



Course System Number: 1112-C121320

Course Title: 代數學（二） / Algebra (2)

Lecture Time: Tuesday 11:10–12:00 and Thursday 08:10–10:00

TA Session: Tuesday 10:10–11:00

Lecture Room: 理學教學大樓 36173 教室

Instructor: Yung-Ning Peng (彭勇寧)

E-mail address: ynp@gs.ncku.edu.tw

Office Location: Room 409, Math Building (數學館四樓 409 室)

Office Hours: By appointment in advance.

Office Phone: (06) 2757575 Ext. 65122

Course Description:

- In this course, we will introduce some basic properties of some most fundamental algebraic structures: groups, rings, and fields.
- In the second semester, we will focus mostly on further topics in groups, rings, and fields.
- We expect to cover isomorphism theorems of groups, ideals of a ring, quotient rings; group actions and Sylow theorems; PID, UFD, and Euclidean domains; field extensions and construction of finite fields.
- Certain further topics of groups, such as free groups, group presentation, solvable groups, will be discussed if time permitted.

Prerequisite(s): Algebra I.

Textbook: *A first course in abstract algebra*, 7th Edition, Pearson, by John B. Fraleigh;

ISBN-13: 978-1-292-02496-7

References:

1. *Abstract Algebra*, by Gregory T. Lee, e-book available; **ISBN-13:** 978-3-319-77649-1
2. *Abstract Algebra*, 3rd Edition, by I. N. Herstein; **ISBN-13:** 978-0-471-36879-3

Course Objectives:

1. Isomorphism theorems of groups, group action and applications, Sylow theorems.
2. Ideals and factor rings, Isomorphism theorems of rings, PID, UFD, and Euclidean domains.
3. Field extensions and Finite fields.
4. Free groups, group presentations, solvable groups (optional topics)

Teaching Assistant: 蔡誌軒; e-mail address: 118071023@gs.ncku.edu.tw

Other Resources: You may search “abstract algebra” or “抽象代數” on Youtube.

Grade Distribution:

Class Performance (including attendance)	10%
Quizzes and assignments	20%
Midterm Exam	30%
Final Exam	40%

Course Policies:

- **General**

- Computers and calculators are NOT allowed to be used in quizzes and exams.
- Video/audio recording or broadcasting without the instructor’s permission are prohibited.

- **Assignments, Quizzes, Exams**

- Students are expected to work independently. **Offering** or **accepting** solutions from others are acts of **plagiarism**, which is a serious offense and **all involved parties will be penalized**.
- Quizzes and exams will all be given in English; they are closed book, closed notes.
- **No** makeup quiz or exam will be given without some truly exceptional reasons.
- Exams are roughly scheduled as follows. We will determine the precise dates later (at least two weeks before the exam date).
 - * **Midterm Exam:** The 9th week, either April 11 or 13, precise date to be determined.
 - * **Final Exam:** The 18th week, either June 13 or 15, precise date to be determined.

- **Attendance and Absences**

- Attendance is expected and will be taken **randomly** during the semester. You are allowed to miss **2** classes during the semester without penalty. Any further absences may result in grade deduction under 『Class Performance』 category.
- Students are responsible for their missed lectures, notes or course materials.

- **Disclaimer**

- The instructor reserves the right to amend this syllabus as necessary. Any updates will be announced.
- This version: last updated in Jan 7, 2023.