Classes and Contact

Classes: Monday, 7:20pm – 10:00pm
Office: Van Metre Hall 466 (Arlington Campus)
Telephone Number: (703) 993-5496
E-mail: trequeij@gmu.edu
Office Hours: By appointment, but typically before or after class

Course Objective and Contents

The Futures, Options and Other Derivatives course is about identifying and managing risks in financial products, with a strong emphasis on derivative securities. This will be a rigorous course that requires students to be familiar with basic calculus concepts. We will discuss the rationale behind the major pricing models and their application to derivative securities, arbitrage and pricing, hedging, common trading strategies with options, and the fundamental concepts of risk measures and risk management.

Like most finance courses, MBA 707 focuses more on lasting financial principles than on current institutional details. The course should provide a foundation for you to pursue further studies in the areas of Derivatives, Asset Pricing, and Risk Management. The current demand for financial analysts with a strong knowledge in derivatives is high – be sure to master this course, you will be rewarded in the future.
Textbook and Class Notes

The textbook for the course is the book by John Hull:


You can also use other versions of the textbook (6th, 7th, 8th, 10th), but it is your responsibility to make sure you know which pages and chapters in the past editions correspond to those in the 9th edition. While the topics and material we will cover are fairly unchanged from one edition to the next, the exercises may differ. If you decide to use a different edition, please make sure that you have access to the exercises from the 9th edition.

The class notes will be self contained, but the textbook is a crucial resource to help clarify the topics discussed in class. If you plan to work for a bank, hedge fund or in a Treasury function in the future, I strongly recommend that you purchase, read and study this book. If you have any other edition of Hull’s book, that will work fine too. Besides the textbook, there will be some other readings and notes during the term. I will post copies of any notes or other useful material to Blackboard.

Additionally, the solutions manual that accompanies the text book will be very useful to understand some of the topics we will cover in class.


The slides will be posted on Blackboard before each class, but may change afterwards depending on the actual content that was covered and discussed during class.

Course Contents

We will cover a good part of Hull’s book, including the following topics (not necessarily in this order):

- Futures and Forwards (Chapters 2, 3)
- Futures and Forwards Pricing (Chapter 5)
- Interest Rates, Interest Rates Futures (Chapters 4, 6)
- Swaps (Chapter 7)
- Options (Chapters 9, 10, 11, 16, 17)
- Pricing Options (Chapters 12, 13, 14)
- Greeks, Volatility Smiles (Chapters 18, 19)
- Credit Risk and Credit Derivatives (Chapters 23, 24)
Homework assignments and class exercises will often be easier to solve using a spreadsheet-like computer program. We will see examples in class on how to use some advanced features (solver, histograms, etc.) that are useful to have available when solving questions concerning pricing derivatives and risk analysis. Although we will work through all the advanced features in class, it’s imperative that you feel comfortable using such spreadsheet-like programs.

Note: I will request your feedback periodically to reassess the list of topics above and adjust it if necessary. Any course feedback on how you think the course is evolving (including constructive criticism and suggestions) and potential additional topics to discuss in class will always be welcome.

**Tentative Schedule**

As noted above, the following is subject to change depending on the pace of the course, student feedback, and potential current topics relevant to the course material.

Week 1 (Week 1 Class):
- Course introduction.
- Futures and Forwards (Chapters 2, 3)

Week 2 (Week 2 Class):
- Interest Rates (Chapter 4)

Week 3 (Week 3 Class):
- Futures and Forwards Pricing (Chapter 5)

Week 4 (Week 4 Class):
- Interest Rates Futures (Chapter 6)
- Swaps (Chapter 7)

Midterm Exam (take-home)

Week 5 (Week 5 Class):
- Options, Trading Strategies with Options (Chapters 9, 10, 11)
- Pricing Options (Chapters 12, 13)

Week 6 (Week 6 Class):
- Pricing Options (Chapters 13, 14)

Week 7 (Week 7 Class):
- Greeks, Risks of Trading Strategies with Options (Chapter 18)

Week 8 (Week 8 Class):
- Volatility Smiles (Chapter 19)
- Fitting market data
- Credit Risk and Credit Derivatives (Chapters 23, 24)

