

Purpose of the proposed change.

Math 655, 656, and 657 have been running as if they were 5 credit courses ever since Autumn 2001. See the attached "Master Section List".

The purpose of the proposed change is to bring the official description of this topology course sequence in line with what each of these courses actually is.

RMSL 265/655/AU01

16:35 06/12/06 GGS

DPT: MATH QTR/YR: AU01 **MASTER SECTION LIST**

CAMPUS: COL

DPT#: 265

CALL	SCT	ROOM B SECT		CAP		INSTRUCTOR		RST			
A NUMBER	TYP	DAYS	TIME	BLD	ROOM	CAP	PENRL	LIMIT	LIMIT	INSTRUCTOR	RST
CRS: 655		ELEM TOPOLOGY 1		CRD:04				(WAIT 0)			
12184-1	D	MTWRF	0930	A	EA 0295	0029	0027	0025	0025	GLOVER, H	
CRS: 670		ALGEBRA 1		CRD:05				(WAIT 0)			
12185-6	D	M W F	1230-0148N	CH	0232	0040	0016	0025	0025	JOSHUA, R	
CRS: 693		INDIVIDUAL STUDIES		CRD:01-05				(WAIT 0)			
12186-1	X		ARR			0000	0000	0025	0025	ALLEN, H	
12187-7	X		ARR			0000	0000	0025	0025	ASH, A	
12188-2	X		ARR			0000	0000	0025	0025	BAISHANSKI, B	
12189-8	X		ARR			0000	0000	0025	0025	BAKER, G	
12190-5	X		ARR			0000	0001	0025	0025	BERGELSON, V	
12191-1	X		ARR			0000	0000	0025	0025	BROWN, R	
12192-6	X		ARR			0000	0000	0025	0025	BURGHELEA, D	
12193-1	X		ARR			0000	0000	0025	0025	CARLSON, T	

PF4 TO PAGE OR M IN ACTION FOR RMSM SCREEN

11 MORE COURSES FOR DEPARTMENT

Math 655
Syllabus
Autumn 2005

Text: *Basic Topology* by M. A. Armstrong ISBN 0-387-90839-0. *Topology* by J. Munkres covers more material and is a good supplementary text.

Course Grade: Final grades will be based on a recitation score (20%), a midterm exam score (30%) and a final exam score (50%).

Recitation: There will be 7 assessed homeworks. Each student will present at least one homework solution during the recitations. Your recitation score will be based on your best 5 homeworks plus a bonus point for presenting a solution well.

Exam information: The midterm exam will be held on Thursday October 27th at 9:30 (instead of a lecture). This exam will be a closed book exam. The lecturer will try to accommodate requests for a make-up exam, provided that they are made well in advance of the exam date. The final exam will be a take-home exam, to be handed in before 9:18 on Tuesday December 6th.

Syllabus and schedule:

- Week 1: Basic concepts of point-set topology in \mathbb{R}^n
- Week 2: Topological spaces and continuity, product topology.
- Week 3: Subspace topology, quotient topology.
- Week 4: Connectedness, compactness, Tychonoff.
- Week 5: Countability and separation axioms.
- Week 6: Tietze extension theorem, partitions of unity, paracompactness.
- Week 7: Metric spaces, completeness.
- Week 8: CW-complexes, manifolds, closed surfaces
- Week 9: Statement of classification of surfaces
- Week 10: Additional topics such as: Baire spaces, dimension theory, the Zariski topology, metrization theorems, the Hilbert cube.

DISABILITY STATEMENT: Students with disabilities that have been certified by the Office of Disability Services will be appropriately accommodated, and should inform the instructor as soon as possible of their needs. The Office of Disability Services is located in 150 Pomerene Hall, 1760 Neil Avenue; telephone 292-3307, TDD 292-0901; <http://www.ods.ohio-state.edu>.

ACADEMIC MISCONDUCT STATEMENT: It is the responsibility of the Committee on Academic Misconduct to investigate or establish procedures for the investigation of all reported cases of student academic misconduct. The term "academic misconduct" includes all forms of student academic misconduct wherever committed; illustrated by, but not limited to, cases of plagiarism and dishonest practices in connection with examinations. Instructors shall report all instances of alleged academic misconduct to the committee. For additional information, see the Code of Student Conduct (http://studentaffairs.osu.edu/resource_csc.asp).

Math 656
Syllabus
Winter 2006

Text: *Basic Topology* by M. A. Armstrong ISBN 0-387-90839-0, and/or *Algebraic Topology* by A. Hatcher ISBN 0-521-54186-7. Note that Hatcher's book is available on the web at www.math.cornell.edu/~hatcher/AT/ATpage.html

Course Grade: Final grades will be based on a recitation score (20%), a midterm exam score (30%) and a final exam score (50%).

