

**MBAD 6160**  
**Real Estate Capital Markets**  
**Spring, 2007**

Professor: Dr. Buttimer  
Office: 252B Friday Building  
Phone: (704) 687-6219  
Hours: M, 2:30-4:00  
e-mail: buttimer@email.uncc.edu  
web page: www.belkcollege.uncc.edu/buttimer  
Texts: Real Estate Finance & Investments (13<sup>th</sup> edition) by William Brueggeman and Jeffrey Fisher

A book that I like but that is not required: Commercial Real Estate Analysis and Investments by David Geltner and Norman G. Miller.

**Course Description**

This course examines the convergence of real estate and the capital markets. It is an advanced course in real estate finance and covers the structure, analysis, and valuation of a variety of real estate securities including: residential mortgage backed securities (MBS), collateralized mortgage obligations (CMOs), mortgage servicing rights (MSR), commercial mortgage backed securities (CMBS), and real estate investment trusts (REITs). This course examines both debt and equity markets, as well as certain derivative markets that also involve real estate. The course consists of lecture, exams, and advanced problem sets.

**Course Objectives**

- To develop an in-depth understanding of both the debt and equity real estate capital markets.
- To present the risks and returns inherent in real estate capital markets.
- To examine both the residential and commercial securitized mortgage markets.
- To understand how to value and analyze highly path-dependent mortgage securities.
- To understand how mortgage lenders analyze, manage and hedge interest rate and default risk.
- To understand the structure of REITs, and to be able to analyze their funds from operations (FFOs)
- To develop the computer and modeling skills needed to analyze complex real estate related securities.

**About this Syllabus**

This syllabus is our class contract. It clearly states the requirements this class places on both you and me, and I will not change the conditions of this contract during the class. This is done to insure fairness and consistency among all members of the class. By staying in this class you accept the conditions of this contract and agree not to ask me for exceptions to the syllabus.

**Office Hours**

My office hours are from 3:00 – 4:00 (p.m.) on Monday and from 4:00 – 6:00 pm on Tuesday. I will also gladly make other appointments as necessary. I strongly encourage you to take advantage of my office hours. I believe that any student that is taking this class has the ability to learn this material and to do well in this class. If you are having difficulty, I want to help you determine both what the problem is and what needs to be done to correct it. I also want to encourage you to stop in over the first part of the semester to introduce yourself. This helps me to learn your name and determine what your interests are, and it gives you a chance to ask any questions you may have about the course.

**Conduct and Academic Honesty Policy**

All students in this class must comply at all times with University policies on academic integrity. Any student violating these policies, as defined on pages 262-263 of the Graduate Catalog, will be referred

to the University administration for disciplinary action. Sanctions for academic dishonesty include, but are not limited to, receipt of an F in this course, suspension, or expulsion from the University.

I take academic honesty very seriously, and I expect you to. On tests and class assignments you may not benefit from any work not produced by your own intellect.

### **Grading Policies**

There will be two mid-terms and one cumulative final exam. Each mid-term will count for 25% of your grade and the final will count for 35% of your grade. You will be assigned three problem sets during the course of the semester. You may work on these problems sets in groups of up to three students. Each problem set will count for 5% of your final grade.

### **Grading Scale**

The lower bounds for final grades of A, B, C will be no higher than 90, 80, and 70 percent of the total available points, respectively. Grades will be curved if necessary.

### **Problems Sets**

During the course of the semester you will be assigned three problems sets. You may work on these problem sets in groups of up to three students (you may also work alone if you chose to do so.) These sets will contain problems that are longer and more involved than those that could reasonably be asked on an exam. They will generally require you to use Excel, Visual Basic, and/or other computer programs to solve them. The first problem set in particular will be designed to teach you elementary Visual Basic programming skills that you can then use on later sets. I am assuming that you have no previous programming experience.

### **Class Participation**

Ten percent of your class grade is a function of your participation in class. This includes your comments during lectures (extra points for humorous comments), and your ability to answer my questions posed to you during class. Also, please note that when articles are assigned, we will hold a discussion of those articles during class, and your contribution to that discussion will play a major role in your participation grade. Additionally, we may occasionally have guest speakers. Once again, your contribution to the discussion when we have those speakers will be a major factor in your class participation grade.

### **Exam Format**

The exams will be a mixture of short answer, quantitative and essay questions.

