Real Estate and Infrastructure Finance
2 Credits

BU.234.610.53
Day & Time / ex: Thursday, 6pm-9pm
Start & End Date: 1/26/2017-3/16/2017

Location: Washington DC.
Room 113.

Instructor
Luis Quintero

Contact Information
Phone Number, (412) 304-4389
leq@jhu.edu

Office Hours
[Thurs/4pm-6pm]

Textbook & Reading Materials

(C): "Real Estate Finance: Theory and Practice", 7th edition, OnCourse Learning, Terrence M. Clauretie and G. Stacy Sirmans, 2014. This book surveys the basic issues in real estate finance, as such, it serves as a very good reference material for this class. My lectures will follow the book very closely. Examination questions will be closely related to the textbook and the lectures and assignments. I still suggest that students purchase the textbook because it provides very good background information for class discussions.

I will make some spreadsheets available for you but it is important that you learn how to do your own calculations and how to manipulate and understand the equations covered in class.

Course Description
This course examines selected techniques and issues in the area of real estate finance. Special emphasis will be placed on the design and valuation of mortgage instruments. This class will be conducted using a lecture format. While lectures will follow the textbook to some extent, supplemental readings may be required. Students are assumed to have some knowledge of finance. Before taking this class, it is important for students to have a clear understanding of the time value of money concept and knowledge of how to use spreadsheets to solve time value of money problems. Knowing how to use a calculator to solve present value problems (but without a clear understanding of the underlying concept) is not sufficient for tackling the course material of this class. Use of calculators or spreadsheets will not be taught in this class. This course was previously titled Real Estate Finance I.

Prerequisite(s)
None

Learning Objectives
By the end of this course, students will be able to:

• Understand the techniques used for mortgage designs.
• Analyze the risk-return tradeoff of mortgage instruments.
• Design a suitable mortgage instrument given a client’s special need.
• Evaluate mortgage alternatives for your clients.
• Understand the operations of the mortgage market.

To view the complete list of Carey Business School’s general learning goals and objectives, visit the Teaching & Learning@Carey website.

Attendance Policy
Attendance and class participation are part of each student’s course grade. Students are expected to attend all scheduled class sessions. Failure to attend class will result in an inability to achieve the objectives of the course. Regular attendance and active participation are required for students to successfully complete the course.

Assignments
Your final grade will be weighted as follows:

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mid-term Exam</td>
<td>40%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>40%</td>
</tr>
<tr>
<td>Class Participation &amp; Assignments</td>
<td>20%</td>
</tr>
<tr>
<td>Total</td>
<td>100%</td>
</tr>
</tbody>
</table>

The final class grade will be based on a relative frequency distribution (percentile ranking) of the total points accumulated over the entire semester. This approach implies that your final grade will be determined by the relative performance of the students in the class, as well as the overall performance of the entire class. While I normally do not take roll, class attendance is mandatory. Each student should read the assigned materials and give careful thought to background information prior to each class session. Having done so will not only facilitate class discussions, it will also lighten your workload because the lectures are much easier to follow after you have digested the reading materials.

There will be one mid-term exam and one final exam. The 2-hour mid-term exam will be held during regular class hours after one hour of regular class. The 2-hour final exam will be comprehensive. The in-class exam will be a combination of problems and conceptual questions. The take-home project will be problems that require intensive calculations, and students are expected to use spreadsheets to solve the problems (see appendix A for sample questions).

The evaluation of class participation consists of assignments, class discussions and quizzes. There are no specific rules on how to score points for the class discussions. A student's grade in this category is solely based on the instructor's objective judgement. However, a meaningful question to the instructor as well as the ability and willingness to answer the instructor's questions will definitely improve your performance. The quizzes will be very simple. The grade of the quiz will be counted as a part of Class Participation. Class participation will play an important role in your final grade if you are at the borderline between two grades.

Grading
The grade of A is reserved for those who demonstrate extraordinarily excellent performance. The grade of A- is awarded only for excellent performance. The grade for good performance in this course is a B+/B. The grades of D+, D, and D- are not awarded at the graduate level.

Please refer to the Carey Business School’s Student Handbook for grade appeal information.

