

620-322 Topology

Credit Points:	12.50
Level:	3 (Undergraduate)
Dates & Locations:	2009, This subject commences in the following study period/s: Semester 2, - Taught on campus. Lectures and practice classes.
Time Commitment:	Contact Hours: 36 one-hour lectures (three per week) and up to 12 one-hour practice classes (one per week) Total Time Commitment: 120 hours total time commitment.
Prerequisites:	<i>Metric Spaces and Algebra</i> , Plus one of # <i>Vector Calculus</i> (620-231 Vector Analysis prior to 2009) or # 620-233 (prior to 2009).
Corequisites:	None
Recommended Background Knowledge:	None
Non Allowed Subjects:	None
Core Participation Requirements:	It is University policy to take all reasonable steps to minimise the impact of disability upon academic study and reasonable steps will be made to enhance a student's participation in the University's programs. Students who feel their disability may impact upon their active and safe participation in a subject are encouraged to discuss this with the relevant subject coordinator and the Disability Liaison Unit.
Coordinator:	Prof Joachim Hyam Rubinstein
Subject Overview:	This subject introduces the basic concepts and examples of topological spaces, the definition of manifolds and the classification of surfaces, the idea of homotopy of mappings, the concept of covering spaces and their relationship with fundamental groups, and the basic ideas of homology theory. Students should develop the ability to work with the fundamental group and homology groups, to calculate and use the fundamental group, to convert problems involving topological spaces and continuous maps into problems in algebra, to distinguish between different topological spaces, and to construct homeomorphisms and homotopy equivalences between spaces. This subject investigates the basic questions in topology. It demonstrates the power of topological methods in dealing with problems involving shape and position of objects and continuous mappings, and shows how topology can be applied to many areas, including geometry, analysis, group theory and physics. Topics include topological spaces and continuous maps; quotient spaces; homotopy and fundamental groups; surfaces; covering spaces; and an introduction to homology theory.
Objectives:	.
Assessment:	Up to 36 pages of written assignments due during the semester (25%); a 3-hour written examination in the examination period (75%).
Prescribed Texts:	None
Breadth Options:	This subject potentially can be taken as a breadth subject component for the following courses: # Bachelor of Arts (https://handbook.unimelb.edu.au/view/2009/D09) # Bachelor of Commerce (https://handbook.unimelb.edu.au/view/2009/F04) # Bachelor of Environments (https://handbook.unimelb.edu.au/view/2009/A04) # Bachelor of Music (https://handbook.unimelb.edu.au/view/2009/M05)

	You should visit learn more about breadth subjects (http://breadth.unimelb.edu.au/breadth/info/index.html) and read the breadth requirements for your degree, and should discuss your choice with your student adviser, before deciding on your subjects.
Fees Information:	Subject EFTSL, Level, Discipline & Census Date, http://enrolment.unimelb.edu.au/fees
Notes:	This subject is available for science credit to students enrolled in the BSc (pre-2008 degree only), BAsC or a combined BSc course.
Related Majors/Minors/ Specialisations:	Mathematics & Statistics Major Mathematics and Statistics (Pure Mathematics specialisation)