

Seattle University
Albers School of Business and Economics

Course Financial Risk Management FINC-4450-01
Professor Dr. Cathy Xuying Cao, CFA
Term 2019 Spring
Meetings Mon./Wed./Fri. 10:55 a.m. - 12:20 p.m. in **Pigott 102**
Final Exam **Wednesday June 12 2:00-3:30pm**

Professor's Contact Information

Office Phone (206) 296-5712
Office Location Pigott 424
Email Address caoc@seattleu.edu
Office Hours **Mon./Wed: 12:30pm- 1:30 pm**
Or by appointment

Other Information *I strongly urge you to use email to contact me outside of class.* I will check my email messages daily Monday through Friday and occasionally on weekends, and you can be sure I will receive your message this way. Feel free to stop by my office during office hours or email or call me to set up an appointment.

Please **don't send your e-mail to Canvas** if you want a quicker response. I am happy to provide you with assistance and quick feedback by e-mail. Should your question either require a long answer (i.e., more than two sentences) or be beneficial to other members of the class to listen, I will bring the answer to class.

General Course Information

Pre-requisites, Co-requisites, & other restrictions Pre-requisites: FINC 3420/342 & 3440/344

You are expected to know simple algebra and calculus. We will be using some differential calculus concepts when looking at the pricing of options, but it will be kept at a relatively straight forward level and so should not provide anyone with undue difficulty. You are expected to grasp well the concept of the time value of money and the valuations of fixed and floating bonds.

If you have not completed the necessary coursework or do not feel comfortable with the requisite skills, you will find the concepts introduced in this course difficult. Please come to me if you have any questions about the requirements.

Course Description

This course provides a comprehensive overview of futures markets and options markets and how to use the derivatives to manage financial risks (such as price risks and credit risks). Those who have strong economic intuition and are more comfortable with the technical approach can easily apply their knowledge on designing, pricing, and hedging with any new

financial derivatives.

We will begin the discussion with futures contracts, looking at the players, both hedgers and speculators, how contracts are priced, how the futures market works and how investors manage risk (hedging). We will concentrate our discussion on the following types of futures contracts - contracts on commodities and contracts on bonds (interest rate futures). We will also discuss contracts on stock indices and foreign exchange as time allows. We will also discuss both interest rate and foreign exchange swaps. These can be considered as portfolios of forward contracts. The emphasis here is on the identification of comparative advantage and the pricing of mutually advantageous swaps. We will then turn our attention to options, focusing for the most part on stock options. We will investigate the different strategies, both simple and more complex, that an investor may adopt in order to reduce unwanted risk. We will introduce the pricing model for options, beginning with the binomial and ending with Black-Scholes. In looking at active financial risk management we will discuss active portfolio management (delta, gamma and vega hedging) and discuss the uses and measures of value at risk as time allows.

The course will be a blend of lecture and class participation. Most class meetings will include a breakout session in which students work in groups or individually to solve a problem or case.

All materials and handouts required for this class will be available via the class site. You are responsible for accessing the appropriate class site and downloading any information that is pertinent to this class.

Course Objectives

The aim of this course is to introduce the student to the major financial risk management instruments available in the market - futures, swaps and option contracts. We will begin by providing a general overview of these instruments, providing both a theoretical base as well as institutional descriptions and examples. We will end the course with an overview of using these instruments (and combinations of instruments) to actively "manage" risk within an institution.

On successful completion of this subject students should be able to:

- Describe the different types of forward and futures contracts
- Value and price both forward and futures contracts
- Explain the concept of arbitrage and how it applies to the pricing of futures contracts
- Explain basic speculative and hedging strategies with respect to futures and forwards
- Value a plain vanilla interest rate swap
- Describe the basic principles of call and put option pricing
- Explain both the one and two-period binomial option pricing model
- Explain the Black-Scholes option pricing model
- Explain basic and more advanced option strategies
- Understand and use the "Greeks"

- Learning Outcomes** On successful completion of this course, you will be able to reach all five learning outcomes of Seattle University Undergraduate Finance major.
- Describe and explain to lay individuals financial concepts relating to: value creation, risk management, and the functioning of financial institutions and world financial markets, for corporate and investor decision-making.
 - Demonstrate strong critical thinking and problem solving skills within an ethical framework.
 - Apply tools such as spreadsheet, mathematical, and statistical modeling to analyze problems and issues in finance.
 - Employ discipline knowledge and skills orally and in written form in a professional manner in service to the community.
 - Recognize social justice issues inherent in financial decision-making.