Final Exam (take-home)
Evaluation and Grades

Course grades will be based on exams, class participation, homework assignments, and case write-ups. There will be a midterm and a final exam, the final being a take-home exam. The final grade will be an average of the following items, weighted as noted:

<table>
<thead>
<tr>
<th>Participation</th>
<th>10%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Projects &amp; Homework Assignments</td>
<td>35%</td>
</tr>
<tr>
<td>Midterm</td>
<td>20%</td>
</tr>
<tr>
<td>Final exam</td>
<td>35%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

The midterm and final exam will test your understanding of the central ideas of the course; the midterm will be a closed-book and closed-notes exam. The core concepts will be emphasized in lecture and will often be explored in example exercises. It will require you to demonstrate your understanding of the key theories and concepts and your ability to apply them to problems. The final exam will be comprehensive, with a small computational component.

You may consult on homework assignments with other students, but please let me know who you worked with in each of the assignments. The same applies to other sources such as resources on the internet and books on the subject, please cite all sources properly. Nevertheless, your written assignment should reflect only your own work. Homework assignments will generally be due in the class after they are distributed. Project assignments will tend to track current market events that are directly applicable to the course topics. Examples are discussing current news topics related to derivatives and risk management, presenting exotic derivatives and discussing the issues arising when pricing them, discuss how to change a pricing model to accommodate dividends, pricing with trinomial trees, pricing using Monte Carlo simulation, etc.

Homework and project assignments will be number graded. I will discuss the overall grades on the week preceding the midterm and final exams. Projects and case reports will be graded on a relative basis, with the “best” case report receiving the highest mark and the poorest report the lowest mark.

The overall class GPA for the course is usually within a range of 3.4 to 3.6. Grade cut-offs will be determined according to the following table:

<table>
<thead>
<tr>
<th>Grade</th>
<th>Score (rounded)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>94-100</td>
</tr>
<tr>
<td>A-</td>
<td>90-93</td>
</tr>
<tr>
<td>B+</td>
<td>87-89</td>
</tr>
<tr>
<td>B</td>
<td>84-86</td>
</tr>
<tr>
<td>B-</td>
<td>80-83</td>
</tr>
<tr>
<td>C</td>
<td>70-79</td>
</tr>
<tr>
<td>F</td>
<td>69 and below</td>
</tr>
</tbody>
</table>

The grade cut-offs may be lowered based on the overall score distribution of the class.
Important dates

<table>
<thead>
<tr>
<th>Event</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Midterm Exam</td>
<td>Given on the last class, due a week later</td>
</tr>
<tr>
<td>Final Exam</td>
<td>Given on the last class, due a week later</td>
</tr>
<tr>
<td>Homeworks</td>
<td>Due at the beginning of the following class</td>
</tr>
</tbody>
</table>

Late Assignments

All assignments are due at the beginning of the following class, unless otherwise stated – this includes homework assignments as well as case write-ups. If the assignment is to be discussed in class (case discussion, working through a homework question, etc), no late assignments will be accepted after the beginning of the class. Otherwise, a late assignment will be considered but 25% will be immediately deducted from the assignment grade. Additionally, 25% of the total assignment grade will be deducted for every extra day after the assignment was due. If you will not be in attendance on the day a writing assignment is due, you may email me your assignment, but I must receive your emailed assignment before the beginning of class. I will make exceptions if necessary due to illness or other GMU-approved emergencies.

Make-up Exam

Make-up examinations will not be given unless a student has a university-validated excuse and the instructor is notified of in advance of the examination. Without exception, students who request a make-up exam will be asked to provide appropriate documentation before a make-up exam is scheduled. Make-up exams must be completed within three weekdays of the original exam date. Approval of absence from the final exam must be obtained from the Assistant Dean of Academic and Career Services before a make-up exam will be arranged.

Accommodations for Disabilities

If you have a documented learning disability or other condition that may affect academic performance you should:

1. Make sure this documentation is on file with Office for Disability Services (SUB I, Rm. 2500; 703-993-2474; http://ods.gmu.edu) to determine the accommodations you need;
2. Talk with me to discuss your accommodation needs.

Please keep in mind that all academic accommodations must be arranged through the ODS.

