

MATH360

STUDENT WARNING: This course syllabus is from a previous semester archive and serves only as a preparatory reference. Please use this syllabus as a reference only until the professor opens the classroom and you have access to the updated course syllabus. Please do NOT purchase any books or start any work based on this syllabus; this syllabus may NOT be the one that your individual instructor uses for a course that has not yet started. If you need to verify course textbooks, please refer to the online course description through your student portal. This syllabus is proprietary material of APUS.

Course Summary

Course : MATH360 **Title :** Mathematics History and Development

Length of Course : 8

Prerequisites : MATH320 **Credit Hours :** 3

Description

Course Description: This course will introduce students to the historical development of the disciplines of mathematics. Within the discipline of mathematics we will examine the development of numbers and number systems, geometry and measurement, algebra, probability and statistics, calculus, and discrete mathematics. Throughout this course students will study the history of mathematics and mathematics education through readings, case studies, and problem sets. (Prerequisite: MATH320)

Course Scope:

This course will take your current knowledge of mathematics and introduce you to the development of that mathematics over time and civilization. Up to this point you have been allowed to take that development for granted but no more. We will begin our journey in the Middle East over 4000 years ago and study the development of several topics including number systems, geometry, algebra, calculus and much more. We will cover a lot of information, but it will be important to focus on the development of many subjects over a long time to get a clear picture of how modern mathematics came to be. To help you see this picture you will do a lot of reading, problem sets and discussions and end in a culminating research paper and final exam.

Objectives

After successfully completing this course, you will be able to

- Describe the development of various areas of mathematics within and across various civilizations.
 - Examine the changing character of mathematics over time.
 - Examine historical questions.
 - Describe examples of significant applications of mathematics to commerce, science, and general life in the past and present.
 - Distinguish when the interpretations of the past are not always factual.
-

Outline

Week 1: What is the Mathematics?

Learning Objectives

CO-2

*Examine the purpose of the study of the history of mathematics.

*Evaluate the different ways of looking at the history of mathematics.

Readings

Text Readings:

Cooke, Chapters 1-2;

In Course Materials:

Read all materials in the lessons for week 1.

Assignment

Week #1 Forum Posts: Introduction

Week 2: The Middle East

Learning Objectives

CO-1, CO-2, CO-4

*Overview of Mesopotamian Mathematics

*Computations in Ancient Mesopotamia

*Geometry in Mesopotamia

*Egyptian Numerals and Arithmetic

*Algebra and Geometry in Ancient Egypt

Readings

Text Readings:

Cooke, Chapters 3 - 7;

In Course Materials:

Read all materials in the lessons for week 2.

Assignment

Week #2 Forum Posts: Base Systems and Surprises in Ancient History

Assignment #1:

Please submit under the assignments tab.

Week 3: Early Greek Mathematics

Learning Objectives

CO-1, CO-2, CO-3

*Overview of Ancient Greek Mathematics

- *Greek Number Theory
(Fifth-Century Greek Geometry)
- *The Classical Problems
- *Plato and Aristotle

Readings

Text Readings:

Cooke, Chapters 8 - 12;

In Course Materials:

Read all materials in the lessons for week 3.

Assignment

Week #3 Forum Posts: The Classical Problems

Week 4: Later Greek Mathematics

Learning Objectives

CO-1, CO-2, CO-4

- *Euclid
- *Archimedes
- *Apollonius
- *Hellenistic and Roman Geometry
- *Ptolemy's Geography and Astronomy
- *Pappus and the Later Commentators

Readings

Text Readings:

Cooke, Chapters 13 - 18;

In Course Materials:

Read all materials in the lessons for week 4.

Assignment

Week #4 Forum Posts: The Greeks were Amazing

Assignment #2

Week 5: India, China and Japan Middle East (Optional)

Learning Objectives

CO-1, CO-2, CO-4

- *Mathematics in India
- *Classics of Chinese Mathematics
- *Later Chinese Algebra and Geometry
- *Traditional Japanese Mathematics

Readings

Text Readings:

Cooke, Chapters 19 - 24;
Cooke, Chapters 25 – 27 (optional)

In Course Materials:

Read all materials in the lessons for week 5.

Assignment

Week 5 Forum Posts: If telephones existed in the past . . .

Week 6: European Mathematics

Learning Objectives

CO-1, CO, CO-4, CO-5

- *Medieval and Early Modern Europe
- *Renaissance Art and Geometry
- *Calculus before during and after Newton and Leibniz

Readings

Text Readings:

Cooke, Chapters 28 - 34;

In Course Materials:

Read all materials in the lessons for week 6.

