University of Alabama at Birmingham

Syllabus

MA311 and MA501 History of Mathematics

Fall Semester 2021

Instructor: Dr. Jeanne S. Hutchison, UH 4053, (205) 934-2154, hutchiso@uab.edu

Office Hours: Mon, Tues, Wed 1:30 – 2:30 PM in UH 4053. Other times by appointment or by Zoom on request.

MA311 Course Description: (3 semester hours)

The course will study the development of mathematical principles and ideas from a historical viewpoint, and their cultural, educational, and scientific significance; from their earliest beginnings through Newton and Leibnitz. The focus will be on individual mathematicians and the contributions they have made, including the historical background for their development.

MA311 Course Description: (4 semester hours)

When taken as a four-hour course History of Mathematics follows the same general syllabus as the three-hour version with the following additional requirement: each student will be assigned additional reading and journal entries.

MA501 Course Description: (3 semester hours)

When offered as a graduate-level course, History of Mathematics follows the same general syllabus as MA 311 with the following additional requirement: each graduate student will be assigned additional reading and journal entries.

Prerequisites:

MA311/501 has the prerequisite MA125 (Calculus I) grade of C or better.

Required Reading:

Burton, David M., *The History of Mathematics*, 7th ed., McGraw-Hill, New York, 2011.

Graduate students and undergraduates in the four-hour course have additional required reading as described below.

 Westfall, Richard S. *Never at Rest – A Biography of Isaac Newton,*

 Cambridge University Press, 1980

Course Objective:

Students will acquire an understanding of the scope and interrelationship of mathematics development from the earliest documentation through the Age of Newton (1642-1727). Students will learn to see many mathematicians as complex individuals.

UAB Policies and Resources:

Drop/Add and Course Withdrawal

* Drop/Add: Deadlines for adding, dropping, or withdrawing from a course and for paying tuition are published in the Academic Calendar available online. Review the Institutional Refund Policy for information on refunds for dropped courses.
* Withdrawal: To avoid academic penalty, a student must withdraw from a course by the withdrawal deadline shown in the academic calendar and receive a grade of W (withdrawn). Failure to attend class does not constitute a formal drop or withdrawal.

Misconduct

• Academic Honor Code

<https://www.uab.edu/students/one-stop/policies/academic-honor-code>

• Non-Academic Student Code of Conduct

https://www.uab.edu/students/conduct/

DSS Accessibility Statement

Accessible Learning: UAB is committed to providing an accessible learning experience for all students. If you are a student with a disability that qualifies under Americans with

Disabilities Act (ADA) and Section 504 of the Rehabilitation Act, and you require accommodations, please contact Disability Support Services for information on accommodations registration and procedures. Requests for reasonable accommodations involve an interactive process and consist of a collaborative effort among the student, DSS, faculty and staff.

If you are registered with Disability Support Services, please contact DSS to discuss accommodations that may be necessary in this course. If you have a disability but have not contacted Disability Support Services, please call (205) 934-4205, visit their website or their office located in Hill Student Center Suite 409. You can also contact them by email at dss@uab.edu.

Title IX Statement

The University of Alabama at Birmingham is committed to providing an environment that is free from sexual misconduct, which includes gender-based assault, harassment, exploitation, dating and domestic violence, stalking, as well as discrimination based on sex, sexual orientation, gender identity, and gender expression. If you have experienced any of the aforementioned conduct we encourage you to report the incident. UAB provides several avenues for reporting. For more information about Title IX, policy, reporting, protections, resources and supports, please visit UAB Title IX webpage for UAB’s Title IX, UAB’s Equal Opportunity, Anti-Harassment, Duty to Report, and Non-Retaliation policies.