Honor code

The honor code applies to all work required for this class. As mentioned above, you are free to confer with other people when working on your assignments (except for the midterm and final exam), but the final decisions about the work turned in should be your own. Furthermore, you may not show or discuss the examination with past or future MBA students. I urge you to discuss your weekly observations with others. More information about the GMU honor code is given on the GMU web site at various locations, including http://academicintegrity.
The School of Business adopted the following recommendations for Honor Code Violations:

<table>
<thead>
<tr>
<th>Type of Violation</th>
<th>First Offense</th>
<th>Second Offense</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plagiarism, Lying, Cheating on an assignment, homework, or including representing other's work as your own</td>
<td>An F in the class</td>
<td>An F in the class and Dismissal from program</td>
</tr>
<tr>
<td>Egregious Violation [e.g., stealing an exam; passing on confidential course material; cheating on an exam, project, or otherwise violating specified rules for an exam or project; etc.]</td>
<td>An F in the class and Dismissal from program</td>
<td>An F in the class and Dismissal from program</td>
</tr>
</tbody>
</table>

School of Business Standards of Behavior

The mission of the School of Business at George Mason University is to create and deliver high quality educational programs and research. Students, faculty, staff, and alumni who participate in these educational programs contribute to the well-being of society. High quality educational programs require an environment of trust and mutual respect, free expression and inquiry, and a commitment to truth, excellence, and lifelong learning. Students, program participants, faculty, staff, and alumni accept these principles when they join the community. In doing so, they agree to abide by the following standards of behavior:

- **Respect** for the rights, differences, and dignity of others
- **Honesty** and integrity in dealing with all members of the community
- **Accountability** for personal behavior

Integrity is an essential ingredient of a successful learning community. Ethical standards of behavior help promote a safe and productive community environment, and ensure every member the opportunity to pursue excellence. The Mason School of Business can and should be a living model of these behavioral standards. To this end, community members have a personal responsibility to integrate these standards into every aspect of their experience at the School of Business. Through our personal commitment to these Community Standards of Behavior, we can create an environment in which all can achieve their full potential.
Other Items

e-mail
I will regularly send electronic messages to the entire class via Blackboard. Thus, be sure you check the Blackboard site frequently or arrange for mail sent to your GMU e-mail account to be forwarded to whatever e-mail account you normally use. You are fully responsible for taking the steps listed above, for checking your e-mail regularly, and for any information communicated to the class via e-mail.

Disability
If you have a documented learning disability or other condition that may affect academic performance you should:
Make sure this documentation is on file with Office for Disability Services (SUB I, Rm. 2500; 703-993-2474; http://www.gmu.edu/student/drc) to determine the accommodations you need. Talk with me to discuss your accommodation needs. Please keep in mind that all academic accommodations must be arranged through the ODS.

Counseling Center
George Mason University has a counseling center that can provide assistance if you find yourself overwhelmed by life, want training in academic or life skills, or the like. More information is available at http://www.gmu.edu/departments/cscd/.

Notice of Mandatory Reporting of Sexual Assault, Interpersonal Violence and Stalking
As a faculty member, I am designated as a “Responsible Employee,” and must report all disclosures of sexual assault, interpersonal violence, and stalking to Mason’s Title IX Coordinator per University Policy 1412. You may seek assistance from Mason’s Title IX Coordinator, Jennifer Hammat, by calling 703-993-8730 or email cde@gmu.edu. If you wish to speak with someone confidentially, please contact one of Mason’s confidential resources, such as Student Support and Advocacy Center (SSAC) at 703-993-3686 or Counseling and Psychology Services (CAPS) at 703-993-2380. The 24-hour Sexual and Intimate Partner Violence Crisis Line for Mason is 703-380-1434.

Writing
George Mason University has a writing center that can help you improve your English writing skills. More information is available at http://writingcenter.gmu.edu/

Inclement Weather & Campus Emergencies
Information regarding weather related changes in the University’s schedule (e.g., closing or late opening) will be provided on the GMU website and via MasonAlert.
Cell phones, laptops, and beepers

Cell phones are distracting and disrespectful to all the other members of the class. Please turn off all audible signals before class. Laptops may be used only for note-taking purposes and to access websites that may be of interest to the class such as current news articles on the main financial news websites (Bloomberg, WSJ, FT, CNBC, etc.).

Useful Books and Other References


