MAT 346: Model Syllabus

Writing Intensive
Information Literacy
Critical Reasoning
(Updated October 2016/May 2017)

Course Catalogue Description: MAT 346. Historical Development of Mathematics (3)
Corequisite: MAT 275 or consent of instructor. Development of mathematics from earliest systems to present century. Personalities involved with the contributions of each. A problem-study approach to give the student some training in research.

Goal of the Course: The primary goal of MAT 346 is to provide an overview of the major periods and historical development of mathematics within a cultural context. Through extensive reading, writing, and problem-solving using historical methods, students will develop skills for thoughtful investigation and communication of mathematical ideas. Students will investigate and research historical mathematical topics and present the results of mathematical scholarship in both written and oral formats.

Students have opportunities to investigate mathematical ideas through literature searches. Students will draft, revise, and submit multiple stages of written and oral reports during the semester. Products include multipage article summaries, problem solutions with correct typesetting, an expository paper of moderate length, and a short oral presentation, each with appropriate citation of sources. The expository paper will go through the process-driven approach, including pre-writing, drafting and revising, peer review, and instructor review and evaluation. The instructor provides informal feedback at each stage of the development process, and formal feedback to written drafts during weeks 8 and 10. The final research paper and oral presentation are evaluated using a rubric designed to evaluate students around the learning outcomes. The rubric includes assessing students' correct use of citations of others' work.

Course Student Learning Objectives:

1. Through a series of drafts and revisions, use instructor feedback to produce a written product that reflects knowledge and understanding of the historical development of mathematics. (WI 1, 2; CR 4)
    a. Develop skills in effectively locating, analyzing, and utilizing current and relevant resources for mathematical scholarship. (WI 1; IL 1, 2)
    b. Demonstrate competence in independent reading, analysis, and evaluation of mathematical materials and resources. (WI 1; IL 2)
    c. Develop skills in writing and presenting mathematical arguments in an organized, logical, and coherent form. (WI 2)
    d. Demonstrate understanding of ethical standards for citation and use of mathematical ideas. (IL 3, 4; WI 1)

2. Review, structure, and apply mathematical knowledge to solve a variety of mathematical problems using historical methods and techniques. (CR 1, 2)

3. Organize and deliver a mathematical presentation that reflects knowledge and understanding of the historical development of mathematics.. (IL 4; CR 4)

4. Understand the mathematics of various different civilizations, their conception and use of mathematics, and how the historical conditions of those civilizations affected and were affected by mathematics. (CR 3)

Sample Course Outline

Week 1	Introduction Outlining the History of Mathematics
Week 2	Egypt and Mesopotamia The Beginnings of Mathematics in Greece Euclid and *The Elements*
Week 3	Archimedes and Apollonius The Final Chapters of Greek Mathematics Locating and evaluating resources for research and writing; ethical citation and use
Week 4	Ancient and Medieval China and India The Mathematics of Islam Two page article summary; critical evaluation
Week 5	Mathematics in Medieval Europe Algebra in the Renaissance
Week 6	17th Century Mathematics Writing style and communication for mathematical content
Week 7	Newton and Leibniz
Week 8	18th Century Mathematics Mathematical speaking and presentation; visual communication of mathematical ideas
Weeks 9-11	19th and 20th Century Mathematics
Week 12-13	Mathematical Writing: Exposition Twelve-page exposition of mathematical topic relating to historical development; expository style in mathematics.
Weeks 14-16	Mathematical Speaking: Presentation Twenty-minute presentation of mathematical topic

Fall 2017 Implementation of MAT 346 Model Syllabus

Instructor: Dr. Ken Gurganus   Office: OS 2016B   Hours: 10-11:30 MTWRF
Email: gurganus@uncw.edu

Required Texts
- *A Concise History of Mathematics,* 4th revised Ed., Dirk J. Struik (1987). ISBN: 9780486602554
- *Journey through Genius*, William Dunham (1991). ISBN: 9780140147391

Course Requirements
- You are expected to attend and be on time to class for each scheduled meeting.
- You are expected to keep up with the readings in the textbooks. There will be regular reading quizzes. The purpose of the assigned readings is to fill in the historical details of the mathematics we work with in class. *You will find it extremely difficult to keep up with your understanding if you have not read the required chapter sections before it is discussed in class.*
- You are expected to participate regularly in class discussions. Reading the text will help your ability to participate in class.
- You are expected to maintain a professional attitude.

Assignments and Grading
You will have assignments every week from the text and problem sets (posted at http://people.uncw.edu/gurganusk/), several announced reading quizzes throughout the semester, a written journal assignment every two weeks, and two formal tests. You will also select, research, and present a topic of your choice. Your presentation will be a 15 to 20 minute class presentation accompanied by a 10 to 12 page paper. A *midterm exam* will be given on **Wednesday, October 4**and the *final exam* will be take-home and due on **Thursday, 2:30 PM, December 7.** There will be **no make-ups** for graded assignments without prior permission.

