Course Syllabus

Math7603-01W: Introduction to the History of Mathematics
Spring Semester, 2008
University of West Georgia

Instructor: Dr. David G. Robinson, Boyd #306, 678-839-4137
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Office Hours: MWF 9:10 – 10:00 a.m., 11:15 – 12:05 p.m., M 3:30 – 5:30 p.m.

Class Meetings: Monday 5:30 – 8 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.

Some good alternative authors of general histories of mathematics are: D.M. Burton, F. Cajori, T.L. Heath, M. Kline, D.E. Smith, D.J. Struik, H. Eves, J. Stillwell

Prerequisites: Completion of core math requirements (usually Math 1113 or higher) and English 1102.

Topics:

*Chs. 1 – 3*: Origins of mathematics, Egyptian and Mesopotamian arithmetic and geometry
*Chs. 4 – 5*: Pre-Socratic Hellenic math – Pythagoras to Zeno
*Chs. 6 – 7*: Golden age of Greek math – Plato to Euclid
*Chs. 8 – 9*: Works of Archimedes and Appollonius of Perga
*Chs. 10 – 11*: Ptolemaic period, Greek trigonometry and astronomy, Diophantus’ algebra and Pappus’ geometry.
*Chs. 12 – 13*: Chinese, Hindu and Arabic math: Brahmagupta to Al-jabr
*Ch. 14*: European math of the middle ages, Fibonacci to Oresme.
*Chs. 15 – 16*: Renaissance period: Cardan, Viete, Galileo
*Chs. 16 – 17*: Prelude to Calculus – Early 17th century, Descartes, Fermat and Pascal.
*Chs. 20 – 21*: Golden age of Calculus – 18th century, the Bernouillis to Euler.
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

WAC Objectives and Requirements:
This is a Writing Across the Curriculum (WAC) course. Like all such courses, it emphasizes writing as a tool for both learning and communication. Therefore the writing assignments for this course are divided into two types according as the main objective is either “writing to learn” (WTL) or “writing to communicate” (WTC). The specific assignments are as follows. (See the attached schedule for exact due dates):

WTL
- Math autobiography (1 to 2 pages) informal but neatly written story of your own personal math history (from birth to present day.)
- Problem solutions/proofs (six sets of 4 problems) creatively and logically solved and neatly written up, using complete sentences and proper mathematical notation.
- Journal entries (six installments, 2 to 3 pages each) informal notes, summaries, observations, questions, etc., based on the current readings and class discussions

WTC
- Formal Paper (at least five-pages, type-written) on some aspect of the historical development of a specific mathematical topic. You will submit this in three stages: (1) One-page description of the topic and the references to be used (including at least one book other than our text.) (2) Rough draft. (3) Final draft. [Note: You may choose the topic or take it from a list I will provide, but it must be approved by me before you get too far into the research and writing stages of the paper.]
- Short-answer exam problems (two per exam, 1 paragraph each.)

Evaluation Procedures:
Your understanding of the subject material and your progress toward the aforementioned objectives will be evaluated on the basis of your written work, as described above, your performances on two written exams, and your class participation (attendance, preparedness and contributions.)

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 the following distribution of points:

- Math autobiography 3%
- Journal entries (six installments) 18%
- Problem sets (six sets of four) 24%
- Midterm Exam score 15%
- Final Exam score 15%
- Term paper (topic report, rough draft and final draft) 15%
- Class participation * 10%

*Class participation includes attendance: Missing more than one class meeting for any reason will result in a deduction of 1 point per absence (beyond the first) from the 10 points available.

Important Reminders:
- Attendance is important! However, should you find for some reason that you must miss a class meeting, remember that you are still responsible for any and all material you may have missed during your absence.
- Assignments must be turned in at the prescribed times (see attached schedule) in order to be eligible for any credit. All work on these assignments must be your own, i.e., no help from anyone, without prior permission from the instructor. Failure to abide by this policy will lead to serious consequences: automatic zero on the assignment in question, possible expulsion from the class, etc.
- 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 given. Otherwise you will almost certainly receive a score of zero for that test.
- If you find yourself falling behind in the course, do not delay in seeking out appropriate help and advice from someone who is competent in the subject area and who has your best interests at heart!
- I assume you will abide by the UWG Honor Code. So will I!