

Spring 2022 EMT108/MATE105 History of Mathematics

Instructor: Dr. Elçin Emre-Akdoğan	Place: G213
Office Hours: by appointment	Textbook: Lecture Notes
Office: GB24	Program: -
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Course Description:

- Origins of mathematics.
- The historical development of mathematics: Mesopotamian and Ancient Egyptian mathematics, Ancient Greek mathematics, Hindu-Indian mathematics, Islamic mathematics and European mathematics.
- Historical development of mathematical concepts.
- Prominent mathematicians in the history.
- The position of mathematics history in mathematics teaching.
- Integration of mathematics history into the mathematics classrooms.

Course objectives:

The aim of this course is to provide students with a deep understanding of origins and the developmental processes of the mathematical concepts in different time periods and across different cultures and to provide a point of view about integration of mathematics history into the mathematics teaching.

Learning Outcomes:

Upon successful completion of this course, students will be able to:

- explain the major mathematical developments over time in several cultures,
- identify the multicultural structure of the mathematics,
- describe the origins and the developmental processes of the mathematical concepts,
- recognize the famous mathematicians,
- identify the role of the history of mathematics in mathematics teaching,
- plan a proposal for integration of mathematics history into the mathematics classrooms.

Methods for Assessment of Learning Outcomes: The expected learning outcomes for the course will be assessed through graded activities and ungraded activities. The graded activities include in-class activities, take-home homework and project. The ungraded activities will be used to monitor your progress. A variety of these ungraded assessment techniques may be employed, including activities to be completed during class, direct questioning of students, answering students' questions in class, and discussions during office hours.

Class Participation (10 points): You will be graded for participation in class. Graded on a scale from 0 (lowest) to 10 (highest), the criteria in the rubric focuses on what the student demonstrates and does not presume to guess at what the student knows but does not demonstrate (Maznevski, 1996).

Grade	Criteria
0	Does not participate
3-1	Present, not disruptive. Tries to respond when called on but does not offer much. Demonstrates very infrequent involvement in discussion.
5-3	Demonstrates adequate preparation: knows basic case or reading facts, but does not show evidence of trying to interpret or analyze them. Offers straightforward information (e.g., straight from the case or reading), without elaboration or very infrequently (perhaps once a class). Does not offer to contribute to discussion, but contributes to a moderate degree when called on. Demonstrates sporadic involvement.
8-5	Demonstrates good preparation: knows case or reading facts well, has thought through implications of them. Offers interpretations and analysis of case material (more than just facts) to class. Contributes well to discussion in an ongoing way: responds to other students' points, thinks through own points, questions others in a constructive way, offers and supports suggestions that may be counter to the majority opinion. Demonstrates consistent ongoing involvement.
10-8	Demonstrates excellent preparation: has analyzed case exceptionally well, relating it to readings and other material (e.g., readings, course material, discussions, experiences, etc.). Offers analysis, synthesis, and evaluation of case material, e.g., puts together pieces of the discussion to develop new approaches that take the class further. Contributes in a very significant way to ongoing discussion: keeps analysis focused, responds very thoughtfully to other students' comments, contributes to the cooperative argument-building, suggests alternative ways of approaching material and helps class analyze which approaches are appropriate, etc. Demonstrates ongoing very active involvement.

In-class activities (20 points): You need to upload your in-class activities to moodle, your document's title should be NAME_SURNAME_In-Class Activities-X (X: number)

Each in-Class activities will be graded on a scale of 0-10.

Presentations (30 points): This is group activity for which details will be provided to the class during semester. Class members may select the topic they would like to work on. A rubric for the presentation assessment will be shared during lesson

Final Project (Instructional activity) (40 points): You will create an instructional activity that includes history of mathematics at "Weeks 13 and 14 ". This will be a group working activity. Our aim is making practice about integrating history of mathematics into the math classrooms. You should choose a mathematical concept and also an ancient way or problem

that you can make an instruction through that way or problem. The evaluation criteria for instructional activity will be shared through Moodle

Attendance: This course requires strong involvement and attendance. You are responsible for all information given out during the courses. Exceeding 20% of attendance with unexcused absences will result a half letter grade reduction. You are expected to arrive on time for the lectures.

Communication: All announcements will be sent to your e-mail address through Moodle. Check your e-mails regularly in order to be informed.

