Finance Special Topic /CFA Curriculum Challenge II

(FINC360-02)

Course Syllabus

Spring-2022

Instructor: Joanne M. Hill, Ph.D.
Office: Beatty Center 420
Email: hillj2@cofc.edu & joahillpro@gmail.com
Phone Available on OAKS

Class Time/Classroom: TCFE 304  05:30PM-08:15PM
Office Hours: After Class or by appointment, or via Zoom

Course Description

The curriculum is built from the CFA Institute Body of Knowledge, taking you deep into investment management by cutting across these 10 key areas. The focus for the Spring Semester will be on Security Market Indexes, ETFs, Derivatives, and Alternative Investments along with portfolio management incorporating these strategies.

The CFA Institute Body of Knowledge covers the following areas:

• Ethical and Professional Standards: Learn about putting investors first in critical and everyday practice.
• Quantitative Methods: From time value of money analysis to correlation analysis and regression, learn robust quantitative methods.
• Economics: Delve into supply and demand, the monetary system, inflation, effects of government regulation, and much more.
• Financial Reporting and Analysis: Learn the details of the financial reporting system (emphasis on international standards, IFRS) and analysis of taxes, debt, global operations, and more.
• Corporate Finance: From corporate governance to capital structure decisions, we cover complex issues in corporate finance.
• Equity Investments: Study the types of equity securities, equity portfolio measurements, and much more.
• Fixed Income: Study fixed income security types, portfolio benchmarks, and other complex topics.
• Derivatives: Learn about forward markets, future markets, option markets, and more.
• Alternative Investments: Examine real estate, private equity, commodities, and more.
• Portfolio Management and Wealth Planning: Examine the essentials of managing different types of portfolios successfully.
Extended Course Description:
Successful investing requires more than just picking stocks and bonds given the wide array of products available. The course will cover how Indexes, ETFs, Options, Swaps, Futures, ETFs, Structured Notes, and Convertible Bonds are valued, traded, and used in portfolio strategies by institutional and retail investors for enhancing returns and managing risk. Although the majority of the course relates to Equities, there will be a few classes on Fixed Income and Commodities Derivatives.

The emphasis will be on practical applications drawing from real investing examples over the last two decades along with a look at future trends. Students will be evaluated based on class participation, two tests and a project where they follow options, indexes, futures, and ETFs that they select and report on how they work in a portfolio over current market conditions.

Course Objectives:
The course is designed from the perspective of an investor who is seeking to learn how Exchange-traded Funds (ETFs) and derivative products can improve the return and/or reduce the risk of his/her portfolio. This involves the quantitative underpinnings of derivative design and valuation, particularly options, forwards, and futures. It also will provide an understanding of the differences between different types of investors who may use derivatives- pensions and endowments, hedge funds and active traders, bottom-up stock and bond portfolio managers and individual investors. It also involves understanding liquidity, trading costs, and market structure for derivatives and their underlying securities or commodities. An understanding of the risks of derivatives and index products is critical to their effective use, including a study of historical market disruptions where derivative products played a part.

Student Learning Objectives
Students will have a strong understanding of advanced investment analysis and real-world portfolio management skills.

School of Business Objectives:
Consistent with the goals of the School of Business, this course includes instruction in:

- Communication Skills: Students will demonstrate the ability, via both written and spoken word, to effectively present, critique, and defend ideas in a cogent, persuasive manner. Students will be expected to participate in class discussions and to complete numerous written assignments that test their ability to effectively relate their understanding of the performance, risk and valuation of derivatives securities. Assignments will require the student to use their knowledge accurately and effectively in simulated trading situations. Examples include trading explanations accompanying investment activity in simulated
trading accounts and written explanations to discuss how and why the derivative strategies are used in portfolios. Successful completion will require a high level of grammatical and expositional ability, as well as an understanding of the business style of writing.

- **Quantitative Fluency**: This course requires a working knowledge of quantitative finance including valuation of fixed income securities, performance, and risk measurement. They should also have had exposure to portfolio construction and diversification concepts, interest rate mathematics, regression, and volatility measurement. The course helps students learn to do quantitative analysis for large investment projects and portfolio management.

- **Synthesis**: Help students comprehensively review and strengthen knowledge on multiple sub-areas of finance, be able to apply financial knowledge to real life situations.

- **Intellectual Innovation and Creativity**: Careful attention will be devoted to placing students in a position where they must utilize resourcefulness and creativity in solving problems related to the investing in and managing derivative securities. Students will be able to choose investment options to follow and be expected to explain how they behave in the context of global financial market developments.

