

## (Un)Common Reads: Mathematical Expeditions

IDH 2930

Fall 2024

---

**Classroom:** Little Hall 117

**Meeting Times:** W6 (12:50pm-1:40pm)

**Instructor:** Konstantina Christododouloupoulou

**Office Phone:** (352) 294-2350

**Office Location:** LIT 365

**Email:** kchristod@ufl.edu

**Office Hours:** M6, W7, F4 and by appointment.

**Open Door Policy:** You are welcome to drop by to discuss any aspect of the course, anytime.

**All course materials will be posted in e-Learning Canvas**

---

**Required Text:** *Mathematical Expeditions: Chronicles by the Explorers*, by Reinhard Laubenbacher and David Pengelley, Springer, 1999.

**Course Description:** This course will be an introduction to the exciting world of mathematical discovery. We will read and discuss the stories of mathematical journeys into new realms through sequences of (translated) primary sources as told by the mathematical explorers themselves. Through these primary sources, collected by Reinhard Laubenbacher and Davis Pengelley, we will trace central themes in the evolution of mathematics from antiquity to the modern era. In addition, we will also examine the motivation and the broader historical and social context of some great mathematical discoveries.

### Objectives/Learning Outcomes:

- Students will examine some seminal problems in mathematics and make connections with familiar mathematical concepts in calculus, algebra, and geometry.
- Students will trace the historical path of some important mathematical discoveries and develop a real grasp of their scope.
- Students will develop an understanding of the process of mathematical research through engaging with the writings of great thinkers of the past.

**Course Web Page:** I will update Canvas regularly with class announcements, homework assignments, and additional materials. All grades are posted in the Canvas grade book. You are responsible for verifying that those grades are accurate.

**Please review the UF Resources and Policies for available technical assistance, resources and UF policies.**

### Grading:

<b>Class Attendance &amp; Participation</b>	50%
<b>Class Presentation</b>	50%

The following grading scale applies.

A	≥ 90%	C	≥ 70%
A–	≥ 87%	C–	≥ 67%
B+	≥ 84%	D+	≥ 64%
B	≥ 80%	D	≥ 60%
B–	≥ 77%	D–	≥ 56%
C+	≥ 74%	E	< 56%

The current UF grading policies for assigning grade points is available here: <https://catalog.ufl.edu/UGRD/academic-regulations/grades-grading-policies/>

**Grades will not be rounded and extra assignments for individual students to improve a grade are NOT possible. We will not review disputed points at the end of the semester. All grade concerns must be settled within one week of the posting of the grade.**

### Class Attendance and Participation

Class attendance will be recorded using “Roll Call” in Canvas. Students are expected to actively engage in class discussions. Class participation will be recorded by completion of the following activities: Before each class, students will prepare written questions about the weekly readings and a brief reflection (2-3 sentences) on the process of their work. Students will also lead one class discussion. During the first class on Aug. 28, there will be a signup sheet, where students will volunteer for helping to lead the discussion for one of the class periods before the group presentations at the end of the semester.

Attendance and participation points will be awarded to students present in class, and scores will be recorded in Canvas. Excused absences and make-ups will be granted only for excused absences consistent with university policies in the undergraduate catalog <https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx> and require appropriate documentation.

**Note:** I understand that we all have different levels of comfort regarding speaking in class. If you have any issues that prohibit you from participating in class, I encourage you to contact me as soon as possible so we can find ways to make participation work for you in this class.

**Presentation:** In order to foster communication, cooperative learning, and an in-depth study of a particular topic of interest, students will be responsible for making a group class presentation during the semester. Each group will consist of 3-4 students and the presentation will be 15-20 minutes. The topic of the presentation will be an overview and an analysis of the group’s favorite mathematical theme and/or of a great theorem in the book. Presentations will be evaluated on content, style, clarity, and organization. Students are expected to attend all presentations. More details and the grading rubric will be provided in Canvas.

**Make-up policies:** Requirements for class attendance and make-up exams, assignments, and other work in this course are consistent with university policies that can be found at: [catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/](https://catalog.ufl.edu/UGRD/academic-regulations/attendance-policies/)

Make-up assignments will be allowed in the following cases:

- In case of illness, upon receipt of a medical excuse note or equivalent, or by following the procedure outlined here: <https://care.dso.ufl.edu/instructor-notifications>.

- In case of religious holidays, by informing me via e-mail ahead of time.
- In case of military duty, jury duty, participation in academic conferences, or participation in official university or UAA events, by providing appropriate evidence ahead of time.

In all other cases, or if you are unsure, please email me as soon as feasible. Absences are generally not excused for non-emergency travel and personal schedule conflicts. Students are still responsible for submitting assignments on time unless an extension has been requested via email and approved by the instructor prior to the deadline. In case of true documented emergencies, the instructor will waive this requirement.

