

MTH 441 Historical Perspectives in Mathematics Winter 2010

Time and Place: 2 – 3:50 p.m. TR Core 119 Instructor: Roger G. Olson, Ph.D.

Office: Science 018 Telephone: x6295 E-mail alias: rogero

Office Hours: Talk with me before or after class, or make an appointment

Text: J. McLeish, *The Story of Numbers*, Fawcett-Columbine, 1991, ISBN 0-449-90938-7

Other readings will be posted on the course Moodle or Olson’s faculty web page.

Course Outline:

Since this is a seminar, to a certain extent, the content will be driven by the interests of the students. Students will take turns developing and giving classroom presentations and leading discussions on chapters from the reading assignments.

As appropriate, problems based on the mathematics being studied will be assigned.

Each student will be required to maintain an (on-line) portfolio of her/his work in this course, which will include responses on presentations, short assigned writings, problem solutions, and paper and materials used for presentation(s). We will probably use Moodle for this purpose.

The final project will be in two parts: an in-depth paper and oral presentation on a mathematical topic of the presenter's choice. More information on the requirements for this will be given soon. Grading rubrics for both parts of this project are attached to this syllabus

Course topics will be predominantly taken from:

1. Babylonian and Egyptian mathematics (3000 BC to AD 400)
2. Greek Mathematics (600 BC to AD 450)
3. Hindu, Arabic, and Chinese Mathematics (200 BC to AD 1250)
4. European Mathematics (AD 1000 to 1700)
5. Modern Mathematical developments (1800 to current)

Summary of Grading Criteria

Two Exams: 30%	Chapter Presentations, Homework, Journal: 35%	Final Paper: 15%	Final Presentation: 15%	Participation: 5%
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Grading Scale for Course Letter Grade

A	A-	B+	B	B-	C+	C	C-	D+	D
93-100	90-92	87-89	83-86	80-82	77-79	73-76	70-72	67-69	60-66

Test Dates: Midterm (tentative): Thursday February 25th Final: Monday May 3rd 1:00 p.m.

Expectations and Requirements:

Note: If you are a student with a disability, please meet with me immediately to discuss the accommodations you will need during class activity, examinations, and out of class assignments in order to participate fully and demonstrate your abilities.

1. Exams: Students are expected to be present for both exams. *No exam may be made up* unless the student has contacted the instructor and received permission **prior** to the date of the original exam or quiz. This includes students participating in athletics who must arrange to take the exam *on or before the scheduled date*.

2. Assignments: Assignments, unless otherwise specified by the instructor, are to be **completed individually**. While students are encouraged to **consult** each other for ideas for assignments, the solutions should be completed individually. Any help one student gives another should be instructional help only. If the instructor feels that a student has not completed an assignment individually, the instructor may question the student on that assignment. The student should be able to explain how he/she worked the problem and should be able to work similar problems. *Late assignments will not be accepted without permission*. For your on-line journal, work must be posted by the due date. For problem assignments, write out complete answers NEATLY and CLEARLY. You must show your work! Partial credit is given when work is shown even if the answer is incorrect. However, correct answers without any work shown will in general be given no credit. Start homework early and see me for help with problems you don't know how to work! It is inappropriate to ask how to do a problem in class the day it is due!!!! Staple your pages together before submitting.

3. Class Preparation and Participation:

a) *Keep up with reading assignments*. To receive the maximum grade on attendance and participation the student must read assignments **prior** to class, be prepared to ask and respond to questions, and be an actively engaged participant in class.

b) Take good notes and *review notes* on a regular basis as well as promptly begin and continue work on assignments as they are assigned.

c) **Attendance is required**. If you must miss class due to illness or other valid excuse (e.g. athletic event) please send me email with an explanation prior to the class date. Attendance and participation count 5% of your final course grade.

CQI Rubric for MTH 441 – Historical Perspectives

Goal	Assessment Criteria	Needs Work	Acceptable	Superlative
Understanding Historical Foundations of Mathematics	Midterm and final exams plus regular student presentations of text material evaluated by professor	Lack of understanding of the material or enthusiasm for material	A grade of at least “B-“ on exams and adequate presentation of chapter material	At least a “B” average on exams and enthusiastic presentation of chapter material
Research Paper following standard format guidelines (MLA, APA, MAA, etc.)	*Separate detailed rubric completed by professor	Either standard format guidelines not followed or content too trivial for a math major	Format guidelines followed and content is appropriate for a math major	Format guidelines followed and content is at the level of math or math-education graduate student.
Final Oral Presentation	*Separate detailed rubric completed by several faculty observers	Lacks essentially one enthusiasm, or appropriate mathematical content	Student learning outcomes are vague or some important ones are missing.	Student learning outcomes are fully and clearly listed.

* Rubrics for final paper and presentation are on next two pages.

Grade Sheet for Final Paper

Name: _____ **Grade** _____ **out of 60 points**

Topic _____

_____ / 5 pts. Topic and reference selection

Appropriate topic, good references, appropriate number of references.

_____ / 10 pts. Organization

Paper well-organized, coherent order.

Structure of the paper followed required form

_____ / 30 pts. Content

Clear, well-stated abstract and introduction.

Important points covered, concepts defined.

Appropriate historical background included.

Topic covered in a thorough, non-superficial, rigorous manner.

Demonstrated in the paper a clear understanding of the mathematics of the topic, and mathematics is correct.

All appropriate mathematical terms were defined prior to their use.

Important theorems were stated and, if appropriate, proved or explained.

As appropriate examples and applications of central ideas.

_____ / 15 pts. Writing style.

Good style, grammar -- spelling, and punctuation, formatting and numbering of sections, figures, theorems, etc.

Accepted styles of mathematical writing were used.

Was the appropriate form for works cited?

Comments:

Grade Sheet for Final Presentation

Name: _____ Grade _____ out of 40 pts

Topic _____

_____/5 pts. Outline, Organization.

- Clearly well prepared.
- Topic and Presentation outlined to class
- Coherent order used.

_____/20 pts. Content.

- Historical context of topic clearly done with sufficient detail, accuracy and interest. Set the historical context for the mathematical work.
- Clear explanations and development of mathematical concepts, terms, and examples.
- The presentation allowed the class to learn something new and / or enhance their understanding of an important mathematical concept.
- Presenter demonstrated a clear understanding of the topic and was able to correctly answer questions about the topic.

_____/ 10 pts. Demeanor, Delivery.

- Spoke clearly and effectively and with confidence. Good demeanor and posture.
- Both enthusiasm and interest in topic evident.
- Engaged the class interactively in the discussion. Asked questions of the class members and gave opportunity for questions from the class.

_____/ 5 pts. Supplemental Materials.

- Appropriate well-designed and interesting supplemental aids (audio-visual and notes) were used

Further Comments.