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Assessment and Grading:

Student achievement on the items assessed will determine the final course grade. Course letter grades are assigned traditionally :A (90-100); B (80-89), C (70-79), D (60-69), F (Below 60).

|  |  |  |  |
| --- | --- | --- | --- |
|  |  | Undergraduate 3-hr Course | Graduate /4-hr Course |
|  | Mid-term TestFinal ExamReading QuizzesExercise GradeJournal EntriesTotal | 25%25%25%25%100% | 20%20%20%20%10%100% |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |
|  |  |  |  |

Typical Exercise Problems:

Each reading assignment in the syllabus is associated with a set of typical exercise problems. Some of the homework exercises will come from this list, or at least resemble them strongly. Some of the test problems will come from this list. A few problems will be essay questions that require short answers or computations that require arithmetical answers.

Mid-Term Test and Final Exam:

|  |  |
| --- | --- |
| Mid-term test date: | 10/14/21 5:00 – 7:00 PM |
| Final exam test date: | 12/09/21 7:00 – 9:30 PM |

Newton Journal: Each graduate student and four-hour undergraduate student will prepare a reading journal based on the *Newton* book. Journal instructions follow. Submission dates:

 First Submission 9/23/21

 Second Submission 10/21/21

 Third Submission 12/09/21

Attendance:

This class meets for 14 class sessions, one of which is the mid-term test. There is an additional class meeting for the final exam. Any missed class is equivalent to missing one entire week of a normal 3-hour course. Attendance is therefore important. I consider it very important that students be on time and do not leave the class until the end of the class period.

Additional Information:

Hand-held calculators may be used throughout the course. Newton journals should be written in a Word Document or something similar.

Journal Instructions

The journal should be written in a Word document or something similar that I can read easily. Write this for yourself, not for me. I would like you to be able to keep the journal and look back at it sometime in the future.,

Date each entry honestly, and keep up with the reading schedule. Otherwise this will become a more difficult and less enjoyable assignment.

**Health, Safety, and Services**

UAB is very concerned for your continued health and safety. Please consult the Students section of [UAB United](https://www.uab.edu/uabunited/) for up-to-date guidance, because the following information is subject to change as circumstances require.

We strongly urge you to be fully vaccinated. [Here is information on the safety of vaccines and on how to get vaccinated at UAB.](https://www.uab.edu/uabunited/covid-19-vaccine) There are also [incentives for getting vaccinated](https://www.uab.edu/students/health/).

Mask-wearing has proven to be one of the most successful mitigation strategies used to combat spread of the various variants of the COVID-19 virus. UAB requires face coverings indoors on campus—regardless of vaccine status.  Students who do not follow this requirement can be reported to Student Conduct.

Know the resources available to you to be successful:

* [Student Assistance & Support](https://www.uab.edu/students/assistance/about) provides individualized assistance to promote student safety and well-being, collaboration and resilience, personal accountability, and self-advocacy. The Care Team consults and collaborates with campus partners to balance the needs of individual students with those of the overall campus community. [The UAB Care Team](https://www.uab.edu/careteam/) helps find solutions for students experiencing academic, social and crisis situations including mental health concerns.
* [Disability Support Services](https://www.uab.edu/students/disability/about) assists students with in reaching accommodations for their educational experiences at UAB that ensure that they have equal access to programs, services, and activities at UAB.
* The [Vulcan Materials Academic Success Center](https://www.uab.edu/students/academics/student-success) provides tutoring, supplemental instruction, and other services that encourage goal achievement and degree completion.
* [UAB Student Health Services](https://www.uab.edu/students/health/) delivers comprehensive, high quality, confidential, primary healthcare to students. Student Health provides testing services and vaccination clinics.
* [Student Counseling Services](https://www.uab.edu/students/counseling/our-services) offers students a safe place to discuss and resolve issues that interfere with personal and academic goals. UAB has created a new app (available in the App Store and Google Play) called [B Well](https://www.uab.edu/reporter/resources/be-healthy/item/9404-blazer-created-mental-health-app-puts-wellness-in-student-hands), that is designed to easily access resources on mobile devices and build a self-care plan.
* [eLearning and Professional Studies](https://www.uab.edu/elearning/students) provides numerous academic technologies and learning resources for students whose learning may be affected by COVID.

