

MAT 300-01 HISTORY OF MATHEMATICS
Spring 2008

Instructor: Ross Gingrich

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Office Hours:

Monday	No scheduled office hours
Tuesday	11:00 - 12:00 and 4:30 – 5:45 pm
Wednesday	2:00 – 3:00 pm
Thursday	11:00 - 12:00 and 4:30 – 5:45 pm
Friday	No scheduled office hours

Also by appointment or chance, particularly on Mondays. I will be available (at least briefly) after each class, and I am willing to make appointments for days, evenings, and Saturdays.

Course website: <http://www.southernct.edu/~gingrich/mat30001spring2008/>

You will be able to access this page by directly typing in the URL, by going through my webpage, or by going into MyCourses in your MySCSU account. In MyCourses, click on our course, and then on Links. Note that this site is NOT part of the WebCT/Vista system. Once the semester has begun. I will be posting assignments, etc., to this webpage..

Course e-mail: I will expect everyone to be able to read e-mail sent through the MySCSU system. That means that either you will need to check your MySCSU e-mail account regularly, or you will need to forward the e-mail from your Southern account to another personal account that you do check regularly. If you do not know how to access your Southern e-mail account or you do not know how to forward mail from that account to another account, please see me.

Course Description: History of mathematics from earliest days to the discovery of calculus, the proliferation of mathematics in modern times, and the implications of these developments for the present day.

Credits: 3 semester-hours of University Credit.

Important note: This course has not yet been given W-status. However, it will be run as a W-course. My hope is that it will be given W-status before the end of the semester. If not, you have the right to submit your work from this course to the Writing Board and appeal for W-status. I will help people with that appeal.

Course Prerequisites: MAT 139 or MAT 150, and ENG 112 (formerly ENG 101).
Pragmatically, I will also assume a solid background in high-school algebra and high-school geometry, and an introduction to right-angle trigonometry. If you have not had a reasonable exposure to these topics, please see me.

Course Text: The History of Mathematics: Brief Version, Victor J. Katz, 2003.

References and Supplementary Readings: Additional readings and references will be announced in class. They may be distributed in class, be put on reserve in the library, be available on the web, or be made available for copying.

“Mathematics as an expression of the human mind reflects the active will, the contemplative reason, and the desire for aesthetic perfection. Its basic elements are logic and intuition, analysis and construction, and generality and individuality. Though different traditions may emphasize different aspects, it is only the interplay of these antithetic forces and the struggle for their synthesis that constitute the life, usefulness, and supreme value of mathematical science.”
-- Richard Courant and Herbert Robbins

In this course we will study the history of mathematics from ancient to modern times. The evolution of mathematical concepts and ideas will be an important theme of the course. Some classical problems will be worked using the methods of the day. However, technical details comprise only a part of the picture. For that reason, we will consider the cultural, philosophical, and technological frameworks within which these ideas evolved. Further, we will look at the individuals involved and their impact. Finally, to the extent possible, we will trace the paths by which our knowledge of those times has come.

NCATE Course Objectives for MAT 300

Student Outcomes: It is expected that each student will be able to

1. Solve arithmetic, algebraic, and geometric problems using the methods developed by various cultures (NCATE 1.1-1.3, 4.1, 4.3, 7.1, 9.10, 10.6, 11.8)
2. Write a research paper on an historical topic, which includes the use of proper grammar, punctuation, and citations (NCATE 3.1-3.3)
3. Categorize the major mathematical achievements of various cultures (NCATE 4.1, 4.3, 7.1, 9.10, 10.6, 11.8, 12.5, 13.4, 14.8, 15.4)
4. Place the development of mathematical ideas into the broader context of world history (NCATE 4.1, 4.2, 4.3, 7.1)

Course Guidelines:

*“One must learn by doing the thing;
for though you think you know it,
you have no certainty until you try.”*
-- Sophocles