Assignment

Week 6 Forum Posts: Newton vs Leibniz and Slide Rules

Assignment #3

Topic for Research Paper due on Monday

Week 7: Special Topics

Learning Objectives

CO-1, CO-2, CO-4

- *Women in Mathematics
- *Probability
- *Algebra
- *Projective and Algebraic Geometry and Topology
- *Differential Geometry
- *Non-Euclidean Geometry
- *Complex Analysis
- *Real Numbers, Series, and Integrals
- *Real Analysis
- *Set Theory
- *Logic

Readings

Text Readings:

Cooke, Chapters 35 - 45;

In Course Materials:

Read all materials in the lessons for week 7.

Assignment

Week 7 Forum Posts: Famous Mathematicians and Great Modern Discoveries

Research Paper Due: Rough draft due on **Monday**, Peer and Self Reviews due **Thursday**, Final draft due **Sunday**. Please submit all parts to the assignments area.

Week 8: Final Exam

Learning Objectives

Review and Assess *all* learning objectives.

Readings

Text Readings:

Cooke, Review all previous chapters

In Course Materials:

Read all materials in the lessons for week 8.

Assignment

Week 8 Forum Posts: Final Debriefing

Submit **Final Exam** by the end of the week.

Evaluation

Reading Assignments: Please refer to the Course Outline section of this syllabus for the weekly reading assignments or the lessons section in the classroom.

Forum Assignments: Under the forum link you will see at least one forum topic each week. The purpose of the forum is for us to have a class discussion over the topics we are learning about each week. This course is very discussion driven, so it is crucial to participate in the discussions each week. I have worked hard to set the forum up with topics worthy of our discussion, but if you find a topic you think we should discuss post it and start your own conversation just like you would in a classroom setting. Most topics will be much more enjoyable when discussed with others instead of just reading on your own. You will be required to post several times each week in a way that contributes to the discussion. Please see the grading rubric in the lessons section of the course and note that I will be grading the forums at a higher level than you may have seen in the past, as this is a 300 level course. Please see the directions on the forum and in the lessons for more information. Each week you will earn up to 25 points on the forum. Your forum participation will be 20% of your course grade.

Assignments: You will be required to complete three assignments that can be found in the assignments section of the classroom. There will be one due at the end of week #2, 4 and 6. Most of the problems will come from your textbook, so you will want to keep that handy and be sure to do your reading before you tackle the assignment. Each problem will be worth 10 points regardless of the difficulty level. There will be more than 15 problems on each assignment, so you will be required to choose the 15 problems you would like to submit. Please read the lesson and assignment section of the course for greater detail. You will need to download the assignment and complete it. Each assignment will cover two weeks worth of material and will be worth 150 points (15%). Your three assignments combined will be 45% of your course grade.

Research Paper: You will be required to write a 4 – 6 page paper in this course due at the end of week #7. You will choose a mathematical topic and describe its evolution through time. You will find more details in the assignments and lesson sections of the course. Your paper will be worth 20% of your course grade.

Final Exam: The final exam will be a cumulative exam with 14 short answer/essay questions. The questions will be similar to the ones on the assignments but more cumulative in nature. The final exam will be not be a timed exam. The exam will be open Monday – Sunday of week #8. You can access the exam as many times as like. You may be required to do some research to answer the questions completely. I expect you to access and work on the exam during the entire week, and I expect your work to reflect that kind of effort. You must submit your final exam by 11:55 PM ET on Sunday of Week #8. The Final Exam will be worth 15% of your course grade.

Please see the [Student Handbook](#) to reference the University's [grading scale](#).

Grading:

Name	Grade %
Forums	20.00 %
Week #1: Introduction	2.50 %
Week #2: Base Systems and Surprises in Ancient History	2.50 %
Week #3: The Classical Problems	2.50 %
Week #4: The Greeks were Amazing	2.50 %
Week #5: If telephones existed in the past . . .	2.50 %
Week #6: Newton vs Leibniz and Slide Rules	2.50 %
Week #7: Peer Review	2.50 %
Week #8: Final Debriefing	2.50 %
Assignments	45.00 %
APUS Honor Code and Pledge	0.10 %
Assignment 1: Chapters 1 - 7	14.97 %
Assignment 2: Chapters 8 - 18	14.97 %
Assignment 3: Chapters 19 - 24 and 28 - 34	14.97 %
Research Paper	20.00 %
Research Paper Topic	1.00 %
Research Paper: The Evolution of Mathematics	19.00 %
Final Exam	15.00 %
Final Exam	15.00 %

Materials

Book Title: The History of Mathematics: A Brief Course, 3rd ed - The VitalSource e-book is provided via the APUS Bookstore

Author: Cooke, Roger

Publication Info: Wiley

ISBN: 9781118217566

Book Title: You must validate your cart to get access to your VitalSource e-book(s). If needed, instructions are available here - <http://apus.libguides.com/bookstore/undergraduate>

Author: N/A

Publication Info: N/A

ISBN: N/A

Required Readings: See the course outline.

