MATH 400
Spring 2021
History of Mathematics

MW 4:30-5:45pm

Instructor: Rebecca R.G.

Prounouns: she/her/hers

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Office Hours: TBD, or email me to find another time to meet

Course Description: This course explores the history of mathematics across the world, from the 3rd century BCE to the present. It will contextualize mathematicians and mathematical discoveries in their larger intellectual and social settings. Sessions will include discussions of the historical context as well as explorations of historical problem-solving techniques from China, India, the Middle East, Europe, and the Americas. We will examine themes that include the materiality of mathematics, the ways we assign credit to and value the work of historical mathematicians, and how culture influences mathematical practices. Students will receive credit for Mason Core Synthesis.

Prerequisites: MATH 290.

Textbook: The History of Mathematics: A Very Short Introduction by Jacqueline Stedall, Oxford University Press 2012. ISBN-13: 978-0199599684.

We will also ask you to watch the movie Hidden Figures (2016) by April 21st.

For a couple of classes, you will need the following materials: a piece of string a few inches long after tying a knot in it, a straight edge or ruler

The following textbook is optional. We will use material derived from it, but you will not need it in order to complete the course work.

A History of Mathematics: An Introduction, 3rd Edition by Victor J. Katz, Addison-Wesley 2009. ISBN-13: 978-0-321-38700-4.

Final Examination: Wednesday, May 5th, 4:30-7:15pm. This exam will cover material from the whole semester. No makeup exams will be given without a documented excuse such as illness or emergency. In particular, travel plans are not a valid reason to miss the final exam.

Assignments: There will be a total of 600 points available during assignments throughout the semester.

Midterm 100

Final Exam 100

Course Participation 100

Unit Writing Assignments 90

Unit Problem Sets 90

Final project proposal 10

Final project presentation 10

Final Project 100

Grading Scale: 530-600: A
500-529: A-
470-499: B+
440-469: B
410-439: B-
380-409: C+
350-379: C
320-349: C-
250-319: D
0-249: F

Blackboard and Gradescope: All assignments, course information, and homework, quiz, and exam grades will be posted on Blackboard, and work will be submitted through Gradescope. Please check Blackboard and Gradescope regularly to ensure your grades have been recorded correctly and you are completing assignments on time.

Midterm Examination: In-class portion on Wednesday, March 10th, followed by take-home portion due on Sunday, March 14th. No makeup exams will be given; if you are ill or have some other emergency, talk to me as soon as possible about rebalancing your final grade.

Exam Rewrites: You will be able to earn partial credit back on the in-class portion of the midterm by redoing any problems or responses you got wrong, along with some additional problems/responses that demonstrate your knowledge of the material. More details will be given after the midterm.

Final Project: Each student must turn in a final project on a topic from the history of mathematics. This will take the form either of a 1500-1800 words (about 6-8 pages) paper or a plan to teach a unit on a topic in the history of math plus a detailed lesson plan for a 75-minute class that will be part of that unit. You must get your topic approved no later than a late March deadline TBD, and the final project is due at the start of class on Wednesday, April 28th. More details will be given in February.

Course Participation: Class time will consist of a mix of group work on problems that introduce and develop mathematical concepts and group discussion of what we can learn about historical cultures from class readings. You will be expected to work on problems together during class, and to participate during discussions. You will also earn some participation credit for activities outside of class such as attending office hours. Course participation will make up 100 points of your final grade.

On the first day of class we will set guidelines for participating effectively, and you will be expected to adhere to these guidelines.

Unit Writing Assignments: There will be a writing assignment for each unit that continues the discussion of the readings during class. These responses will be 300-500 words (1-2 pgs) and should explain what the readings reveal about the society in/about which they were written. Your writing will be graded on the strength of your arguments, the skill with which you deploy evidence in support of your thesis, and writing quality. You should cite any sources you use, though you are not required to find additional sources beyond the assigned readings. These responses will be submitted via Gradescope on the course Blackboard site.

Unit Problem Sets: There will be a homework assignment for each unit that continues the mathematical ideas we explore during class. Your write-ups of homework problems should be in full sentences, and should be written so that a classmate can follow your argument without prior knowledge of the problem. You may work together on the homework, but must write up your assignment separately and in your own words. Please list everyone you worked with on the homework and all sources you consulted. These responses will be submitted via Gradescope on the course Blackboard site.

Late Policy for Short Responses and Problem Sets: You have a 1-day grace period, after which the grade drops by $\frac{1}{2}$ point (or 1/3 of a letter grade) each day after that. For problem sets, there is a hard deadline of 1-week late (or sooner right before the midterm), after which the solutions will be posted and no further submissions will be accepted.

Electronic Devices: You will need a computer that can access Zoom, Blackboard, and other sites we use during class. You will need a microphone to communicate with your group during class, but a webcam is not required. You may find using a second device like a tablet or a phone with a touch-screen helpful for collaborating on mathematics during class.

Office Hours: You are strongly encouraged to come to office hours on a regular basis. If you cannot make my office hours, e-mail me to schedule an appointment at a different time. It is completely fine to do this.

Email Policy: Students must use their MasonLive email account to receive important University information, including communications related to this class. I will try to respond to all emails within 24 hours, or by 5pm on Monday for emails sent Friday afternoons or over the weekend. If 48 hours have passed and you have not received a response, send a follow-up email.

Students with Disabilities: If you have learning needs and have been evaluated or are in the process of being evaluated by Mason's Disability Services (http://ds.gmu.edu), please let me know so that we may make certain you are receiving the support you need.

Academic Integrity: By putting your name on your assignments, you are acknowledging the integrity of your work. If you have any questions about academic integrity, please either consult with me or go to https://oai.gmu.edu/mason-honor-code/

You are strongly encouraged to discuss the homework with your classmates and to work together. Please come to office hours to ask for help as well. However, everything you submit must be your own work, and should reflect your own understanding. Copying a problem solution or essay from a classmate, the internet, or any other source is a violation of academic integrity. If you have any questions about the difference between working together and copying, or how to cite your sources, please come talk to me.

Mandatory Reporting: As faculty members, we are designated as a "Responsible Employee," and must report all disclosures of sexual assault, interpersonal violence, and stalking to Mason's Title IX Coordinator per University Policy. If you wish to speak with someone confidentially, please contact one of Mason's confidential resources, such as Student Support and Advocacy Center (SSAC) at 703-993-3686 or Counseling and Psychology Services (CAPS) at 703-993-2380. The 24-hour Sexual and Intimate Partner Violence Crisis Line for Mason is 703-380-1434. You may also seek assistance from Mason's Title IX Coordinator by calling 703-993-8730 or email titleix@gmu.edu.

Tentative Class Calendar:

Dates	Topic
1/25	Introductions
1/27-2/1	Mesopotamia and the Pythagorean Theorem, 4500 BCE-600 BCE
2/3-2/17	Indian Mathematics, 1500 BCE - 1000 CE
2/22-3/8	Chinese Mathematics, 1500 BCE - 1000 CE
3/10	Midterm (in-class portion, the take-home portion is due 3/14)
3/15	Librarian Visit and Final project discussion
3/17-3/31	Islamic Mathematics, 600 CE - 1500 CE
4/5	American Mathematics, 1000 CE - 1600 CE
4/7-4/19	European Mathematics, 1000 CE - 1600 CE
4/21-4/26	Hidden Figures
4/28	Final Projects
5/5 (4:30-7:15pm)	Final Exam