
PHYS 0175: Physics for Science and Engineering 2

Fall-semester, 2022

(Modifications to this syllabus may be required during the semester. Any changes to the syllabus will be posted on Backboard system and announced in class.)

Lecturer:

A.P. Lin Fang

Institute: Physics College, Sichuan University

Office: Room 321 Zone 3

Email: linfang@scu.edu.cn

Office-hour: Not fixed, appointment first. Online support is always available.

Time and Location:

1. 13:50 - 15:30 Monday, Room 101 Zone 3.
2. 13:50 - 15:30 Wednesday, Room 101 Zone 3.

Teaching Assistant:

Mr. Hanze Qin, a senior student in Pittsburgh College, SCU.

QQ: 3300372719

Email: 3300372719@qq.com

Catalog Description:

4 Credits.

As the second part of a two-semester introduction to general physics, this course introduces students to the basic principles of fluid dynamics, thermodynamics, electromagnetic field and wave optics; modern physics such as theory of relativity and quantum mechanics is briefly introduced as well.

Suggested Textbook:

Principles of Physics, 10th Edition, Halliday, Resnick, Walker. International Student Version.

Course Outline:

The goal of this course is to give students an introductory overview of the subject of thermal dynamics, electromagnetics and modern physics. **Strong mathematical skills** are needed to test the understanding of the models and theories that the students will be introduced to. As the semester progresses the course includes:

Part 1: Thermodynamics

Thermodynamics (Ch. 18-20)

Part 2: Electromagnetic Field

Electric field: Chapter 21 – 25

Current and Circuit: Chapter 26 – 27

Magnetic field: Chapter 28 – 29

Induction and inductance: Chapter 30 – 31

Maxwell's equations: Chapter 32 – 33

Part 3: Modern Physics (Optional)

Theory of Relativity: Chapter 37

Quantum Theory: Chapter 38 – 40

Requirements of HW Submission

Submission format

The homework should be submitted as **PDF document**.

The homework can be completed by typing in word and converting it into PDF.

Naming Convention

- Individual homework should be named as following:

HW Number -Chinese name-Last Four Digits of Student ID.

For example, **HW1-张三-0011**.

- Group homework should be named as following:

Group Number-Report/PPT – (Last Four Digits of Student ID of All Team Members)
For example, **Group 3 – Report- (0011, 0120, 0201)**

Writing requirement

- For problems, show all work and complete calculation steps for each problem.
- Homework with only the answer will be **deducted at least 50% of points**.
- For your report, you must be typed and presented in a professional and readable format in **12 pt.** font with **1.5 line** spacing, Times New Roman is recommended to be used.
- **Plagiarism, cheating, and any form of unauthorized collaboration will not be tolerated and will be handled in accordance with policies of SCU.** Penalties for cheating and plagiarism may include but not limited to: zero credit on the work, student placed on probation, submission of judicial findings in the students' permanent record, and jeopardy of the students' status in the program.

Homework Deadline

Please pay attention to the deadline of the homework. **No makeup opportunity** for any missing homework aside from documented medical reasons which students are supposed to inform TA before the homework.

Examination Schedule:

Midterm Exam: Late October or early November (Part 1 and part of Part 2);

Final Exam: Late December (The rest of Part 2 and Part 3).

Course Grading:

Homework:

40%. Full score of 100 points each time.

Midterm Exam:

30%.

Final Exam:

30%.

Bonus:

1. At most 10 points added to the total.
2. Several small but open and innovative problems will be given with the course going on.
3. Students can freely choose to do or not to do the works.
4. Teams can be formed of which the number of members are no more than 3.
5. Students can deliver their works by paper, presentation (in video) or animated demo.

The up-limit of total score is 100. If exceeded, it will be counted as 100.

Grading Scale:

Final grades will be determined according to the table below. An additional curve may be applied, as determined by the overall final grade distribution of the class.

字母等级	A	A-	B+	B	B-	C+	C	C-	D+	D	F
中文等级	优秀		良好		中等		合格				不合格
百分制	100~90	89~85	84~80	79~76	75~73	72~70	69~66	65~63	62~61	60	<60
绩点	4	3.7	3.3	3	2.7	2.3	2	1.7	1.3	1	0