

**Course Syllabus**  
Mathematics 7853, Spring 2023  
3-manifolds

**Professor:** Priyam Patel  
Office: JWB 205  
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**Class Hours:** TTh, 10:45-12:05PM, JWB 208.

**Text:** An Introduction to Geometric Topology by Bruno Martelli and Basic 3-Manifold Topology by Hatcher

**Course description:** In this course we will survey various aspects of 3-manifolds including: 2-dimensional orbifolds, Seifert fibered spaces, Thurston's 8 geometries, separability properties, Haken manifolds, and other items as time permits (Virtually Fibered Theorem, Virtual Haken Theorem, decompositions of 3-manifolds, etc.)

**Our Class Culture:** We will model our class based on the axioms proposed by Federico Ardila:

- Axiom 1 Mathematical talent is distributed equally among different groups, irrespective of geographic, demographic, and economic boundaries.
- Axiom 2 Everyone can have joyful, meaningful, and empowering mathematical experiences.
- Axiom 3 Mathematics is a powerful, malleable tool that can be shaped and used differently by various communities to serve their needs.
- Axiom 4 Every student deserves to be treated with dignity and respect.

**Community Guidelines:**

1. Listen respectfully without interrupting.
2. Listen actively with an ear to understanding others' views.
3. Constructively critique ideas, not individuals.
4. Allow everyone to speak: share space. Use WAIT (why am I/ am I not talking?)
5. Avoid assumptions about any member of the community and generalizations about social groups.
6. Assume good intent, but acknowledge impact.

**Grades:** Your grade in this class is solely based off of effort. The only basic requirement is that you show up for class, do readings when assigned, participate, and try to learn something or grow in some way as a mathematician throughout the semester.

**Flipped Classroom:** I am considering experimenting with a flipped classroom style throughout the semester. This means there are weeks you might have reading assignments which we discuss in class with a guided set of questions I come up with. Remember, this only works if you do the readings!

**University Policies**

1. The Americans with Disabilities Act. The University of Utah seeks to provide equal access to its programs, services, and activities for people with disabilities. If you will need accommodations in this class, reasonable prior notice needs to be given to the Center for Disability Services, 162 Olpin Union Building, (801) 581-5020. CDS will work with you and the instructor to make arrangements for accommodations. All written information in this course can be made available in an alternative format with prior notification to the Center for Disability Services.
2. University Safety Statement. 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 [safeu.utah.edu](http://safeu.utah.edu).

3. 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, veteran's 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, 426 SSB, 801-581-7776. To report to the police, contact the Department of Public Safety, 801-585-2677(COPS).

4. Undocumented Student Support Statement. Immigration is a complex phenomenon with broad impact—those who are directly affected by it, as well as those who are indirectly affected by their relationships with family members, friends, and loved ones. If your immigration status presents obstacles to engaging in specific activities or fulfilling specific course criteria, confidential arrangements may be requested from the Dream Center. Arrangements with the Dream Center will not jeopardize your student status, your financial aid, or any other part of your residence. The Dream Center offers a wide range of resources to support undocumented students (with and without DACA) as well as students from mixed-status families. To learn more, please contact the Dream Center at 801.213.3697 or visit [dream.utah.edu](http://dream.utah.edu).