

History of Mathematics
MAT 4930
SPRING 2022

Classroom: LIT235

Meeting Times: MWF6

Instructor: Dr. Konstantina Christododouloupoulou

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Office Location: LIT 365

Email: kchristod@ufl.edu

Office Hours: M7, T6, W4, and by appointment.

Open Door Policy: You are welcome to drop by to discuss any aspect of the course, anytime.

All course materials will be posted in e-Learning Canvas

All course materials will be posted in eLearning Canvas, <http://elearning.ufl.edu/>.

Text: *Mathematics and Its History*, by John Stillwell. The book is available online through the UF Marston Science Library. We will cover topics from Chapters 1-14, plus additional material, time permitting.

In addition, we will use the following online resource (browse to become familiar with the many biographies and mathematics topics available at this website):

The MacTutor History of Mathematics Archives (University of St Andrews)

Course content and objectives: The goal of the course is to expose students to the historical development of mathematical ideas, over time and across cultures, and to acquaint them with some of the basic techniques, as they were historically developed. We will emphasize primarily the mathematics that influenced the development of algebra, geometry, calculus, and (if time permits) we will look into selected topics from contemporary mathematics. This course should also allow students to create a cohesive picture of mathematics, develop an understanding of the global nature of mathematical culture, and the importance of cultural interactions in mathematical history; and reflect on contemporary mathematical culture, their place in it, and their mathematical values.

Course Web Page: I will update Canvas regularly with class announcements, homework assignments, and additional materials. All grades are posted in the Canvas grade book. You are responsible for verifying that those grades are accurate. **You have one week after a score has been posted to contact me to resolve any grade concerns. We will not consider any grading disputes nor make any grade adjustments at the end of the semester.**

Readings: A course calendar and the required readings is available in the course homepage in Canvas. There you can find which sections will be covered during each lecture. *It is expected that you have read the relevant readings before each lecture, so that you will be able to better grasp the material presented.*

Please review the UF Resources and Policies for available technical assistance, resources and UF policies.

Grading:

In Class Activities/Participation	10%
Homework	25%
Research Presentation	15%
Midterm Exam	25%
Final Exam	25%

The following grading scale applies.

A	$\geq 90\%$	C	$\geq 70\%$
A-	$\geq 87\%$	C-	$\geq 67\%$
B+	$\geq 84\%$	D+	$\geq 64\%$
B	$\geq 80\%$	D	$\geq 60\%$
B-	$\geq 77\%$	D-	$\geq 56\%$
C+	$\geq 74\%$	E	$< 56\%$

The current UF grading policies for assigning grade points is available here: <https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/>

Grades will not be rounded and extra assignments for individual students to improve a grade are NOT possible. We will not review disputed points at the end of the semester. All grade concerns must be settled within one week of the submission.

Homework: Homework will be assigned regularly and it will consist of reading assignments and mathematical exercises. It is expected that you complete the reading assignments by the next class meeting (unless otherwise specified). In the exercises you will be asked to solve problems using methods or notation of historical periods. I expect all homework solutions to be written in full sentences, without logical symbols (such as $\forall, \Leftrightarrow, \exists$ etc.,) and to be grammatically correct. Each homework solution will be graded on the following scale:

5	Correct mathematical solution and very well written.
4	Small errors such as incomplete sentences, abbreviating words with logical symbols, imprecise definitions, or overlooking trivial cases.
3	Contains an outline of a correct solution and several steps toward this solution, but the writing is unclear or there are gaps in the solution.
2	Some original steps toward a correct solution but with significant mathematical errors.
1	No original steps toward a correct solution.

You may work with your peers to prepare problems but you must write up solutions individually. Do not turn in what are essentially Xerox copies of each other's homework.

Submitted work expectations: Submitted assignments should be neat, organized, and clearly presented. Papers not meeting these standards may have the scores reduced or may be returned ungraded.

Excused absences are consistent with university policies in the undergraduate catalog <https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx> and require appropriate documentation.

Research Presentation: Besides lectures, part of the course will be devoted to presentations of selected topics by the students. Each student will research a topic related to the history of mathematics and present it to the class. Presentations will be evaluated on mathematical content, style, clarity, and organization. Students are expected to attend all talks and complete a short summary after each presentation. More details will be provided in Canvas.

