课程大纲
COURSE SYLLABUS

1.	**课程代码/名称** **Course Code/Title**	**MAT7073 李群及其表示 Lie Groups and Representations**
2.	**课程性质** **Compulsory/Elective**	Elective
3.	**课程学分/学时** **Course Credit/Hours**	3/48
4.	**授课语言** **Teaching Language**	English
5.	**授课教师** **Instructor(s)**	Yannan QIU
6.	**是否面向本科生开放** **Open to undergraduates or not**	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.） MA214 抽象代数 Abstract Algebra (The prerequisites are the same for undergraduate and graduate students.)

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.）

The course introduces Lie groups and their representations. (The course objectives are the same for undergraduate and graduate students.)

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.）

Lecture (The teaching method is the same for undergraduate and graduate students.)

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	Basic notions of Lie groups and Lie algebras
Section 2	The structure of complex semi-simple Lie algebras
Section 3	The finite-dimensional representations of complex semi-simple Lie algebras
Section 4	Compact Lie groups
Section 5	Semi-simple Lie groups
Section 6	Invariants of classical groups
Section 7	Introduction to infinite-dimensional representations of semi-simple Lie groups
Section 8	
Section 9	

	Section 10	
	……	(Course contents are the same for undergraduate and graduate students.)

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.）

Homework 30%, Midterm Exam 30%, Final Exam 40%. (The course assessment is the same for undergraduate and graduate students.)

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

1. Lie groups beyond an introduction, By Anthony W. Knapp
2. Lie groups and Lie algebras: Chapters 1-9, By N. Bourbaki
3. Representations and Invariants of the Classical Groups, by R. Goodman & N. Wallach