Department of Mathematics
Math 3390
Introduction to Topology, Fall 2015.

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**Course website:** `http://server.math.umanitoba.ca/~claya/math3390_2015.html`
This website contains all the information on this sheet, but I will also scan my class notes and post the PDF files there.

**Textbooks:** The course will follow the book *An Illustrated Introduction to Topology and Homotopy* by Sasho Kalajdzievski. We will start at Chapter 3, and cover roughly up to and including Chapter 8. Also *Topology* by Munkres, Chapters 2, 3, 4, 5.

**Tentative course plan:**

Week 1: Definitions, basic notions such as open, closed, interior.
Week 2: Finish basic definitions, begin countability axioms.
Week 3: Countability axioms, separability, Baire category, continuity, homeomorphisms.
Week 4: Open and closed maps, quotients and quotient topology, examples.
Week 5: Examples of quotients and products: gluing spaces together, constructing known spaces as quotients, manifolds as an example of quotient spaces.
Week 6: Product spaces, product topology and box topology, and the Cantor set.
Week 7: Connectedness, connected components, analysis of previously defined spaces (products, quotients, etc) with respect to connectedness.
Week 8: Path connectedness, connectedness of open sets in $R^n$, local connectedness.
Week 9: Compactness, Lindelof, countable compactness.
Week 10: Lindelof continued, BW spaces, Lebesgue number lemma.
Week 11: Tychonoff Theorem, begin separation axioms.
Week 12: Separation axioms, examples of spaces which satisfy one separation axiom but not another.
Week 13: Urysohn's Lemma, Tietze's Extension Theorem.

**Marking:** Your final grade will be 50% assignments, and 50% final exam, with approximately 5 equally weighted assignments.

**Academic Dishonesty:** The Department of Mathematics, the Faculty of Science and the University of Manitoba regard acts of academic dishonesty in quizzes, tests, examinations or assignments as serious offenses and may assess a variety of penalties depending on the nature of the offense. Acts of academic dishonesty include bringing unauthorized materials into a test or exam, copying from another student, plagiarism and examination personation. Students are advised to read Section 7 (Academic Integrity) and Section 4.2.8 (Examinations: Personations) in the "General Academic Regulations and Requirements" of the current Undergraduate Calendar. Note, in particular that

cell phones and pagers are explicitly listed as unauthorized materials, and hence may not be present during tests or examinations.

Penalties for violation include being assigned a grade of zero on a test or assignment, being assigned a grade of "F" in a course, compulsory withdrawal from a course or program, suspension from a course/program/faculty or even expulsion from the University. For specific details about the nature of penalties that may be assessed upon conviction of an act of academic dishonesty, students are referred to University Policy 1202 (Student Discipline Bylaw) and to the Department of Mathematics policy concerning minimum penalties for acts of academic dishonesty.

The Student Discipline Bylaw is printed in its entirety in the Student Guide, and is also available on-line or through the Office of the University Secretary. Minimum penalties assessed by the Department of Mathematics for acts of academic dishonesty are available on the Department of Mathematics web page.

All Faculty members (and their teaching assistants) have been instructed to be vigilant and report incidents of academic dishonesty to the Head of the Department.