
Mathematics As A Liberal Art

Math 105 Spring 2024

Ⓟ 2024 Ron Buckmire

Fowler 309 MWF 3:00pm- 3:55pm

<http://sites.oxy.edu/ron/math/105/24/>

INSTRUCTOR Ron Buckmire ~ Fowler 313 ~ x2536 ~ ron@oxy.edu

OFFICE HOURS My official office hours for Spring 2024 are **TR 10-11am and MWF 4-5pm.**

I'll either be in my office or available by Zoom at <https://occidental.zoom.us/my/buckmire>

Note the code is 235711.

You can also make individual appointments at My Google Appointments page

TEXTBOOK There is no required textbook for this course. We will be using materials from **Discovering the Art of Mathematics** at <http://www.artofmathematics.org> as our primary text(s) as well as material on the internet as provided,

WEBSITE <http://sites.oxy.edu/ron/math/105/24/>

MOODLE <https://moodle.oxy.edu/course/view.php?id=39546>

COURSE OBJECTIVES The goals for this class are that students will

- Read expository mathematics with understanding and appreciation.
- Appreciate the breadth of what mathematics is and the beauty of the subject as a topic of inquiry and as a tool for explaining and describing phenomena in the world.
- Articulate mathematical ideas in both oral and written forms.
- Work together on mathematical topics in small groups.

LEARNING OUTCOMES The student learning outcomes for this course are

- Demonstrate understanding of formal descriptions of abstract concepts in science or mathematics by correctly using and interpreting mathematical notation or discipline-specific scientific/technical vocabulary.
- Describe, develop, implement, and/or replicate an ordered sequence of steps to demonstrate scientific or mathematical results (e.g., execute algorithms, solve problems, prove theorems, create chemical products, conduct experiments, produce software, make observations, etc).
- Describe, identify, explain, observe and/or critically examine multiple examples of scientific phenomena or mathematical concepts.

COURSE ASSIGNMENTS Assignments will be distributed in class, and also available online, at the Course Website. You should refer to these websites frequently as your source for what is due for the next class meeting, and to determine assignments further in the future. It is your responsibility to check the website and to keep up with all the assignments.

PROBLEM SETS a.k.a. HOMEWORK A problem set will be due nearly every 2-3 weeks in class. It will be based on material we discuss the week prior to give you a chance to refine and deepen your understanding. I will often give this problem set to you well before it is due. By having them well in advance of the due date, please do not wait until the last minute to complete them! Work on them over the weekend and throughout the week, and seek help from classmates or from me early in the week. While I encourage you to work together on these, and on all assignments, what you actually put on your own paper must represent your own understanding of the material and must be written independently of others. **No late work will be accepted without prior approval of the instructor.**

EXAMS There is no Final Exam in this course.

PARTICIPATION The time in class will be spend discussing related ideas, building on the themes, and working on some real mathematics. You will experiment, conjecture, test, refine, and sometimes prove your ideas about this mathematics. Because this work is important in terms of your immersion in mathematics, your attendance and participation will be part of your final grade. You will often be asked to work on problems introduced in class or related to the class discussion for homework and bring it to the next class meeting. **No late work will be accepted without prior approval of the instructor for your absence.**

CANCELLED CLASSES We will not have class on the following dates

- Friday February 16 (Buckmire absent)
- Monday February 19 (Presidents Day)
- Monday March 11-15 (Spring Break)

GRADES Your course grade will be composed of the following portions:

- Mid-Term Exam **20%**
- Automathography **20%**
- Homework and POTD **20%**
- Preparation, participation, class engagement **20%**
- Course Project (Paper Draft , Final Paper Draft and Oral Presentation) **20%**

GRADING SCALE Please note that there is no A+ or D- available for course grades (But they are available for all other graded assignments).

Range	92.5+	90+	87.5+	82.5+	80+	77.5+	72.5+	70+	67.5+	62.5+	60+	60-
Grade	A	A-	B+	B	B-	C+	C	C-	D+	D	D-	F

COURSE PROJECT During the last part of the semester, you will work on a final project, preferably in groups of 2 to 3 people. The subject matter for the project is completely open as long as it involves mathematics. I highly encourage you to work on this final project in teams that you choose. Topics and team membership should be submitted by **Friday March 1**. Approval of teams and final project topics will be given by **Friday March 8**. Additional details on the projects will be handed out separately, but a brief description follows.

Each team will submit a (3-5 pages) draft of their project paper on **Friday April 5th** describing the mathematical concepts involved in the project. The final draft of your project paper (4-6 pages) that describes the work your group did in detail for the project along with the mathematical concepts involved is due on **Monday April 29**. The project paper should explore both the process as well as the final product of the project and should contain appropriate citations and a bibliography.

