

Department of Mathematics and Statistics
MAT 716 — Selected Topics in Topology — Spring 2014

Course Description: An in-depth study of selected topics introduced in MAT 616. (3 credit hours).

Prerequisites: Prerequisite: MAT 516 or 616.

Course Objectives: The student will expand their knowledge of compactness and product and metric topologies. New topics will include quotient topology, surfaces and manifolds, and some rudiments of algebraic topology. Primary skills to be acquired are being able to solve simple problems involving the concepts, and seeing connections between topological spaces and algebra.

Instructional Activities: Lectures, problem solving, assignments.

Field, Clinical, Laboratory Experiences, Resources: None.

Instructor: Dubravko Ivanišić [DOO-brahv-ko EE-vahn-shich] Ivanišić is the last name.

Phone & e-mail: 809-3552, divansic@murraystate.edu

Office: Faculty hall 6A-1 (in the Department of Mathematics and Statistics annex)

Course webpage: (A link to this has also been placed on Canvas.)

<http://campus.murraystate.edu/academic/faculty/divansic/14spring/716home.html>

Office Hours: Ask me or check the webpage.

Textbook & Content Outline: Crump Baker, Introduction to Topology, and Allen Hatcher, Algebraic Topology. Hatcher's book is available online as a free PDF. Since we will be using only a smaller portion of the book, consider printing only those sections if you don't want to buy the book.

Homework: Homework is a substantial portion of your grade (list is on the webpage). It will consist of a selection of problems of varying degrees of difficulty: type A (5-point), type B (8-point) and type C (12-point) problems. You are strongly encouraged to do all of the problems. For every assignment, turn in at least 30 points' worth where at least 40% of the total are problems of type B or harder. You may turn in more problems with greater point-worth than the minimum, but only the first 60 points' worth will be graded.

Some Success Tips: As you read the textbook or your notes, make sure you have a pencil and paper with you. Work things out on paper as you read them. Whenever a definition is introduced, as you try to understand what the definition is supposed to capture, try to think of several objects that fit the definition and several that do not. Before you read a proof, see if you can figure it out yourself, based on the previous material. (If you have no idea, that's OK, too, then just try to understand the presented proof.)

Some students read other texts to help them with the material or homework, but I advise against it. Other texts may approach the material in a different way or have different symbology, adding to the effort of understanding, and our material is (still) too elementary in order for the benefit of consulting other texts to outweigh the complications it involves. If you have trouble with the material, make sure you stop by for office hours. Many things can be made much clearer in conversation with me.

Attendance: Students are expected to adhere to the MSU Attendance Policy outlined in the current MSU Bulletins. Attendance is strongly encouraged every day, and roll will be taken. If you missed four or fewer classes during the semester, you get 3% bonus points. Note that you are not penalized for missing a class (the points are in excess of your total grade), so an absence is counted as such regardless of the reason ("excused" or not).

Seating: If there are seats available in the front rows of the classroom, no one will be allowed to sit in the back rows.

Exams: There will be three exams whose dates will be announced well in advance. Calculators will **not** be allowed on any of the exams.

Final exam: is comprehensive and will be held on Monday, May 5th at 10:30 in our usual classroom.

Grade: Your homework score is computed as (points earned)/(points attempted), assuming you have satisfied the minimum point requirements. Your final grade is computed roughly as follows: homework will count for 40% of the grade and each exam counts for 20%. Your final exam grade replaces your poorest exam grade if it is better, so if you are happy with your exam scores during the semester, you don't have to take it.

Whether you have satisfied the minimal requirement for homework point-worth and how much you have done extra also affects your grade, but I don't have a formula for this. Guidance for the final grade scale is

90%–100%=A, 80%–89%=B, 70%–79%=C, 60%–69%=D, 0%–59%=E.

Make-ups: Make-ups for exams will be given only in cases of illness, field trips or other unavoidable circumstances. You will need to provide written verification of the reason for your absence in advance and as soon as possible. If you are unexpectedly absent from an exam, contact me by phone or e-mail **that same day** and arrange to take a make-up. The make-up should occur *soon*, which typically means “before I return the exam”. Make-ups for other graded work will be given at my discretion. Asking for a make-up more than once makes it less likely that I will grant it.

Academic honesty policy: Murray State University takes seriously its moral and educational obligation to maintain high standards of academic honesty and ethical behavior. Instructors are expected to evaluate students academic achievements accurately, as well as ascertain that work submitted by students is authentic and the result of their own efforts, and consistent with established academic standards. Students are obligated to respect and abide by the basic standards of personal and professional integrity.

Violations of Academic Honesty include: **Cheating** — Intentionally using or attempting to use unauthorized information such as books, notes, study aids, or other electronic, online, or digital devices in any academic exercise; as well as unauthorized communication of information by any means to or from others during any academic exercise; **Fabrication and Falsification** — Intentional alteration or invention of any information or citation in an academic exercise. Falsification involves changing information whereas fabrication involves inventing or counterfeiting information; **Multiple Submission** — The submission of substantial portions of the same academic work, including oral reports, for credit more than once without authorization from the instructor; **Plagiarism** — Intentionally or knowingly representing the words, ideas, creative work, or data of someone else as ones own in any academic exercise, without due and proper acknowledgement.

Instructors should outline their expectations that may go beyond the scope of this policy at the beginning of each course and identify such expectations and restrictions in the course syllabus. When an instructor receives evidence, either directly or indirectly, of academic dishonesty, he or she should investigate the instance. The faculty member should then take appropriate disciplinary action. Disciplinary action may include, but is not limited to the following: 1) Requiring the student(s) to repeat the exercise or do additional related exercise(s); 2) Lowering the grade or failing the student(s) on the particular exercise(s) involved; 3) Lowering the grade or failing the student(s) in the course. If the disciplinary action results in the awarding of a grade of E in the course, the student(s) may not drop the course.

Faculty reserve the right to invalidate any exercise or other evaluative measures if substantial evidence exists that the integrity of the exercise has been compromised. Faculty also reserve the right to document in the course syllabi further academic honesty policy elements related to the individual disciplines.

A student may appeal the decision of the faculty member with the department chair in writing within five working days. Note: If, at any point in this process, the student alleges that actions have taken place that may be in violation of the Murray State University Non-Discrimination Statement, this process must be suspended and the matter be directed to the Office of Equal Opportunity. Any appeal will be forwarded to the appropriate university committee as determined by the Provost.

Non-Discrimination Policy Statement: Murray State University endorses the intent of all federal and state laws created to prohibit discrimination. Murray State University does not discriminate on the basis of race, color, national origin, gender, sexual orientation, religion, age, veteran status, or disability in employment, admissions, or the provision of services and provides, upon request, reasonable accommodation including auxiliary aids and services necessary to afford individuals with disabilities equal access to participate in all programs and activities. For more information, contact the Executive Director of Institutional Diversity, Equity and Access, 103 Wells Hall, 270-809-3155 (voice), 270-809-3361 (TDD).