- **Global and Civic Responsibility**: Through learning Ethical and Professional Standards in constructing client portfolios, students learn about putting investors first in critical and everyday practice. Students will be asked to solve problems related to ethical dilemmas, encapsulated in problems related to the role indexes and derivatives have played in helping investors manager risk, but also in market crisis. Issues such as disclosure of hidden risk and liquidity issue will be covered. They will be asked to view issues through difference lenses and gain an appreciation for the complexities involved in addressing financial situations in a global economy. Derivatives are traded in global markets and have many cross-border investors. Examples will include effective use of derivatives to access global exposure in both stocks and bonds.

**Prerequisites** - Instructor approval

**Recommended Textbook will be provided by the department**

**CFA PROGRAM CURRICULUM 2022 LEVEL I SET** – Available from the Finance Department.

Students also have access to the E-book via our library [https://pascal-cofc.library.cofc.edu/permalink/01PASCAL_COFC/bkrgbh/alma991010961715205613](https://pascal-cofc.library.cofc.edu/permalink/01PASCAL_COFC/bkrgbh/alma991010961715205613)

Authors: **CFA INSTITUTE**
Other Readings
CFA Exam Readings: Volume 4, Security Market Indexes and Volume 5, Derivatives Readings. Also, Level 2 and 3 Readings on ETFs and Derivative in Portfolio Management – Readings available on OAKs with permission to use from the CFA Institute.

Textbooks (Selected Sections Required -supplied by professor or accessed online via OAKS)

A Comprehensive Guide to Exchange Traded Funds, by Hill, Nadig and Hougan, CFA Institute Research Foundation, May 2015

Fundamentals of Futures and Options by Clarke, de Silva, and Thorley, CFA Institute Research Foundation, November 2013

Trading and Electronic Markets by Harris, CFA Institute Research Foundation, October 2015

Alternative Investments: A Primer for Investment Professionals – Chambers, Black, & Lacey CFA Research Foundation 2018. Skim all except Chapters 10, 11, 12.

Readings
Index material from index providers and derivatives exchange (Cboe and CME) websites, research papers from the Cboe Options exchange and publications from practitioner journals, such as the Financial Analysts Journal.

Optional Reference Books (for students who want a more in-depth understanding of valuation, a wider range of strategies and products):

Options as a Strategic Investment, Lawrence G. McMillan, 5th edition, Prentice Hall

Options, Futures, and Other Derivatives, John Hull, 10th edition, Pearson

Course Topics:

- Background for Indexes, ETFs, and Derivatives
- Indexes and ETFs
- Alternatives
- Futures and Swaps
- Volatility, Correlation and Risk Management Concepts
- Equity Options and Option Strategies
- Fixed Income, Currency, and Commodity Derivatives
- Structured Notes and Convertible Bonds
- Performance and Risk Analysis of Derivatives Strategies
- Case Studies of ETFs Derivatives Strategies by Investors Type – Pension Funds, Hedge Funds, RIAs.
- Learning from Market History – The Role Derivatives in Market Disruptions
OAKS
OAKS, including Gradebook, will be used for this course throughout the semester to provide the syllabus and class materials and grades for each assignment, which will be posted.

Grading Policy
Grades will be based on the student’s performance on several components including group work, individual exams, and class performance. Each component has points and weights listed as follows:

<table>
<thead>
<tr>
<th>Items</th>
<th>Total Points</th>
<th>Actual Points Received</th>
<th>Weights</th>
<th>Contribution to overall grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>(1)</td>
<td>(2)</td>
<td>(3)</td>
<td>(4)</td>
<td>(5) = (3)/ (2)<em>100</em>(4)</td>
</tr>
<tr>
<td>Portfolio Project</td>
<td>100</td>
<td></td>
<td>20%</td>
<td></td>
</tr>
<tr>
<td>Midterm Exam 1</td>
<td>100</td>
<td></td>
<td>30%</td>
<td></td>
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<tr>
<td>Final Take Home Exam 2</td>
<td>100</td>
<td></td>
<td>25%</td>
<td></td>
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<tr>
<td>Class Participation (Include attendance)</td>
<td>100</td>
<td></td>
<td>25%</td>
<td></td>
</tr>
<tr>
<td>Total Points</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>Sum of Above</td>
</tr>
</tbody>
</table>