Required Texts & Materials Teaching materials are drawn from text books, newspapers, and periodicals. There are assigned readings for each class. I expect students come to class prepared for the materials that will be covered that day. You will find the materials much easier to grasp if you have read the assigned materials in advance.

An Introduction to Derivatives and Risk Management, 9th edition, Don M. Chance & Robert Brooks

Calculator: You will need a calculator with the following functions: y^x , $1/x$, e^x , and \ln . A good business calculator (or a cheap scientific calculator) will have these functions.

Suggested Readings: *Wall Street Journal* and *Barron's*.

Course Requirement The class will be conducted mainly as lectures, but as always, class participation (discussion) is strongly urged for all.

It is assumed that you will have read the appropriate chapters in the text and read/downloaded the lecture material provided for you on the angel site prior to class.

Students are responsible for all material and assignments presented in class. If you miss a class, then it is your responsibility to obtain any missed lecture notes from a class colleague.

Students are required to take exams and hand in assignments at their scheduled time. There will be no make-up exams except in very rare circumstances (see Seattle University Handbook). Barring this, if you do not show up for a quiz or an exam, you will earn a grade of zero.

DO NOT plan or book flights/vacations for the scheduled final exam period. If you cannot make the regularly scheduled exams, you should take the course in a different quarter. Finally, please pay close attention to the rules of etiquette and class behavior outlined below.

Assignments & Academic Calendar

This agenda is subject to change. The exact timing of lectures and content of exams will depend on the flow of the course.

Tentative Class Schedule

| Date | In-class Activity | Readings |
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| Every Class | Please prepare for a possible POP QUIZ | |
| Apr. 1, 3 | Course Introduction Forwards and Futures Markets | Ch8 |
| Apr. 5, 8, 10, 12 | Pricing Forwards and Futures Identifying Arbitrage Opportunity in Forward/Futures Market | Ch9 Notes |
| Apr. 15, 17 | Futures Hedging Strategies | Ch11 |
| Apr. 19, 22 | Easter Break: No Class | |
| Apr. 24 | Exam Review Problem Set One Due | |
| Apr. 26 | Exam 1 | Everything we've covered |
| Apr. 29, May 1, 3 | Swaps | Ch12 |
| May 6, 8, 10, 13 | Options Definition Identifying Arbitrage Opportunity in Options Market | Ch2, Ch3 Notes |
| May 15 | Exam Review Problem Set Two Due | |
| May 17 | Exam 2 | Everything we've covered after Exam 1 |
| May 20, 22 | Options Strategies | Ch6, 7 |
| May 24, 29, 31 | Options Pricing— Binomial Model | Ch4 & Notes |
| May 27 | Memorial Day: No Class | |

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| Jun. 3, 5, 7 | Options Pricing— Black-Scholes-Merton Model Options Greeks | Ch5 Ch15 |
| Jun. 10 | Exam Review Problem Set Three Due | |
| Jun. 12 (Wednesday) | Exam 3 2:00pm-3:50pm | Everything we've covered after Exam 2 |

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Course Policies

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| Grading (credit) Criteria | <p>Grading will be based on a combination of the following:</p> <table> <tr> <td>Class Participation (Pop Quiz)</td> <td>5%</td> </tr> <tr> <td>Three Problem Sets (Including a mini project)</td> <td>14%</td> </tr> <tr> <td>Three Exams</td> <td>81%</td> </tr> <tr> <td> Exam One</td> <td>26%</td> </tr> <tr> <td> Exam Two</td> <td>26%</td> </tr> <tr> <td> Exam Three</td> <td>26%</td> </tr> <tr> <td> Exam with highest grade</td> <td>3%</td> </tr> <tr> <td>Total</td> <td>100%</td> </tr> </table> <p>Grades will be assigned based on the overall section performance, adjusted for overall section performance. It is expected that the median grade in this course will be a B.</p> <p>Your course grade depends on the distribution of the weighted average scores. Normally, a weighted average score of 95 or above is an A, between 90 and 95 is A-, between 80-89 is (B+, B, B-), 65-79 is (C+, C, C-). The actual demarcation line for each letter grade depends on the actual distribution of all weighted average scores. If the distribution warrants, plus or minus grades may not be given.</p> <p>Students often claim they did not show how much they knew on the test. Alternatively, they may indicate that they studied "real hard" but just could not grasp the material before exams. Having been a student for over 20 years myself, I am sure that such sentiments have a certain amount of validity. But, under the present system, I must say that the points are really irrelevant. I have no better measure of performance by effort rather by result. Therefore, to be fair to everybody, grades are based on performance – not “knowledge” or effort. Accordingly, one's efforts should be directed toward achieving the maximum performance relative to potential and input.</p> | Class Participation (Pop Quiz) | 5% | Three Problem Sets (Including a mini project) | 14% | Three Exams | 81% | Exam One | 26% | Exam Two | 26% | Exam Three | 26% | Exam with highest grade | 3% | Total | 100% |
| Class Participation (Pop Quiz) | 5% | | | | | | | | | | | | | | | | |
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| Three Exams | 81% | | | | | | | | | | | | | | | | |
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| Exam with highest grade | 3% | | | | | | | | | | | | | | | | |
| Total | 100% | | | | | | | | | | | | | | | | |
| Exams | | | | | | | | | | | | | | | | | |

