

COURSE OUTLINES: BF2221 Derivative Securities and Hedging Strategies

Academic Year	2022-23	Semester	2
Instructor/Coordinator	Byeong-Je An		
Course Code	BF2221 (BF2209)		
Course Title	Derivative Securities and Hedging Strategies		
Pre-requisites	BF2219		
No of AUs	3 (4)		
Contact Hours	39 (52)		
A) Course Aims/Description			
<p>This course is an introductory course on financial derivatives and derivatives-linked investments. The derivatives covered include forwards, futures, swaps, and options on different underlying assets like stocks, stock indices, commodities, and foreign exchange. Through this course, students will learn the features of various derivatives and how to price, value (calculate the Profit/Loss) and structure them for investment and risk management. Students will also learn basic and slightly more advance derivatives strategies and how to use them for hedging and trading. They will be able to design trading strategies to manage the risk or take advantage of mispricing in various derivatives.</p> <p>A good understanding of derivatives and its usage/abuses is a prerequisite for effective management of any company as financial risks can cause substantial damage to the P/L of an otherwise well managed firm. Graduates with solid grounding in derivative investments can take up careers as traders, derivatives specialists/advisors, derivatives sales experts, financial engineers and risk managers in treasury departments, trading floors, asset management and risk management divisions in banks and major corporates. On an individual level, understanding of derivatives will help one to appreciate the risk and rewards in the many derivatives-linked investments now increasingly made available to retail investors.</p>			
B) Intended Learning Outcomes (ILO)/Objectives			
By the end of this course, you should be able to:			
<ol style="list-style-type: none"> 1. Identify the general features of derivative securities such as forwards, futures, swaps and options. 2. Calculate the price of derivatives and profits of derivative positions. 3. Implement appropriate derivative strategies for hedging, investments and risk management. 4. Exploit arbitrage opportunities due to mispriced derivatives. 			
C) Course Content			
See Seminar Topics under (K) Planned Weekly Schedule			

D) Assessment (includes both continuous and summative assessment)					
Component	ILO Tested	NBS Learning Goal (Refer to Appendix 1 for list)	Weightage	Team / Individual	Assessment Rubrics (attach rubrics in appendix)
C1. Class Participation	ILO1, ILO2, ILO3, ILO4	Oral Communication	12%	Individual	Class Participation Rubric
C2. Tutorial Presentation*	ILO1, ILO2, ILO3, ILO4	Oral Communication	8%	Group	Communication Rubric (Oral)
C3. Project Report*	ILO2, ILO3, ILO4	Teamwork & Interpersonal Skill	10%	Group	Teamwork & Interpersonal Skill rubric#
C4. Quiz	ILO1, ILO2, ILO3, ILO4	Acquisition of knowledge	20%	Individual	NA
C5. Final Examination	ILO1, ILO2, ILO3, ILO4	Acquisition of knowledge	50%	Individual	NA
Total			100%		

*Every member in each group is required to present during the Tutorial Presentation and Project Report Question and Answer session. Compulsory Peer Evaluation will be conducted, and marks will be deducted depending on the extent that a student has not displayed positive teamwork and interpersonal skill.

C1. Absence from class will affect your participation marks. This course requires you to be in class to participate in activities and discussions. There will be no make-up opportunities for in-class activities. If you will be absent from a seminar session, you must inform your instructor via email prior to the start of the class.

If you are unable to attend your registered session in a particular week, you may request from your instructor to attend his/her other sessions. Note that you cannot register for a particular session and attend a different session permanently. You are discouraged from attending a different session as the pace will be different and **your participation scores will not be transferred**. Please refer to K) for the schedule for all the sessions.

C2. Tutorial presentation (case study) and project can be done in groups of not less than FOUR (4) and not more than FIVE (5) students. Each session is expected to have 8 groups. Each group is required to present for the course on the pre-assigned case studies. Case study presentation should include an overview of a case, and answers to questions. One of your group members should send a soft copy of the **slides** to me one day **prior** to your presentation. You can spend at most 30 minutes for your presentation. There's no dress code.

C3. Group project will be distributed in week 7. One of your group members should send a soft copy of the **slides** and the **Excel** file to me one day **prior** to your presentation. You can spend at most 30 minutes for your presentation. There's no dress code.