Students’ total points earned for the class are determined by the weights above and the points that students actually received on each item. The final course grade will be in a letter based on the following conversion table:

<table>
<thead>
<tr>
<th>Total points</th>
<th>Letter grade</th>
<th>Total points</th>
<th>Letter grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>90-100</td>
<td>A</td>
<td>70-74</td>
<td>C</td>
</tr>
<tr>
<td>88-89</td>
<td>A-</td>
<td>68-69</td>
<td>C-</td>
</tr>
<tr>
<td>85-87</td>
<td>B+</td>
<td>65-67</td>
<td>D+</td>
</tr>
<tr>
<td>80-84</td>
<td>B</td>
<td>60-64</td>
<td>D</td>
</tr>
<tr>
<td>78-79</td>
<td>B-</td>
<td>58-59</td>
<td>D-</td>
</tr>
<tr>
<td>75-77</td>
<td>C+</td>
<td>57 and below</td>
<td>F</td>
</tr>
</tbody>
</table>

Assignments and Method of Evaluation:
Since this an advanced course, the students will be evaluated on a combination of Class Participation, Exams and Special Projects. From time to time there will homework related to the topic covered. This will help students prepare for Exams.

Class Participation
Students are expected to come prepared with the readings assigned and with commentary on the ETF or derivative positions they are following. This means students must have an awareness of what has gone on in the markets for the underlying index or security over the prior week. A
portion of the class devoted to talking about current themes and trends in financial markets and how they have affected indexes and derivatives students are following. Students are expected to participate in this discussion and learn from one another’s experience with the index/derivatives they are following.

**Exams**
There will be a mid-term given in class (1/2 of class – 75 minutes in length) that will be a combination of short answer and essay questions. The Final Exam will be a take-home exam, due the week following the last class.

**Portfolio Project**
The Portfolio Project is a report on the ETFs and derivatives that the student has been following over the course of the semester. A portion of each class after the Mid-term will be devoted to students discussing the performance and background for their positions. Students should come with updated pricing on their holdings and be prepared to discuss the market factors that impacted their positions in the last week. The Final Project will be a presentation on their portfolio construction, performance, risk, performance attribution and fit in investment strategies. Students can form teams of 2 for this project if desired or work on their own. Results will be presented to the class for feedback on April 21, but then can be edited and refined before the final submission, due on April 28.

Content is deliverable in a PowerPoint form and will include a minimum of the following:

A. Description of the ETFs derivatives selected and the rationale for selection
B. Discussion of how the ETF or derivative fit into the portfolio construction and portfolio objectives
C. Analysis of the risks of these derivatives on their own and as part of the portfolio.
D. Review of their performance and performance attribution over the course of the semester – this should include a discussion of the factors driving the returns and risk of the underlying index, security, or commodity.

Use Bloomberg, ETF.com, and Morningstar ETF site as well as those of ETF Sponsors/Managers to begin to identify 3-5 ETFs or derivative for your Portfolio.

Portfolio – Five positions - At least 3 ETFs, at least 1 ETF that is option-based.

Performance/risk evaluation period – Three years ending 3/31/22. Focus on most recent 6 months relative to the longer period. Comment on prospective performance and risk over the next 6 months (through 9/30/22).
**Course Outline**

**Section 1 – Investment Products**

1. **Course Introduction/ Indexes and Trading Concepts (1/13)**
   - Investment Background
   - Indexes
   - Liquidity and Trading Costs
   Indexes as a building block of derivatives. Importance of liquidity, measurement of trading costs, a concept that will be used throughout the course. This is followed by a discussion of Indices, focusing on the ways they are constructed and traded.

   **Readings:**
   - Index Policy and Methodology Reports along with Fact Sheets from at least 2 index providers.
   - CFA Program: Security Market Indexes (Level 1, Readings 34)
   - Trading and Electronic Markets: Chapters 1-4

2. **ETFs -Features and Strategy Applications (01/20 and 1/27)**
   - Comparison to other Fund Products, Key Features, Types and Growth of ETFs, Trading and Strategy Applications
   - Active and Smart Beta ETFs.
   - Fixed Income ETFs
   - ETF Institutional Strategy Trends and Implications for the Investment Process and Distribution
   - Selection and Construction of ETF Portfolio – Discussion