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| | <p>No cheat-sheet is allowed during exams.</p> <p>Makeup exams will not be given except in a dire emergency and only if I am notified prior to the scheduled exam time.</p> <p>The final exam will be written during the scheduled final examination period and will cover the material from Exam 2 onwards (in other words, it is not comprehensive). The date for final exam is written in stone, keep this in mind when you make any travel plans. It goes without saying, if you do not show up to class to write an exam, you will earn a grade of zero.</p> <p>Grades are not negotiable and will only be changed in case of a math or grading error on the instructor's part.</p> <p>Dispute the exam grading: Please write a formal re-grading request if you want to dispute the exam grading. I will request the department to form a committee to re-grade your exam. The committee will reserve the right to re-grade the entire exam paper and remove all partial credits.</p> |
| <p>Problem sets</p> | <p>Three problem sets are done individually. Problem sets will be collected and graded; each is due before the class of exam reviews. They will be posted on Canvas.</p> <p>There is no make-up of any kind for missed assignments. All computations must be shown clearly for full credit; typed submissions are preferred but legible, handwritten submissions are acceptable. EXCEL spreadsheet are <u>NOT</u> acceptable.</p> <p>Grading Criteria for Problem Sets</p> <p>Problem set grade depends on effort and accuracy/correctness of the answers. I may grade all/part/none of the problems. For the problems that are not graded, you will receive full credit if you have attempted them completely. For the graded problems, the grade is based on accuracy. For example, if question 1 was selected for grading and if you missed doing that question, you would receive a zero score. If you attempted the question but you were not all correct in your answer, you might receive a partial credit for the question.</p> <p>Suggested After-chapter Problems</p> <p>In addition to problem sets, I will assign after-chapter problems from the text. You don't need to submit the suggested after-chapter problems.</p> <p>The level of difficulty of the computational problems is similar to those of the end-of-chapter problems and problem sets. Please do all your own work. You will learn more, and the alternative is not worth the risk.</p> |
| <p>Pop Quiz, Class Participation and Classroom</p> | <p>The distinctive advantage of being taught in a classroom environment (vis-à-vis online distance learning) is the opportunity to interact with the professors</p> |

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| <p>Etiquette ***Important!</p> | <p>who would hopefully enlighten you and your classmates who would share their experience with you. I also believe that learning requires active participation. Thus, class participation is expected.</p> <p>Pop quiz may be given in class without any advance notice. Pop quiz will be accounted for class participation. There is no make-up for pop quiz. One can drop two quizzes with lowest scores.</p> <p>Following are rules that should guide your behavior in class:</p> <ol style="list-style-type: none"> 1. Regular class attendance is expected during the term. Leaving early from any class and/or coming in 30 minutes late will count as absence for half a class. Irregular class attendance will lead to reduction from your final grade. There is no make-up for missing classes. 2. Students are expected to take all reasonable measures to arrive to class on time. 3. Once in class, I expect you to stay in the classroom. Please take care of personal needs prior to class so you won't feel an urgent need to walk out of the classroom in the middle of a lecture. Of course, if there is an emergency, please exit and re-enter the classroom as unobtrusively as possible. This applies for exam periods as well. 4. There will be a 5 minute break in the middle of the class period. I will announce when the break begins and I will tell you what time the class resumes. I expect you to be seated and ready to continue at that time. 5. Class does not end until I excuse you. Please do not begin to pack up your papers and books in anticipation of the end of class. Wait until class is adjourned. 6. Cell phones must be turned off. If you are expecting an emergency call, let me know and that will be accommodated. If your cell phone rings during class, the points you are allocated for participation will be affected. <p>Irregular class attendance will automatically reduce your final grade by 5 points.</p> <p>The first two violations of the rules of etiquette will not have any consequences. The third and fourth violations result in a <u>deduction of 0.5 points</u> from your total grade. Subsequent violations will result in a one increment lowering of your course grade. There's no make-up for the violation of classroom etiquette rules.</p> |
| <p>Laptops & Cell phones</p> | <p>The use of laptops, netbooks or PDA's in class is <u>not allowed.</u> Such use has been found to be distracting to students and instructors alike and ultimately detrimental to the learning environment. A violation of this policy may result in appropriate grade sanctions as determined by the course instructor.</p> |

