

Syllabus (课程大纲)

Instructor: Prof. Xing, Xiangjun, 邢向军 教授

Office: Pao Yue-Kong Library, Rm 525, 包玉刚图书馆525

Class time and location: 10-11:40am Tuesday and Thursday, 东中院1-301

Office Hours: 9:00-10:00am, before class, or by appointment

Prerequisite:

Physics: college physics, classical mechanics, electrodynamics, and quantum mechanics I.

Mathematics: calculus, linear algebra, differential equations, complex analyses, Fourier transformations, and some probability theory.

Reference books:

1. Brian Cowan: **Topics in statistical mechanics**. Imperial College Press (2005).
2. Mehran Kardar: **Statistical physics of particles**. Cambridge University Press (2007).
3. James P. Sethna: **Statistical mechanics, entropy, order parameters, and complexity**. Oxford University Press (2006).
4. Landau and Lifshitz, **Statistical Physics**, 3rd Ed., Butterworth-Heinemann (1980).

Topics to be covered:

See list of course content

Grades Breakdown:

40% Homeworks

40% Final written exam

10% Essay and Presentations

10% Oral exam (after essay turned in)

Homework policy:

One homework every two weeks.

Late homework will incur 20% penalty.

No homework more than one week overdue is to be accepted.

Written Exam:

One final written exam (two hours, one A4 formula sheet).

Essay and Presentation:

An essay of selective topics and 10-15 minutes presentation at end of semester.

See course content for a list of essay topics.

Oral Exam:

15-20 minutes discussion with instructor, after turning in essay.