

Math 4033: HISTORY OF MATHEMATICS, MWF 2:30 – 3:45pm, in MSCS 514

Instructor: Regents Professor/Grayce B. Kerr Chair, Dr. William Jaco

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Office Hours: MW 11:30-12:30; Tu 11:30-12:30 (in MLSC); and by appointment.

Online Classroom (Brightspace) site: <https://online.okstate.edu> (log in and find this course; it should appear among the courses for which you are registered).

Prerequisite: Math 2153 or equivalent, graduate student, or instructor permission. We begin using ideas from high school algebra and geometry throughout the course but necessarily progress to trigonometry, calculus, and formal mathematical definition and proof.

Textbook:

Title: *The History of Mathematics: An Introduction*

Author: David M. Burton

Edition: Seventh

ISBN: 9781307276275

NOTE: Since we are not covering the entire book, a selected e-book copy has been made and can be purchased online at: <https://create.mheducation.com/shop/> at which point you enter book title, ISBN, Instructor, Author and follow online instructions. If you do not already have an account with McGraw-Hill Create eBook, you will need a credit card. A full text can be purchased online but typically cost more and will take a few days to arrive. The OSU Bookstore may also have some copies as this book was used for this course recently.

Course Objectives: The aims of this course are to

- Study the development of mathematical ideas and techniques over time, particularly the contributions of its most significant practitioners and from diverse cultures;
- Active classroom discussions as we develop skill in critical reading, research, and analysis as expressed through formal communication;
- Reflect on and critique our own work and that of other students particularly as it relates to the expression of mathematical concepts in reading and in planning and presentation of lessons.
- Facilitate the use of historical ideas and perspectives in broad discourse and in discussing mathematical ideas (particularly, in teaching of mathematics at the secondary level).

This is a three credit-hour mathematics class in which we hope to cover eight chapters of the book using group activities and active classroom engagement. You should expect to regularly average six hours of work outside of class per week and more if you are in a class presentation/project period. It is very difficult to succeed at this level of mathematics without consistently spending that much time reading the textbook, doing practice problems and historical research, and preparing for presentations or projects.

Syllabus Attachment: Please read the OSU syllabus attachment, available on our MATH 4033 Brightspace (formerly D2L) page under “Content/Overview.” This has important information, including

instructions about disability accommodations. Please contact me privately during the first week of the course if you need accommodations as a result of a disability.

Course Structure/Evaluation Requirements:

TIME	MONDAY	WEDNESDAY	POINTS
2:30 – 2:40	GENERAL DISCUSSION	GENERAL DISCUSSION	30
2:40 – 3:00	WEEKLY READINGS w/Peer Review	HOMEWORK Presentations/Discussions	300
3:00 – 3:35 (12) Group Presentations	LECTURE and GROUP WORK	LECTURE and GROUP WORK	100 (50 points each)
3:35 – 3:45	REVIEW and HOMEWORK ASSIGNMENTS	REVIEW and READING ASSIGNMENTS	0
EXAM 1		OCTOBER 3	100
EXAM 2	NOVEMBER 5		100
(4) GROUP PROJECTS	TBD	TBD	100
FINAL EXAM	DECEMBER 10		100
TOTAL			830

Grading: There are 830 total points available in the course. Preliminary grade cutoffs, which I may lower, are as follows:

- 740 points (89.2%) guarantees an A in the course
- 660 points (79.5%) guarantees a B
- 580 points (69.8%) guarantees a C
- 495 points (59.6%) guarantees a D

Earning 89.2% guarantees an A for the semester, 79.5% a B, 69.8% a C, and 59.6% a D. I reserve the right to use discretion if you are on the borderline between two grades, considering performance on exams, improvement or decline during the semester, attendance, and judgment of your effort and participation. I will not drop any scores.

Attendance: Attendance is required. It is rare for a student to do well if he or she misses many classes.

Exams: All exams will be in class. The tentative hour exam dates are **Wednesday, October 3 and Monday, November 5** and will be held during regularly scheduled class. I will communicate any date changes in class and in writing. The final exam is on **Monday, December 10**, from **2:00-3:50pm in MSCS**

514. You must tell me in writing by **Monday, December 3**, if you have a university-approved conflict with the final exam time; if you do not meet that deadline, you may not be allowed to take a conflict exam. I cannot give a conflict exam if you do not have a university-approved conflict.

Evaluation: Evaluation on the exams will be based on correct responses to TRUE/FALSE, Fill-in-the-Blank, and written responses to mathematical problems coming from the material covered by the exam.