### **Missed Tests**

The dates for the tests are firm. Make up exams will not be administered under any circumstances. In the event of absence from an exam due to a University-excused absence, greater weight will be assigned to the final exam. In the event of a missed test, this will count as the exam that you are replacing with your final exam grade. No make-up provision is available for tests missed to oversleeping, lack of preparation, vacation, social events, traffic, etc.

### **Calculators**

You will need some kind of calculator for this class. You will not be allowed to use present value tables in this class. Although not mandatory, I recommend using a financial calculator such as the HP 10-B, HP 12-C, or HP-19B II (Texas Instruments, Sharp and Casio also make inexpensive calculators which are equivalent.) You will be required to solve for yields and internal rates of return, and financial calculators greatly simplify this task. Note that it is your responsibility to know how your calculator works. I will not spend class time explaining how to use a calculator. Please note that I do not allow the use of Palm Pilots, notebook or laptop computers during exams.

You may program into your calculator any formula you wish. You may not, however, enter text into your calculator. I reserve the right to check your calculator for text at any time during a test or exam. If I find text in your calculator, I will, at a minimum, clear the calculator's entire memory. Note that I consider the entering of text in your calculator to be a violation of Academic Honesty policies.

### **Electronic Communications**

All students at UNC-Charlotte are assigned a student email account, which is the official means of communication between the University and the student. Although I will certainly respond to you if you use another email system, you should be aware that any class-wide announcements that I send through email will be sent to your UNC-Charlotte email account.

I will also maintain an extensive web-site for this class. This web-site is located at: [www.belkcollege.uncc.edu/buttimer](http://www.belkcollege.uncc.edu/buttimer). On this site I will post .pdf copies of almost all of the articles and extra readings mentioned in the syllabus. I will post copies of the problem sets, examples, and miscellaneous material.

In the event of inclement weather, please check my web-site for information on whether class will be held or not. If the University shuts down, then we will too. Sometimes, however, conditions in uptown are different from those of campus, so please check my web-site whenever winter weather conditions threaten.

**Class Readings and Dates**

This schedule of readings is tentative and is subject to change. The test dates, however, are firm and not subject to change. You are expected to have read the material **before** coming to class.

| Date | Topic  | Readings  |
|------|--|---|
| 1/8  | <b>Basic Mortgage Finance</b> <ul style="list-style-type: none"> <li>• Role of Mortgages in Capital Markets</li> <li>• Fixed Rate Mortgages</li> </ul>   | Chapter 1- 4 and 6: Brueggeman and Fisher (B&F)<br>Notes on web-site  |
| 1/15 | <b>Martin Luther King Holiday – No Class</b>   |   |
| 1/22 | <b>Basic Mortgage Finance</b> <ul style="list-style-type: none"> <li>• Fixed Rate Mortgages (continued)</li> <li>• Adjustable Rate Mortgages</li> </ul>  | Chapters 4 and 6: B&F<br>Chapter 5: B&F<br>Notes on web site  |
| 1/29 | <b>Basic Mortgage Finance</b> <ul style="list-style-type: none"> <li>• Adjustable Rate Mortgages</li> <li>• Duration</li> <li>• Convexity</li> <li>• Underwriting Residential Mortgages</li> </ul> <b>Introduction to Visual Basic</b><br><b>Project Set #1 Assigned</b> | Notes on web site<br>Appendix to Ch. 20, B&F<br>Mortgage Backed Securities, Chapter 7, “Duration, Convexity, and Volatility Properties of Mortgage Securities,” by William W. Bartlett. (On Reserve.)   |
| 2/5  | <b>Basic Mortgage Finance</b> <ul style="list-style-type: none"> <li>• Underwriting Residential Mortgages (Continued)</li> <li>• Automated Valuation Methods</li> </ul>  | Chapter 8: Brueggeman and Fisher<br>Pennington-Cross, Anthony, and Nichols, Joseph, “Credit History and the FHA-Conventional Choice”, <i>Real Estate Economics</i> , Volume 28, Issue 2, 2000. (Link on web site.)  |
| 2/12 | <b>Mid-Term #1</b>   |   |
| 2/19 | <b>REITs</b> <ul style="list-style-type: none"> <li>• Legal structure</li> <li>• Types of REITs</li> <li>• Funds From Operations</li> </ul>  | Chapter 21 – Brueggeman and Fisher.<br>Chapter 24 – Geltner and Miller.   |
| 2/26 | <b>REITs</b> <ul style="list-style-type: none"> <li>• Performance of REITs</li> <li>• Reasons for the REIT boom(s).</li> </ul> <b>Hedging House Prices</b><br><b>Project Set #1 Due</b>  | “Valuation uncertainty, institutional involvement, and the underpricing of IPOs: The case of REITs.”, Ling, David C.; Ryngaret, Michael., <i>Journal of Financial Economics</i> , Mar97, Vol. 43 Issue 3, p433-457. (On reserve.)                                   |
| 3/5  | <b>Spring Break – No Class</b>   |   |
| 3/12 | <b>House Price Hedging</b> <ul style="list-style-type: none"> <li>• Risks of Homeownership</li> <li>• Non-Diversification</li> <li>• Futures Markets.</li> <li>• CME House Price Futures</li> </ul>  | CME “White Paper” on Housing Futures<br>CME “Term Sheet” on Housing Futures<br>CME CSI Housing Futures PDF file   |
| 3/19 | <b>Securitization</b> <ul style="list-style-type: none"> <li>• Structure</li> <li>• Cash flows</li> <li>• Descriptive Statistics</li> <li>• Prepayment Models</li> </ul> <b>Project Set #2 Assigned</b>  | Notes on web-site.<br>Chapter 19, Brueggeman and Fisher<br>The Handbook of Mortgage-Backed Securities, (fifth edition) Chapter 19, "Recent Advances in Prepayment Behavior Modeling and Recent History", by Michael Bykhovsky. (Available via link on my web site.) |

