

Computability and Randomness

Syllabus

Department of Philosophy
Fudan University
✉ yangruizhi@fudan.edu.cn
<http://logic.fudan.edu.cn/courses>



Instructor

Name Yang, Ruizhi (杨睿之)
Office 2503, West Guanghua Tower
Office Hours After class, 2:00 p.m. every Thursday, or by appointment

Course Information

Computability and Randomness, Fall 2016.

Time 6:30 p.m. – 8:10 p.m., Thursday
Place H2107
Course Pages <http://logic.fudan.edu.cn/courses>
Prerequisite Mathematical Logic I and Mathematical logic II

Objective

This course is designed for senior undergraduates and graduates who want to understand more on the theory of computability and the formal conception of randomness.

Contents

This is NOT a course on complexity, algorithm or pseudorandomness generators. Rather, this is a course about the pure conception of (un)computability and absolute randomness. Here are some key words you may encounter in the lectures: Turing degrees, Kolmogorov complexity, Martin-Löf randomness. Google it!

Grading Policy

Classroom test (50%), Final paper (50%).

Textbook and Reference

Textbook

Downey, Rodney G. & Hirschfeldt, Denis R. *Algorithmic, Randomness and Complexity*, Springer, 2010. [Download](#)

Main references

Soare, Robert I., *Recursively Enumerable Sets and Degrees*, Springer, 2014
Nies, André, *Computability and Randomness*, Oxford University Press, 2009