Programming for AI (Python)

2025 Spring, The Chow Institute

3 credits N202 Econ Building 16:40-18:20 Tuesdays and Thursdays

Suggested Courses:

Mathematical analysis
Linear Algebra
Introductory level statistics
No programming background is required for this course

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Office Hours: 19:00-21:00 Tuesdays and Thursdays

Course Description

Webpage: 人工智能程序设计（Python）
A course designed for second-year undergrad students in the College of Economics and sister colleges. A core course dedicated to help students learn coding skills in the Python programming language, understand Python interpreter, and analyze big data in economics with popular ML/AI models. Topics to be covered include: Python environment management, Python development environment, Python operators and key words, data structures and containers, functions, object-oriented programming, the numpy and pandas packages for data analysis, data wrangling and visualization. Introductory machine learning algorithms including linear regression, logistic regression, Adaboost will also be covered. Miscellaneous topics: accelerating Python, loss function and prediction evaluation, cross-validation, SGD, Bayesian optimization, backpropagation.

Course Format

On-campus.
Course materials will be accessible from the course platform of Xiamen University.
Discussions and daily housekeeping will be through both course announcements and QQ group: 922342424

Recommended-Only Texts

1. Python for Data Analysis Data Wrangling with Pandas, NumPy, and IPython, Wes McKinney, 2017
2. Python 数据科学手册, Jake VanderPlas, 2018
3. An Introduction to Statistical Learning, James, Witten, Hastie, and Tibshirani, Springer, 2013

Assignments and Grading

Course grades will be based on

1. Routine homework assignments up to 12 times. Homework should be done individually although discussions with classmates, friends, and in online forums are allowed. **No "copy-paste" from others' homework is allowed.**
2. A written mid-term exam (format not yet decided) covering derivations of machine learning algorithms. **NO CHEATING IS TOLERATED. Failure to comply with this moral requirements LEADS TO A FAILURE OF THIS COURSE.**
3. (TBD) A final exam on programming skills of Python. **NO CHEATING IS TOLERATED. Failure to comply with this moral requirements LEADS TO A FAILURE OF THIS COURSE.**
4. A group class project. An in-class presentation before the class final exam period。Groups should be of 5-8 people.

These elements will be weighted to make course grades as (temp):

Attendance and Homework: 40%
Mid-term: 10%
Final: 20%
Group Project: 30%

Course Policies

1. Homework

You may ask course instructor or TA for (limited) help with the assignments. And you may discuss homework assignments with fellow students. But each individual must independently write up his or her own assignments for turning in. This is an integrity issue. You must use your own words, symbols, and code. Do not copy what someone else has written and turn it in as your own. The homework file turned in should be properly named so that the grader(s) can easily recognize the owner. Each student will attach the following to his or her code:

I have neither given nor received unauthorized assistance on this assignment.

2. Expected classroom behavior

Students are expected to behave in a professional manner during all interactions with fellow students, faculty, and staff. The instructor will do his best to keep the course

beginning and ending on time. If you must (unavoidably) arrive late, please get in and into a seat with as little commotion as possible. If you are (unavoidably) going to have to leave early (even a couple minutes early), it is common courtesy to let your instructor know in advance, and then try to get out as unobtrusively as possible. **No taping or recording is allowed.**

3. Late Turn-in

No turn-ins after the homework is due will be accepted. But out of all assignments, the least favorable one will be automatically dropped when giving your final scores.

4. Cheating and plagiarism

No "copy-paste" from others' homework is allowed. NO CHEATING IS TOLERATED for both exams. Failure to comply with this moral requirements LEADS TO A FAILURE OF THIS COURSE.

University Policies

Your grades, including homework assignments and exams, cannot be modified once it is confirmed, so please contact TA or me if you have questions about your grades in time. The punishment of absence without permission is very severe. Specifically, **"在长学期连续旷一门课 6 次以上（含 6 次）或随机抽查点名旷课 3 次以上（含 3 次），取消其参加该课程的期末考试资格，成绩以 0 分登记。"**

第二十五条 学生的课程考试。经济学科所有统开课和专业课（选修、必修）（含辅修）应安排时间、地点进行期中考试和期末考试，期中考试可以以闭卷笔试、半开卷笔试、开卷笔试方式进行;期末考试必须采用闭卷笔试方式;短学期课程可以采用考查方式。根据学校要求，对期末考试，任课教师考前须提交命题审核表，同时出 A、B 两套试题（A、B 卷重复率不高于 20%，与近三年的试卷重复率不超过 20%）。所有课程考试不得由教学助理或其他人代出试卷。