

**Syllabus**  
**University of Southern Maine**  
**School of Business**

**FIN 323 Financial Engineering with Derivatives**

Prerequisites: FIN 320

**LEC 82717**  
**Spring 2023**

**Instructor:** Bert Smoluk, Ph.D., CFA

**Office Hours:** T/Th 11-12:15pm

or by appointment.

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website: Brightspace

**Course Description:** This course explores the markets and valuation of options, futures, and swaps contracts. Hedging and speculating techniques using derivatives are stressed. Financial engineering techniques are developed using derivatives which can adjust the risk and return offered by traditional assets. Topics include: Forward contracts, stock futures, commodity, interest rate futures, stock index futures, stock options, exotic options, option strategies, and swaps.

**Required Material**

Text: Options, Futures, and Other Derivatives, John Hull, 2022, ISBN: 978-0-13-693997-9, Pearson.

**Overview**

- 1. You are required to periodically check Brightspace for assignments and messages.**
2. The material covered is designed to be challenging, yet reasonably accessible to the average student provided sufficient time is spent preparing for the lectures.
3. There is a lot of material covered in this course; therefore, it is probably a waste of my time and your time for me to lecture on topics easily comprehended by simply reading the text. Consequently, much of this course's background material will not be addressed directly in class.

**Grading Allocation**

Quizzes	50%
Attendance	20
Assignments in Stocktrak using in derivatives the assignments to pass the course.)	30 (you need an overall passing grade on

Any curve, if appropriate, will be applied at the end of the semester based on overall course grades provided your attendance is good: in other words, you miss no more than two classes during the semester. I usually drop one quiz grade in computing the course average. There are no make-up

quizzes. This grading structure is designed to reward students who attend class. No phone, no communication, no notes, no books, no notes (except for a formula sheet provided by the professor) are to be used during any quiz or the final exam. If you plan to take a vacation during the semester, I suggest that you avoid this course!

### **Code of Conduct**

Students are expected to behave in a professional manner consistent with a classroom setting designed for learning. If your behavior inside or outside the classroom in connection with the professor or this course is deemed inappropriate, disciplinary action will be taken immediately. Any student caught cheating on an exam or quiz or plagiarizing a paper will fail the course.

### **This course is structured to be consistent with the mission statement of School of Business:**

“We prepare and inspire current and future leaders, and stimulate economic growth by providing quality learning opportunities, valuable research and professional service, all in partnership with the business community.”

### **Skills**

This course is designed to develop many skills that are demanded by employers. Furthermore, you are expected to draw from the knowledge that you have gained in prerequisite courses such as accounting, statistics, math, and economics.

### **Computer Skills**

The textbook comes with derivatives pricing software that you can use.

### **Analytical Skills**

This course requires a working knowledge of business math, algebra, statistics, and economics. The lectures and content are designed to develop your financial analysis skills

### **Critical Thinking Skills**

The spectrum of derivative products available to investors is extremely broad and the skills needed to analyze these opportunities are even broader. This course seeks to develop your critical thinking skills in the area of investment management using derivatives. You are challenged to apply the theory advanced to real world situations.

### **AMERICANS WITH DISABILITIES ACT OF 1992**

If you need course adaptations or accommodations because of a disability, please make an appointment as soon as possible. At any point in the semester, if you encounter difficulty with the course or feel you could be performing at a higher level, consult with me. Students experience difficulty in courses for a variety of reasons. For problems with writing skills and time management, make an appointment to see a student tutor at The Learning Center (TLC), 253 Luther Bonney (780-4228). Help is also available through the Counseling Center, 106 Payson Smith (780-4050) and the Office of Academic Support for Students with Disabilities, 237

Luther Bonney (780-4706). Please note that only students who are registered with the Office of Academic Support for Students with Disabilities are eligible for accommodation. If you need course adaptations or accommodations because of a disability, please make an appointment with me as soon as possible.

### **Repeat Policy**

Any School of Business major or minor who has enrolled in an ACC or BUS course more than twice must, before continuing in that course, complete and have approved by the Department Chair, a course condition form (available from the School of Business academic advisors). Failure to do so may result in course disqualification.

### **Tentative Course Outline**

Chapter 1 Introduction

Chapter 2 Futures markets and central counterparties

#### **Quiz 1 Chapters 1 & 2**

Chapter 3 Hedging strategies using futures

Chapter 4 Interest rates

#### **Quiz 2, Chapters 3 & 4**

Chapter 5 Determination of forward and future prices

Chapter 6 Interest rate futures

#### **Quiz 3 Chapters 5 & 6**

Chapter 7 Swaps

#### **Quiz 4 Chapter 7**

Chapter 10 Mechanics of options markets

Chapter 11 Properties of stock options

Chapter 12 Trading strategies involving options

#### **Quiz 5 Chapters 10, 11 and 12**

Chapter 13 Binomial trees

Chapter 15 Black-Scholes-Merton model

#### **Quiz 6 Chapters 13 and 15**

Chapter 17 Options on stock indexes (skip the currency material)

Chapter 19 The Greek letters

Chapter 20 Volatility smiles and volatility surfaces

#### **Quiz 7 Chapters 17, 19, and 20**