Tentative Course Calendar*
*The instructors reserve the right to alter course content and/or adjust the pace to accommodate class progress. Students are responsible for keeping up with all adjustments to the course calendar.
<table>
<thead>
<tr>
<th>Session</th>
<th>Topic</th>
<th>Reading Assignments</th>
</tr>
</thead>
</table>
| Session 1 | Introductory Remarks  
Finance and Real Estate  
Money, Credit, and Interest Rate | Chp. 1, 2.                         |
| Session 2 | Money, Credit, and Interest Rate (Cont)  
Finance Theory and Real Estate  
Residential Real Estate | Chp. 2, 3, 4, Appendix 4-A.       |
| Session 3 | Fixed Interest Rate Mortgage | Chp. 5, Appendix 5-A, Appendix 5-B, Appendix 1. |
| Session 4 | Fixed Interest Rate Mortgage  
Alternative Mortgage Instruments | Chp. 5, Appendix 5-A, Appendix 5-B, Appendix 1. |
| Session 5 | *(Mid-Term Exam)*  
Alternative Mortgage Instruments | Chp. 6.                           |
| Session 6 | Alternative Mortgage Instruments | Chp. 6.                           |
| Session 7 | Alternative Mortgage Instruments  
Development and Construction Loan | Chp. 6.  
Chp. 18                           |
| Section 8 | *(Final Exam)*                                                   |                                   |
Appendix A: Sample Questions

In-class exam:

1. A borrower can obtain a lower first year interest rate (as compared to the first year interest rate of a standard fixed-rate mortgage) when she/he selects an adjustable rate mortgage. Why (5 points)?

Note: I will only read your first 30 words.

2. Given the following information,
   (1) Fixed-rate mortgage,
   (2) Annual interest rate = 12%,
   (3) Monthly payment, (or monthly interest rate = 1%),
   (4) Amortization period = 30 years (or 360 months),
   (5) Original loan amount = $100,000.

Please calculate the annual debt service, annual interest payment, annual principal payment, and the ending loan balance at end of each year for the next three years. Specifically, please complete the following amortization table (10 points).

<table>
<thead>
<tr>
<th>Year</th>
<th>Beginning Balance</th>
<th>Debt Service</th>
<th>Interest Payment</th>
<th>Principal Payment</th>
<th>Ending Balance</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>$100,000</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td>?</td>
<td>?</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>?</td>
<td>?</td>
<td>?</td>
<td>?</td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>?</td>
<td>?</td>
<td>?</td>
<td>?</td>
</tr>
</tbody>
</table>

Note: This mortgage assumes monthly payments. The amortization table is different from the one using annual payments.

3. Please re-construct the amortization tables of one of the five ARMs discussed in class. In addition, please extend the period from 37 months (as shown in my hand-outs) to 61 months. Please calculate the monthly IRR and MIRR (FMRR) for each of the 5 ARMs listed in problem 1 (20 points).

4. Please re-construct the amortization table of a graduated payment mortgage ($100,000 at 12 present for 30 years, monthly payment, graduating in payments through the first 10 years) using 10% annual payment growth rate. Please report the amortization table of the first 181 months (10 points).
Blackboard Site
A Blackboard course site is set up for this course. Each student is expected to check the site throughout the semester as Blackboard will be the primary venue for outside classroom communications between the instructors and the students. Students can access the course site at https://blackboard.jhu.edu. Support for Blackboard is available at 1-866-669-6138.

Course Evaluation
As a research and learning community, the Carey Business School is committed to continuous improvement. The faculty strongly encourages students to provide complete and honest feedback for this course. Please take this activity seriously; we depend on your feedback to help us improve. Information on how to complete the evaluation will be provided toward the end of the course.

Disability Services
Johns Hopkins University and the Carey Business School are committed to making all academic programs, support services, and facilities accessible. To determine eligibility for accommodations, please contact the Disability Services Office at time of admission and allow at least four weeks prior to the beginning of the first class meeting. Students should contact Priscilla Mint in the Disability Services Office by phone at 410-234-9243, by fax at 443-529-1552, or by email.

Honor Code/Code of Conduct
All students are expected to view the Carey Business School Honor Code/Code of Conduct tutorial and submit their pledge online. Students who fail to complete and submit the pledge will have a registrar’s hold on their account. Please contact the student services office via email if you have any questions.

Students are not allowed to use any electronic devices during in-class tests. Calculators will be provided if the instructor requires them for test taking. Students must seek permission from the instructor to leave the classroom during an in-class test. Test scripts must not be removed from the classroom during the test.

Other Important Academic Policies and Services
Students are strongly encouraged to consult the Carey Business School’s Student Handbook and Academic Catalog and Student Resources for information regarding the following items:

- Statement of Diversity and Inclusion
- Student Success Center
- Inclement Weather Policy

Copyright Statement
Unless explicitly allowed by the instructor, course materials, class discussions, and examinations are created for and expected to be used by class participants only. The recording and rebroadcasting of such material, by any means, is forbidden. Violations are subject to sanctions under the Honor Code.