C4. There will be an online quiz in week 12. The online quiz is in the form of online Multiple-Choice Questions (MCQs).

C5. The final exam will be conducted in exam hall and students are required to be physically present, unless the situation changes, and management advises to change the arrangement. As per ICAWE accreditation requirement, the exam's duration is 2 hour 30 minutes, and there will be **no MCQs**. The final exam will be in **restricted open-book** format with one A4 size paper with writings on both sides (either handwriting or printing).

E) Formative feedback

You will receive feedback on your Tutorial Presentation, Project Report and Quiz. Feedback on teamwork skills will be via compulsory peer evaluation.

F) Learning and Teaching approach

Approach	How does this approach support students in achieving the learning outcomes?
Seminar	Seminar instructor will facilitate your learning and acquisition of knowledge through the lectures/seminars conducted. Opportunities will be provided for students to raise questions, participate, answer questions, seek clarifications, and voice their views on the topics involved.
Tutorials	Students will be exposed to questions of varying degrees of difficulties and are expected to prepare in advance for the tutorial sessions to maximize their benefit. Students are free to raise any pertinent issues or questions or supplement with additional points of views.
Project	Allow students opportunity to work in a group and to exercise their teamwork. The topics are geared towards real-life applications to help students observe the translation of academic knowledge into practice in the industry.
Other in-Class activities	Provide opportunities for instructor-to-peer and peer-to-peer interactions, seeking to stimulate interest in the topics and learning from instructor and peers.

G) Reading and References

Textbook:

John C. Hull
Options, Futures and other Derivatives, 9th Edition (Global Edition, made available by publisher at Booklink NTU), Pearson.

Useful Supplementary Reading Reference:

Chance, D. and R. Brooks, 2016, An Introduction to Derivatives and Risk Management, 10th Edition, Cengage Learning

Hull, C., 2018, Risk Management and Financial Institutions, 5th Edition, Wiley

H) Course Policies and Student Responsibilities

(1) General

You are expected to complete all assigned pre-class readings, activities, and assignments on or before time, 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 they 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, marks will be deducted under “Class Participation”, and you may be asked to leave the class

(2) Absenteeism

If you are absent for the **quiz** without a valid reason, zero mark will be awarded for the quiz. Valid reasons include falling sick (must be supported by a medical certificate by recognized medical professional for the quiz date) 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). **There will not be any makeup quiz.**

If you are **absent** from or **late** for **project** or tutorial 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.

I) Academic Integrity

Good academic work depends on honesty and ethical behavior. The quality of your work as a student relies on adhering to the principles of academic integrity and to the NTU Honour Code, a set of values shared by the whole university community. Truth, Trust, and Justice are at the core of NTU’s shared values.

As a student, it is important that you recognize your responsibilities in understanding and applying the principles of academic integrity in all the work you do at NTU. Not knowing what is involved in maintaining academic integrity does not excuse academic dishonesty. You need to actively equip yourself with strategies to avoid all forms of academic dishonesty, including plagiarism, academic fraud, collusion, and cheating. If you are uncertain of the definitions of any of these terms, you should go to the [NTU Academic Integrity Handbook](#) for more information. Consult your instructor(s) if you need any clarification about the requirements of academic integrity in the course.

J) Course Instructors

Instructor	Office Location	Phone	Email	Consultation Hours
Byeong-Je An	S3-B1A-05	6790 6118	bjan@ntu.edu.sg	Appointment via email request

K) Planned Weekly Schedule					
Session	Week Starting	Topic	ILO	Readings/ Activities	Note
1	9 Jan	Background Knowledge on (Continuous) Interest Rates Introduction to Derivatives	ILO1	CH4, CH1	Cases given
2	16 Jan	Mechanics of Futures Markets Hedging Strategies using Futures	ILO1, ILO2	CH2, CH3	
3	23 Jan	Determination of Forward and Futures Prices	ILO1, ILO2	CH5	
4	30 Jan	Interest Rate Futures	ILO1, ILO2	CH6	
5	6 Feb	Swaps	ILO1, ILO2	CH7	
6	13 Feb	Mechanics of Options Markets Properties of Stock Options	ILO1, ILO2, ILO4	CH10, CH11	Case study
7	20 Feb	Trading Strategies involving Options	ILO1, ILO2, ILO3	CH12	Case study Project given
	27 Feb	RECESS WEEK			
8	6 Mar	Binomial Trees	ILO1, ILO2, ILO4	CH13	Case study
9	13 Mar	Black-Scholes-Merton (BSM) Model	ILO1, ILO2, ILO4	CH15	
10	20 Mar	Options on Stock Indices and Currencies	ILO1, ILO2, ILO3	CH17	Case study
11	27 Mar	Project Report Question and Answer Session	ILO1, ILO2, ILO3, ILO4		
12	3 Apr	Quiz (tentative timing, details will be confirmed)	ILO1, ILO2, ILO3, ILO4		
13	10 Apr	Course Wrap-up Exam Briefing	ILO1, ILO2, ILO3, ILO4		

