Financial Modeling
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Fall 2022

Instructor: Professor Vadim Balashov, Ph.D.

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Office: BSB-217 (2nd floor)

Office Phone: (856) 225-6706

Office Hours:
Monday – 5:30-6:00 PM
Friday – 12:00-12:30 PM
or by appointment
Please, let me know if you are coming

Canvas Site: https://canvas.rutgers.edu/

Class Meeting Day & Time:
Friday 12:30 PM – 3:20 PM

Class Location: BSB-335

Course Description:
This course makes the connection between textbook finance and solving real-world business problems. The course builds on material covered in FINE301 and other introductory business classes. This course translates textbook finance into a practical set of tools for solving real-world business problems. The course provides a patterned map for solving common financial models with spreadsheets. Each model will be examined and the student will be guided step-by-step through the model, showing how it can be solved in MS Excel. Areas covered include corporate finance problems, standard portfolio problems, fixed income models, and option pricing. Students must have a good grasp of Excel before taking this class.

Course Goals
This course is designed to teach students the elements of:

- Data Analysis; Spreadsheet models
- Corporate financial models
- Fixed income models
- Portfolio theory models; Optimization
- Derivatives models
- Simulation analysis

Student Learning Objectives
As the result of this course students should be able to:

1. Execute the 7-step modeling process in any relevant business problem
2. Improve on their quantitative skills
3. Become proficient spreadsheet users – Excel in particular
4. Get familiar with major types of models in finance

Course Materials

Text: Simon Benninga
Financial Modeling
The MIT Press, Third or Later Edition

Class notes: Most of the teaching material including lecture notes will be available on Canvas (https://canvas.rutgers.edu/).

Try to do the readings before class and you will find it easier to understand the lectures in class.

Excel: The class extensively uses Microsoft Office Excel. Computer labs and classrooms have Microsoft Office Excel version 2016. The textbook uses Microsoft Office Excel 2010. It is fine if you have Microsoft Office Excel 2007, 2010, 2013, 2016, or Mac versions installed, or will use Citrix for assignments. There shouldn't be any problems with using either version. The only difference between different versions for the purpose of this class is where you find things.

Grading

Practice Problems: Practice problems are aimed to help you grasp the main concepts of the course and study for exams. Practice problems are graded based on the student's *effort*. Either full credit or zero credit will be assigned for each practice problem. Practice problems that are not of satisfactory quality (no effort shown) will receive no credit; Practice problems that are of satisfactory quality (good effort shown) will receive full credit.

Exams: You will be given four take-home exams. All exams will consist of specific problems that you will have to solve using Excel. You will be required to turn in an electronic file containing your solutions via Canvas. Exams are due on time.

Grading weights:

Practice Problems:	20%
Take-Home Exam 1:	20%
Take-Home Exam 2:	20%
Take-Home Exam 3:	20%
Take-Home Exam 4:	20%

Bloomberg Workshops: You are given a unique chance to learn Bloomberg terminals for free. Students are required to attend Bloomberg Workshops administered by the School. Students are required to attend a minimum of five workshops.

Bloomberg Workshops include:

- Getting Started
- Economic Indicators
- Currencies
- Fixed Income I & II
- Equities I & II

The schedule of Workshops for each topic will be posted on Canvas and the Finance Lab website: http://fmlab.rutgers.edu/. The Workshops are administered in BSB-106. Each Workshop is usually no

longer than an hour. For each Workshop attended, you are required to submit to me a sheet with your name, Workshop topic, and signed by the Lab Coordinator Ralph Giraud.

Workshops themselves are not graded; however, there are penalties for missing them:

Missing 1 workshop – 5% of the final grade penalty
Missing 2 workshops – 10% of the final grade penalty
Missing 3 workshops – 15% of the final grade penalty
Missing 4 workshops – 20% of the final grade penalty
Missing 5 workshops – 25% of the final grade penalty

Obtaining the Bloomberg Certification or passing any of the Bloomberg Exams is not a requirement for this class. However, after workshops you will have all the information to do so and could add a nice line to your resume. If you already have Bloomberg Certification, you do not have to attend any of the workshops, just show me the proof.

