

University of Illinois at Urbana-Champaign
Department of Mathematics
MATH 535 - General Topology
Fall 2014

Course Information:

Course: MATH 535

Section: P1

Time & Location: TR 11:00-12:20pm in 443 Altgeld Hall

Website: <http://www.math.uiuc.edu/~jawatts/math535f14/index.html>

Instructor Information:

Instructor: Jordan Watts

Email: jawatts@illinois.edu

Office Hours: T 2:00-2:50, or by appointment

Office: 238 Illini Hall

Brief Course Description:

This course is an introduction to point set topology. We will cover the following topics:

1. metric spaces, definitions and examples of topological spaces and continuous maps,
2. subspaces, bases and subbases, products,
3. quotients, disjoint union, neighbourhoods, limit points, closure,
4. first countability, nets, interior points,
5. compactness, Tychonoff's theorem,
6. sequential compactness, completeness,
7. separation axioms: Hausdorff, regular, normal, etc.; Urysohn's Lemma,
8. Urysohn's Metrisation Theorem, second countability, Tietze's Extension Theorem, local compactness,
9. compactifications,
10. connectedness, local connectedness, path connectedness, homotopy,
11. categories, functors, and natural transformations,
12. fundamental groupoid,
13. Brown-Seifert-van Kampen Theorem,
14. compact-open topology, covering spaces.

Prerequisites and Restrictions:

4 credit hours. MATH 447 or equivalent, 417 or equivalent, or consent of instructor. Basically, you should know and be comfortable with what open and closed sets are in Euclidean space, as well as continuous functions, sequences, limits, etc. All of these things are taught in a basic real analysis course. You should also be familiar with basic group theory. You most definitely need to be comfortable proving mathematical statements, and a graduate-level of experience doing as much will be assumed.

Texts:

There will be no required text for MATH 535. The recommended text will be:

Topology and Groupoids

Author: Robert Brown Edition: 2006

Publisher: BookSurge Publishing Note: There is a webpage for the book here: <http://pages.bangor.ac.uk/~mas010/topgpds.html> and a cheaper digital version can be found here: https://store.kagi.com/cgi-bin/store.cgi?storeID=6FEPD_LIVE.

Other potentially useful books include:

- *Topology* by Munkres (any edition)
- *Counterexamples in Topology* by Steen and Seebach (Dover)

Academic Integrity:

Academic Integrity may be summed up by the phrase, “your work must be your own.” Violations will be processed according to the established guidelines. Please note that “it is the responsibility of the student to refrain from infractions of academic integrity, from conduct that may lead to suspicion of such infractions, and from conduct that aids others in such infractions” (§1-401 of the Student Code). Violations of academic integrity include, but are not limited to, cheating, fabrication, or plagiarising as outlined in §1-402 of the Student Code. A range of academic sanctions may be taken against a student who engages in academic dishonesty. Please see the §1-401 through §1-406 of the Student Code for additional information and procedures.

Grading:

Assessment	Percent of Final Grade
Final Exam	30%
Homework	70%

- *Final Exam:* A comprehensive final will be administered at the end of the course. The date and location will be announced later.
- *Homework:* There will be 7 homework assignments due every 2 weeks, of which the best 5 will count toward your final grade. Each homework will be due at the beginning of class on Thursdays. LATE HOMEWORK WILL NOT BE ACCEPTED. Also, while you are encouraged to work together, your assignments are expected to be in your own words. Copying of any kind, including off of the internet, is considered an academic offence and will be dealt with accordingly.

- *Bonus:* If your final exam average is better than your homework average (after dropping the lowest three), then your grade will be re-weighted: the final will be worth 40% and the homework 60%.

Attendance Policy:

Students are expected to attend all classes and are responsible for all information presented. If you miss a class, it is your responsibility to get notes on what you missed. For University excused absences as outlined in §1-501(c) of the Student Code, typically your grade for any missed work will be based on your grade for the final exam. For other legitimate and unavoidable reasons, please notify me ASAP so we may discuss how to make up any missed work.

Calculators, Portable Electronic Devices, and Distracting Behaviours:

No calculators are permitted on exams, so study accordingly. The use of any portable electronic device (cell phones, e-readers, mp3 players, etc.) during class without prior permission of the instructor is prohibited. Other behaviours (reading a newspaper, etc.), which the instructor deems distracting, must be stopped in class. **Failure to adhere to this policy may result in a lowered overall grade.**

Emergency Information:

In case of fire:

1. Determine evacuation routes in advance.
2. Calmly walk to the exit, following these routes.
3. Gather at a safe distance from the building so that it can be checked that everyone is out.
4. If you cannot exit, close the door, open the window, and signal firefighters.

In case of tornado:

1. We **MUST** go to the lowest level of the building, to the east corridor if possible.
2. Shut doors of the classrooms near you in the basement.
3. **DO NOT** return to class or leave the building until you have been told by staff that it is safe.

In case of active threat:

1. Call 9-1-1 as soon as it is safe to do so.
2. Evacuate the area by a safe route if possible, or seek safe refuge.
3. If you must stay here, close the doors and windows and set up a barricade to the door and any ground level windows.
4. Do not attempt to make contact (verbal or physical) with the individual responsible for the threat unless no other option is available.

5. Keep a solid object between you and the threat at all times.
6. Plan for the worst: locate objects to use as weapons or develop a plan as a group for how to combat the attacker. But, only you, as an individual, can decide if you want to engage the attacker.
7. DO NOT open the door for anyone but the Police.
8. DO NOT approach police officers as they attempt to locate and neutralise the threat.

Note: evacuation routes in Altgeld Hall are clearly posted in each classroom.

Last updated August 14, 2014.