   **Readings:**
   - Comprehensive Guide to ETFs: Chapters 1 – 7. (Level 2, Reading 38)
   - CFA Program: ETFs – Mechanics and Applications, Part 1. (Level 2, Reading 38)
   - The Evolution and Success of Index Strategies in ETFs, Financial Analysts Journal 2016 (Hill, Joanne M.)
   - Active Indexing with ETFs, Journal of Index Investing, 2019

3. **Student Selection of ETFs for Portfolio – Guest Speaker, Deborah Draeger from S&P Dow Jones Global Indexes on RIA ETF Strategies (02/03)**
   There will be a Guest Speaker showing the range of strategies with ETFs that Registered Investment Advisors use in portfolios. She will also talk about how index providers and ETF sponsors assist RIAs in ETF management. Students will submit the first 3 ETFs they have selected for their Portfolio Project. They will have a slide explaining the features (return, risk, index, portfolio structure/holdings) of why it fits their investment outlook and goals. Professor will participate via Zoom.

4. **Alternatives and Portfolio Management (2/10)**
Alternative Investments: A Primer for Investment Professionals – CFA Research Foundation 2018. Skim all except Chapters 10, 11, 12.


5. Futures and Swaps (02/17)
Market structure, pricing, strategies. Differences between equity, fixed income, commodity futures/swaps. Rolling positions. Compare the cost, return, and risk of futures, ETFs, and swaps. Connections to financing/lending.
Readings:
• CFA Program: Derivative markets and Instruments, Basics of Derivatives Pricing and Valuation (Level 1, 45 and 46)
• Fundamentals of Futures and Options, Chapters 1 – 3.

6. Mid-Term Exam (02/24) and Basics of Options and Valuation Review
• Fundamentals of Futures and Options: Chapters 4, 5, and 6
Review of factors driving option value. Analysis of options across strikes and term. Index, stock, fixed income options. Commonly used Options Models like the Binomial and Black-Scholes Models.

7. Introduction to Volatility & Options Valuation/Performance Drivers (03/03)
• Review of return distributions, risk metrics,
• Dynamics of the VIX
• Implied vs. Historical Volatility
• Skew, Term Structure and Dispersion
• VIX Futures and ETFs
In the index options market, there are historical relationships between implied and historical volatility, implied volatility for options with different strike prices (skew) and terms (term structure), as well as stock versus index options (dispersion). Relying on historical data, this class discusses those relationships. VIX and VIX futures case studies. A look at episodes of extremes in the VIX (students will present on specific episodes building on assigned readings)

Readings:
• Volatility in Perspective (Article in Journal of Index Investing)
• Volatility Blogs (From Volatility Analysts on Wall Street)
• VIX – Materials from the Cboe
   - Review of options strategies for income, risk reduction, and reshaping returns
   - Performance Analysis of Option Strategy Indexes
   - Option ETF and Mutual Fund Products
   
   **Readings:**
   - Option Strategy Index Articles from the Cboe Web Site

9. **Institutional Uses of Derivatives, Single Stock Options Strategies Integrated into Active Portfolio Management, Target Outcome Investment Strategies (03/24)**
   - Motivations and applications by pension funds, hedge funds, RIA, how Active Asset Managers tie their knowledge of the underlying company to develop options strategies on individual stocks. Also, performance measurement and benchmarking with derivative strategies. Discussion of ETF/Derivative Selection for Project
   
   **Readings:**
   - Covered Call Strategies: One Fact and Eight Myths (Israelov, Roni) (LR)
   - Income with Growth Solution: Converting Futures Dividend Growth into Current Income (Sood & Hill)
   - Buffer Protection ETF Material
   
   **Fixed Income and Currency Derivatives, Credit Default Swaps**
   - Readings to be assigned. CME Website Educational Section

10. **Structured Notes, and Convertibles and Exotic Equity Derivatives (03/30)**
    - Structured Notes and convertible debt are fixed income securities that combine bonds issued by an investment bank with options to provide equity exposure with different risk than conventional equities.
    
    **Commodity Indices and Futures, Multi-Asset Class Allocation & Macro Strategies**
    - Commodity indexes and derivatives – history and current applications.
    
