

Course Outline

Course ID: FN211 FINANCIAL MATHEMATICS AND STATISTICS

Semester 1/2021 (August 9 – November 27, 2021)

Number of Credit: 3 credits (3-0-6)

Instructor: Isariya (Yas) Suttakulpiboon

Office Hours: By appointment

Email: isariya@cbs.chula.ac.th

Class Time and Logistic

Class day: Thursday

Class time: 2-5 pm

Teaching Materials Platform: tinyurl.com/fn211-2021

Meeting Platform: <https://chula.zoom.us/my/ajarnyas>

Prerequisite: -

Course Description: Essentials of statistics and mathematics for financial applications: basic statistics, the concept of risk and return, probability, regression analyses, basic calculus (e.g. introduction to derivatives, integration, and integral), optimization, and basic matrices

Course Objectives:

1. Acquaint students with the financial mathematics tools necessary for assessment of risk and return in financial decision making and investment management.
2. Learn techniques to organize and analyze data.
3. Develop scientific thinking and overcome anxiety about applying calculus and statistics in finance work.
4. Develop familiarity with use of excel statistics functions.

Main Text: None

Recommended Texts & Materials:

- Wackerly, D.D., Mendenhall III, W., and Scheaffer, R.L. (2002). Mathematical Statistics with Applications. 6th ed. Thomson Learning.
- Stewart, J. (2016). Calculus. 8th ed. Thomson Brooks/Cole.
- Anderson, D.R., Sweeney, D.J., Williams, T.A., Camm, J.D., and Cochran, J.J. (2017). Statistics for Business and Economics. Thirteenth Edition. Cengage Learning.
- Ruppert, D. (2011). Statistics and data analysis for financial engineering (Vol. 13). New York: Springer.
- Miller, M. B. (2013). Mathematics and statistics for financial risk management. John Wiley & Sons.
- Other suggestions can be found in www.tinyurl.com/fn211-2021

Grading Criteria:

- **Individual Homework 60% (10% Each)**
 - You are encouraged to work in a study group but make sure that the work must be done by you. Plagiarism will not be tolerated. List all of your collaborators.
- **Team Final Project 35% (30% Project & 5% Peer Evaluation)**
 - You will be asked to work in a team of 6-8 people and deliver a finance-related and data-related project. Peer assessment will be conducted; make sure you contribute to your team. Project detail and the grading rubric will be announced later in the semester.
- **Reflective Essay 5%**
 - A reflective essay is an essay in which the student examines his or her experiences in taking the class. You will be asked to write about classroom experiences, exploring how you have changed, developed or grown from taking this class.

Expected Learning Outcomes:

Students will develop background in mathematics and statistics that are crucial for study in corporate financial decision making and investments. The class introduces building blocks in calculus and tackles the mathematical concepts of time value of money, probability, statistics, and matrix algebra.

Tentative Class Schedule:

- August 19, 2021 - Introduction to Excel for Math and Statistics Applications and Data Management
- August 26, 2021 - Introduction to R and Data for Math and Statistics Applications and Data Management
- September 2, 2021 - Common Probability Distributions
- September 9, 2021 - Applications to Common Probability Distributions in Finance
- September 16, 2021 - Hypothesis Testing
- September 23, 2021 - Applications of Hypothesis Testing in Finance
- October 7, 2021 - Linear Regression
- October 14, 2021 - Applications of Linear Regression in Finance & Final Project Announcement
- October 21, 2021 - Calculus and Optimization & Final Project Announcement
- October 28, 2021 - Applications of Calculation and Optimization in Finance
- November 4, 2021 - Matrix Algebra
- November 11, 2021 - Applications of Matrix Algebra in Finance
- November 18, 2021 - More Applications in Finance
- (Date TBA) - Final Project Consultation
- November 25, 2021 - Final Project Presentation
- There is no midterm and final exam in this class

ACADEMIC CALENDAR & HOLIDAY SEMESTER 1/2021

Semester 1/2021 (August 9 - November 27, 2021)	
Classes Begin	August 9, 2021
Add-drop period	August 6 - 15, 2021
Tuition Fee Installment Plan For ID.61-63 only <i>(9 AM - 10.30 PM)</i>	#Round 1 (July 16 – 18, 2021) #Round 2 (August 30 – September 3, 2021) #Round 3 (September 20 – 22, 2021)
<i>H.M. Queen Sirikit The Queen Mother's Birthday*</i>	<i>August 12, 2021</i>
<i>Prince Mahidol Day*</i>	<i>September 24, 2021</i>
Mid-term Examination Period	September 27 - October 3, 2021
Withdrawal period with "W" on record	October 11 - November 15, 2021
<i>H.M. King Bhumibol Adulyadej The Great Memorial Day*</i>	<i>October 13, 2021</i>
<i>Substitution for King Chulalongkorn's Day*</i>	<i>October 22, 2021</i>
<i>King Chulalongkorn's Day*</i>	<i>October 23, 2021</i>
Last day of class for Semester 1/2021	November 27, 2021
Final exam period	November 29-30, December 1-3, 7-9, 11-17, 2021
<i>H.M. King Bhumibol Adulyadej The Great's Birthday*</i>	<i>December 5, 2021</i>
<i>Substitution for H.M. King Bhumibol Adulyadej The Great's Birthday*</i>	<i>December 6, 2021</i>
<i>Constitution Day*</i>	<i>December 10, 2021</i>

Remark * Holiday, No classes during this period