Remark: The instructor reserves the right to made necessary amendments to the above schedule in response to changing circumstances and will make the necessary announcements.

Class Participation Rubric*

Traits	Performance		
	Not Yet	Reasonably Developed	Substantially Developed
Engagement	Hardly focuses in class (e.g., using mobile phone, unnecessary chatting)	Displays focus and concentrate during class. Engages moderately in class.	Engages fully in class
Contribution frequency	Does not speak up/contribute in class	Occasionally speaks up/contributes in class	Speaks up/contributes in most or all classes
Contribution quality	No contributions/Contributions lack substance	Contributions demonstrate knowledge of subject matter	Contributions are constructive and insightful
	Evaluation: Not Yet <u>1</u> <u>2</u> <u>3</u> <u>4</u> <u>5</u> <u>6</u> <u>7</u> <u>8</u> <u>9</u> <u>10</u> Substantially Developed		

* A student who is found doing the following **often** will be awarded low Class Participation marks up to zero mark: (sleeping, chatting with others (not related to course materials), using handphone, surfing internet on private matters, shows disinterest, or engaging in activities not related to the course, or distracting instructor and/or fellow students).

Communication Rubric (Oral): for Tutorial Presentation

Learning Objective: The ability to communicate well with others verbally so that it clearly expresses the intended message and is understandable and useful to the receiving party.

Traits		Performance	
<u>Communication Outcome</u>	<ul style="list-style-type: none"> • Has a clear message for audience • Maximizes likelihood of audience accepting the message 	Not Yet Central message is not explicitly stated in the presentation. Main points are not clearly identified, audience unsure of the direction of the message.	Substantially Developed Central message is precisely stated; main points are clearly identified.
		Evaluation: Not Yet <u>1</u> <u>2</u> <u>3</u> <u>4</u> <u>5</u> <u>6</u> <u>7</u> <u>8</u> <u>9</u> <u>10</u> Substantially Developed	
<u>Situational Factors</u>	<ul style="list-style-type: none"> • Addresses audience needs • Builds rapport with audience 	Not Yet Topic is irrelevant to audience needs and interest. No attempt made to connect topic to audience.	Substantially Developed Connection of topic to audience needs and interest is stated with sophistication. Identifies and expresses a deep understanding of the target audience.
		Evaluation: Not Yet <u>1</u> <u>2</u> <u>3</u> <u>4</u> <u>5</u> <u>6</u> <u>7</u> <u>8</u> <u>9</u> <u>10</u> Substantially Developed	
<u>Design Factors</u>	<u>Content</u> <ul style="list-style-type: none"> • Presents relevant information • Supports main points with strong evidence 	Not Yet Content is erroneous or irrelevant; references and supporting materials are absent. Lacks depth in content and little insights are exhibited. Presentation falls outside set time parameters.	Substantially Developed Content is accurate, thorough, and directly on point; strong support and references are provided. Exhibits depth and insight in content. Effective use of time and stays within time parameters.
	<u>Structure</u> <ul style="list-style-type: none"> • Organises content coherently • Signals transitions between points 	Not Yet Organizational pattern (specific introduction and conclusion, sequenced materials within the body, and transitions) is not observable.	Substantially Developed Organizational pattern is clearly and consistently observable and makes the content of the presentation cohesive.
		Evaluation: Not Yet <u>1</u> <u>2</u> <u>3</u> <u>4</u> <u>5</u> <u>6</u> <u>7</u> <u>8</u> <u>9</u> <u>10</u> Substantially Developed	

