



北京大學  
汇丰商学院

Peking University HSBC Business School

## Numerical Methods and Analysis

Module 3, 2017

### Course Information

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*Instructor: Jake Zhao*

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Office Hours: Wednesday, 1:30pm - 5:30pm, or by appointment

*Classes:*

Lectures: Monday and Thursday, 3:30pm - 5:20pm

Room: PHBS 313

### 1. Course Description

#### *1.1 Context*

Course overview:

This course is designed to provide a rigorous introduction to the study of advanced computational and numerical methods. The techniques are then applied to interesting and important questions in both economics and finance.

Prerequisites:

Econometrics, calculus, basic knowledge of computer programming

#### *1.2 Textbooks and Reading Materials*

Required text:

Lecture notes and supplemental materials will be provided to students through the course management system.

Recommended references:

“Numerical Methods in Economics” by Kenneth Judd

### 2. Learning Outcomes

## 2.1 Intended Learning Outcomes

Learning Goals	Objectives	Assessment
1. Our graduates will be effective communicators.	1.1. Our students will produce quality business and research-oriented documents.	Problem sets
	1.2. Students are able to professionally present their ideas and also logically explain and defend their argument.	Problem sets, exams
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.	Class participation
4. Our graduates will have a global perspective.	4.1. Students will have an international exposure.	Lectures
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.	Lectures, problem sets, exams
	5.2. Our students will be prepared to face problems in various business settings and find solutions.	Lectures, problem sets, exams
	5.3. Our students will demonstrate competency in critical thinking.	Lectures, problem sets, exams

## 2.2 Course specific objectives

The computational and numerical methods learned in this class may aid students in thesis writing and future research in various topics related to economics and finance. This course is also meant to engender the interest of students in problems in economics and finance and provide the tools for which to rigorously solve them.

## 2.3 Assessment/Grading Details

Component	Weight
Problem sets	40%
Project	20%
Final	40%

## 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**

Week 1: Introduction to programming

Weeks 2-3: Simulation

Weeks 4-5: Estimation

Weeks 6-8: Applications

Week 9: Projects