Mathematics 365, Introduction to Topology
COURSE OUTLINE, Section A01
Department of Mathematics and Statistics University of Victoria
January, 2016

SYLLABUS

Math 365 is an introduction to the basic concepts of *topology*. The word comes from the Greek *topos* (place) and designates the study of properties of geometric configurations which are invariant under continuous deformation. The first thing to do in constructing a mathematics of shapes is to establish some precise definitions. By 'geometric configuration' we will mean a set equipped with a collection of sets, and satisfying several axioms. The result will be called a *topological space*. To establish what is meant by 'continuous deformation' we will introduce the idea of a *continuous map* between topological spaces. This generalizes the familiar ϵ-δ notion of continuous map from calculus.

Most of the course we will be getting familiar with the definitions. Various properties of topological spaces, like connectedness and compactness, will be introduced and studied. If time allows, we will establish some of the key theorems of the subject, like the Tychonoff Theorem – which plays an essential role in many different parts of mathematics, like functional analysis – and theorems, like Urysohn's Lemma, which address the question of when a topological space is metrizable.

To succeed in the course, doing a lot of problems is absolutely essential. Most of these problems are really logic-type problems with the definitions, which on first sight, are quite abstract. The text contains many excellent problems to practise, and I strongly encourage students to familiarize themselves with the ideas by practising problems.

LECTURE TIME AND PLACE

10:30-11:20 TWF CLE A302.

INSTRUCTOR

Heath Emerson
David Turpin Building, DTB A447
Email: hemerson@uvic.ca

OFFICE HOURS

11:30-12:15 TWF

CLASS WEB SITE

See http://www.math.uvic.ca/courses/2016s/math365/a01/index.html.

PREREQUISITES

MATH 212 **AND** one of 236,335 or 336, or permission of the instructor.

TEXTBOOK

James R. Munkres, *Topology*, **Second edition.**

TOPICS

We will aim to cover Chapters 1-7 of the textbook.

GENERAL COURSE POLICIES

Regulations common to all courses offered by the department may be found on the Departmental Website, under the **Undergraduate/Course Policies** tab. By enrolling in this course you agree to abide by these regulations. Make sure you know what they say.

GRADED HOMEWORK – Five assignments

Homework assignments will be due at the **beginning of lecture** on WEDNESDAYS: January 20, February 3, 17, March 2, 16. Assignments will be posted on the course website. Late assignments will not be accepted.

EXAMINATIONS – Two midterms plus final exam

Midterm Tests will be held during the lecture on TUESDAY, February 23 and WEDNESDAY March 23. Each test counts toward 15% of your course score. The **Final Examination** will count for 45% of your course score; the date is TBA on the University's Schedule. Calculator use will not be permitted on tests or the exam

GRADING AND ASSESSMENT

Your **Numerical Course Score** is determined as the following weighted sum:

Homework	25 %
Midterm Tests	30%
Final Examination	45%

Your Numerical Course Score x, after rounding to the nearest integer, will be your course percentage grade. Grade point and standard letter grade conversions from percentage grades are published in the UVic Calendar.

POLICY ON MISSED ASSESSMENT

There will be no makeup homework or tests offered in this course. In cases where assessment is missed due to *documented* illness (with original doctor's note), *documented* accident (eg. police report) or *documented* family affliction, we will modify the assessment scheme as follows: Missed homework or midterms will be accommodated for by replacing the missing score by your mark on the Final Exam. **Do not make any travel/work plans for April until you know the confirmed date of our Final Exam.**

ACADEMIC INTEGRITY

Make sure you have read, and understand, UVic's Policy on Academic Integrity (see the Academic Regulations section in the calendar).