Math 3010
Topics in History of Mathematics
Spring 2020

Instructor: Alla Borisyuk
Office: LCB 303
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Office hours: Wed 12:30-1:30 and/or email me for an appointment

Lectures: MWF 2-2:50pm in CSC 10-12
Course website: www.math.utah.edu/~borisyuk/3010. All class materials will be posted at the website.
Book: There is no required text for this class. I will frequently provide you with excerpts from books, manuscripts, websites to read. You will likely find it helpful to take notes in class as well.

Prerequisites: "C" or better in one of Math 1210, 1250, 1270, 1310, 1311, 1220, 1320, 1321, or 2210, or AP Calculus AB score of at least 4, or AP Calculus BC score of at least 3.
Requirement Designation: Comm/Wrtg & Phys/Life Sci Exploration

Here is the preliminary list of topics we intend to cover. It may be modified as we go along:

- What is mathematics and its role in the history of civilizations
- Number systems, Math in Ancient civilizations
- Mathematics in ancient Greece
- China, India and the Islamic world
- Renaissance Europe
- Calculus in the 17th century Europe
- Analysis in the 18th century
- Geometry in the 18th century
- Algebra and number theory in 18th century
- Analysis and geometry in the 19th century
- Algebra and number theory in the 19th century
- Some developments of the 20th century

A daily plan and due dates of specific assignments are listed at the course webpage, but the plan is likely to shift as we go along, so check with it often.

Course expectations:

The goals of this course is to give students a good understanding of the historical development of key mathematical ideas, and of mathematicians involved. It is a very vast subject. Inevitably, we will have to be very selective. My hope is that this class will allow you to see mathematics less as a toolbox of tricks, and more as a beautiful structure being built (or explored?) at all times and inseparable from other human development.

The students will be expected to learn the mathematical contents (you will be asked to reproduce some of the proofs, use some of the algorithms, understand and discuss some of the theories), as well as understand their historical context, and learn the basic skills of mathematical writing.
This is a writing-intensive course. You will have to write with various target audiences in mind, and your writing will be graded based on the contents of the text, its appropriateness for the audience, style, and presentation.

The **weekly homework** will contain:
- reading assignments (you will be expected to know the material by class time to participate in the class discussions and/or to do the writing assignments),
- short writing assignments (based on the lecture material, reading assignments and your own literature exploration),
- mathematical exercises (more like the standard math homework).

Students may discuss the problems with others, but it is important to write up one's own solutions. The lowest homework score will be dropped. Assignments, on the date due, should be handed in either before or immediately after class; late homework will typically not be accepted.

The **midterms** will have some questions based on the class and reading materials, some writing and mathematics questions. See class website for tentative midterm dates.

For your **final essay** you will be asked to explore one of the mathematical ideas in greater depth, through time. You will decide your topic in consultation with me, but you are very strongly encouraged to pick something of real interest to you. The writing of the essay will be broken up into a series of shorter assignments: details to follow later in the semester.

**Grade** will be based on:
- Homework math exercises (10%)
- Weekly writing homework (20%)
- 3 Exams (3x10%)
- Class participation (discussions, activities, presentations) 20%
- Final essay (20%)

- **ADA Statement:** The Americans with Disabilities Act requires that reasonable accommodations be provided for students with physical, sensory, cognitive, systemic, learning, and psychiatric disabilities. Please contact me at the beginning of the term to discuss any such accommodation for the course.
- **Campus Safety:** The University of Utah values the safety of all campus community members. To report suspicious activity or to request a courtesy escort, call campus police at 801-585-COPS (801-585-2677). You will receive important emergency alerts and safety messages regarding campus safety via text message. For more information regarding safety and to view available training resources, including helpful videos, visit [https://safeu.utah.edu](https://safeu.utah.edu).
- **Personal names/pronouns:** The University of Utah provides class rosters to instructors with each student’s legal name as well as “preferred first name” (if previously entered by you in the Student Profile section of your CIS account, which managed can be managed at any time). Please let me know if your preferred first name or pronoun is not as indicated in CIS.
- **Addressing Sexual Misconduct:** Addressing Sexual Misconduct. Title IX makes it clear that violence and harassment based on sex and gender (which includes sexual orientation and gender identity/expression) is a civil rights offense subject to the same kinds of accountability and the same kinds of support applied to offenses against other protected categories such as race, national origin, color, religion, age, status as a person with a disability, veterans status or genetic information. If you or someone you know has been harassed or assaulted, you are encouraged to report it to the Title IX Coordinator in the Office of Equal Opportunity and Affirmative
Action, 135 Park Building, 801-581-8365, or the Office of the Dean of Students, 270 Union Building, 801-581-7066. For support and confidential consultation, contact the Center for Student Wellness, SSB 328, 801-581-7776. To report to the police, contact the Department of Public Safety, 801-585-2677 (COPS).