Exams: A midterm exam and a final exam are scheduled for this course. The midterm exam is tentatively scheduled for Friday, February 19, and the final exam is scheduled for Wednesday, April 27. Both exams will have a mixture of mathematical exercises and short answer historical questions. **The exams cannot be rescheduled unless you meet the University requirements; see <https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>.** Absolutely no collaboration on exams is allowed.

Make-up policies: Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found at: catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/

Make-up assignments will be allowed in the following cases:

- In case of illness, upon receipt of a doctor's note or equivalent, or by following the procedure outlined here: <https://care.dso.ufl.edu/instructor-notifications>.
- In case of religious holidays, by informing me via e-mail ahead of time.
- In case of military duty, jury duty, participation in academic conferences, or participation in official university or UAA events, by providing appropriate evidence ahead of time.
- In case of family emergencies or other extenuating circumstances, by following the procedure outlined here: <https://care.dso.ufl.edu/instructor-notifications>.

In all other cases, or if you are unsure, please e-mail me as soon as feasible. Absences are generally not excused for non-emergency travel and personal schedule conflicts. Students are still responsible for turning assignments in on time unless an extension has been requested via e-mail and approved by the instructor prior to the deadline. In case of true documented emergencies, the instructor may waive this requirement.

Technical difficulties are not generally an excuse for missing an assessment; students should have contingency plans in case any such issues arise.

One-week policy: All grades are posted in the Canvas Gradebook. You are responsible for verifying all grades are accurate. You have one week after a score is available to discuss any grade concerns with me. There is no grades dispute after one week.

Incomplete: A student who has completed a major portion of the course with a passing grade but is unable to complete the final exam or other course requirements due to illness or emergency may be granted an incomplete, indicated by a grade of "I". This allows the student to complete the course within the first six weeks of the following semester. You must contact me before finals week to sign an

incomplete grade contract (<http://clas.ufl.edu/forms/incomplete-grade-contract.pdf>), and must provide documentation of the extenuating circumstances preventing you from taking the final exam. The grade of "I" is never used to avoid an undesirable grade, and does not allow a student to redo work already graded or to retake the course. See the official policy at <http://www.math.ufl.edu/departments/incomplete-grades/>.

Students with Disabilities: Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the disability Resource Center. Click here to get started with the Disability Resource Center. It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester.

Academic Honesty: UF students are bound by The Honor Pledge which states, "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code." On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." The Honor Code (<https://sccr.dso.ufl.edu/process/student-conduct-code/>) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor in this class.

Online Course Evaluation: Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at <https://gatorevals.aa.ufl.edu/students/>. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or <https://viaufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students <https://atgatorevals.aa.ufl.edu/public-results/>.

In-Class Recording: Students are allowed to record video or audio of class lectures. However, the purposes for which these recordings may be used are strictly controlled. The only allowable purposes are (1) for personal educational use, (2) in connection with a complaint to the university, or (3) as evidence in, or in preparation for, a criminal or civil proceeding. All other purposes are prohibited. Specifically, students may not publish recorded lectures without the written consent of the instructor. An "class lecture" is an educational presentation intended to inform or teach enrolled students about a particular subject, including any instructor-led discussions that form part of the presentation, and delivered by any instructor hired or appointed by the University, or by a guest instructor, as part of a University of Florida course. A class lecture does not include lab sessions, student presentations, clinical presentations such as patient history, academic exercises involving solely student participation, assessments (quizzes, tests, exams), field trips, private conversations between students in the class or between a student and the faculty or lecturer during a class session. Publication without permission of the instructor is prohibited. To "publish" means to share, transmit, circulate, distribute, or provide access to a recording, regardless of format or medium, to another person (or persons), including but not limited to another student within the same class section. Additionally, a recording, or transcript of a recording, is considered published if it is posted on or uploaded to, in whole or in part, any media platform, including but not limited to social media, book, magazine, newspaper, leaflet, or third party note/tutoring services. A student who publishes a recording without written consent may be subject to a civil cause of action instituted by a person injured by the publication and/or discipline under UF Regulation 4.040 Student Honor Code and Student Conduct Code.

Diversity Statement: I am committed to diversity and inclusion of all students in this course. I acknowledge, respect, and value the diverse nature, background and perspective of students and believe that it furthers academic achievements. It is my intent to present materials and activities that are respectful of diversity: race, color, creed, gender, gender identity, sexual orientation, age, religious status, national origin, ethnicity, disability, socioeconomic status, and any other distinguishing qualities.