Recitation: There will be 7 assessed homeworks. Each student will present at least one homework solution during the recitations. Your recitation score will be based on your best 5 homeworks plus a bonus point for presenting a solution well.

Exam information: The midterm exam will be held on Thursday February 9th at 9:30 (instead of a lecture). The lecturer will try to accommodate requests for a make-up exam, provided that they are made well in advance of the exam date. The final exam will be held at 9:30 on Wednesday March 15th. Both exams will be closed book exams.

Syllabus and schedule:

Week 1: Homotopy between continuous maps, homotopy equivalence.

Week 2: Fundamental groups, covering spaces.

Week 3: More covering spaces, the language of category theory.

Week 4: Free groups, presentations of groups.

Week 5: Classification of covering spaces.

Week 6: Van Kampen's theorem, fundamental groups of CW-complexes.

Week 7: Euler characteristic of 2-dimensional CW-complexes, behaviour under finite coverings.

Week 8: Applications of the fundamental group, classification of surfaces.

Week 9: Subgroups of free groups and surface groups.

Week 10: Additional topics such as knot groups, Grassmannians, classifying spaces.

DISABILITY STATEMENT: Students with disabilities that have been certified by the Office of Disability Services will be appropriately accommodated, and should inform the instructor as soon as possible of their needs. The Office of Disability Services is located in 150 Pomerene Hall, 1760 Neil Avenue; telephone 292-3307, TDD 292-0901; <http://www.ods.ohio-state.edu>.

ACADEMIC MISCONDUCT STATEMENT: It is the responsibility of the Committee on Academic Misconduct to investigate or establish procedures for the investigation of all reported cases of student academic misconduct. The term "academic misconduct" includes all forms of student academic misconduct wherever committed; illustrated by, but not limited to, cases of plagiarism and dishonest practices in connection with examinations. Instructors shall report all instances of alleged academic misconduct to the committee. For additional information, see the Code of Student Conduct (http://studentaffairs.osu.edu/resource_csc.asp).

Math 657
Syllabus
Spring 2006

Text: *Algebraic Topology* by A. Hatcher ISBN 0-521-54186-7. This book is available on the web at www.math.cornell.edu/~hatcher/AT/ATpage.html For the basics of simplicial homology *Basic Topology* by M. A. Armstrong ISBN 0-387-90839-0 is a useful supplementary text.

Course Grade: Final grades will be based on a recitation score (20%), a midterm exam score (30%) and a final exam score (50%).

Recitation: There will be 7 assessed homeworks. Each student will present at least one homework solution during the recitations. Your recitation score will be based on your best 5 homeworks plus a bonus point for presenting a solution well.

Exam information: The midterm exam will be held on Thursday April 27th at 9:30 (instead of a lecture). The lecturer will try to accommodate requests for a make-up exam, provided that they are made well in advance of the exam date. The final exam will be held at 9:30 on Wednesday June 7th. Both exams will be closed book exams.

Syllabus and schedule:

- Week 1: Simplicial complexes, the realization of a poset.
- Week 2: Chain complexes, basic homological algebra.
- Week 3: Simplicial homology, Mayer-Vietoris sequence.
- Week 4: Δ -complexes (as in Hatcher), plus an abstract version.
- Week 5: Calculations of homology for familiar spaces.
- Week 6: Singular homology (homotopy invariance, homology of a pair).
- Week 7: Excision property, Mayer-Vietoris for singular homology.
- Week 8: Local homology, invariance of dimension, uniqueness of boundary of a manifold.
- Week 9: Degree of a map, Brouwer theorem, cellular homology.
- Week 10: Additional topics such as projective spaces and their homology, cohomology, Lefschetz fixed point theory, vector bundles, differential forms, the deRham theorem.

DISABILITY STATEMENT: Students with disabilities that have been certified by the Office of Disability Services will be appropriately accommodated, and should inform the instructor as soon as possible of their needs. The Office of Disability Services is located in 150 Pomerene Hall, 1760 Neil Avenue; telephone 292-3307, TDD 292-0901; <http://www.ods.ohio-state.edu>.

ACADEMIC MISCONDUCT STATEMENT: It is the responsibility of the Committee on Academic Misconduct to investigate or establish procedures for the investigation of all reported cases of student academic misconduct. The term "academic misconduct" includes all forms of student academic misconduct wherever committed; illustrated by, but not limited to, cases of plagiarism and dishonest practices in connection with examinations. Instructors shall report all instances of alleged academic misconduct to the committee. For additional information, see the Code of Student Conduct (http://studentaffairs.osu.edu/resource_csc.asp).