**8/9/2021F**

History of Mathematics

Fall Semester 2019

Reading Schedule in *The History of Mathematics*

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Class Meeting | Date | Chapters to readby date | Page | Potential ExerciseProblems |
| 1 | 8/26 | none |  | none |
| 2 | 9/02 | 1 | 18 | 1-4, 11, 12, 13 |
|  |  |  | 29 | 1-5, 13-17 |
| 3 | 9/09 | 2.1 - 2.4 | 51 | 1-5, 19-24 |
|  |  |  | 61 | 1-5 |
| 4 | 9/16 | 2.5 – 2.6 | 72 | 1-9, 11 |
|  |  |  | 81 | 1, 7, 8 |
| 5 | 9/23 | 3.1 - 3.3 | 105 | 1 thru 6 |
|  |  |  | 119 | 1 thru 4, 15, 16, 17 |
| 6 | 9/30 | 3.4 - 3.5 | 129 | 1 thru 4 |
|  |  |  | 139 | 2, 4, 6 |
| 7 | 10/07 | 4.1 – 4.5 | 170 | 11, 12 |
|  |  |  | 184195211 | 16 (a), 16 (b), 17, 1841 (e), 2, 11, 12 |
| 8 | 10/14 | Mid-Term |  |  |
| 9 | 10/21 | 5.1-5.4 | 233 | 13, 14, 16 |
| 10 | 10/28 | 5.5 | 266 | 14, 18, 20 |
| 11 | 11/04 | 6 | 287 | 1, 3, 4, 11, 16 |
|  |  |  | 295 | 2 |
| 12 | 11/11 | 7 | 328 | 1 a, 3, b, 5, 14 a, 15, 16 |
|  |  |  | 336 | 1a |
| 13 | 11/18 | 8.1-8.2 | 328 | 1b, 4 |
|  |  |  | 336 | 1b |
|  |  |  | 362 | 3, 7, 13 |
|  |  |  | 382 | 5, 6 |
|  | 11/25 | HOLIDAY |  |  |
|  |  |  |  |  |
| 14 | 12/02 | 8.3-8.4 | 409 | 1, 2, 3, 4 |
|  |  |  | 433 | 3, 4, 11, 12, 13 |
| 15 | 12/09 | Final |  | 7 – 9:30 PM |
|  |  |  |  |  |

History of Mathematics

Fall Semester 2021

Reading Schedule in *Newton*

|  |  |  |  |
| --- | --- | --- | --- |
| ClassMeeting | Date | Chapters to Readby Date | PageBreak |
| 1 | 8/26 | None |  |
| 2 | 9/02 | 1 |  |
| 3 | 9/09 | 2 |  |
| 4 | 9/16 | 3 |  |
| 5 | 9/23 | 4 |  |
| 6 | 9/30 | 5 |  |
| 7 | 10/07 | 6 |  |
| 8 | 10/14 | Mid-Term |  |
| 9 | 10/21 | 7 |  |
| 10 | 10/28 | 8 | To page 309 |
| 11 | 11/04 | 8 |  |
| 12 | 11/11 | 9 | To page 369 |
| 13 | 11/18 | 9 |  |
|  | 11/25 | Holiday |  |
| 14 | 12/02 | 10 |  |
| 15 | 12/12 | Final | 7 – 9:30 pm |

As you read in the Newton book, record your thoughts and observations concerning his life and achievements. The journal should be written in a Word document or something similar. Write this for yourself, not for me. I would like you to be able to keep the journal and look back at it sometime in the future.

Date each entry honestly, and keep up with the reading schedule. Otherwise, this will become a more difficult and less enjoyable assignment.

Note important ideas or developments (mathematical and historical) keyed to certain pages and chapters. Your work should be thoughtful, a record of your responses and your reaction to the reading, not just a summary of what you have read.

Journal Grading Scale

|  |  |
| --- | --- |
| Has the student kept up with the reading assignments? | 20% |
| Is the student’s writing reflective of a thoughtful approach? | 20% |
| Is the student’s writing reflective of thorough approach? | 20% |
| Is the writing clear and readable, using good grammar, etc.? | 20% |
| Has the student demonstrated a grasp of the subject and ideas? | 20% |