Campus Resources:

Health and Wellness

U Matter, We Care: If you or someone you know is in distress, please contact umatter@ufl.edu, 352-392-1575, or visit <https://umatter.ufl.edu/> to refer or report a concern and a team member will reach out to the student in distress.

Counseling and Wellness Center: Visit <https://counseling.ufl.edu/> or call 352-392-1575 for information on crisis services as well as non-crisis services.

Student Health Care Center: Call 352-392-1161 for 24/7 information to help you find the care you need, or visit <https://shcc.ufl.edu/>.

University Police Department: Visit <https://police.ufl.edu/> or call 352-392-1111 (or 9-1-1 for emergencies).

UF Health Shands Emergency Room / Trauma Center|: For immediate medical care call 352-733-0111 or go to the emergency room at 1515 SW Archer Road, Gainesville, FL 32608; <https://ufhealth.org/emergency-room-trauma-center>.

GatorWell Health Promotion Services: For prevention services focused on optimal wellbeing, including Wellness Coaching for Academic Success, visit the GatorWell website: <https://gatorwell.ufsa.ufl.edu/> or call 352-273-4450.

Academic Resources

E-learning technical support: Contact the UF Computing Help Desk at 352-392-4357 or via e-mail at helpdesk@ufl.edu.

Career Connections Center: Reitz Union Suite 1300, 352-392-1601. Career assistance and counseling services.

Library Support: Various ways to receive assistance with respect to using the libraries or finding resources.

Teaching Center: Broward Hall, 352-392-2010 or to make an appointment 352- 392-6420. General study skills and tutoring.

Disclaimer: *This syllabus represents my current plans and objectives. As we go through the semester, those plans may need to change to enhance the class learning opportunity. Such changes, communicated clearly, are not unusual and should be expected. You will be notified if any changes are made.*

MAT 4930 History of Mathematics Calendar

The actual pace of the course may be slightly different than listed in the syllabus below. It will depend on the students' response to the material. **Homework and readings will be assigned regularly.** Handouts, Lecture Notes, etc. are posted in Canvas. Below we will denote by: Stillwell = Mathematics and Its History, MTM = [The MacTutor History of Mathematics Archives](#). **Please check CANVAS regularly for updates.**

	Topics	Readings/Assignments
Week 1	Ancient Arithmetic Babylonian mathematics	MTM: Overview of the history of mathematics MTM: Babylonian Mathematics
Week 2	Egyptian mathematics The Theorem of Pythagoras	MTM: Egyptian Mathematics Stillwell: Chapter 1 Handout: Ancient Arithmetic Homework
Week 3	Greek Geometry	MTM: Biography of Pythagoras Stillwell: Chapter 2 Homework
Week 4	Greek Number theory Infinity in Greek Mathematics	MTM: How do we know about Greek Mathematics? Stillwell: Chapters 3-4 Homework
Week 5	Number Theory in Asia	MTM: An overview of Arabic Mathematics Stillwell: Chapter 5 Homework
Week 6	Polynomial Equations	Stillwell: 6.1-6.3, 11.1, 14.1-14.3 MTM: Cardano, Tartaglia Homework
Week 7	Polynomial Equations/Review/Midterm Exam	Stillwell: 6.5-6.8 MTM: Abel, Galois Midterm Exam
Week 8	Calculus (Chapter 9)	Stillwell: Chapter 9 MTM: Wallis, Newton, Leibniz
Week 9	Infinite Series (Chapter 10)	Stillwell: 10.1, 10.2, 10.4, 10.8 MTM: Euler Homework
Week 10	Spring Break/No Class	
Week 11	The Number Theory Revival (Chapter 11)	Stillwell: Chapter 11 Homework
Week 12	Selected topics from Chapters 18-25(time permitting)	Stillwell: 18.1, 19.1, 20.1-20.6
Week 13	Selected topics from Chapters 18-25 (time permitting)	Stillwell: 22.1, 22.2, 24.1, 24.2
Week 14	Selected topics from Chapters 18-25 (time permitting)	Stillwell: 25.1, 25.2
Week 15	Class Presentations	
Week 16	Class Presentations	

Midterm Exam-Friday, February 19, in class.

Final Exam-Wednesday, April 27, 12:30pm-2:30pm.