Annexe A: New/Revised Course Content in OBTL+ Format

Course Overview

The sections shown on this interface are based on the templates UG OBTL+ or PG OBTL+
If you are revising/duplicating an existing course and do not see the pre-filled contents you expect in the subsequent sections e.g. Course Aims, Intended Learning Outcomes etc. please refer to Data Transformation Status for more information.

Expected Implementation in Academic Year	
Semester/Trimester/Others (specify approx. Start/End date)	
Course Author * Faculty proposing/revising the course	Kong Yoon Kee
Course Author Email	AYKKong@ntu.edu.sg
Course Title	FINANCIAL MODELLING
Course Code	BF3204
Academic Units	0
Contact Hours	39
Research Experience Components	

Course Requisites (if applicable)

Pre-requisites	AB1201 or BU8201 with B+ (Minor in Finance Students) and BF2201/BF2219 (Investments)
Co-requisites	
Pre-requisite to	
Mutually exclusive to	
Replacement course to	
Remarks (if any)	

Course Aims

This course review and apply the principles taught in prior introductory finance courses including capital structure, corporate finance, asset pricing and investment analysis, plus additional topics like fixed income analysis and construction of efficient portfolios. It takes a very hands-on approach and provide students with ample opportunities to apply numerical and statistical analysis, table and graphical presentations and database analysis. It exclusively uses MS Excel as a computing tool for pricing and analysis. Topics covered include cost of capital estimation, valuation using financial statement models, construction of efficient portfolios, pricing and valuation of options and fixed income analytics.

As the coverage of finance topics for this course is very broad and the focus is on Excel application, this course will not cover the derivation of formulas (which students should have learnt from another finance course or will learn in the future) but will emphasize Excel implementation of given formulas

After the completion of the course, you should be equipped with a strong foundation of finance and quantitative skills. The course benefits students who wish to become a quantitative financial analyst.

Course's Intended Learning Outcomes (ILOs)

Upon the successful completion of this course, you (student) would be able to:

ILO 1	Understand the principles of finance
ILO 2	Acquire working knowledge of statistics
ILO 3	Know how to use Excel functions, commands and tools
ILO 4	Create formulas, perform analytical analysis, and design Excel templates for applications in finance
ILO 5	Gain presentation skills
ILO 6	Appreciate the value of working as a team

Course Content

1. Time value of money with Excel functions and tools 2. Dynamic models of financial statement with Excel 3. Valuation of firms and investment projects with Excel What-If analysis 4. Stand-alone risk assessment with Excel What-If analysis and simulation 5. Cost of capital estimation with Excel Data analysis 6. Efficient portfolio construction with Excel Matrix functions and Solver 7. Pricing and applying options in portfolio construction 8. Fixed income analytics

Reading and References (if applicable)

Textbook: Financial Modeling, 4th Edition, by Simon Benninga (Acronym S4) MIT Press, 2014, ISBN: 978-0-262-02728-1. (Call No: HG173.B472 2014) References: Corporate Finance: A Valuation Approach, by, Simon Benninga and Oded H. Sarig. McGraw-Hill, 1997. ISBN: 978-0-070-05099-0. (Call No: HG4028.V3B472) Financial Management: Theory and Practice, 14th Edition by Eugene F Brigham, and Michael C. Ehrhardt. South-Western. ISBN: 978-1-111-97220-2. (Call No: HG4026.B855 2014) Options, Futures, and Other Derivatives, 9 th Edition by John C. Hull. Prentice-Hall. ISBN: 978-1-292-21289-0. (Call No: HG6024.H913 201 Bond Markets, Analysis and Strategies, 9th Edition by Frank Fabozzi. Prentice-Hall. ISBN: 978-0-133-79677-3. (Call No: HG4651.F121 2016)

Planned Schedule

Week or Session	Topics or Themes	ILO	Readings	Delivery Mode	Activities
1	Course Introduction ; Time Value of Money and Basic Valuation ; Principles Excel Functions ; Data Tables ; Arrays and Matrices	1, 3	S4 Ch 1, 31 - 34		
2	Course Introduction ; Time Value of Money and Basic Valuation ; Principles Excel Functions ; Data Tables ; Arrays and Matrices	1, 3	S4 Ch 3		
3	Calculating the Weighted Average Cost of Capital	1-3	S4 Ch 4		
4	Pro-forma Financial Statement Modeling	1, 3, 4	S4 Ch 5		
5	Introduction to Portfolio Models ; Finding Efficient Portfolios	1, 3, 4	S4 Ch 8, 9		
6	Calculating the Variance-Covariance Matrix	2, 3, 4	S4 Ch 10		