In addition to the required course texts, the following public domain web sites are useful. Please abide by the university's academic honesty policy when using Internet sources as well. Note web site addresses are subject to change.

Site Name	Web Site URL/Address
Rowan College History of Math Website	http://www.rowan.edu/colleges/csm/departments/math/facultystaff/osler/History%20of%20Math/HistoryofMathpdffiles.html
The MacTutor History of Mathematics Archive	http://www-history.mcs.st-and.ac.uk
Math Archives: History of Mathematics	http://archives.math.utk.edu/topics/history.html

Course Guidelines

Citation and Reference Style

- Attention Please: Students will follow the APA Format as the sole citation and reference style used in written work submitted as part of coursework to the University. Assignments completed in a narrative essay or composition format must follow the citation style cited in the APA Format.

Tutoring

- [Tutor.com](http://www.tutor.com) offers online homework help and learning resources by connecting students to certified tutors for one-on-one help. AMU and APU students are eligible for 10 free hours* of tutoring provided by APUS. Tutors are available 24/7 unless otherwise noted. Tutor.com also has a SkillCenter Resource Library offering educational resources, worksheets, videos, websites and career help. Accessing these resources does not count against tutoring hours and is also available 24/7. Please visit the APUS Library and search for 'Tutor' to create an account.

Late Assignments

- Students are expected to submit classroom assignments by the posted due date and to complete the course according to the published class schedule. The due date for each assignment is listed under each Assignment.
- Generally speaking, late work may result in a deduction up to 15% of the grade for each day late, not to exceed 5 days.
- As a working adult I know your time is limited and often out of your control. Faculty may be more flexible if they know ahead of time of any potential late assignments.

Turn It In

- Faculty may require assignments be submitted to Turnitin.com. Turnitin.com will analyze a paper and report instances of potential plagiarism for the student to edit before submitting it for a grade. In some cases professors may require students to use Turnitin.com. This is automatically processed through the Assignments area of the course.

Academic Dishonesty

- Academic Dishonesty incorporates more than plagiarism, which is using the work of others without citation. Academic dishonesty includes any use of content purchased or retrieved from web services such as CourseHero.com. Additionally, allowing your work to be placed on such web services is academic dishonesty, as it is enabling the dishonesty of others. The copy and pasting of content from any web page, without citation as a direct quote, is academic dishonesty. When in doubt, do not copy/paste, and always cite.

Submission Guidelines

- Some assignments may have very specific requirements for formatting (such as font, margins, etc) and submission file type (such as .docx, .pdf, etc) See the assignment instructions for details. In general, standard file types such as those associated with Microsoft Office are preferred, unless otherwise specified.

Disclaimer Statement

- Course content may vary from the outline to meet the needs of this particular group.

Communicating on the Forum

- Forums are the heart of the interaction in this course. The more engaged and lively the exchanges, the more interesting and fun the course will be. Only substantive comments will receive credit. Although there is a final posting time after which the instructor will grade comments, it is not sufficient to wait until the last day to contribute your comments/questions on the forum. The purpose of the forums is to actively participate in an on-going discussion about the assigned content.
- “Substantive” means comments that contribute something new and hopefully important to the discussion. Thus a message that simply says “I agree” is not substantive. A substantive comment contributes a new idea or perspective, a good follow-up question to a point made, offers a response to a question, provides an example or illustration of a key point, points out an inconsistency in an argument, etc.
- As a class, if we run into conflicting view points, we must respect each individual's own opinion. Hateful and hurtful comments towards other individuals, students, groups, peoples, and/or societies will not be tolerated.

University Policies

[Student Handbook](#)

- [Drop/Withdrawal policy](#)

- [Extension Requests](#)
- [Academic Probation](#)
- [Appeals](#)
- [Disability Accommodations](#)

The mission of American Public University System is to provide high quality higher education with emphasis on educating the nation's military and public service communities by offering respected, relevant, accessible, affordable, and student-focused online programs that prepare students for service and leadership in a diverse, global society.

STUDENT WARNING: This course syllabus is from a previous semester archive and serves only as a preparatory reference. Please use this syllabus as a reference only until the professor opens the classroom and you have access to the updated course syllabus. Please do NOT purchase any books or start any work based on this syllabus; this syllabus may NOT be the one that your individual instructor uses for a course that has not yet started. If you need to verify course textbooks, please refer to the online course description through your student portal. This syllabus is proprietary material of APUS.