| Date | Topic  | Readings  |
|------|--|---|
|      |  | Chapter 9 from “Fixed Income Markets and Their Derivatives (second edition)”, by Suresh Sundaresan. (On Reserve.)   |
| 3/26 | <b>Project set #1 Due Securitization</b> <ul style="list-style-type: none"> <li>• Pricing Methods <ul style="list-style-type: none"> <li>○ Static methods</li> <li>○ OAS</li> </ul> </li> </ul>  | Introduction, Chapter 1 and Chapter 5 from The Office of Thrift Supervision “Net Portfolio Value Model”, available through web, link on my web site.<br><br>Kupiec, Paul, “On The Origin And Interpretation Of OAS”, <u>Journal of Fixed Income</u> , Vol. 9, Issue 3, December 1999. (on reserve)  |
| 4/2  | <b>Securitization</b> <ul style="list-style-type: none"> <li>• Mortgage Servicing Rights</li> <li>• Hedging Mortgage Portfolios and Mortgage Pipeline risk.</li> </ul> <b>Project Set #2 Due</b> | Aldrich, Simon P.B.; Greenberg, William R.; Payner, Brook S, “A Capital Markets View of Mortgage Servicing Rights”, <u>Journal of Fixed Income</u> , Vol. 11, No. 1, pp. 37-54. Available online through EBSCO’s Business Source Elite (via library web-site.)  |
| 4/9  | <b>CMOs</b> <ul style="list-style-type: none"> <li>• Structure</li> <li>• Economic Rational</li> </ul> <b>Project Set #3 Assigned</b>  | Chapter 20 – Brueggeman and Fisher.<br>Notes on web.<br><br>Mortgage Backed Securities, Chapter 12, “CMO Investing and Trading,” by William W. Bartlett (On Reserve.)   |
| 4/16 | <b>Mid-Term #2</b>   |   |
| 4/23 | <b>CMOs</b> <ul style="list-style-type: none"> <li>• Valuation</li> <li>• Performance</li> </ul>   | Advances in the Valuation and Management of Mortgage-Backed Securities, ed. by Frank Fabozzi, Chapter 6, “Valuation of CMOs” by Frank J. Fabozzi, Scott F. Richard, and David S. Horowitz. (On Reserve)   |
| 4/30 | <b>CMBS</b> <ul style="list-style-type: none"> <li>• Economics</li> <li>• Structure</li> <li>• Credit Enhancement</li> <li>• Servicing.</li> <li>• Default Risk</li> </ul>                       | Chapter 20 – Brueggeman and Fisher.<br><br>Chapter 20 – Geltner and Miller<br><br>Real Estate-Backed Securities, Chapter 7, “Commercial Mortgage Backed Securities”, by Frank Fabozzi and John Dunlevy. (On reserve).<br><br>Trends in Commercial Mortgage Backed Securities, edited by Frank Fabozzi, Chapter 5, “Relative Value in the CMBS Market”, by Laura Quigg. (On reserve) |
| 5/7  | <b>Cumulative Final Exam</b>   | 5:30– 8:15 pm.  |