



<b>Course Information</b>	
Course Title: <b>FIN320: Risk Management and Derivatives</b>	Semester: Summer 2019
<b>Prerequisite</b>	
Principles of Microeconomics, Principles of Macroeconomics, Financial Management, Calculus, and Statistics. Those who have not met those prerequisites must obtain a permission from the course instructor in order to take this course.	
<b>Course Overview</b>	
<p>This course is designed to provide students with in-depth knowledge of the important concepts about risks and risk management in business. Students will learn how to carry out detailed analysis of the measurement of financial risk and get familiar with the tools and techniques to manage financial risk. While the emphasis is on financial risk, students will be exposed to broader areas where risk and risk management are relevant. For example, how to reduce operational risk is normally considered outside the traditional field of financial risk management, but it is a common risk in business with potentially big consequences. Duration matching is a risk-hedging technique widely used in the banking industry that can be applied to managing a business's cash flows and its debt policy. All the concepts and techniques introduced in this course are closely related one way or the other. Successful completion of the course will help to identify the best strategy of decision-making process.</p> <p>Topics include risk and return, mapping out the landscape of risk, financial disasters and insurance, operational risk, understanding bankruptcy, global and foreign currency exchange risk, interest rate risk, credit risk, business and corporate risk, hedging techniques, financial derivatives – futures, call and put options, swaps, and exotic options and swaptions, and how to use them to reduce financial risk. Specifically, students will learn how some of those pricing frameworks are developed and how they are implemented in various situations. A strong quantitative background will be very helpful for the success in this course.</p>	
<b>Learning Outcome</b>	
<p>This course is designed to provide students with valuable knowledge, experience and understanding of the risk management and derivatives.</p> <p>Successful completion of the course will allow students to:</p> <ol style="list-style-type: none"> <li>1. adopt a holistic view of risk and return;</li> </ol>	



2. understand the tools for measuring risks and their limitations;
3. apply various hedging techniques to manage business and financial risks;
4. price risky assets in a more systematic and economically sound way;
5. understand the implication of arbitrage-free principle and its critical role in asset pricing;
6. understand insurance and its role in managing risk, and some fundamental issues in insurance risk management;
7. understand financial derivatives, how to use them, and their limitations; and
8. be able to analyze contemporary economic issues such as financial and economic crises, and the role of financial derivatives and innovations in the that context.

### **Class Hours**

Class Time: Monday to Friday, 180 minutes each day.  
Each week there will be a one-hour discussion session.

### **Learning resources**

#### **Required Text:**

Chance, D. M. & Brooks, R. (2016). **An Introduction to Derivatives and Risk Management** (10th ed.), Boston, MA: Cengage Learning.

#### **Reference Books and Online Resources:**

1. Koski, J. L., & Pontiff, J. (1999). How Are Derivatives Used? Evidence from the Mutual Fund Industry. *Journal of Finance*, 54(2), 791- 816.
2. Stulz, R. M. (2004). Should We Fear Derivatives? (No. w10574). National Bureau of Economic Research.
3. *The Black Swan: The Impact of the Highly Improbable*, (2010), 2<sup>nd</sup> Edition, Nassim Taleb, Random House LLC.
4. *Fooled by Randomness: The Hidden Role of Chance in Life and in the Markets*, (2008), Nassim Taleb, Random House LLC.
5. *Critical Mass* (2006), Philip Ball, 1<sup>st</sup> American ed.
6. *Thinking, Fast and Slow*, (2011), Daniel Kahneman, Farrar, Straus and Giroux, Sold by Macmillan.
7. *The (Mis)Behavior of Markets*, (2007), Benoit Mandelbrot and Richard L. Hudson, published by Basic Books, Sold by Amazon Digital Services.



