MATH 4121A / 9021 – TOPOLOGY
FALL 2018/2019

Instructor.
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Class.
Tue 2:30-4:30pm, Thu 12:30-1:30pm, MC 108.

Office hours.
Tue 11am-noon, Fri 11am-noon

Textbook (required).
J. B. Conway, A Course in Point Set Topology, Springer 2014

Free online access from within the UWO intranet at
http://doi.org/10.1007/978-3-319-02368-7

The following books may also be helpful. They will be on course reserve at the Taylor Library.

W. A. Sutherland, Introduction to metric and topological spaces
2nd ed., Oxford Univ. Press 2009

J. R. Munkres, Topology, 2nd ed., Prentice Hall 2000

S. Willard, General Topology, Dover 2004
(reprint of the original edition published by Addison-Wesley in 1970)

Prerequisites.
Mathematics 3122A/B

Antirequisites.
The former Mathematics 3132B

Unless you have either the requisites for this course or written special permission from your Dean to enroll in it, you may be removed from this course and it will be deleted from your record. This decision may not be appealed. You will receive no adjustment to your fees in the event that you are dropped from a course for failing to have the necessary prerequisites.

Course Description.
In this course, we study point-set topology, which is the basis for further courses in topology, in particular for algebraic topology. Topological spaces generalize metric spaces and appear in almost any branch of mathematics (including analysis, geometry and algebra). Topology is similar to linear algebra in this regard.

Specifically, we are going to study the following topics: topological spaces, neighbourhoods, bases, subspaces, continuity, product and quotient spaces, connectedness, compactness, separation axioms. Time permitting, we may additionally cover nets, normal spaces, compactifications, locally compact spaces, ordinal numbers, paracompactness.

As with any other upper-year course in mathematics, there will be an emphasis on mathematical reasoning and proof-writing, which will be practiced through in-class discussion and homework exercises, for instance. Additionally, I want to focus on the ability to read (and understand!) mathematical texts. To practice this, we will sometimes read parts of the textbook together in class. The goal is to increase the students' ability to learn mathematics on their own, outside of the classroom.

Students are expected to attend all classes and to prepare for them by reviewing the material from previous classes, to do the assigned homework and to read in advance the sections of the textbook that we are going to read together in class.

Evaluation of Student Performance (4121).

Midterm Examination. One midterm exam (90min, written in class), worth 35% of the final grade. Date: Tuesday, Oct 16

Final Examination. The final oral exam (30min) is worth 65% of the final grade. The date will be scheduled in class once the dates of the other (written) final exams are known. I am planning to have the oral exams during the week Dec 10–14.

Evaluation of Student Performance (9021).

Presentation. Each student has to give a presentation in class (60 or 90 minutes, to be decided later). Dates and topics will be assigned during the course. The notes for the presentation have to be handed in **one week** before the day of presentation. Presentation and quality of the notes are together worth 35% of the final grade. There will be a penalty for handing in the notes late. The presentations will be towards the end of the term; a detailed schedule will be made after the course has started.

Final Examination. The final oral exam (30min) is worth 65% of the final grade. The date will be scheduled in class once the dates of the other (written) final exams are known.

Assignments. There will be homework assignment, at least every two weeks. They will be graded, but the grades only serve as feedback; they will not affect the final grade.

Solving the exercises is strongly recommended as this is the best (and probably the only) way to understand the material. It is also a very good preparation for the exams.

Accommodations. The Policy on Accommodation for Illness can be found here: http://www.uwo.ca/univsec/pdf/academic_policies/appeals/accommodation_illness.pdf

All illness and non-illness absences from exams and presentations require proper documentation to be submitted to the appropriate Faculty Dean's office.

Electronic devices. No electronic devices will be allowed during tests and exams.

Scholastic offences. Scholastic offences are taken seriously and students are directed to read the appropriate policy, specifically, the definition of what constitutes a Scholastic Offence, at the following Web site: http://www.uwo.ca/univsec/pdf/academic_policies/appeals/scholastic_discipline_grad.pdf

Support services. Registrarial Services: http://www.registrar.uwo.ca
Services provided by the USC: http://westernusc.ca/services/
Student Development Center: http://www.registrar.uwo.ca/general-information/organizational_units/student_experience/student_development_centre/

Students who are in emotional/mental distress should refer to Mental Health@Western http://www.uwo.ca/uwocom/mentalhealth/ for a complete list of options about how to obtain help.