Homework: We will be conducting the class in a style of active participation and inquiry. I will assign homework every week. You will have individual as well as group written assignments, which you should be prepared to present in class as we discuss Homework each Wednesday. The written assignments and presentation in class will help you learn to communicate mathematical ideas in a clear, rigorous manner and get feedback on your techniques. The class will be a learning environment where we will be supportive and constructive in our critiques and embrace the process of learning from mistakes – mistakes are welcome. Homework will be assigned on Wednesdays and will be due on the following Monday; on some assignments I will make clear that some of the Homework is to be turned in for my evaluation. Missing homework can dramatically lower your course grade, so please keep up with the work, and start early. You should expect to have to work hard to get some of the problems; you don't learn anything by doing problems identical to what I do in class. I have found that students do much better if they also take advantage of office hours. As you come into the classroom on Wednesdays, please provide a note with your name, date and those homework problems you are prepared to present/discuss in class that day.

Weekly Reading: Weekly reading of typically fewer than 25 pages from the text will be assigned each Wednesday to be completed before the Monday class in the next week. The assignment on the reading each week is for you to write and type neatly *Two Intelligent Sentences* relating to different aspects of the reading. These sentences should comment critically and thoughtfully on these different aspects of the reading, convincing a reader that you completed the reading assignment and that you understood it. The first 10 minutes of class on Monday will be spent on peer review of these sentences. Students will exchange papers and will assign grades of A through F to each other's paper (see rubric below). Each assignment is worth 10 points: 4 points per sentence written, 1 point per sentence reviewed on a classmate's paper. Grades are:

- A** Interesting sentences which clearly explain and/or comment critically on different aspects of the reading.
- B** Sentences that deal with substantive issues but which need editing for scope, correctness, or clarity.
- C** Factual sentences that do not indicate a critical understanding of what was read.
- D** Sentences which only relate to the titles of sections and subsections, not to the actual reading.
- F** Assignment was not completed.

Students may nominate interesting sentences for class discussion.

Presentation/Projects: These are group activities for which details will be provided to the class so class members may select priorities they would like to work on.

Presentations. Central participants in the development of mathematics. There are many contributors in the history of mathematics; however, we are limited in time and will not be able to cover all of even the major participants. I will provide a list that fits best into the materials that will be covered in class, meaning in particular that we will not go much past the late 1700s with class lectures. Groups of two students each will work together and each member of the group will have 10 minutes of a 20-minute time slot for presentation. A combined written report of no more than three pages will be submitted at the time of the report. It will be graded with a possible 50 points that will go to both members of the group. Each student will be assigned two groups, which by luck-of-the-draw may or may not be the same group both times. Presentation will be during the time slot scheduled for Lecture and Group Work.

Projects. Interesting discoveries in mathematics. These will be more challenging and may go beyond the materials covered in lecture; the latter examples will come at the end of the term. Groups of three students each will work together and each member of the group will have 10 minutes of a 30-minute time slot for presentation. A combined written report of no more than five pages will be submitted at the time of the report. It will be graded with a possible 100 points that will go to all three members of the group. Presentation will be during the time slot scheduled for Lecture and Group Work.

Conflicts: I will offer reasonable accommodation in the event that you miss a major assessment activity for a valid and documented reason, assuming documentation is provided **in advance unless absolutely impossible**. For a quiz or exam, you need to tell me as soon as you know you have a conflict and will be ineligible for a make-up if you do not. If you won't be in class when homework is due, turn it in early or give it to someone else to turn in prior to the deadline. I require proof of the reason for your absence (e.g., a doctor's note, proof of involvement in an OSU-sponsored activity, etc.), and you should not assume you will be eligible for a make-up exam or quiz unless I have explicitly approved your request.

Academic Honesty: Don't cheat. Don't copy off of other students, allow other students to copy your work, or present work you find in printed or electronic sources as your own. You may get help on homework from other people or sources but should write your solutions independently, without looking at anything someone else has produced. For questions, contact the Office of Academic Affairs, 101 Whitehurst, (405) 744-5627, <http://academicintegrity.okstate.edu>. I deal with cheating very harshly; don't take any chances.

What if I need help? Often students find it helpful to talk to each other and work through problems together; I support this. You may post questions and answers in the Discussion section of the Online Classroom for our course. You also can send me an e-mail if do not wish to post there and I will post the question anonymously. You should certainly come see me in person during office hours if you have something more than a quick question. **Above all, see me early if you have questions.**
