

MAS 4115: Linear
Algebra for Data
Science, F21

MTG4302/5316:
Elements of
Topology

Colloquium, Spring
2021

Publications & CV

Center for Applied
Math

Colloquium, Fall
2020

Numerical Linear
Algebra Exam
Resources

MTG4302/5316: Elements of Topology

Note: The class format and conduct may change based on University Guidelines and recommendations.

Course Number: MTG4302/5316

Time and Location: Little Hall 233, period 6.

Office Hours : Monday 3:00 – 3:50 (office, Little 338), Tuesday and Thursday, zoom address on canvas

Required Text:

Title: Topology (second edition)

Author: James R. Munkres

Publisher: Prentice Hall

Year: 2000

Course Description: Topology is the study of spatial structure of spaces and provides a foundation for much of pur and applied mathematics. This course is the first course in a two course sequence. In this sequence we present a rigorous mathematical treatment of the fundamental ideas of topology. Topics in this course include the following:

1. Set theory. Sets, functions, index sets, Cartesian products, finite and infinite sets, cardinality, Cantor-Schroeder-Bernstein Theorem. (two weeks)
2. Definitions and examples of topology, basis, open and closed sets, interior, boundary, closure. Continuous maps, homeomorphism. The subspace topology, quotient spaces, product spaces. Metric topology. Complete metric spaces. The contracting mapping theorem. Baire category theorem. Separation axioms. Normal spaces. Tietze Extension Theorem. (five weeks)
3. Function spaces and their topologies. (two weeks)
4. Connectedness. Connectedness in the real line, path-connectedness, components, local connectivity. (two weeks)
5. Compactness. Covers, finite intersection property. Sequential compactness. Compactness in the real line and in Euclidean spaces. (three weeks)

Prerequisite: MAS4105

Homework: Homework will be assigned every other week on a Friday and issue the next Friday (with breaks for exams), so there will be about 6 total assignments. It will be posted as a File in Canvas. All problems will be graded and the graded homework will be returned by the following Friday. You may turn in the homework by the next Monday for 2/3 credit. No submissions will be accepted after that. The lowest homework score will be dropped.

Honor Code and Collaboration: In this course authorized aid on hw consists of talking to me, other students, reading the documentation for your computational platform, and looking at the notes for this course. This means that you are not allowed to look on-line, in other books for solutions to the hw, or at the written solutions of other students. You can collaborate with fellow students but must write up individually.

Exams: There will be a 50 minute midterm on Wednesday, October 21 and a 90 minute final exam on Thursday, December 16 at 12:30 (the classes final exam time).

Grades: The three exams are weighted equally and are not cumulative. The two exams constitute 60 of the grade and the homework is 40%. The grade ranges for the total scores are 93-100% A, 90-92% A-, 88-89% B+, 83-87% B, 80-82% B-, 78-79% C+, 73-77% C, 70-72% C-, 60-69% D, <60% F.

Announcements: You are responsible for all announcements made in Canvas and via email and in class which could include changes in exam dates and material covered.

Excused Absences: In certain circumstances a student will be able to make up a missed exam. These circumstances could include medical situations, family emergencies, travel for University activities (eg. band, debating club, etc), and religious observances. In these cases the student must inform me before or within one week after the missed work and **provide written documentation**.

Grading Disputes: Any issues or questions about the grading of exams must be brought to my attention within one week after the exams or homework are returned to the class.

Diversity Statement: I am committed to diversity and inclusion of all students in this course. I acknowledge, respect, and value the diverse nature, background and perspective of students and believe that it furthers academic achievements. It is my intent to present materials and activities that are respectful of diversity: race, color, creed, gender, gender identity, sexual orientation, age, religious status, national origin, ethnicity, disability, socioeconomic status, and any other distinguishing qualities.

Additional Information:

Grades: Grading will be in accord with the UF policy stated at <https://catalog.ufl.edu/ugrad/current/regulations/info/grades.aspx>.

Honor Code: “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](#) 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 or TAs in this class.”

Class Attendance: “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:

<https://catalog.ufl.edu/ugrad/current/regulations/info/attendance.aspx>.”

Accommodations for Students with Disabilities: “Students with disabilities who experience learning barriers and would like to request academic accommodations should connect with the disability Resource Center by visiting <https://disability.ufl.edu/students/get-started/>. 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.”

Online Evaluations: “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.aa.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 via <https://ufl.bluera.com/ufl/>. Summaries of course evaluation results are available to students at <https://gatorevals.aa.ufl.edu/public-results/>.”

Contact information for the Counseling and Wellness Center:

<https://counseling.ufl.edu/>, 392-1575; and the University Police Department: 392-1111 or 9-1-1 for emergencies.

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