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| <p>Canvas: Delivery of Course Materials</p> | <p>I will establish a course web page on the Internet. Always check the Canvas page for class announcements and course information. This site will include PowerPoint files of the course lecture notes, homework assignments and solutions, any external web links, and relevant updates about the class including any changes in assignments or exams. You will be responsible for bringing the relevant course materials to each lecture.</p> <p>If a file or link is not operational, let me know via email ASAP so I can correct the link. If you have any other problems using Canvas, contact the Seattle University technology help desk.</p> |
| <p>Audio or Video Taping</p> | <p>AUDIO OR VIDEOTAPING IN CLASS IS PROHIBITED WITHOUT THE INSTRUCTOR’S PRIOR APPROVAL. For protection of proprietary knowledge and for a variety of other reasons, audio and videotaping of any class session is strictly prohibited without prior approval of the instructor. Under extreme circumstances or for a pre-approved class absence, audio taping a class session will be allowed on a case by case basis and with the express permission of the instructor. The student will be responsible for making all necessary arrangements. Students will need to adhere to the appropriate agreed upon use of the content material of these audio tapes.</p> |
| <p>Academic Resources & Academic Integrity</p> | <p>Library and Learning Commons (http://www.seattleu.edu/learningcommons/) (This includes: Learning Assistance Programs, Research [Library] Services, Writing Center, Math Lab)</p> <ul style="list-style-type: none"> • Seattle University is committed to the principle that academic honesty and integrity are important values in the educational process. Academic dishonesty in any form is a serious offense against the academic community. Acts of academic dishonesty will be addressed according to the Seattle University Academic Honesty Policy. Academic Integrity Tutorial can be found on Canvas and SU Online. <p>I expect from you a high level of responsibility and academic honesty. This course will use the resources of turnitin.com, which searches the web for possible plagiarism and is over 90% effective.</p> |
| <p>Academic Policies on Registrar website</p> | <p>The policies can be found at the address:</p> <p>Academic Policies on Registrar website (https://www.seattleu.edu/redhawk-axis/academic-policies/)</p> <ul style="list-style-type: none"> • Academic Integrity Policy • Academic Grading Grievance Policy • Professional Conduct Policy (only for those professional programs to which it applies) |
| <p>Notice for students concerning Disabilities</p> | <p>If you have, or think you may have, a disability (including an ‘invisible disability’ such as a learning disability, a chronic health problem, or a mental health condition) that interferes with your performance as a student in this class, you are encouraged to arrange support services and/or accommodations through Disabilities Services staff located in Loyola 100, (206) 296-5740. Disability-based adjustments to course expectations can be arranged only through this process.</p> |

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| | <p>Disability-based adjustments to course expectations can be arranged only through this process.</p> |
| <p>Office of Institutional Equity</p> | <p>Title IX of the Education Amendments of 1972 (Title IX) prohibits discrimination based on sex in educational programs or activities that receive Federal financial assistance. This prohibition includes sexual misconduct, which encompasses sexual harassment and sexual violence. Seattle U remains committed to providing a safe and equitable learning, living, and working environment. Seattle U offers emergency, medical, and other support resources, as well as assistance with safety and support measures, to community members who have experienced or been impacted by sexual misconduct.</p> <p>Please note that Seattle U requires all faculty and staff to notify the University’s Title IX Coordinator if they become aware of any incident of sexual misconduct experienced by a student.</p> <p>For more information, please visit https://www.seattleu.edu/equity/ . If you have any questions or concerns, you may also directly contact the Title IX Coordinator in the Office of Institutional Equity (email: oie@seattleu.edu; phone: 206.296.2824) University Resources and Policies.</p> |
| <p>Copyright Notice</p> | <p>The copyright law of the United States (Title 17, United States Code) governs the making of photocopies or other reproductions of copyrighted materials, including music and software. Copying, displaying, reproducing, or distributing copyrighted works may infringe the copyright owner’s rights and such infringement is subject to appropriate disciplinary action as well as criminal penalties provided by federal law. Usage of such material is only appropriate when that usage constitutes “fair use” under the Copyright Act. As a Seattle University student, you are required to follow the institution’s copyright policy. For more information for SU copyright policy, see http://www.seattleu.edu/policies/copyright.aspx</p> |

These descriptions and timelines are subject to change at the discretion of the Professor.