**Technical difficulties are not generally an excuse for missing an assessment or assignment; students should have contingency plans in case any such issues arise.**

**Incomplete:** A student who has completed a major portion of the course with a passing grade but is unable to complete the final exam or other course requirements due to illness or emergency may be granted an incomplete, indicated by a grade of "I". This allows the student to complete the course within the first six weeks of the following semester. You must contact me before the final exam to sign an incomplete grade contract (<https://math.ufl.edu/wp-content/uploads/sites/124/incomplete-grade-contract.pdf>) and you must provide documentation of the extenuating circumstances preventing you from taking the final exam. The grade of "I" is never used to avoid an undesirable grade, and does not allow a student to redo work already graded or to retake the course. See the official policy at <http://www.math.ufl.edu/department/incomplete-grades/>.

**Students with Disabilities:** Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the Disability Resource Center. Click here to get started with the Disability Resource Center. It is important for students to share their accommodation letter with their instructor and discuss their access needs, as early as possible in the semester.

**Academic Honesty:** UF students are bound by The Honor Pledge which states, "We, the members of the University of Florida community, pledge to hold ourselves and our peers to the highest standards of honor and integrity by abiding by the Honor Code." On all work submitted for credit by students at the University of Florida, the following pledge is either required or implied: "On my honor, I have neither given nor received unauthorized aid in doing this assignment." The Honor Code (<https://sccr.dso.ufl.edu/policies/student-honor-code-student-conduct-code/>) specifies a number of behaviors that are in violation of this code and the possible sanctions. Furthermore, you are obligated to report any condition that facilitates academic misconduct to appropriate personnel. If you have any questions or concerns, please consult with the instructor in this class.

**Online Course Evaluation:** Students are expected to provide professional and respectful feedback on the quality of instruction in this course by completing course evaluations online via GatorEvals. Guidance on how to give feedback in a professional and respectful manner is available at <https://gatorevals.a.ufl.edu/students/>. Students will be notified when the evaluation period opens, and can complete evaluations through the email they receive from GatorEvals, in their Canvas course menu under GatorEvals, or <https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students here: <https://gatorevals.a.ufl.edu/public-results/>.

**Campus Resources:**

**Health and Wellness**

*U Matter, We Care:* If you or someone you know is in distress, please contact [umatter@ufl.edu](mailto:umatter@ufl.edu), 352-392-1575, or visit <https://umatter.ufl.edu/> to refer or report a concern and a team member will reach out to the student in distress.

*Counseling and Wellness Center:* Visit <https://counseling.ufl.edu/> or call 352-392-1575 for information on crisis services as well as non-crisis services.

*Student Health Care Center:* Call 352-392-1161 for 24/7 information to help you find the care you need, or visit <https://shcc.ufl.edu/>.

### **Academic Resources**

*E-learning technical support:* Contact the UF Computing Help Desk: <https://it.ufl.edu/helpdesk/>

*Career Connections Center:* Reitz Union Suite 1300, 352-392-1601. Career assistance and counseling services.

*Library Support:* Various ways to receive assistance with respect to using the libraries or finding resources: <https://uflib.ufl.edu/using-the-libraries/>

## IDH2930 Mathematical Expeditions Weekly Schedule of Topics and Readings

The actual pace of the course may be slightly different than listed in the syllabus below. It will depend on the students' response to the material. **All readings are from *Mathematical Expeditions: Chronicles by the Explorers*, by Reinhard Laubenbacher and David Pengelley, Springer, 1999. Please check Canvas regularly for updates.**

	Topics & Readings
<b>August 28</b>	Course Overview. The Parallel Postulate: Introduction (Section 1.1)
<b>September 4</b>	Euclid's Parallel Postulate and Legendre's Attempt to Prove the Parallel Postulate (Sections 1.2 & 1.3)
<b>September 11</b>	Lobachevskian Geometry and Poincaré's Model for non-Euclidean Geometries (Sections 1.4 & 1.5)
<b>September 18</b>	Taming the Infinite: Introduction and Bolzano's Paradoxes (Sections 2.1 & 2.2)
<b>September 25</b>	Cantor's Infinite Numbers and Zermelo's Axiomatization (Sections 2.3 & 2.4)
<b>October 2</b>	Areas and Volumes: Introduction and Archimedes' Quadrature of the Parabola (Sections 3.1 & 3.2)
<b>October 9</b>	Leibniz's Fundamental Theorem and Cauchy's Rigorization of Calculus (Sections 3.5 & 3.6)
<b>October 16</b>	Fermat's Last Theorem: Introduction and Euclid's Classification of Pythagorean Triples (Sections 4.1 & 4.2)
<b>October 23</b>	Euler's Solution for Exponent Four and Germain's General Approach (Sections 4.3 & 4.4)
<b>October 30</b>	The Search for an Elusive Formula Introduction and Cardano's Solution of the Cubic (Sections 5.1 & 5.3)
<b>November 6</b>	Galois Ends the Story (Section 5.5)
<b>November 13</b>	Class Presentations
<b>November 20</b>	Class Presentations
<b>November 27</b>	No Class/Thanksgiving Holiday
<b>December 4</b>	Class Presentations