Week or Session	Topics or Themes	ILO	Readings	Delivery Mode	Activities
7	Estimating Betas and the Security Market Line (SML) ; Efficient Portfolios without Short Sales	1, 3, 4	S4 Ch 11, 12		
8	Introduction to Options ; Binomial Option Pricing Model	1, 3, 4	S4 Ch 15, 16		
9	The Black-Scholes Model (for Options Pricing)	1, 3, 4	S4 Ch 17		
10	Group Project Presentation	1, 2, 3, 4			
11	Quiz	1, 2, 3, 4, 6			
12	Fixed Income: Duration and Convexity	1, 3, 4	S4 Ch 20		
13	Fixed Income: Immunization Strategies, Course Wrap-up and Exam Briefing	1, 3, 4	S4 Ch 21		

Learning and Teaching Approach

Approach	How does this approach support you in achieving the learning outcomes?
Blended Lectures and Tutorials	All sessions are conducted in a computer lab. Each session comprises mini lectures alternate with hands-on exercises on provided Excel templates. The interactive session provides ample opportunities for open discussion on the conceptual and technical questions raised in the class. It lets you immediately put theory into practice to build applications of finance. This approach also allows me to get the concepts clearly through the entire class by involving you and ensure that the targeted learning outcomes are being achieved.
Group Assignment	The group assignment will provide you opportunity to work together and learn from one another and to share your knowledge to others. It helps students a host of skills such as breaking complex tasks into parts steps, planning and managing time, refining understanding, learning how to deal with open ended questions, and developing strong communication skills. These skills developed through the group-based work are increasing valued in the professional world.
In-Class activities	The learning outcomes related to Excel are skills which are practical in nature and cannot be achieved by reading and writing. The achievement of such learning outcomes requires hands-on experience you gain through in-class activities. Do not miss any class

Assessment Structure

Assessment Components (includes both continuous and summative assessment)

No.	Component	ILO	Related PLO or Accreditation	Weightage	Team/Individual	Rubrics	Level of Understanding
1	Continuous Assessment (CA): Class Participation(Class Participation)	1-5	Oral Communication	10	Individual		
2	Continuous Assessment (CA): Project(Group Project)	1-4,6	Teamwork & Interpersonal Skills	20	Team		
3	Continuous Assessment (CA): Test/Quiz(Quiz)	1-4	Problem Solving & Decision Making	20	Individual		
4	Summative Assessment (EXAM): Final exam(Final Examination)	ILO1-4	Problem Solving & Decision Making	50	Individual		

Description of Assessment Components (if applicable)

Formative Feedback

There is various feedback given to you throughout this module. You will receive verbal feedback on your class participation. For group project, there will be verbal feedback on your project and anonymous peer feedback on your Teamwork and Interpersonal Skills.

NTU Graduate Attributes/Competency Mapping

This course intends to develop the following graduate attributes and competencies (maximum 5 most relevant)

Attributes/Competency	Level
Digital Fluency	Basic
People Orientation	Intermediate
Problem Solving	Intermediate
Self-Management	Intermediate
Project Management	Intermediate

Course Policy

Policy (Academic Integrity)

Policy (General)

You are expected to complete all assigned pre-class readings and activities, attend all seminar classes punctually and stay till the end, and submit all project/presentations by due date and take quiz on assigned dates. You are expected to take responsibility to follow up with course notes, assignments and course related announcements for seminar sessions you have missed. You are expected to participate in all seminar discussions and activities. During seminar class, you should focus on class activities. If you are sleeping, chatting with others (not related to course materials), surfing internet on private matters, or engaging in activities not related to the course, especially use of handphone, it will affect your Class Participation grade negatively and you may be asked to leave the class.

Policy (Absenteeism)

Absence from class without a valid reason will affect your overall course grade. If you are absent for the quiz without a valid reason, zero mark will be awarded for the quiz. Valid reasons for absence include falling sick (must be supported by a medical certificate by recognized medical professional for the specific date of absence) and participation in NTU's approved activities supported by an official letter from the relevant authorities (only for university-level and higher activities and should be submitted to instructor before the quiz).
If you are absent from or late for project presentation, you are expected to inform your group mates and instructor in advance. Those who are late or absent are expected to contact the instructor automatically and those who are unable to provide satisfactory reason for lateness/absence may be awarded lesser marks up to zero mark.

Policy (Others, if applicable)

3. Academic Expectations
Each and every student is expected to do the necessary reading of the relevant chapters before each seminar and the needed review after the class. There is very limited time to cover both the review of the principles and theories for each seminar, and the learning and application of the needed Excel functions to implement them, so pre-reading is necessary to help you better follow the seminar proceedings. You are expected to spend about 6 to 8 hours a week in pre- and post-seminar readings, review and reflection.
Taking ownership of your own learning journey will help you maximize your benefit from this course. The lecture notes provide a good overview of the topics covered but they have to be supplemented with the very detailed explanations and further examples provided in the recommended textbook. The Benninga textbook provides many additional exercises at the end of each chapter, and you should try to work through a number of them to reinforce the concepts learnt and to more effectively apply the skills you acquired. Do discuss and compare solutions with your classmates.
Please feel free to ask questions in class, see me during the class breaks or after the class, or make an appointment for an online consultation.

Last Updated Date: 05-03-2024 07:17:11

Last Updated By: Lim Zu An