

代數拓樸

ALGEBRAIC TOPOLOGY

NTHU | MATH 5525 | 2026 Fall

課程安排 Arrangements

教師：陳國璋 Kuo-Chang Chen

時間：R678

教室：綜三107

助教：TBD

聯繫方式 Contact Info.

教師辦公室：綜三609

分機：33067

辦公室時間：Fridays 4-5PM

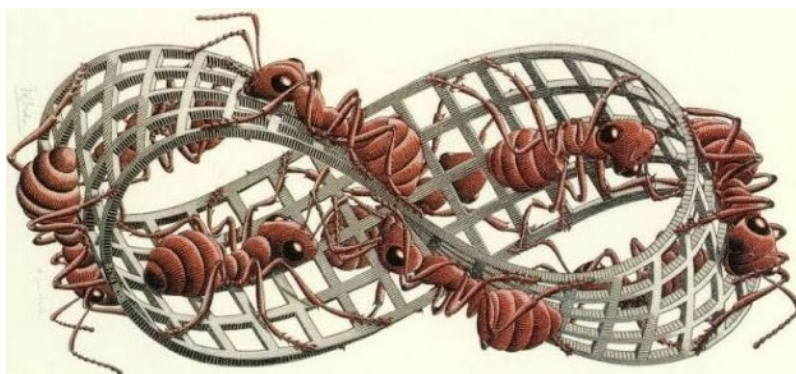
email: kchen@math.nthu.edu.tw

教科書 Textbook

William S. Massy: A Basic Course in Algebraic Topology, Springer, GTM volume 127, 1991.

參考書 References

James R. Munkres: Elements of Algebraic Topology, Addison-Wesley, 1984.



課程簡介 Course Description

Algebraic topology has wide applications in many areas of mathematics. This introductory course covers some essential elements of algebraic topology, and briefly introduces some applications in differential equations and geometry. In particular, the course includes brief introduction to homotopy theory, homology theory, and cohomology theory.

This course is intended for graduate and advanced undergraduate students who have taken standard undergraduate courses for topology, differential geometry, differential equations, and algebra.

Students without background in basic group theory, point set topology, should NOT take this course.



評分方式 Grading

作業 Homework (20%)

Selected exercises from the textbook will be collected and graded. **Due dates are two weeks after assignments.**

期中考 Midterm (40%)

(Chap 1~4)

2026/10/29

期末考 Final Exam (40%)

(Chap 5, 7~9)

2026/12/24

出席與缺席

Attendance

Students are expected to attend every scheduled class. It is the student's responsibility to keep informed of any announcements, syllabus adjustments or policy changes made during scheduled classes.

You should miss an exam only for the most compelling reasons and you should obtain permission in advance, except in some extraordinary circumstances. If you miss an exam for legitimate reasons, then a make-up exam will be arranged.

課程大綱 Syllabus

There will be a total of 14 lectures, two exams. Each lecture and exam will be 3 hours long. They are roughly scheduled as follows.

週次	日期	進度	備註
1	9/10	Chap 1. Surfaces	
2	9/17	Chap 1. Surfaces	作業
3	9/24	Chap 2. Fundamental group	
4	10/1	Chap 2. Fundamental group	作業
5	10/8	Chap 3. Free groups and free products	
6	10/15	Chap 4. Seifert-Van Kampen theorem	作業
7	10/22	Chap 5. Covering spaces	
8	10/29	期中考	
9	11/5	Chap 5. Covering spaces	作業
10	11/12	Chap 7. Introd. homology theory	
11	11/19	Chap 7. Introd. homology theory	作業
12	11/26	Chap 8. More on homology theory	
13	12/3	Chap 8. More on homology theory	
14	12/10	Chap 9. CW-complexes	作業
15	12/17	Cohomology theory, applications, etc.	
16	12/24	期末考	

Classes will be held from (75+75 min):

13:20-14:35, 14:55-16:10.

