

COURSE SPECIFICATION

The course information as follows may be subject to change, either during the session because of unforeseen circumstances, or following review of the course at the end of the session. Queries about the course should be directed to the course instructor.

1.	Course Title	Topology			
2.	Originating Department	Department of Mathematics			
3.	Course Code	MA323			
4.	Credit Value	3			
5.	Course Type	Major Elective Courses			
6.	Semester	Fall			
7.	Teaching Language	English & Chinese			
8.	Instructor(s), Affiliation & Contact For team teaching, please list all instructors	LI Qin Department of Mathematics liq@sustech.edu.cn ZHU Yifei Department of Mathematics zhuyf@sustech.edu.cn			
9.	Tutor/TA(s), Contact	To be announced			
10.	Maximum Enrolment () Optional				
11.	Delivery Method	/	/	/	()
		Lectures	Tutorials	Lab/Practical	Other Please specify
	Credit Hours	48			48

12. Pre-requisites or Other Academic Requirements	MA214 Abstract Algebra (MA214)
	Algebraic Curves (MAT7057) Advanced Topology (MAT8004) Differentiable Manifolds (MAT8005)
13. Courses for which this course is a pre-requisite	
14. Cross-listing Dept.	

SYLLABUS

15. Course Objectives

Introduce basic notions and examples in point-set and algebraic topology, with a view towards more advanced analysis, (algebraic and differential) geometry, and topology courses.

16. Learning Outcomes

Students should be familiar with concrete examples and constructions of topological spaces, e.g., subspaces, quotient spaces, and product spaces;

Understand important properties of topological spaces, e.g., compactness and connectedness;

Be familiar with the topological properties of surfaces;

Acquire knowledge of basic algebraic invariants of a space, e.g., the fundamental group, simplicial homology; be familiar with basic computational methods, and be able to calculate with concrete examples as well as to apply the algebraic invariants to simple questions.

17. Course Contents (in Parts/Chapters/Sections/Weeks. Please notify name of instructor for course section(s), if this is a team teaching or module course.)

Introduction (1 lecture)

Open and closed sets, continuity (3 lectures)

Compactness, connectedness, product space (4 lectures)

Quotient space (2 lectures)

The fundamental group, calculations (3 lectures)

Homotopy type, applications including the Brouwer fixed point theorem (2 lectures)

Simplicial triangulation (1 lecture)

Classification of surfaces (1 lecture)

Simplicial homology (3 lectures)

Applications of homology groups (3 lectures)

Review (1 lecture)

1

2 3

4 5

6

7 8

Brouwer

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12 13

14 15

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18.

Textbook and Supplementary Readings

Textbook

References

M.A. Armstrong, Basic Topology, Springer

James R. Munkres, Topology (Second Edition), Pearson

ASSESSMENT

19.

Type of Assessment	Time	% of final score	Penalty	Notes
Attendance				
Class Performance				
Quiz				
Projects				
Assignments		40		Weekly problem sets, with a grader
Mid-Term Test		30		Closed-book
Final Exam		30		Closed-book
Final Presentation				
Others (The above may be modified as necessary)				

20.

GRADING SYSTEM

A.	Letter Grading
B.	/ Pass/Fail Grading

REVIEW AND APPROVAL

21.

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This Course has been approved by the following person or committee of authority

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