Grades: Your final grade will be weighted as follows:

20 points	In-Class Activities	Details will be given during class	Individual Work
10 points	Participation	Details will be given during class	Individual Work
30 points	Presentations	Details will be given during class	Group Work
40 points	Final Project (Instructional Activity)	Details will be given during class	Group Work

Policy On Late Assignments:

Late assignment will be accepted at any time, subject to the following conditions:

- The word "LATE" must be written at the top of the assignment.
- Only half credit will be awarded, solely based on effort.

Academic Honesty: It hardly needs to be said that such things as plagiarism or stealing another student's work are unacceptable. However, in this class, it is entirely proper to work in teams to do discussion on the problems or the problem solving, as long as you yourself have mastery of those answers and are prepared on your own to present them in class. Plagiarism is a serious breach of academic trust. In academic work, our words and ideas are the value of our work, so turning in someone else's work as if it were your own is a form of theft. When you use someone else's words and ideas--whether it's the work of a famous writer or a fellow student--without crediting the source or authorship of those words and ideas, you are plagiarizing. So here's the bottom line: original work only, credit to ideas, writing, or words from someone other than you.

STUDENT SERVICES INFO:

o Specialized Support and Students with Disabilities

Students who may require specialized support due to a disability affecting mobility, vision, hearing, learning, mental or physical health should consult with Specialized Support and Disability Coordinator, Asst. Prof. Emrah Keser E-mail: emrah.keser@tedu.edu.tr, or visit the website at <https://www.tedu.edu.tr/tr/main/engelsiz-tedu>

o Student Counseling Centre

The Student Counseling Centre is a service mandated with providing crisis intervention and supportive listening services to the campus community. A major part of fulfilling that mandate is raising awareness of our service so that students know they are never alone in dealing with problems. For further information and/or questions, you can contact Sila Deniz Beyarslan, sdeniz.beyarslan@tedu.edu.tr, Office 165, or visit SCC website at <http://csc.tedu.edu.tr/>

o TEDU COPeS

TED University Coronavirus Psychosocial Support Team was established in order to facilitate coping with the psychological, social, familial, academic, and professional difficulties that may arise due to adverse conditions associated with COVID-19 pandemic for TEDU students and employees. TEDU COPeS aims to provide psychosocial support for TED University students and employees during the coronavirus outbreak. To this end, the team aims to provide support at the early stages of a possible crisis, activate and strengthen your coping strategies, and provide information on support resources. For further information and/or questions, visit their website at <https://copes.tedu.edu.tr/>

Note: This syllabus is tentative, and should only be used to give a rough guide to the course schedule. Additional readings may be assigned, and dates may be changed if necessary.

SCHEDULE		
Date	Topic	Content
Week 1 Session 1 (16/02/2022)	Introduction	Introduction of the syllabus
Week 2 Session 1 (23/02/2022)	History of Mathematics	Origin And Evolution of Mathematics
Week 3 Session 3 (02/03/2022)	History of Mathematics	From Primitive Counting to Numeral Systems
Week 4 Session 1 (09/03/2022)	History of Mathematics	Mathematics in Egypt and Mesopotamia
Week 5 Session 1 (16/03/2022)	History of Mathematics	Solving the Rhind Papyrus Problems
Week 6 Session 1	History of Mathematics	Greek and Hellenistic Mathematics (Group Presentation 1) Greek and Hellenistic Mathematics (Group Presentation 2)

(23/03/2022)		
Week 7 Session 1 (30/03/2022)	History of Mathematics	Hindu Contributions (Group Presentation 3) Arabic Contributions (Group Presentation 4)
Week 8 Session 1 (06/04/2022)	History of Mathematics	Chinese and Mayan Mathematics (Group Presentation 5) European Mathematics (Group Presentation 6)
Week 9 Session 1 (13/04/2022)	History of Mathematics	Recognizing the famous mathematicians In-Class Activity: Which famous mathematician am I?
Week 10 Session 1 (20/04/2022)	History of Mathematics	In-Class Activity: Article analyzing: "Integrating History of Mathematics Into The Classroom: Was Aristotle Wrong?"
Week 11 Session 1 (27/04/2022)	History of Mathematics	Activity time: Creating an instructional activity that includes history of mathematics
Week 12 Session 1 (04/05/2022)	History of Mathematics	Instructional activity that includes history of mathematics (Group Presentations)
Week 13 Session 1 (11/05/2022)	History of Mathematics	Instructional activity that includes history of mathematics (Group Presentations)
Week 14 Session 1 (18/05/2022)	History of Mathematics	Instructional activity that includes history of mathematics (Group Presentations)
Week 15 Session 1 (25/05/2022)	History of Mathematics	Exit Ticket Activity