

MATH 439 (G)

Topology I

Fall 2024

11:30-12:25 MWF

COHH 3119

3 credit hours

Instructor: Dr. Tom Richmond
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Office Hours: 9:15-10:00 MWF, 3:00-3:45 Tu COHH 3106
“Drop-ins” and appointments are welcomed.

Purpose of Course: Math 439 (G) is a senior/graduate level course having Math 317 as a prerequisite. Topology is an extremely broad and useful area that is at the foundation of traditional advanced mathematics. This is one of the standard courses for undergraduate seniors or master's students in the U.S. and is strongly recommended for all majors in mathematics.

Attendance Policy: Registration in a course obligates the student to be regular and punctual in class attendance. Three or more unexcused absences from class may result in an "F" as final course grade. A student absent from class bears full responsibility for subject matter and announcements missed.

Testing and Grading: There will be at least two one-hour in-class tests, each worth 100 points. The comprehensive final exam is worth 150 points and will be given at 10:30-12:30 Monday, December 2, 2024. There will also be up to 150 points of daily grades, consisting primarily of homework problem sets and projects. Projects may involve outside reading or group work. To fulfill the additional requirements necessary for graduate credit, students enrolled in 439 G will be required to do additional work, including expanded problem assignments. Grading will follow the 10-point scale: 90% of the total number of points is an A, 80% is a B, etc.

Text/Course Materials: Course materials will be provided. You do not need to purchase anything. The course will be based on the textbook *General Topology: An Introduction*. T. Richmond, DeGruyter, 2020.

Course Outline: Preliminaries. Topologies, Bases, Closure, Interior, Boundary. Subspaces, Products, Quotients. Continuity, Special Functions. Connectedness. Compactness. Metrics Spaces and Real Analysis. Separation Axioms. Other topics as time permits.

Learning Outcomes: By the end of this course, you will be able to

- Apply concepts of open sets, continuity, connectedness, and compactness to problems in topology and analysis.
- Use clear logic and prose to write proofs.
- Recognize when the topological concepts of nearness and convergence may be characterized by a metric.

Last Date to Withdraw/Audit: October 28, 2024

Academic Dishonesty: Student who commit any act of academic dishonesty may receive from the instructor a failing grade in that portion of the course work in which the act is detected or a failing grade in a course without possibility of withdrawal. Academic dishonesty includes copying the work of someone else, sharing your work with someone else, or using web tools to solve problems on graded

assignments. As with all WKU classes, student work may be checked using plagiarism detection software.

ADA Accommodation Statement: In compliance with University policy, students with disabilities who require academic and/or auxiliary accommodations for this course must contact the Student Accessibility Resource Center located in Downing Student Union, Room 1074. The SARC can be reached by phone number at 270-745-5004 [270-745-3030 TTY] or via email at sarc.connect@wku.edu. Please do not request accommodations directly from the professor or instructor without a faculty notification letter (FNL) from The Student Accessibility Resource Center.

Pregnant and Parenting Students: Western Kentucky University does not discriminate against any student or exclude any student from its educational programs or activities, including classes or extracurricular activities, on the basis of pregnancy and/or pregnancy-related conditions such as, but not limited to, childbirth, false pregnancy, termination of pregnancy, or recovery therefrom. Students who seek pregnancy or pregnancy-related accommodations should make their requests as soon as possible via WKU's Title IX Website at www.wku.edu/titleix/ under the heading, "Pregnancy or Pregnancy-Related Conditions." Students can also contact the Title IX Coordinator, Ena Demir, via email at ena.demir@wku.edu or by phone at (270) 745-6867 to request accommodations or seek assistance. We encourage students and faculty to work together to establish a plan that allows the student to complete the class and coursework without jeopardizing academic integrity and course standards. The Title IX Coordinator can help facilitate conversations between students and faculty regarding appropriate and reasonable accommodations.

If you are a WKU student and believe that you have experienced an incident(s) of discrimination or harassment based on pregnancy (or pregnancy related conditions or issues), please report it to the Title IX Coordinator via email at ena.demir@wku.edu or by phone at (270) 745-6867. Additional resources for pregnant and parenting students can be found on WKU's Title IX Website at www.wku.edu/titleix/.

Title IX/Discrimination & Harassment: Western Kentucky University (WKU) is committed to supporting faculty, staff and students by upholding WKU's [Sex and Gender-Based Discrimination, Harassment, and Retaliation](#) (#0.070) and [Discrimination and Harassment Policy](#) (#0.2040). Under these policies, discrimination, harassment and/or sexual misconduct based on sex/gender are prohibited. If you experience an incident of sex/gender-based discrimination, harassment and/or sexual misconduct, you are encouraged to report it to the Executive Director, Office of Institutional Equity/Title IX Coordinator, Ena Demir, 270-745-6867 or Title IX Investigators or Michael Crowe, 270-745-5429. Please note that while you may report an incident of sex/gender based discrimination, harassment and/or sexual misconduct to a faculty member, WKU faculty are "Responsible Employees" of the University and MUST report what you share to WKU's Title IX Coordinator or Title IX Investigator. If you would like to speak with someone who may be able to afford you confidentiality, you may contact WKU's [Counseling and Testing Center](#) at 270-745-3159.