You are responsible for any material covered in lecture, the text, and other assigned readings, as well as material covered in assigned homework problems and papers. Some course material is not covered in the text; your main source for that will be your class notes and related materials. Some of the source material may also be available on various websites, with links from the course web page. Reading assignments will be given in class. You should come to class prepared to discuss those assignments. You should also bring your textbook with you to each class. Homework will be assigned periodically. You should be prepared to discuss, or at least ask questions about, the homework the class after it is assigned. The purpose of homework is to help you understand concepts by working with them

An average student should expect to work on course material at least two to three hours outside of class for each hour spent in class – that is six to nine hours per week. If you are spending significantly less time and not doing well, do not be surprised. If you are spending significantly more time and not doing well, see me; you may not be studying the material correctly.

Since our library has a limited amount of source material, please let me know the name, author, and call number of any book that you check out of the library for this course. In that way, if someone else needs to use it, we will know where it is. I will be putting a number of books on reserve in the library and will distribute in class, or post on the website, a list of those books.

I encourage you to seek help from me, when needed. Office hours have been established for that purpose. **You do not need an appointment to see me during office hours.** Even if no assistance is needed, students are welcome to stop by to discuss the course material, course policies, courses to take after this one, careers in mathematics and related areas, interesting mathematics problems, and mathematics and life in general.

Because I believe that your education at Southern should be more than just what occurs in the classroom, I will also give you the opportunity to earn extra credit, two percentage points on the non-paper part of your grade. To earn those points, you must attend two meetings or events chosen from any combination of the following: Math Club meetings, meetings of any other academic club at Southern, events sponsored by the Cultural Affairs Club, Crescent Player productions, and performances by any student musical group recognized as an activity by the University. You may attend more than one meeting/event of the same type; for example, both of your choices could be Math Club meetings. Since this is a mathematics class, if you attend a Math Club meeting, you only need to sign the attendance sheet at that meeting. For any other meeting/event, within

two weeks of that meeting/event, you must submit a one-page typed report, including the date, the time, the sponsoring organization, and a summary/review/critique of the meeting/event. For meetings of clubs, include the name of the presiding officer and/or faculty advisor. If I consider your report incomplete or poorly written, I will ask you to re-write it. As with any work to be submitted, these reports should be your own work.

Continuing the thought of participation in campus activities, I will be happy to announce in class upcoming meetings or events in which you are members or participants. Write the information down on a 3×5 index card, and give it to me before class.

Grading:

Written assignments and papers will not be accepted after announced deadlines, except with the specific permission of the instructor. Even in such cases, penalties may be imposed.

Email assignments will be assigned at least once a week. The email assignments will have due dates, and the assignments must be submitted by the given date and time.

Homework, quizzes, the midterm exam, and the final examination will be graded primarily on factual content and appropriate expression of ideas. In many cases, “facts” will really be interpretations of historical data. With the help of the text and other readings, I will try to give you what I consider to be the most accepted interpretations. However, if you suggest an alternate interpretation and can support it with information from two independent secondary sources or from an original/primary source or work, I will give you credit for that question.

There will be three-five quizzes, a midterm examination, a cumulative final examination, email assignments, and 6-12 papers or writing assignments, at least one of which will be at least 1500 words in length. All of the papers taken together will comprise at least 25 pages of writing, or equivalently 6250 words; the more papers, the shorter the average length. The midterm examination will probably be given sometime soon after the middle of the semester.

Papers will be graded on content, style, and mechanics. An unsatisfactory paper must be rewritten and resubmitted within one week of it being returned to the student. A paper that receives a low grade may be rewritten and resubmitted at the option of the student. Any student intending to rewrite a paper **must** first meet with the instructor to discuss the paper. Also, some papers will be designated for revision, even if the original paper is acceptable. A paper may only be resubmitted twice.

The papers and any other short written assignments will account for 50% of the final grade, the email assignments 5%, the final exam 15%, and the midterm and quizzes together 30%. I reserve the right to make adjustments to the these grade weights at the end of the course; such adjustments will be no more than 5%. Further, when deciding

your course grade, I reserve the right to consider class participation and my subjective evaluation of your commitment and general ability in working with the course material.

