Mathematics 3830H – A Survey of the History of Mathematics
TRENT UNIVERSITY, Winter 2025

MATH 3830H is a survey of the development of mathematics from pre-history to the modern era, with a focus on the development and spread of number systems and arithmetic techniques, proofs, algebra, and applications.

Instructor

Stefan Bilaniuk (pronounced Стефан Біланюк)
office: ENW 337 *phone:* 705 748-1011 x7474
hours: Mondays & Thursdays 11:00-11:50,
Tuesdays & Fridays 15:00-15:50,
by appointment, or just drop by!
e-mail: `sbilaniuk@trentu.ca`
home: 705 742-7862 [Do *not* call between 9 p.m. and 8 a.m. unless it's an emergency.]
web: `http://euclid.trentu.ca/math/sb/`

Department of Mathematics

Colleen Berrigan
office: SC 327
hours: Weekdays 09:00-16:00
phone: 705 748-1011 x7715
e-mail: `math@trentu.ca`

Prerequisite: MATH 1120H *Recommended:* MATH 2200H or MATH 2350H.

Text

A Short Account of the History of Mathematics (4th Edition), by W. W. Rouse Ball, 1908. Available for free from Project Gutenberg at: `www.gutenberg.org/etext/31246`

Recommended: *The Historical Roots of Elementary Mathematics*, by Lucas N.H. Bunt, Phillip S. Jones, & Jack D. Bedient, Dover Publications, New York, 1988, ISBN 0-486-25563-8.

Additional readings will be assigned from other sources available online for the assignments.

Meetings: Mondays 14:00-15:50 in ECC 208 and Thursdays 12:00-13:50 in DNA B105.

Marking Scheme

There will be at least six fortnightly assignments, a project (including a proposal), and a take-home final examination. The final mark will be calculated as follows:

Best 5 assignments (7% each)	35%	Project	29%
Project proposal	4%	Final Examination	32%

At least 25% of the course marks will be obtained by the final date (Friday, 7 March) to withdraw from Winter term courses. Students who are unable to hand in assignments on time for reasons beyond their control should contact the instructor as soon as possible.

This scheme may be modified for students in exceptional circumstances. Any such modification will require the agreement of both the student and the instructor.

Content & Learning Outcomes

Students will learn about some of the key steps in the evolution of mathematics as we know it nowadays. They will also be exposed to the problem of interpreting the available data (*e.g.* the variant interpretations of the cuneiform tablet Plimpton 322, and the priority dispute concerning the invention of calculus), and will read portions of several original sources in translation.

Archive Pages

Web pages at `euclid.trentu.ca/math/sb/3810H/` and `euclid.trentu.ca/math/sb/3820H/` archive materials from the ancestors of this course.

Readings & Schedule

The following schedule is *tentative* – no lesson plan survives contact with students! – and our actual pace and the readings themselves will be adjusted as necessary. Most of our readings will be from the textbooks, *The Historical Roots of Elementary Mathematics*, by Lucas N.H. Bunt, Phillip S. Jones, & Jack D. Bedient, hereinafter referred to as *BJB*, and *A Short Account of the History*

of Mathematics (4th Edition), by W. W. Rouse Ball, hereinafter referred to as *Ball*. Additional readings will also be given from time to time, from sources available online.

Week 1. *(6-10 January BJB §1-1 – 1-11; Ball Chapter I.*
Week 2. *(13-17 January) BJB Chapter 2; Words and Pictures: New Light on Plimpton 322.* Assignment #1 due on Friday, 17 january.
Week 3. *(20-24 January) BJB Chapters 3 & 4; Ball Chapter II.* Project proposal due on Friday, 24 January.
Week 4. *(27-31 January) BJB Chapter 5; Ball Chapter III; part of Meno by Plato (in translation).* Assignment #2 due on Friday, 31 January.
Week 5. *(3-7 February) BJB Chapter 6; Ball Chapter IV (through the part on Euclid); a bit of the Elements by Euclid (in translation).*
Week 6. *(10-14 February) BJB Chapter 7; Ball Chapters IV (the rest of it) & V; bits of the The Sand-Reckoner, by Archimedes (in translation).* Assignment #3 due on Friday, 14 February.
Fall Reading Week. *(17-21 February)* Enjoy, play catch-up, or get ahead!
Week 7. *(24-28 February) BJB §8-1 – 8-4; Ball Chapters VII & IX (first half); bits of the Āryabhaṭīya, by Āryabhaṭa (in translation).*
Week 8. *(3-7 March) Ball Chapter IX (second half); some of The Algebra of Mohammed ben Musa [i.e. al-Kwarizmi] (in translation).* Assignment #4 due on Friday, 7 March *The last date to withdraw from the course is Friday, 7 March.*
Week 9. *(10-14 March) Ball Chapter X.*
Week 10. *(17-21 March) Ball Chapters XI – XIII; part of Jerome Cardan: The life of Girolamo Cardano, of Milan, physician, Vol. I, by Henry Morley .* Assignment #5 due on Friday, 21 March.
Week 11. *(24-28 March) Ball Chapters XV – XVII; An Account of the Book Entituled Commercium Epistolicum Collinii et Alliorum, de Aanalysi Promota, by Isaac Newton [writing anonymously].* Take-home final examination distributed on Thursday, 27 March.
Week 12. *(31 March – 4 April) Ball Chapter XIX; parts of The Analyst, by George Berkeley, and A Treatise of Fluxions, by Colin MacLaurin.* Assignment #6 due on Friday, 4 April *Friday, 4 April, is the last day of classes.*
Examination period. *(8-21 April)* Project and take-home final examination due on Thursday, 17 April. *University closed on Good Friday, 18 April.*

Academic Integrity

> *Academic dishonesty, which includes plagiarism and cheating, is an extremely serious academic offence and carries penalties varying from failure on an assignment to expulsion from the University. Definitions, penalties, and procedures for dealing with plagiarism and cheating are set out in Trent Universitys Academic Integrity Policy . You have a responsibility to educate yourself – unfamiliarity with the policy is not an excuse. You are strongly encouraged to visit Trents Academic Integrity website to learn more:* `www.trentu.ca/academicintegrity` .

For clarity, the following guidelines will apply in MATH 3830H:

> You are permitted and encouraged to work together and ask anyone willing (especially the instructor!) for explanations, hints, and suggestions on the assignments and projects, and to consult whatever sources you wish, with the exception that **you may not consult anyone who has taken a similar course recently or their work**. However, **all work submitted for credit must be written up entirely by you, giving due credit to all relevant sources of help and information**. The take-home final exam will have more restrictive conditions that will be spelled out on the exam.

Access to Instruction

> *It is Trent University's intent to create an inclusive learning environment. If a student has a disability and documentation from a regulated health care practitioner and feels that he/she may need accommodations to succeed in a course, the student should contact the Student Accessibility Services Office (SAS) at the respective campus as soon as possible.*

Last modified 2024-11-24.