

# MAT 761 Spring 2016 Introduction to Algebraic Topology

**Instructor:** Professor Jack Ucci, email: [jjucci@syr.edu](mailto:jjucci@syr.edu) Office: 306B Carnegie Phone: 3-1492

**Office hours:** Monday 9 am - 10 am, Tues 8 am - 9:30 am, and by appointment. I am in my office most of the time except for the lunch hour and Friday afternoons. You are welcome to stop by at any time.

**Lecture:** 11:00 - 12:20, 111 Carnegie

**Course description:** Brief review of Fundamental group, covering spaces; chain complexes, singular and/or simplicial homology theory, exact sequences, Eilenberg-Steenrod axioms and some applications. Cohomology if time permits.

**Prerequisites:** MAT 661 and some graduate level competence in algebra.

**Text:** *Algebraic Topology* by Allen Hatcher, which is available online at

<http://www.math.cornell.edu/hatcher/AT/ATpage.html>.

**Grading policy:** The course grade will be based on a midterm exam (50%), and a final exam (50%). These exams will be take-home exams. Homework problems will be regularly assigned of which selected problems will be graded. All problems can be discussed during office hours. Good mathematical exposition is expected on all written assignments. You may work together on the homework, but you are required to hand in your own work. You must work alone on exams.

**Minimal learning objectives:** (1) to acquire the ability to *read* and *understand* the mathematics contained in this course and its text; (2) to be able to *orally communicate* this understanding to other interested individuals; (3) to acquire the interest to apply this material to other related subjects.

**Attendance policy:** Regular attendance is highly recommended, but roll will not be taken formally. You are responsible for all material covered and announcements made in class, whether or not you attend class. If you will miss class for a religious reason, **you must notify me within the first two weeks of the semester.**

**Disability policy:** If you believe that you need accommodations for a disability, please contact the Office of Disability Services (ODS), located in Room 309 of 804 University Avenue, or call (315) 443-4498 for an appointment to discuss your needs and the process for requesting

accommodations. ODS is responsible for coordinating disability-related accommodations and will issue students with documented Disabilities Accommodation Authorization Letters, as appropriate. Since accommodations may require early planning and generally are not provided retroactively, please contact ODS as soon as possible.

You are also welcome to contact me privately to discuss your academic needs although I cannot arrange for disability-related accommodations.

**Religious observances policy:** SU religious observances policy recognizes the diversity of faiths represented among the campus community and protects the rights of students, faculty, and staff to observe religious holidays according to their tradition. Under the policy, students are provided an opportunity to make up any examination, study, or work requirement that may be missed due to religious observance provided they notify their instructors before the end of the second week of classes. For fall and spring semesters, an online notification process is available through MySlice (Student Services -> Enrollment -> My Religious Observances) from the first day of class until the end of the second week of class.

**Academic integrity:** Syracuse University sets high standards for academic integrity. Those standards are supported and enforced by students, including those who serve as academic integrity hearing panel members and hearing officers. The presumptive sanction for a first offense is course failure, accompanied by the transcript notation "Violation of the Academic Integrity Policy". The standard sanction for a first offense by graduate students is suspension or expulsion. Students should review the Office of Academic Integrity online resource "Twenty Questions and Answers About the Syracuse University Academic Integrity Policy" and confer with instructors about course-specific citation methods, permitted collaboration (if any), and rules for examinations. The Policy also governs the veracity of signatures on attendance sheets and other verification of participation in class activities. Additional guidance for students can be found in the Office of Academic Integrity resource: "[What does academic integrity mean?](#)"

*Any form of cheating will not be tolerated in this course.* First offenses in cheating will result in a failing grade on that assignment, and subsequent offenses will be reported to your dean.

**How to succeed:** Here are a few basic suggestions for how to succeed in this course.

1. It is absolutely essential that you understand how to solve the assigned homework problems and, more importantly, how and why the skills and techniques presented in the course are used in solving the assign problems.

2. Ask questions.

3. Stay caught up. Mathematical concepts build on each other cumulatively and you need to stay on top of the material at every stage. If you are having difficulty, don't expect that the problem will take care of itself and disappear later. Contact me immediately and discuss the problem.

4. Form a study group. Many students benefit from a study group to work through challenging problems and to review for exams. You should attempt the problems ahead of time by yourself and then work through any difficulties with your study partners. Explaining your reasoning to another student can help to clarify your own understanding.

5. You should expect to work hard. Don't get discouraged if you find some of the material very difficult. Be persistent and patient! If you follow the above suggestions, your experience in this course will be a rewarding one.

**Use of student work:** In compliance with the federal Family Educational Rights and Privacy Act, registration in this class is understood as permission for assignments prepared for this class to be used anonymously in the future for educational purposes.