

MATH 573

HISTORY OF MATHEMATICS

Section WWP

Nicholls State University, Summer 2016

Instructor: Dr. Brian Heck
Office: 106-E Peltier
Phone: 448-4383
Email: brian.heck@nicholls.edu
Web: <http://math.nicholls.edu/heck>
<http://www.facebook.com/bheck2009>

My office hours are 9:30-10:30am. Please contact me (phone, email, or in person) during these times if you have any questions. If you need assistance at a different time, contact me and we'll work something out.

Course Description (catalog): Prerequisite or co-requisite: MATH 509. Selected topics in the history of mathematics. A general survey of mathematics normally includes developments in geometry, algebra, number theory, and calculus as well as biographies of significant mathematicians and their contributions to mathematics and society. May be repeated for credit if content differs. No more than six hours may be counted towards a degree.

Course Description/Text: This course will be a humanities-style course that is approximately 75% history and 25% mathematics. There is no required text. I will post class notes to Moodle roughly once a week.

The history of mathematics covers a period of times roughly 6,000 years in length. It is therefore obvious that we will be unable to adequately cover *every* important development. The goal of this course is to explore how mathematics has developed over the years, so broad trends will be as important as specific mathematical topics. We will progress fairly chronologically, only diverging from this track to follow a particular topic in more detail. Particular attention will be paid to the people behind the achievements as well as the cultures in which they were made.

A few words need to be said about the Internet aspect of this course. All assignments, notes, announcements, etc. will be posted on Moodle. All students enrolled in an Internet course should have basic computer skills (such as word processing, e-mail, navigating the Internet, etc.). I invite you to visit the distance education webpage (<http://www.nicholls.edu/distance>) for more information and guidance. As an online student, you will be somewhat self-paced. This therefore requires self-discipline and self-motivation. All deadlines need to be respected. It is the responsibility of the student to notify the instructor of technical and/or personal problems that may interfere with online participation. Since email will be our primary means of communication, you will need to check your Nicholls email account regularly (*at least* once a day) for possible news and/or announcements. Additionally, please feel free to email me as often as is necessary if you

have questions about the material. Finally, just like a typical class, instances of academic dishonesty such as plagiarism will not be tolerated. Sanctions for such behavior are outlined in the *Code of Student Conduct* (Section 1.9).

Special Note: Section Five of the Code of Student Conduct, 'Academic Dishonesty and Disruptive Behavior,' includes a requirement that faculty file a charge/complaint statement with their respective dean whenever a student is confronted or disciplined for cheating. The Office of Academic Affairs will maintain these records, and any student confronted and/or disciplined for multiple offenses of academic dishonesty will be brought before the Academic Affairs Integrity Committee for further review and potential sanctions. Please read the Code of Student Conduct for further details regarding this policy.

Course Objectives: At the completion of this course, a student will be able to:

- demonstrate an understanding of the development of mathematics over the years
- effectively discuss the lives of significant mathematicians
- explain the relationships between different fields of mathematics
- analyze achievements in mathematics in the context of the cultures in which they developed
- research historical topics in mathematics and clearly communicate their findings in writing

Grading Structure: We will have many weekly assignments, a term paper, and a comprehensive final exam. These will be described fully below.

Assignments: You will have a problem set once or twice a week. These will range in style over the various types of problems that could appear on the final exam as well as possible discussion board participation. ***This portion will account for 50% of your semester grade.***

Term Paper: This will be due ***Friday, July 22, 2016***. The topic is up to you, but I must approve it. I would suggest using the first couple of weeks of the semester thinking about what you would be interested in and discuss it with me (since I have veto power over any topic). I will have a list of possible topics if you have no idea what you would like to write about. Turn in your selected topic to me at the latest by ***Friday, June 24, 2016.***

Your paper should be neither all history nor all mathematics. It should be self-contained mathematically (do not assume I know what you are talking about). If you have any doubts, let a friend read it. Your paper should be written professionally using the normal college formatting (regarding spacing, bibliography, etc), as it will be graded for grammar and spelling as well as content. The length is up to you. Noted mathematical historian Fred Rickey once said,

...[a paper] has a natural length. You are telling a story which needs a certain background, exposition, and detail. When that is successfully done, stop.

Well put. *This will account for 30% of your semester grade.*

Final Exam: We will have a “take-home” final. Exam questions will be of the following types: true/false, multiple choice, short answer, matching, essay, and mathematical. You will be expected to know mathematics, names, dates, and places (the “what”, “who”, “when”, and “where” of mathematics). But you will also need to understand the origins and context (the “how” and “why” of mathematics). *This exam will count for 20% of your semester grade.*

At the conclusion of the semester, letter grades will be assigned based on the usual 10% grading scale (A: 90-100%, B: 80-89%, C: 70-79%, etc). Late assignments will not be accepted unless there are very unusual circumstances, and make-up exams will only be administered if the student provides a valid excuse. The instructor decides which excuses are valid and which circumstances are unusual. As I said above, academic dishonesty (i.e. cheating, plagiarism, etc.) will not be tolerated.

Course Outline: We will begin, as mathematics did, in the ancient worlds of Egypt and Babylon.

- I. Ancient Times
- II. Greece
- III. Renaissance Europe
- IV. The Calculus
- V. Number Theory
- VI. The Crisis in Foundations
- VII. The 20th Century

Important Dates: ‘W’ Day - Friday, July 8, 2016
Term Paper Due - Friday, July 22, 2016
Final Exam Due - Wednesday, July 27, 2016

Academic Grievances: The proper procedure for filing grade appeals or grievances related to academic matters is listed in Section 5 of the *Code of Student Conduct* and at the following link: www.nicholls.edu/documents/student_life/code_of_conduct.pdf.

Continued Learning following an Extreme Emergency: In order to make continued learning possible following an extreme emergency

students are responsible for:

- reading regular emergency notifications on the NSU website;
- knowing how to use and access Moodle (or university designated electronic delivery system);
- being familiar with emergency guidelines;

- evacuating textbooks and other course materials;
- knowing their Moodle (or designated system) student login and password;
- contacting faculty regarding their intentions for completing the course.

faculty are responsible for:

- their development in the use of the Moodle (or designated) software;
- having a plan for continuing their courses using only Moodle and email;
- continuing their course in whatever way suits the completion of the course best, and being creative in the continuation of these courses;
- making adjustments or compensations to a student's progress in special programs with labs, clinical sequences or the like only in the immediate semester following the emergency.

Assistance with Studying and Assignments:

- The Tutoring Center at 143 Peltier Hall. Call 985-448-4100, email tutoring@nicholls.edu, or visit <http://www.nicholls.edu/academic-enhancement>.
- The Writing Center at 144 Peltier Hall. Call 985-448-4100, email tutoring@nicholls.edu, or visit <http://www.nicholls.edu/academic-enhancement>.
- Online Tutoring through Moodle. Look for the Brainfuse log-in link on the home page, <http://moodle2.nicholls.edu/moodle>

ADA Compliance: If you have a documented disability that requires assistance, you will need to register with the Office of Disability Services for coordination of your academic accommodations. The Office of Disability Services is located in 158A Shaver Gym. The phone number is (985) 448-4430 (TDD 449-7002).