Class Exam and Quizzes	30%
Final Exam	15%
E-mail Assignments	5%
Papers	<u>50%</u>
	100%

Accommodations for Disabilities:

If you are a student with a disability, before you may receive accommodations or course adaptations in this class, you will need to make an appointment with the Disability Resource Center, located in EN C-105A. If you need to speak with me about accommodations, emergency medical information, arrangements in case the building must be evacuated, or other concerns, please do so as soon as possible. My office location and hours are on the first page of this syllabus.

Academic Honesty:

Students are expected to do their own work on examinations, papers, and other submitted work. You must neither give nor receive answers during testing times. You may not use crib sheets or other assists during exams unless specifically authorized by the instructor. **You must properly document sources used in papers. Plagiarism is a serious offense and will be treated as such.**

Academic dishonesty is not a victimless crime. Every time that a student cheats on an exam or plagiarizes in writing a paper, that student cheapens the value of the degree of every other student.

Lying about reasons for missing classes or tests will be considered academic dishonesty, as will any kind of deception that results in raising a student's grade or decreasing his/her workload. You should be familiar with the SCSU policy on Academic Honesty, which appears in the current Student Handbook. Potential consequences of academic dishonesty are also listed in that section.

I strongly encourage you to work together while studying. However, any work submitted should be primarily your own. It should not duplicate verbatim the work of any other student or source. In particular, you should not copy someone else's homework or paper word-for-word, even if you worked on it together. You should not ask others, particularly tutors working for the University, to do work for you that will be submitted for credit. However, you may discuss those problems with the instructor. You may also use the SCSU Writing Center when working on your papers.

Most importantly, you should be able to cite sources and explain your solutions if asked to do so. An inability to give a satisfactory explanation will be interpreted as your having submitted work other than your own. The lightest penalty for such action will be a zero on that assignment. Flagrant, repeated, and/or excessive violations will result in more severe penalties.

Attendance Policy:

Students are expected to attend classes regularly, as attendance is an essential component of class participation. Absences will have no automatic effect on your grade, but may have an effect on borderline cases at the end of the semester. It is your responsibility to contact me as soon as possible after missing any work (before, when possible); you can always leave a voice-mail message for me at (203) 392-5581. You are responsible for any material developed during class whether or not you are present. It is a good idea to get to know at least one other person in the class, so that if you do miss a class, there is someone whose notes you can copy and from whom you can get assignments if you can not talk to me first. In general, assignments will be posted on the course webpage.

In the early part of the semester, we may have to worry about snow days. I live sufficiently close to campus that if the University is open, I will be here. To check on the University's status, you can listen to an appropriate radio station or call **Southern's emergency closing number, (203) 392-SNOW (7669)**. Calling the Southern number is probably better. On days the University is going to delay opening or close, there should be a message at that number no later than 7 a.m., and perhaps earlier. If the University is open but you feel that you can not make it in from where you live, you should call and leave me a message. I will try to get back to you later that day or the next with the assignment, unless it is already posted on the website.

Make-up Policy:

Students are expected to take exams and quizzes on the dates announced in class. If you miss an exam due to an emergency or other extenuating circumstance, you must contact me as soon as possible; do not wait until the next class. You can always call me and leave a voice-mail message, or you may send an e-mail.. Make-up exams and deadline extensions will be given at the discretion and convenience of the instructor, the decision to be made on a case-by-case basis. Factors in that decision will include the student's overall performance in the course and the nature of the absence. If you know in advance that you will be unable to take an exam, you must inform me prior to the date of the exam so that we can discuss appropriate arrangements. As before, I will decide what constitutes a valid reason for missing the exam.

Withdrawal policy:

The last day for regular course withdrawals is March 24. Late withdrawals from the course after this date require the approval of the instructor. Such withdrawals will not be granted unless there are extenuating circumstances. By themselves poor grades will not be considered extenuating circumstances.