For more information, please, contact the Lab Coordinator, Ralph Giraud rg701@camden.rutgers.edu or the Finance Lab website: http://fmlab.rutgers.edu/.

Extra Credit: 1 extra credit point will be awarded for students who bring proof of completed class evaluations on the Student Instructional Rating Survey (SIRS) at the end of the semester.

Final Grades: The class's raw scores may be adjusted up until the class average G.P.A. is consistent with the school policy on grade standard.

If, for a university approved reason, you cannot take an exam at the scheduled time you must give the professor written notice at least one week in advance so that other arrangements can be made. If the situation does not allow for advance notification (for example, emergency hospitalization), contact the professor as soon as possible after a missed exam. Make-up exams for non-university approved reasons are not guaranteed. The professor reserves the right to request written documentation to support your absence (such as a doctor's note, an obituary, or military orders).

All assignments are *individual*. The School's Honor Code applies. Examples of the violations of the Rutgers Honor Code include, but are not limited to:

1. Handing in someone else's work as your own. This constitutes plagiarism.
2. Providing your work for someone else to hand in as their own. This includes e-mailing your file to someone.
3. Explicitly telling another student how to do the assignment in a way that hinders their learning of the material.

All assignments are strictly individual. The statement about Academic Integrity is below.

90-100% ..... A
85-89% ..... B+
80-84% ..... B
75-79% ..... C+
70-74% C
65-69% ..... D

Less than 65% ..... F

Statement about Academic Integrity
The Academic Integrity policy can be found at http://studentconduct.rutgers.edu/student-conduct-processes/academic-integrity/

Students are responsible for understanding the principles of academic integrity and abiding by them in all aspects of their work at the University. Students are also encouraged to help educate fellow students about academic integrity and to bring all alleged violations of academic integrity they encounter to the attention of the appropriate authorities.

Academic Integrity means that you (the student) must:

- properly acknowledge and cite all use of the ideas, results, or words of others,
- properly acknowledge all contributors to a given piece of work,
- make sure that all work submitted as your own in a course activity is your own and not from someone else
- obtain all data or results by ethical means and report them accurately
- treat all other students fairly with no encouragement of academic dishonesty

Adherence to these principles is necessary in order to ensure that:

- everyone is given proper credit for his or her ideas, words, results, and other scholarly accomplishments
- all student work is fairly evaluated and no student has an inappropriate advantage over others
- the academic and ethical development of all students is fostered
- the reputation of the University for integrity is maintained and enhanced.

Failure to uphold these principles of academic integrity threatens both the reputation of the University and the value of the degrees awarded to its students. Every member of the University community therefore bears a responsibility for ensuring that the highest standards of academic integrity are upheld. Violations are taken seriously and will be handled according to University policy.

Student Code of Conduct
The University's Student Code of Conduct can be found at http://studentconduct.rutgers.edu/university-code-of-student-conduct

Violations of the Student Code of Conduct are considered serious infractions of student behavior and students who violate the code are subject to penalties relative to the level of the matter. In general, students may not disturb normal classroom procedures by distracting or disruptive behavior, this includes online as well as in-person.

The Code of Student Conduct is more than a collection of University regulations to be abided by – it seeks to promote the University's values and educate. The Code of Student Conduct encourages students to be their authentic selves as they find their place on campus, while also encouraging students to embrace inclusion through discovery, dialogue, and development as they celebrate diverse backgrounds.

The spirit of the Code of Student Conduct promotes student engagement both on and off campus, global citizenship, and leadership. It encourages students to uphold the highest tenets of trust, honesty, and integrity, understanding at all times that our actions significantly impact our personal journeys, our communities, and our larger society.

