Course Code
Software Engineering
Module 2, 2024-25

Course Information

Instructor: Haiyang Zheng
Office: 649
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Office Hour: Monday and Thursday from 8:30 to 9:30am, Wednesday from 3 to 5pm

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Classes:
Lectures: TBD
Venue: TBD

Course Website:
TBA

1. Course Description

1.1 Context

Course overview:
This course aims to teach a systematic approach to the design and development of software with emphasis on high quality code, easy maintenance and enhancement, and reusability. A series of programing assignments will be given to help students better understand the basic principles and apply them to practical quantitative investment strategies.

Prerequisites:

This course demands significant programming practice, thus a background in programming, statistics, and econometrics is essential. Students are expected to have completed the Big Data Analysis course to gain familiarity with utilizing Hadoop/MapReduce for handling substantial volumes of high-frequency trading data.

1.2 Textbooks and Reading Materials

- No required textbooks
- Reference book: Software Engineering, Tenth edition, Ian Sommerville, Addison-Wesley
- More reading materials will be distributed during classes.

Learning Outcomes

2.1 Intended Learning Outcomes

Learning Goals	**Objectives**	**Assessment (YES with details or NO)**
1. Our graduates will be effective communicators.	1.1. Our students will produce quality business and research-oriented documents.	YES with project report
	1.2. Students are able to professionally present their ideas and also logically explain and defend their argument.	YES with project presentation
2. Our graduates will be skilled in team work and leadership.	2.1. Students will be able to lead and participate in group for projects, discussion, and presentation.	YES with project
	2.2. Students will be able to apply leadership theories and related skills.	YES with project
3. Our graduates will be trained in ethics.	3.1. In a case setting, students will use appropriate techniques to analyze business problems and identify the ethical aspects, provide a solution and defend it.	YES with project
	3.2. Our students will practice ethics in the duration of the program.	
4. Our graduates will have a global perspective.	4.1. Students will have an international exposure.	YES with course materials
5. Our graduates will be skilled in problem-solving and critical thinking.	5.1. Our students will have a good understanding of fundamental theories in their fields.	YES with course materials
	5.2. Our students will be prepared to face problems in various business settings and find solutions.	YES with project
	5.3. Our students will demonstrate competency in critical thinking.	YES with project

2.2 Course specific objectives

See section 1.1 Context.

2.3 Assessment/Grading Details

Attendance 5%, Assignments 30%, Midterm 30%, Final Project 35%

Attendance will be checked randomly.
The level of background knowledge may vary among students, but it will be ignored in grading. Grading will be strictly based on outcome, not on effort or progress.

2.4 Academic Honesty and Plagiarism

It is important for a student's effort and credit to be recognized through class assessment. Credits earned for a student work due to efforts done by others are clearly unfair. Deliberate dishonesty is considered academic misconducts, which include plagiarism; cheating on assignments or examinations; engaging in unauthorized collaboration on academic work; taking, acquiring, or using test materials without faculty permission; submitting false or incomplete records of academic achievement; acting alone or in cooperation with another to falsify records or to obtain dishonestly grades, honors, awards, or professional endorsement; or altering, forging, or misusing a University academic record; or fabricating or falsifying of data, research procedures, or data analysis.

All assessments are subject to academic misconduct check. Misconduct check may include reproducing the assessment, providing a copy to another member of faculty, and/or communicate a copy of this assignment to the PHBS Discipline Committee. A suspected plagiarized document/assignment submitted to a plagiarism checking service may be kept in its database for future reference purpose.

Where violation is suspected, penalties will be implemented. The penalties for academic misconduct may include: deduction of honour points, a mark of zero on the assessment, a fail grade for the whole course, and reference of the matter to the Peking University Registrar.

For more information of plagiarism, please refer to *PHBS Student Handbook*.

2. Topics, Teaching and Assessment Schedule (Tentative)

Week	Dates	Topics
1		Introduction and Object Oriented Programming
2		Using UML for design, documentation, and enhancement
3		Case study: design patterns and a backtesting platform
4		Guidelines of software engineering for quant strategies
5		Case study: a pair trading strategy
6		Midterm exam and project proposals
7		Project management and latest quant strategy research I
8		Quality management and latest quant strategy research II
9		Advanced research topics and final project presentations

3. Miscellaneous