	<p><u>Verbal</u></p> <ul style="list-style-type: none"> • Speaks at appropriate speed and volume • Uses correct grammar and pronunciation 	<p>Not Yet</p> <p>Grammar, pronunciation, and word choice are deficient. Vocal delivery is too soft or too fast to understand; gap-fillers interfere with expression.</p>	<p>Substantially Developed</p> <p>Free of errors in grammar and pronunciation; good choices of word enhance clarity of expression. Vocal delivery is varied and dynamic. Speech rate, volume, and tone facilitate audience comprehension. Minimal gap fillers.</p>
	<p>Evaluation: Not Yet <u>1</u> <u>2</u> <u>3</u> <u>4</u> <u>5</u> <u>6</u> <u>7</u> <u>8</u> <u>9</u> <u>10</u> Substantially Developed</p>		
	<p><u>Non-Verbal</u></p> <ul style="list-style-type: none"> • Establishes eye contact • Uses gestures and movement to convey energy and confidence 	<p>Not Yet</p> <p>Eye contact, posture, gestures, movement, and facial expressions are inappropriate and significantly distracting.</p>	<p>Substantially Developed</p> <p>Eye contact, posture, gestures, movement, and facial expressions make the presentation compelling, and speaker appears polished and confident.</p>
	<p>Evaluation: Not Yet <u>1</u> <u>2</u> <u>3</u> <u>4</u> <u>5</u> <u>6</u> <u>7</u> <u>8</u> <u>9</u> <u>10</u> Substantially Developed</p>		

Teamwork & Interpersonal Skills Rubric (For Peer Rating for Project Report)

Learning Objective: The ability to work effectively with others in a group setting.

Traits	Performance	
<p><u>Roles and Responsibility</u> Behaves professionally by upholding responsibility and assuming accountability for self and others in progressing towards the team’s goal.</p>	<p>Not Yet Unclear about his/her own role; refuses to take a role in the group; insists to work individually and has limited coordination or communication with others.</p>	<p>Substantially Developed Always fulfills responsibilities; performs his/her role within the group with enthusiasm and demonstrates willingness to work collaboratively.</p>
<p>Evaluation: Not Yet 1 2 3 4 5 6 7 8 9 10 Substantially Developed</p>		
<p><u>Communication</u> Identifies appropriate mechanisms to coordinate and correspond with team members.</p>	<p>Not Yet Modes of communication are not appropriate, causing confusion and miscommunication among team members.</p>	<p>Substantially Developed Modes of communication are appropriate, and maintain timely communication and correspondence with team members.</p>
<p>Evaluation: Not Yet 1 2 3 4 5 6 7 8 9 10 Substantially Developed</p>		
<p><u>Conflict Resolution</u> Resolves conflicts using a variety of approaches.</p>	<p>Not Yet Does not recognize conflicts or is unwilling to resolve conflicts.</p>	<p>Substantially Developed Consistently resolves conflicts through facilitating open discussion and compromise.</p>
<p>Evaluation: Not Yet 1 2 3 4 5 6 7 8 9 10 Substantially Developed</p>		
<p><u>Contributions</u> Contributes positive input for the team; effectively utilizes one’s knowledge and expertise.</p>	<p>Not Yet Largely disinterested in working in a group and refuses to participate; observes passively or is unwilling to share information with other team members.</p>	<p>Substantially Developed <u>Actively attends and participates in all activities and provides meaningful contribution in articulating ideas and opinions.</u></p>
<p>Evaluation: Not Yet 1 2 3 4 5 6 7 8 9 10 Substantially Developed</p>		
<p><u>Relationship</u> Maintains cooperative interaction with other team members regardless of individual /cultural differences and respects diverse perspectives.</p>	<p>Not Yet Rarely listens to others and does not acknowledge the opinions that differ from his/her own.</p>	<p>Substantially Developed Engages in respectful relationships with all other members in the team. Embraces and accepts diverse points of view without prejudice.</p>
<p>Evaluation: Not Yet 1 2 3 4 5 6 7 8 9 10 Substantially Developed</p>		

References: *Teamwork Value Rubric - Association of American Colleges and Universities.* Retrieved from <http://www.aacu.org/value/rubrics/pdf/teamwork.pdf>

