M 330 – Fall 2013
History of Mathematics

General Information
Instructor: Dr. Hilary Risser
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Email: hrisser@mtech.edu

Office hours: MWF 2PM – 3PM
Other times by appointment

Course Materials and Objectives
Text: The Calculus Wars

Objective:
The objective of this course is to examine the historical development of mathematics. This course is not a “great proofs of mathematics” course. Instead, it is an examination of the people and events that have driven mathematical thought across cultures. The course will include information about both Western and non-Western developments in mathematical thought. The source material will include famous mathematical works, biographies of mathematicians, and histories (mathematical and otherwise).

During this course, we will aim to answer three major questions:
1. What is the relationship between mathematical and scientific/engineering/technological developments in a society?
2. What role do mathematicians play in the societies in which they live?
3. How is mathematics and/or the study of it viewed by societies over different time periods

Structure of the course:
The course is divided into four main sections
1. Ancient mathematical history – theory of numbers and computation
2. Ancient geometry – focusing on China, the Middle East, and Egypt
3. History of algebra – both ancient and modern from a variety of cultures
4. Development of calculus – both ancient and modern from a variety of cultures

Each week, I will assign readings for the week. Some will focus specifically on the mathematics while others will focus on historical events that influenced mathematical thought. Some weeks I will assign readings for you to complete. Other weeks, I will let you have a “Student’s choice” for the readings. During these weeks you will get to choose from a group of readings which one or ones to read based on your interests.

Assignments:
The only graded assignments will be edits you propose and/or make to Wikipedia entries on historical mathematics. For each section of the course, you will propose edits to four different Wikipedia entries on historical topics of your choice. At least one entry per section should concern a famous historical mathematician or mathematical work.
For the proposed edits, you are looking to make sure that the facts in the entry are correct and well supported. You are also looking to make sure that the entry puts the event/discovery/idea/mathematician in the broader context of both mathematical and social history.

Example of a proposed edit

Current version: The *Nine Chapters* is an anonymous work, and its origins are not clear.

Weakness: There is information on the reason for the uncertainty of the origins in Calinger's "A Contextual History of Mathematics". In 221 B.C. one of the emperors ordered many of the works from previous dynasties to be burned.

Proposed edit: The *Nine Chapters* is an anonymous work, and its origins are not clear. The uncertainty of the origin is due in part to the wholesale burning of books conducted in 221 B.C. by Shih Huang Ti of the Qin dynasty.

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**Grading:**

Each set of proposed edits to a Wikipedia entry will be worth 6 points. The points will be awarded according to the following rubric

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Above Standard</th>
<th>Standard</th>
<th>Below Standard</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of edits (2 points possible)</td>
<td>There are four or more edits proposed (2 points)</td>
<td>There are fewer than four edits proposed (either 0 or 1 point)</td>
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<tr>
<td>Reasoning provided for each edit (3 points possible)</td>
<td>The reasoning for making each edit is well supported. This should include a description of the error/omission and a possible source for better or more information. (3 points)</td>
<td>The reasoning for making 1-2 of the edits is not well supported. The error/omission is not well described and/or a source for better or more information is not provided. (2 points)</td>
<td>The reasoning for making more than 2 of the edits is not well supported. The error/omission is not well described and/or a source for better or more information is not provided. (either 0 or 1 point)</td>
</tr>
<tr>
<td>Citations (1 point possible)</td>
<td>All citations are correct (1 point)</td>
<td>Citations are missing and/or incorrect (0 points)</td>
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</tbody>
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Once you submit your edits for all four entries, I will return one of them (with suggestions of my own) for you to make the edits on. Making the edits will count for an additional point.

Proposed edits to sixteen Wikipedia entries @ 6 points each = 96 points
Edits made to four Wikipedia entries @ 1 point each = 4 points