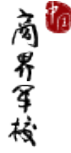# Asset Allocation
Module 2, 2022-2023

Course Information

Instructor: Xianhua Peng

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Classes:

Lectures: Monday and Thursday, 10:30am-12:20pm
Venue: PHBS TBA

Course Website:

PHBS school CMS website: cms.phbs.pku.edu.cn

1. Course Description

1.1 Context

Course overview: This course introduces quantitative models and methods for asset allocation. It covers the following topics: mean-variance portfolio selection, Black-Litterman model and Bayesian methods for asset allocation, factor models and asset allocation, active portfolio management, risk parity asset allocation, smart beta asset allocation, dynamic asset allocation, index fund construction, robust portfolio selection, asset allocation based on value-at-risk and conditional value-at-risk, asset allocation based on machine learning methods, etc.

Prerequisites: N/A

1.2 Textbooks and Reading Materials

Textbook: There are no required textbooks for this course.

Reference books:

1. Cornuejols, G., Tutuncu, R., Optimization Methods in Finance, Cambridge University Press, 2007.

2. Grinold, R., Kahn, R., Active Portfolio Management: A Quantitative Approach for Producing Superior Returns and Controlling Risk, 2nd Edition, McGraw-Hill, 1999.

2. 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. The students will learn how to quantitatively construct investment portfolio and provide intuitive explanation.
	1.2. Students are able to professionally present their ideas and also logically explain and defend their argument.	Yes. The students will learn how to express their ideas in a quantitative and logical way by using advanced mathematics.
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. The students will participate in group projects, discussion of homework problems, and project presentation.
	2.2. Students will be able to apply leadership theories and related skills.	No.
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.	No.
	3.2. Our students will practice ethics in the duration of the program.	No.
4. Our graduates will have a global perspective.	4.1. Students will have an international exposure.	Yes. The students will work on asset allocation problems that involve assets in international financial markets.
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. The students will learn the fundamental theory, models, and methods in asset allocation.
	5.2. Our students will be prepared to face problems in various business settings and find solutions.	Yes. The students will learn asset allocation strategies under different business settings.
	5.3. Our students will demonstrate competency in critical thinking.	Yes. The students will learn how to criticize the drawbacks of existing asset

		allocation strategies and make improvement.

2.2 Course specific objectives

After taking the course, the students will master important quantitative models and methods in asset allocation.

2.3 Assessment/Grading Details

There will be four homework sets. The students are encouraged to discuss the homework problems together, but each student need to hand in his or her own copy of the solution to the homework.

There will be a final exam and a group project. The final exam will be closed-book and closed-notes. The assessment of group projects will be based on the project code, report, and group project presentation.

The grading formula for the course is homework(10%)+final exam(60%)+project(30%).

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*.

3. Topics, Teaching and Assessment Schedule

The final exam is scheduled on January 3, 2023.

4. Miscellaneous