Weekly Schedule		
Week	Day	Topic
1	1	Introduction; overview of business risk and financial risk
	2	Insurance: when to or not to use insurance; risks in insurance
	3	Options and options markets
	4	Financial options and pricing; normal distribution assumption and pitfalls
	5	Using options to manage risk – trading strategies
2	1	The Black-Scholes-Merton model, the binomial method, risk-neutral method and the concept of martingale (optional)
	2	The Greek letters; introduction to futures and futures Markets
	3	Pricing futures contract for financial assets and commodities; using futures as a risk-hedging tool; contango and normal backwardation
	4	Discussion and review
	5	<b>Midterm Exam (in class)</b>
3	1	Interest rate risk, duration-matching and interest rate futures
	2	Interest rate swap; comparative advantage
	3	Currency swap
	4	Credit derivatives, exotic derivatives
	5	Special Topics: financial crises; power-law distribution; discussion and course review

**Final Exam**

**Course Assessments**

Assessment Task	Weight
Attendance and Class Participation	10%
Mid-Term Exam	35%
Quizzes	10%
Assignments	15%
Final Exam	30%
<b>Total</b>	<b>100%</b>

**Homework, Class Attendance, and Participation**

Students are required to attend all classes and participate actively. Students should treat their classroom obligations as they would treat any serious professional engagement. Your participation grade (10% of the total course grade) will be based on the instructor's assessment of how well you contribute to classroom dynamics relative to your class peers; each class member is expected and encouraged to contribute to the dialogue or discussion. It



is important that you read the assigned readings as background information on the issue/topic *before* each class session. The classroom will provide you an opportunity to present your views and opinions on the topics under discussion, and to help you refine your knowledge and perspective of cross-border management based on these interactions.

*Please note the following:* In case of an absence, the student is responsible for the materials and assignments for that class; it is the student's responsibility to contact the course Teaching Assistant regarding absences and assignments that are missed. Students must submit a one-page write-up summarizing any assigned textbook chapter reading for each missed session; this will be due within one week of the missed session. Unexcused absence from five or more scheduled class sessions (which is a total of 33% of this course) will be *grounds for failure*. If you do have to miss class due to a personal emergency, please let the Teaching Assistant know as soon as possible. Such emergencies will be dealt with on a case-by-case basis.

Participation grades will be based on quality (in-class performance that reflects intellectual depth, insightfulness, and contribution to class learning) and quantity (consistency and regularity of performance). Quality counts more. However, one cannot make quality comments without at least some degree of participation, so in this respect quantity will have some weight. But do keep in mind the following when considering your participation in class discussions: sometimes it's better to remain silent and have others think you are unprepared or a bit dim, rather than speaking out and confirming those suspicions.

Accordingly, you are expected to come fully prepared and ready to participate for every class. Be prepared to be called upon to "open" a class discussion by presenting your full analysis and thoughts on the assigned topic at the start of class, or to be asked through a "cold call" for comment in the midst of the discussion.

The grading of class participation is necessarily a subjective exercise. However, high-quality comments have one or more of the following characteristics: **(1) insightfulness, (2) appropriate application of course concepts, and (3) advancement of the in-class discussion at hand**. Some specific criteria for evaluating discussion contributions are:

- Does the student demonstrate an eagerness to participate?
- Is the student a good listener? Does he/she build on others' comments?
  - Is the student willing to interact with other class members?
- Are the points made relevant to the discussion? Are they linked to others' comments?
- Do comments demonstrate evidence of in-depth analysis of the case?
- Do comments add to our understanding of the situation?
- Do comments make a substantive contribution to the advancement of our analysis?
- Is there a willingness to test new ideas, or are the comments "safe?"
- Do comments show an understanding of concepts or analytical techniques properly applied to the current situation?



- Is the student presenting insightful quantitative analysis (when required)?
- Is the student demonstrating ethical considerations and insights?

### EXAMINATIONS

An in-class mid-term examination will be administered during the middle of Week 2, and an in-class final examination will be administered at the end of the course. Details of content, exam format, etc. will be announced in class well before the examination dates.

Upon completion of this course, you receive a final grade. A final grade is a letter grade that carries with it a numerical value, as outlined below.

Grade	Percentage	General Description
A	80-100	
B	70-79	
C	60-69	
D	50-59	
E	0-49	

### Academic Integrity

The academic ethics codes of the school are applied in this class. Any egregious violations of the code, such as cheating on examinations or submitting written work that is not original with the student, will be grounds for failure in this course. You may consult with appropriate university officials for details regarding the code.

### Disability accommodation

Any student who needs special accommodation due to the impact of a disability should contact the instructor and/or the university within the first week of the class.