In addition, you will prepare a “(re)presentation” of your work to occur during the last week of classes (**April 24 and April 26**). This (re)presentation may simply be a poster describing and showing your work, may consist of physical constructions you have made for your project, may be a short video, a collection of pictures, or (in most cases) a simple oral presentation with prepared slides. Each team will be graded on the quality of your paper, the quality of your “poster” presentation, and the overall quality of your project. The group will receive one grade. Each individual will be held accountable for her or his contribution to the team effort, and everyone on the team will complete a self and group assessment of everyone’s contribution. This self and group assessment may alter individual’s grades from the group grade. If you are absent on either of these presentation days and do not have prior instructor approval for your absence, your (individual) grade on this project will be lowered by 10 percentage points for each absence.

COURSE POLICIES

HEALTH & WELL-BEING Your health and well-being, and that of our community, are essential. If you are feeling any symptoms of illness, please refrain from attending class until you receive a negative COVID test or it has been 10 days since your symptoms began. Please work with Emmons and the COVID Operations team to confirm when and how you can end your isolation. Similarly, if you have been identified as a close contact of someone who has tested positive for COVID-19, please follow all applicable College policies, and wear a high-quality mask when around other individuals for 10 days. If you miss an assignment due to illness or other emergency, you will need to provide appropriate documentation (a note from Emmons or from the Dean of Students’ Office). If you should contract COVID or other illness that necessitates further accommodation, please let me know as soon as possible so that we can help meet your educational needs.

Your mental health and emotional well-being impacts learning and academic success. Symptoms like depression, anxiety, and trauma may cause loss of motivation, difficulty concentrating, and other issues that make learning difficult. Emmons Counseling staff are committed to supporting the mental health needs of our students. Emmons counseling services are available M-F from 9a-4p and include individual and group therapy, drop-in chats, case management, and referral consultations. Walk-ins are available M-F from 2-4p. All of these services are offered in person and via teletherapy. Students can also utilize the 24/7 confidential hotline at (323) 341-4141. To get connected to any of the free, confidential services at Emmons call (323) 259-2657.

CLASSROOM EXPECTATIONS Here are some expectations I have for behavior in the classroom

Inclusiveness I strive to foster an inclusive classroom environment. Please be respectful of your peers and feel free to come to us with any concerns. We are

allies. You should know that we are not confidential resources (those you will find here).

Class Updates Students will be expected to regularly access the course website and to frequently check Oxy email for course announcements.

Electronic Devices Technology in the classroom is great as a tool, not as a distraction. You may use any device of your choice, but don't let your computers, phones, etc. take you off-task – or distract your neighbors.

ATTENDANCE POLICY Attendance and participation in class are a significant component of the course grade since this is a small seminar class. We will be working together to analyze and understand the course material together. However, if there is a medical issue or family emergency please let me know; I do not want you coming to class if you are seriously ill, and I recognize that other life issues can sometimes arise unexpectedly. If you must miss class due to an official Oxy event, or due to reasons of faith or conscience, please let me know as early in the semester as possible.

RECORDING POLICY You may not record any course activities without our written consent. Do not share or post any course information except with written consent.

SYLLABUS CHANGES Any aspect of this syllabus is subject to change, at any time, although you will be notified of any changes in writing (probably by email).

COLLEGE POLICIES

Credit Hour Policy Math 105 is a 4-credit course. The expectation is that students will be devoting at least twelve(12) hours each week (including in-class time) on average working on this course.

Academic Calendar The 2023-2024 Academic Calendar includes information about important deadlines.

Discrimination, Harassment and Retaliation The College seeks to maintain an environment of mutual respect among all members of its community. All forms of harassment and discrimination on the basis of sex, gender identity and expression, pregnancy, religion, creed, color, race, national or ethnic origin, ancestry, sexual orientation, medical condition, physical or mental disability, age, marital status, veteran status, family care leave status, political affiliation or any other class protected by federal, state or local law destroy the foundation for such respect and are violations of this policy.

<https://www.oxy.edu/student-handbook/general-college-policies/discrimination-harassment-and-retaliation>

Statement Of The Shared Academic Integrity Commitment Academic Integrity is a shared community value. It is built around trust and respect between members of the Occidental Community, and embodies a commitment to honesty and integrity in every aspect of one's academic life. All members of the Occidental community are committed to uphold the highest degree of academic integrity. Unless stipulated otherwise, the academic work done for all assignments is expected to be the student's own, and students give proper credit to the ideas and work of others.