Rutgers–Camden, Rutgers–Newark, and Rutgers–New Brunswick students originate from all corners of the world and travel between many campuses and cities. As our students strive to achieve their goals, they are expected to conduct themselves in accordance with University policies and procedures, but more importantly, the values and spirit that these policies and procedures are founded upon.

Violations of the Student Code of Conduct should be reported to the Dean of Students office deanofstudents@camden.rutgers.edu or 856-225-6050.
If the violation is immediate and a potential threat is a concern, call the Rutgers-Camden police at 856-225-6111

Learning Disabilities
Rutgers University welcomes students with disabilities into all of the University's educational programs. In order to receive consideration for reasonable accommodations, a student with a disability must contact the appropriate disability services office at the campus where you are officially enrolled, participate in an intake interview, and provide documentation: https://ods.rutgers.edu/students/documentation-guidelines.

If the documentation supports your request for reasonable accommodations, your campus's disability services office will provide you with a Letter of Accommodations. Please share this letter with your instructors and discuss the accommodations with them as early in your courses as possible. To begin this process, please complete the Registration form (https://webapps.rutgers.edu/student-ods/forms/registration).

Erin G. Leuthold, MS Ed
(856) 225-2717
Rutgers-Camden Disability Services:
311 North Fifth Street, Camden, NJ 08102-1405
Web page: https://ods.rutgers.edu/contact-ods/rutgers-university-camden
E-mail: disability-services@camen.rutgers.edu

Finally, I welcome your suggestions at all times and hope you enjoy the course.

Class Schedule
The following class schedule reflects my best estimate of the time required to cover each topic. However, I reserve the right to make any necessary changes to the schedule as the semester progresses. All chapter references are to the textbook by Simon Benninga, Financial Modeling, 3rd edition. Topics in square brackets will be covered only if time permits.

Meeting #	*Date*	*Chapter*	*Topic*
1	Sep 9	Notes	Course Introduction
2	Sep 9	Chapter 1, 35	Basic Calculations in Excel
3	Sep 16	Chapter 2	The WACC Model
4	Sep 16	Chapter 2	The WACC Model
5	Sep 23	Chapters 3, 4	Financial Statement Modeling
6	Sep 23	Chapters 3, 4	Financial Statement Modeling
7	Sep 30	Chapters 5, 6	Financial Statement Modeling
8	Sep 30	Chapter 6	Leasing
9	Oct 7	Chapters 31, 34	Matrices
10	Oct 7	Chapter 25	The Bond Model: Bond Basics
11	Oct 14	Chapters 25, 27	[The Bond Model: Duration, Convexity]
12	Oct 14	Part IV	The Bond Model: The Yield Curve
13	Oct 21	Chapter 27	The Bond Model: The Term Structure
14	Oct 21	Part IV	The Bond Model: Option Adjusted Spread Pricing
15	Oct 28	Part IV	The Bond Model: Callable Bonds
16	Oct 28	Chapter 28	The Bond Model: Default Risk Modeling
17	Nov 4	Notes	The Portfolio Model: The Basics
18	Nov 4	Chapter 10	The Portfolio Model: Variance-Covariance Matrix
19	Nov 11	Chapter 9	The Portfolio Model: Efficient Portfolios
20	Nov 11	Chapter 9	The Portfolio Model: Efficient Portfolios
21	Nov 18	Chapter 9	The Portfolio Model: Efficient Portfolios
22	Nov 18	Chapter 12	The Portfolio Model: Short-Sale Restrictions
23	Nov 23	Chapters 16, 19	The Option Model: Black-Scholes
24	Nov 23	Chapter 17	The Option Model: Binomial Pricing
25	Dec 2	Chapters 17, 22, 23	The Option Model: Binomial Pricing, Simulations
26	Dec 2	Chapters 22, 23	The Option Model: Simulations
27	Dec 9	Notes	[Forwards]
28	Dec 9	Notes	[Swaps, Mortgage-Backed Securities]