课程大纲
COURSE SYLLABUS

1.	课程代码/名称 **Course Code/Title**	MAT8021 代数拓扑 Algebraic Topology
2.	课程性质 **Compulsory/Elective**	**Compulsory**
3.	课程学分/学时 **Course Credit/Hours**	3/48
4.	授课语言 **Teaching Language**	英文教材 English Textbook， 中英文授课 Lecture in Chinese and English
5.	授课教师 **Instructor(s)**	朱一飞　Zhu Yifei
6.	是否面向本科生开放 **Open to undergraduates or not**	是 Yes
7.	先修要求 **Pre-requisites**	（如面向本科生开放，请注明区分内容。 If the course is open to undergraduates, please indicate the difference.） MA323 拓扑学 MA323 Topology
8.	教学目标 **Course Objectives**	

（如面向本科生开放，请注明区分内容。 If the course is open to undergraduates, please indicate the difference.）
本课程为研究生几何与拓扑方向的两门核心必修课程之一，另一门为 MAT8024 微分流形。主要内容包括同调和上同调。
对于本科生，这是 MA323 拓扑学的后续课程，在基本群、覆叠映射之外进一步发展可计算的代数工具，来定性地研究空间。

This is a half of the graduate core courses in Geometry and Topology, the other half being MAT8024 Differentiable Manifolds. The main topics are homology and cohomology.

For undergraduate students, this is a sequel to MA323 Topology, developing further algebraic (and computable) machinery beyond the fundamental group and covering maps to analyze spaces qualitatively.

| 9. | 教学方法
Teaching Methods | |

（如面向本科生开放，请注明区分内容。 If the course is open to undergraduates, please indicate the difference.）
课堂讲授、平时作业、期末考试
Lectures, assignments, and a final exam

10.	教学内容 **Course Contents** （如面向本科生开放，请注明区分内容。 If the course is open to undergraduates, please indicate the difference.）	
	Section 1	Preliminaries, 预备知识

Section 2	Homology, 同调
Section 3	Cohomology, 上同调
Section 4	Further Topics, 进阶内容
Section 5	
Section 6	
Section 7	
Section 8	
Section 9	
Section 10	

11.	课程考核 **Course Assessment**

（①考核形式 Form of examination；②.分数构成 grading policy；③如面向本科生开放，请注明区分内容。
If the course is open to undergraduates, please indicate the difference.）

50%平时作业, 50%期末考试

50% Assignments, 50% Final Exam

12.	教材及其它参考资料 **Textbook and Supplementary Readings**

1. Algebraic Topology, by Allen Hatcher
2. Differential forms in algebraic topology, by Raoul Bott and Loring Tu
3. 同调论，姜伯驹著