Each exam will contribute 15% toward your grade and your Oral Presentation and Term Paper will each contribute 20% toward your grade. Your combined journals, quizzes, and homework scores will contribute 20% of your grade and class participation will determine the final 10% of your grade. Class participation is determined through regular class attendance, participation in class activities, etc. Your final course grade will be based on a 10-point grading scale. The +/- modifiers may be used at the discretion of the instructor. Factors that influence the judgment to assign a + or – (or neither) are: performance on the exams, professionalism, consistency of performance throughout the semester, proximity to a grade borderline, class participation and effort (including attendance).

Term Paper and Class Presentation
You will select a topic to research from the history of mathematics and write an expository paper about your topic. You will present your findings to the class. Further information and details are posted online. If you need help with writing your term paper, please refer to the Writing Center, a free service offered by the University Learning Center (see below for further information).

Writing Services at the University Learning Center

DePaolo Hall, first floor (DE 1003)
910.962.7857
http://www.uncw.edu/ulc/writing/index.html

All writers need readers, and the more readers you have while drafting a paper, the better your paper can become. Writing Services provides experienced peer readers for all UNCW students as they develop and improve their writing skills. Writing Services are not remedial, but designed for all student writers who want to improve their papers. Students can get help with their writing in three ways:

1. The Writing Center (DE1003) provides one-on-one writing consultations led by faculty recommended peer writing tutors who are trained to help students develop revision plans. Visit our website to schedule an appointment: http://www.uncw.edu/ulc/writing/center.html
2. Students can also receive electronic response to their developing papers through our Online Writing & Learning (OWL) service. Visit our website for a variety of writing resources: handouts, guides, useful links, and the online consultation link: http://www.uncw.edu/ulc/writing/owl.html
3. Students can drop-in at our Writing Lab (DE 1003) for help with quick questions about their developing papers. The Writing Lab is staffed with a writing tutor, and has a few computers and other writing resources for students. Check out the Writing Lab schedule here: http://www.uncw.edu/ulc/writing/lab.html

ACADEMIC HONOR CODE: In accordance with the *UNCW Student Handbook and Code of Student Life*, students and faculty of UNCW are to follow the academic honor code. Please refer to the *Student Handbook* and *Undergraduate Catalogue* for definitions and procedures related to the honor code. These policies will be followed in this course.

STUDENT DISABILITIES: If you have a disability and need reasonable accommodation in this course, you must first contact Office of Disability Services and present your documentation to the coordinator for review and verification to obtain an accommodations letter. You should then meet with your instructor to make mutually agreeable arrangements based on the recommendations of the accommodations letter. Students with Disabilities information and resources available at http://www.uncw.edu/stuaff/disability/.

CELL PHONES, LAPTOPS, IPADS, ETC: Please silence your cell phone and do not make calls, access applications, or text during class. If you have a personal, urgent matter for which you need to be on call, please let me know in advance. In addition, please limit computer use to what is relevant for class. We might use these devices in selected activities, and they are permissible then.

RELIGIOUS OBSERVATIONS: In accordance with NC SL 2010-211, you are entitled to two excused absences for religious observances **per academic year**. You must inform the instructor in writing the first week of class if you will be missing any classes due to religious observance and using one of the two permissible absences for the academic year. In addition, please inform the Registrar the first week of class who will then confirm your intentions to miss class with the impacted course instructors. Any absence for religious purposes will be considered unexcused unless you submit the request in writing the first week to both the instructor and the Registrar.

UNCW STATEMENT ON DIVERSITY IN THE UNIVERSITY COMMUNITY: As an institution of higher learning, the University of North Carolina Wilmington represents a rich diversity of human beings among its faculty, staff, and students and is committed to maintaining a campus environment that values that diversity. Accordingly, the university supports policies, curricula, and co-curricular activities that encourage understanding of and appreciation for all members of its community and will not tolerate any harassment or disrespect for persons because of race, gender, age, color, national origin, ethnicity, creed, religion, disability, sexual orientation, political affiliation, marital status, or relationship to other university constituents.

ZERO TOLERANCE POLICY: UNCW practices a zero tolerance policy for violence and harassment of any kind. For emergencies contact UNCW CARE at 962-2273; Campus Police at 962-3184; or Wilmington Police at 911. For University or community resources visit: http://www.uncw.edu/safe-relate/campusResources.htm. Violence prevention information and resources available at http://www.uncw.edu/safe%2Drelate/.