

Course Syllabus
Math 4853-01: Introduction to the History of Mathematics
Spring Semester, 2017
University of West Georgia

Instructor: Dr. David G. Robinson, Humanities #221, 678-839-4137
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Office Hours: *MWF* 9 – 10 a.m., 11 a.m. – 12, *F* 12 – 2 p.m.

Class Meetings: *MW* 5:30 – 6:45 p.m., Boyd #302

These will consist of a combination of lectures, question-and-answer sessions, problem presentations, and general discussions. All reading will be assigned in advance of the meeting thereon.

Text/Resources: Boyer, Carl and Uta Merzbach, *A History of Mathematics*, 3rd ed., John Wiley & Sons, 2011

Some good alternative authors of general histories of mathematics are:
David Burton, Florian Cajori, Thomas Heath, Morris Kline, David E. Smith, Dirk Struik, Howard Eves, and John Stillwell

Prerequisites: Completion of core math requirements (Math 1113 or higher) and Eng1102.

Topics: Chs. 1 – 3: Origins of mathematics, Egyptian and Mesopotamian arithmetic and geometry
Ch. 4: Greek mathematics from Pythagoras to Aristotle
Ch. 5: Euclid's *Elements*
Chs. 6 – 7: Works of Archimedes, Eratosthenes, and Apollonius
Ch. 8: Late Greek & early Latin mathematics – Ptolemy's *Almagest*, Diophantus' *Arithmetica*, Pappus' *Geometry*, Proclus' *Commentary*
Chs. 9 – 11: Chinese, Hindu and Arabic math: Magic squares, the abacus, Brahmagupta, Al-Khwarizmi
Ch. 12: European math of the middle ages - Fibonacci to Oresme.
Chs. 13 – 14 : Renaissance period - Paccioli, Leonardo, Cardan, Viéte
Ch. 15: Prelude to Calculus – Early to mid 17th century – Kepler, Napier, Galileo, Descartes, Fermat, Pascal, Huygens
Ch. 16: Discovery of the Calculus – Mid to late 17th century – Wallis, Gregory, Newton and Leibniz, the Bernoullis
Chs. 17 – 24 (optional): Modern mathematics – 18th century to present – Euler, Laplace, Cauchy, Gauss, Riemann, Dedekind, Poincaré, Einstein, Hilbert, Godel, von Neumann, etc.

General Objectives: Besides developing your understanding of the topics mentioned above, there are some particular skills you should improve upon along the way in order to be able to apply what you learn in this course to future courses of study. These include:

- use of mathematical terminology and notation
- mathematical abstraction
- mathematical problem-solving techniques
- writing skills – both formal and informal
- appreciation of the interplay between mathematics and the surrounding culture

Evaluation Procedures:

Your understanding of the subject material and your progress toward the aforementioned objectives will be evaluated on the basis of your *written solutions to various problems* (assigned regularly throughout the term - see attached schedule), your *contributions to class meetings*, and *two written exams* (midterm and final – see attached schedule.)

Evaluation Criteria:

Grades on all work will be based upon

- accuracy of information (including calculations and use of mathematical notation and terminology)
- depth and breadth of solutions
- logic and clarity of arguments
- neatness and clarity of presentation
- correctness of grammar and spelling
- thoroughness and timeliness of work
- intellectual honesty and creativity
- achievement of personal potential
- difficulty of the assignment/test

Grades: My scale for converting numerical grades (i.e., percentage points) to letter grades will be as follows:

89-100 A, 77-88 B, 65-76 C, 50-64 D, below 50 F

Your final grade will be based on your *problem solutions* (50%), *exam scores* (30%), and *class participation* (20% - for attendance, preparedness and discussion contributions.)*

Important Policies and Reminders:

- *Attendance* at class meetings is important! However, should you find for some reason that you must miss a meeting, remember that you are still responsible for any and all material you may have missed during your absence. **You will also automatically lose one of the twenty class participation points for each meeting you miss beyond the first.*
- *Cell phones* should be turned *off* during class meetings. If you need to make or receive a call/text, please excuse yourself from the class and take care of your business outside the classroom.
- *Exams must be taken at the prescribed times (see attached schedule), except by prior permission from the instructor, which will only be given under the direst of circumstances (serious illness, e.g.). In order for you to obtain such permission, I must be notified of your “dire circumstances”, by e-mail, phone, or otherwise, before the test is over. Otherwise you will almost certainly receive a score of zero for that test.*
- **All electronic correspondence between student and instructor about matters pertaining to this course should be by way of your UWG e-mail account. In particular, all documents for this course may be downloaded from the UWG website by opening the “files” folder for this course in the “myCOURSES” section of the “myUWG” site.**
- I assume you will abide by the *UWG Honor Code*. *This means among other things that you will not submit any work for a grade that is not your own work.* Violators of the code will receive no credit for the work in question and, in more serious cases, may be expelled from the course with a grade of ‘F’.
- Please carefully read the information at the following link:
http://www.westga.edu/assetsDept/vpaa/Common_Language_for_Course_Syllabi.pdf
It contains important material pertaining to your rights and responsibilities in this class.
- **Disabilities Act/Accessibility for the Course:** If you are a student who is disabled as defined under the Americans with Disabilities Act and require assistance or support services, please notify me and provide me with a copy of your packet from Student Services.