Finance 412 - Futures and Options Markets

Class location:
Class Time: Tuesday and Thursday 5:55pm to 7:10pm

Instructor: Dr. George H. K. Wang**
Room 225, Enterprise Hall, Phone: 703-993-3415
Fax: 703-993-1870
E-mail: Gwang2@gmu.edu
Office Hours: Tuesday 3:20PM-4: 20PM; Thursday 3:20PM– 4:20PM or by Appointment (lecture notes and assignments are available in Blackboard)


Prerequisites: Finance 311 and Decision Science 201.

Objectives: The purpose of this course is to acquaint the student with the following subjects:
(1) The economic function and institutional characters of futures and options markets; (2) The rationales behind major derivative pricing models and using these pricing models to evaluate alternative derivative instruments; (3) Various arbitrage, hedging and trading strategies commonly used in these markets and (4) Fundamental concepts of risk management.

This course will build a foundation for you to pursue further study in the areas of Derivatives. The current demand for financial analysts with a concentration in derivatives is very high. Be sure to master this course and you will be rewarded in the future.

2. Additional reading assignment will be announced in class and all reading assignments are available at the reserve desk of the Johnson library.

Examination Policies:
(1) Grading standards: Mid-term exam 35%
(2) Use of (+, -) grades and Types of exams: short essay on fundamental concepts and problem-solving questions.

**Course Outline and Schedule**

**Part I: Futures and Forward Markets**

<table>
<thead>
<tr>
<th>Week</th>
<th>Topics [Chapters (Hull (2010))]</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. 1/25</td>
<td>Introduction and the Mechanics of Futures Markets (Chapters 1 and 2)</td>
</tr>
<tr>
<td>2. 1/27</td>
<td>Mechanics of Futures Markets and Hedging Strategies Using Futures (Chapters 2 and 3)</td>
</tr>
<tr>
<td>3. 2/1</td>
<td>Hedging Strategies Using Futures (Chapter 3)</td>
</tr>
<tr>
<td>4. 2/3</td>
<td>Interest Rates (Chapters 4)</td>
</tr>
<tr>
<td>5. 2/8</td>
<td>Interest Rates (Chapters 4)</td>
</tr>
<tr>
<td>6. 2/10</td>
<td>Determination of Forward and Futures Prices (Chapter 5)</td>
</tr>
<tr>
<td>7. 2/15</td>
<td>Determination of Forward and Futures Prices (Chapter 5)</td>
</tr>
<tr>
<td>8. 2/17</td>
<td>Determination of Forward and Futures Prices (Chapter 5) and Interest Rate Futures (Chapters 6)</td>
</tr>
<tr>
<td>9 2/22</td>
<td>Interest Rate futures (Chapter 6)</td>
</tr>
<tr>
<td>10 2/24</td>
<td>Interest Rate futures (Chapter 6)</td>
</tr>
<tr>
<td>11 3/1</td>
<td>Swaps (Chapter 7)</td>
</tr>
<tr>
<td>12 3/3</td>
<td>Swaps (Chapter 7)</td>
</tr>
<tr>
<td>13.3/8</td>
<td>Swaps (Chapter 7) and review for Mid term examination</td>
</tr>
<tr>
<td>14.3/10</td>
<td><strong>Mid Term Examination</strong></td>
</tr>
<tr>
<td>15.3/14, 20</td>
<td><strong>Spring Recess</strong></td>
</tr>
<tr>
<td></td>
<td><strong>Part II: Options Markets</strong></td>
</tr>
</tbody>
</table>
16 3/22 Mechanics of Option Markets and Properties of Stock Options (Chapters 9 and 10)

17.3/24 Properties of Stock Options and Trading Strategies Involving Options (Chapters 10 and 11)

18. 3/29 Trading Strategies Involving Options and Introduction to Binomial Trees (Chapters 11 and 12)

19. 3/31 Introduction to Binomial Trees (Chapter 12) and Valuing Stock Options: Black-Scholes Model (Chapters 13)

20. 4/5 Valuing Stock Options: Black-Scholes Model (Chapters 13)

21. 4/7 Options on Stock Indices, Curries (Chapters 15)

22. 4/12 Futures Options (Chapter 16)

23. 4/14 The Greeks (Chapters 17)

24. 4/19 Volatility Smiles (Chapter 19)

25. 4/21 Volatility Smiles (Chapter 19)

26. 4/26 Interest Rate Options (Chapter 21)

27. 4/28 Interest Rate Options (Chapter 21)

28. 5/3 Exotic options and other Nonstandard options (Chapter 22)

29. 5/5 Review for final examination

30.5/17 Final Examination (4:30 -7:15 PM)

Note: last day to drop 2/25

Honor Code: Students are expected to observe the GMU Honor Code.

Attendance Students are strongly encouraged to attend every class meeting. Anyone who thinks that he/she has a chance of missing more than four classes should definitely take a different course.

Etiquette in the Class Room - Students must turn off all phones, beepers, etc. when attending class. No one has permission to tape record any part of any lecture or discussion in any session. PRIVATE CONVERSATIONS BETWEEN STUDENTS
WHILE CLASS IS IN SESSION ARE IMPOLITE, UNPROFESSIONAL, AND UNWELCOMED.

Exams  Students who want to take an exam at other than at the scheduled time must get prior permission from the instructor who is unlikely to give it unless the student has a serious medical problem (documented by a doctor in writing) or faces a severe conflict in schedule because of a work-related matter (documented in writing by a supervisor).

Suggestions for Readings


** (Short Bio) George H. K. Wang is Research Professor of Finance in the School of Management at George Mason University. He received his Ph. D in statistics and economics (double majors) from Iowa State University, Ames, Iowa. He was the Deputy Chief Economist and Director of Research, U. S. Commodity Futures Trading Commission. Dr Wang was visiting Professor of Finance, Faculty of Economics and Business, University of Sydney, Australia in summer, 2006 and 2007. Visiting Professor, CRC Capital Markets Ltd, Sydney Australia and Visiting Professor of Finance, College of Management, National Central University, Jhongli, Taiwan in summer 2007. He has published widely in major refereed journals in the areas of derivative markets, applied time series, econometrics, mortgage markets and transportation. He is an elected ordinary member of International Statistical Institute and on the editorial board of the Journal of Futures Markets.