Signing the Academic Integrity Commitment at matriculation and at the beginning of every semester represents a student's affirmation to uphold the shared values of honesty and integrity. When signing the Integrity Commitment associated with work in a course, students are affirming that they have not cheated, plagiarized, fabricated, or falsified information; nor assisted others in these actions. Here is a link to the Student Handbook (which includes the framing of the commitment, definitions of Academic Ethics, and Process for alleged violations of the commitment): <https://www.oxy.edu/student-handbook/occidentals-shared-academic-integrity-commitment>

Diversity, Equity, and Inclusivity Occidental College seeks to provide an inclusive and non-discriminatory environment by making it possible for students to use a lived first name and pronouns on college records when a legal name is not required. More information can be found here: <https://www.oxy.edu/student-handbook/general-college-policies/lived-name-pronoun-policy>. Students are encouraged to use Zoom to display their lived name and pronouns. These can be set at <https://occidental.zoom.us/profile>.

You may also consider connecting with the Intercultural Community Center (ICC) which seeks to uplift and support the experiences of students who identify as BIPOC, LGBTQIA+, low income or first generation college students. The ICC also aims to reduce institutional barriers for minoritized groups through intersectional programming, identity-specific services and structural resources. To learn more, contact icc@oxy.edu

Accommodations for Reasons of Faith and Conscience Consistent with Occidental College's commitment to creating an academic community that is respectful of and welcoming to persons of differing backgrounds, we believe that students should be excused from class for reasons of faith and conscience without academic consequence. While it is not feasible to schedule coursework around all days of conviction for a class as a whole, faculty will honor requests from individual students to reschedule coursework, to be absent from classes that conflict with the identified days. Information about this process is available on the ORSL website: <https://www.oxy.edu/office-religious-spiritual-life>

Special Accommodations/Learning Differences All academic and housing accommodation requests are managed by Disability Services & Student Support (DSSS). It is a student's responsibility to contact DSSS if they need accommodations or additional support. Any student who has, or thinks they may have, a physical, learning, or psychological disability may contact Disability Services at accessibility@oxy.edu to learn about available services and support. More information is available at <http://www.oxy.edu/disability-services>.

Academic Ethics Students are expected to comply with the Student Handbook, in particular the section on Academic Ethics. Whenever outside sources are used, they must be properly credited. <https://www.oxy.edu/student-handbook/academic-ethics/academic-ethics>.

Civil Rights & Title IX In the event that you write or speak about having experienced discrimination or harassment on the basis of a protected characteristic or sexual misconduct (including sexual assault, dating/domestic violence, stalking, sexual exploitation or any other form of sexual and/or gender-based harassment), as a

designated Responsible Employee, I must inform the Civil Rights & Title IX Office. They will contact you to let you know about resources and support services at Oxy, as well as reporting options both on and off-campus. You have no obligation to respond to the Civil Rights & Title IX Office or to meet with them to discuss support services and reporting options.

If you do not want the Title IX Office notified, instead of disclosing this information to your instructor, you can speak confidentially with the following people on campus:

Oxy's Survivor Advocate, Project SAFE (survivoradvocate@oxy.edu)

Emmons Counseling (For appointments, call: 323-259-2657)

Rev. Dr. Susan Young, Office of Religious and Spiritual Life (young@oxy.edu)

Oxy 24/7 Confidential Hotline (323-341-4141)

The College's civil rights policies, along with additional resources, can be found at: <https://www.oxy.edu/civil-rights-title-ix>. If you would like to contact the Civil Rights & Title IX Office directly, you may email Civil Rights & Title IX Coordinator Alexandra Fulcher at afulcher@oxy.edu or call 323-259-1338.

Student Academic Support Resources The college has many types of resources to help students succeed.

Academic Coaching If you'd like to take advantage of the College's Academic Coaching resource, which offers one-on-one sessions focused on supporting your time management skills, online learning strategies, and other study skills, you may schedule an academic coaching meeting by sending an email to academiccoaching@oxy.edu. Share what you'd like to work on, and an academic coach will schedule an appointment with you within a few days.

Finding Research Help The librarians and disciplinary specialists in the library can help you find sources, use library resources, and refine your research focus. Book a one-on-one research appointment with a specialist at libcal.oxy.edu Remote Learning Peer Tech Support: The Critical Making Studio is shifting gears to offer peer to peer support and training for students as you adapt to new learning technologies. This group of students can provide asynchronous training materials or meet with you virtually to help troubleshoot. Note: if your tech is broken, missing, or just not working, start with the helpdesk@oxy.edu for the fastest support response.

Writing Assistance The Writing Center offers opportunities to work on all forms of writing for any class or other writing tasks such as personal statements, senior comprehensives, etc. They offer peer-to-peer consultations with knowledgeable Writing Advisers and sessions with Faculty Writing Specialists. For Fall 2020, all of their appointments will be remote: either synchronous virtual meetings or asynchronous writing feedback. See the Writing Center website for more information about fall hours and how students can sign up for appointments. We will update our information again for spring 2021. Please contact the Writing Programs-Center Director, Julie Prebel (jprebel@oxy.edu; x1307) for more information on how the Center can work with you