    **Readings to be assigned.**

11. **Learning from Market Disruptions Part 1 (04/14)**
    - Risk Management strategies in portfolios – designing, benchmarking, and rolling strategies
    - Derivatives and index products have been associated with turbulent periods in markets. Investors can learn how liquidity and market sentiment interact to make derivative notorious in volatile periods. To help project the future impact of Equity Derivatives on the Equities Market it is useful to understand history. In this class we discuss situations in history where Equity Futures and Options were misused.
    - Stock Market Crash of 1987 and Portfolio Insurance
    - Nick Leeson and Barings 1995
• Pandemic Markets, March 2020

Readings:
• The Demons of ’87 - PDF
• Findings Regarding the Market Events of May 6, 2010 (CFTC & SEC), Executive Summary only, pp. 1-8
  (http://www.cftc.gov/idc/groups/public/@otherif/documents/ifdocs/staff-findings050610.pdf)
• From Free Lunch to Black Hole: Credit Default Swaps at AIG (PDF)

12. Student Portfolio Presentations Final Project; Distribution of Take-Home Exam (04/21)

Each group will present their ETF and Derivative Portfolio Performance Analysis to the class for feedback. They will include a discussion of how it fits in a broader portfolio context.

Attendance Policy

Students are required to attend the class. I reserve the right to take attendance all the time. Students’ attendance record is part of his/her class performance.

Students are expected to arrive at the class on time. Students who have three or more absences will be withdrawn from the course for excessive absences. Students arriving late more than six times may also be withdrawn from the course. If a student is withdrawn for excessive absences or being late for class more than six times, a final grade of WF will be assigned.

An absence from class for any reasons (job conflict, illness, appearance in court, transportation problems, travel, athletic event, etc.), even if permitted and/or excused by the instructor, will still count as one of the class absences.

College of Charleston Honor Code and Academic Integrity

Lying, cheating, attempted cheating, and plagiarism are violations of our Honor Code that, when identified, are investigated. Each incident will be examined to determine the degree of deception involved.

Incidents where the instructor determines the student’s actions are related more to a misunderstanding will handled by the instructor. A written intervention designed to help prevent the student from repeating the error will be given to the student. The intervention, submitted by form and signed both by the instructor and the student, will be forwarded to the Dean of Students and placed in the student’s file.
Cases of suspected academic dishonesty will be reported directly by the instructor and/or others having knowledge of the incident to the Dean of Students. A student found responsible by the Honor Board for academic dishonesty will receive a XXF in the course, indicating failure of the course due to academic dishonesty. This grade will appear on the student’s transcript for two years after which the student may petition for the XX to be expunged. The F is permanent. The student may also be placed on disciplinary probation, suspended (temporary removal) or expelled (permanent removal) from the College by the Honor Board.

Students should be aware that unauthorized collaboration—working together without permission— is a form of cheating. Unless the instructor specifies that students can work together on an assignment, quiz and/or test, no collaboration during the completion of the assignment is permitted. Other forms of cheating include possessing or using an unauthorized study aid (which could include accessing information via a cell phone or computer), copying from others’ exams, fabricating data, and giving unauthorized assistance.

Research conducted and/or papers written for other classes cannot be used in whole or in part for any assignment in this class without obtaining prior permission from the instructor.

Students can find the complete Honor Code and all related processes in the Student Handbook https://deanofstudents.cofc.edu/honor-system/studenthandbook/

Disability Statements
See more information at Disability Services: https://disabilityservices.cofc.edu/

1. Any student eligible for and needing accommodations because of a disability is requested to speak with the professor during the first two weeks of class or as soon as the student has been approved for services so that reasonable accommodations can be arranged.

2. The College will make reasonable accommodations for persons with documented disabilities. Students should apply for services at the Center for Disability Services/SNAP located on the first floor of the Lightsey Center, Suite 104. Students approved for accommodations are responsible for notifying me as soon as possible and for contacting me one week before accommodation is needed.

3. This College abides by Section 504 of the Rehabilitation Act of 1973 and the Americans with Disabilities Act. If you have a documented disability that may have some impact on your work in this class and for which you may require accommodations, please see an administrator at the Center of Disability Services/SNAP, (843) 953-1431 or me so that such accommodation may be arranged.

Inclement Weather, Pandemic or Substantial Interruption of Instruction
If in-person classes are suspended, faculty will announce to their students a detailed plan for a change in modality to ensure the continuity of learning. All students must have access to a computer equipped with a web camera, microphone, and Internet access. Resources are available to provide students with these essential tools.
Recording of Classes (via ZOOM)
Class sessions will be recorded via both voice and video recording. By attending and remaining in this class, the student consents to being recorded. Recorded class sessions are for instructional use only and may not be shared with anyone who is not enrolled in the class.

Other items
1. For other matters not specified in this syllabus, we comply with the common policy of the College.