINTER 2020

### Project

*Proposal due on Thursday, 30 January.*

*Project due on Friday, 17 April.*

**Format.** Essays are probably the most straightforward format available to you for the project, but I am willing to consider non-essay formats if you wish to try one. (Some formats that have been successfully attempted in the past include, among others, high-school lesson plans, scrapbooks, posters, and video presentations, with appropriate supporting materials in each case.) Just be warned that non-essay formats are generally harder to carry off well than essays, and should be discussed with me before putting a lot of effort into pursuing them. You are also permitted to do your projects in groups, but be warned that I will expect more from group than individual projects.

The minimum length for an individual essay project ought to be about 2000 words (approximately eight typed pages), and I do expect decent grammar, spelling, and style. I'm not fussy about formatting and bookkeeping, such as how you handle footnotes and/or endnotes, so long as the result is consistent, complete, and readable.

**Proposal.** The proposal should describe the format of your project, give the title and the thesis or objective, a very general outline, and a preliminary list of sources that you intend to use. Note that it does *not* commit you to following through on any or all of this for your project, though once your proposal has been returned, you should probably run any really major deviations from what you proposed (or I suggested) by me for a sanity check.

**Topics.** Possible topics mostly fall into two categories, mathematical and historical, for which I have somewhat different expectations, described below. Either way, you should stick to topics which have a significant connection to the history of mathematics before about 450 A.D. If you have an idea for a topic that doesn't really fall into either category, please talk it over with me before starting serious work on it.

*Mathematics.* A project on a mathematical topic in MATH 3810H would most likely boil down to choosing some piece of mathematics done at some point before 450 A.D. and presenting it. For example, one might pick a problem and look at how people tried to solve it and what that led to. This would mean writing an exposition on the topic in question, with some historical background for context.

*History.* Projects on a historical topic could take a number of different tacks. The most straightforward would probably be a narrative of the activities and influence of some mathematician or group of mathematicians – which would necessarily involve describing some of their mathematics! – making due allowance for gaps and inconsistencies in the historical record and the difficulties of inferring whether some event or person affected another. For this sort of project, you could also compile a reasonable set of possible individuals or groups to work on by consulting the text. A variation on this theme which would come close to the mathematical sort of project would be to tell how some body of results or techniques evolved.

A more ambitious tack would be to look at how the development of mathematics influenced other things, such as the development of philosophy, or was itself affected by them. One cute variation on this would be to write an alternate history working out the effects of a change in some part of the history of mathematics. If you give this a go, do try to keep the change as plausible as you can!

In any case, the range of possible topics with a substantial connection to mathematics or its development before 450 A.D. is very large. The text has a decent account of the highlights of mathematics from this period, so feel free to check it for possible topics; a list of some other possibly useful places to start with is given below.

**Help.** Finally, I would be happy to look at and criticize outlines, fragments, and drafts of your proposal and/or project if you produce them early enough so that I have the time to read and think about them.

**Some possible places to start.** (This is *not* an exhaustive list!)

*Books:*

*The Heritage of Thales*, by W.S. Anglin & J. Lambek,  
Springer Verlag, New York, 1995, ISBN 0-387-94544-X.

*A History of Mathematics* (2nd edition), by C.B. Boyer and revised by U.C. Merzbach,  
John Wiley & Sons, New York, 1991.

*A History of Mathematical Notations*, by Florian Cajori,  
Dover Publications, New York, 1993, ISBN 0-486-67766-4.

(Originally published in two volumes by Open Court Publishing, Chicago, in 1928 and 1929.)

*Classics of Mathematics*, edited by Ronald Calinger,  
Prentice-Hall, New Jersey, 1995, ISBN 0-02-318342-X.

*The History of Mathematics*, by Roger Cooke,  
John Wiley & Sons, Inc., New York, 1997, ISBN 0-471-18082-3.

*An Introduction to the History of Mathematics* (3rd edition), by Howard Eves,  
Holt, Rinehart and Winston, New York, 1969.

*Mathematics in the Time of the Pharaohs*, by Richard J. Gillings,  
Dover Publications, New York, 1982, ISBN 0-486-24315-X.

*Mathematical Thought from Ancient to Modern Times*, Vol. I, by Morris Kline,  
Oxford University Press, New York, 1972.

*Mathematics in Western Culture*, by Morris Kline,  
Oxford University Press, New York, 1953.

*A History of Mathematics*, by Jeff Suzuki,  
Prentice-Hall, New Jersey, 2002, ISBN 0-13-019074-8.

*Journals:*

*Historia Mathematica*

Published by Elsevier. (Journal home page: <http://www.elsevier.com/locate/hm>)  
Available at Bata Library, in print and/or electronic form, depending on the issue.

Various general mathematics journals occasionally publish articles about the history of mathematics. Search!

*Online resources:*

Check the course web page for some possibly useful links.