

**FBE-545: Applied Financial Modeling
3-Units**

Fall 2021

Instructor: *Mark D. Griffiths, Ph.D.*
Class Time: *Saturdays 9-11:50 (JKP 202)*
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Office Hours: Thursdays 6-7 pm via Zoom
and by appointment (Zoom meetings acceptable)
Email: markgrif@marshall.usc.edu

COURSE DESCRIPTION

In this course, students will learn how to analyze complicated financial situations and to present the analysis in a coherent and professional manner. The vehicle used for developing such models is the familiar spreadsheet Excel. Students will learn how to design specialized Excel tools and models to evaluate financial problems not covered by built-in Excel functions.

Specifically, students will learn modern techniques to perform such tasks as:

- Incorporating dynamic changes in growth-related profitability estimates using pro forma cash flow scenarios.
- Forecasting desired/implied levels of debt under changing economic conditions.
- Evaluating the accuracy and sensitivity of common financial tools (such as the weighted average cost of capital for capital budgeting purposes) and the errors therein.
- Preparing financial forecasts to support various financing alternatives including the valuation of collateral (eg., designing a bank's borrowing base for its clients).
- Evaluating the return to stakeholders in the event of insolvency and/or bankruptcy proceedings (eg., analyzing the implications of the Absolute Priority Rule).

COURSE PRE-REQUISITES

There are no pre-requisites for this course other than successful completion of the following core courses and students are expected to be confident of the material learned in GSBA-510: Accounting Concepts and Financial Reporting and GSBA-548: Corporate Finance.

COURSE OBJECTIVES

Upon successful completion of this course, students will be able to:

- (1) Improve their financial decision-making ability in an uncertain business context and reduce the amount of time needed to apply this knowledge.
- (2) Handle financial analysis in a more efficient and creative way leading to better appreciation by the target audience of what they are trying to achieve.
- (3) Improve their communication skills through both quantitative and graphical presentations.
- (4) Be able to clearly and concisely convey the impact of change on different aspects of the financial analysis.
- (5) Appreciate the role of a financial analyst in a complex investment environment.

COURSE EXPECTATIONS

The level of rigor and the amount of course work required in this class (from both the professor and the student) far exceeds most courses. Specifically, financial modeling requires a tremendous amount of practice. Without practice, student cannot successfully master the material. Students will need to meet the following expectations to be successful in this course. First, students should read all required material before coming to class. Second, students will need to actively participate in lectures. Third, students will need to spend ample time practicing the skills and completing homework. Finally, students will need to attend class regularly. Students that cannot meet these expectations should reconsider taking this course.

COURSE MATERIALS

- (1) Mark D Griffiths & Tal Weiss, Financial Modeling for Mere Mortals (Book 1), (Wkshp) *available electronically at amazon.com*. (Required). Note that you will also need to go to another web site to get the Excel templates (if applicable) and read-only solutions to get you started - they are free! That site is www.financialmodelingmeremortals.com. Scroll to the bottom of the page and click on the links embedded in the two pictures on the left side.
- (2) Isaac Gottlieb, Next Generation Excel: Modeling in Excel for Analysts and MBAs, (2ND) Second Edition, John Wiley & Sons, 2013, ISBN: 978-1118469101 (Recommended)
- (3) Simon Benninga, Financial Modeling (Using Excel), (BEN) 4th Edition, The MIT Press, 2008, ISBN: 978-0262027281 (Recommended)
- (4) Financial Calculator: Texas Instruments BAII – Plus (or Equivalent) (Required)
- (5) Laptop computer with Excel installed. Students can download the latest version of Excel (and MS office for free) using this link: <https://itservices.usc.edu/officestudents/>. (Required)

OPEN EXPRESSION AND RESPECT FOR ALL

An important goal of the educational experience at USC Marshall is to be exposed to and discuss diverse, thought-provoking, and sometimes controversial ideas that challenge one's beliefs. In this course we will support the values articulated in the USC Marshall "[Open Expression Statement](#)."

COMPUTERS AND SOFTWARE

You are required to have access to Excel 2016 running under Windows either on your own Mac or PC or via the Marshall Virtual Lab, which allows Marshall students to use a virtual desktop in the Marshall private cloud. **If you have a Mac and want to run Excel 2016 under Windows on your own laptop, you will need to check if you have enough memory to run Windows through a Windows emulator such as Boot Camp or Parallels.** If you want the software on your own computer, you can take advantage of the free version of Windows and Office 365 provided by USC.

You are welcome to use your computers in class as long the devices are used for the specific problem the professor is working on. They are not to be used for any other purpose.

Announcements and lecture materials are available on the course BlackBoard site. If you have any questions or need assistance with the Blackboard Course Pages, please contact the Marshall HelpDesk at 213-740-3000 (option 2) or HelpDesk@marshall.usc.edu. Alternatively, (213) 740-5555 will get you the USC ITS Help Desk

GRADING

Assignments	% of Overall Grade
Contributions & Professionalism	10%
Homework	10%
Mid-Term Exams	40%
Final Exam	40%
TOTAL	100%

- Contributions & Professionalism (10%).** A student earning this grade will be engaged in class discussions, which means he/she will answer questions if called upon, if not correctly, then at least in a way that shows he/she was paying attention and understands the question, and will raise relevant questions and comments from time to time. Higher grades will be assigned to students who are more actively engaged in the class discussion; lower grades will be assigned to students who do not seem to be fully engaged in the class discussion, for example, having little or nothing to say when called upon. A grade of zero in participation is possible.
- Homework (10%).** It is expected that students will work on the assigned Workshops by the assigned due dates. However, it is also recognized that 1 class section may not be sufficient to complete the Workshop. Hence, the homework assignments are checks on students keeping up with the material in the Workshops. **Working in groups is acceptable but individual Workshops must be submitted.** Performance on class participation, the two mid-term exams and the final exam will clearly be impacted by how much effort has been put into the homework. Homework grades will be based on correctness and format.
- Mid-term Exams (40%).** There will be two mid-term exams, worth 20% each. **No make-ups exams will be given.** A grade of zero for a missed exam will be awarded unless a written excuse from your doctor or the USC Health Center is provided to the instructor prior to the exam. The exams will be open book/computer and assigned on a take-home basis.

4. **Final Exam (40%).** The final exam will be scheduled according to the University’s Final Exam Schedule. If you miss the final exam for a medical emergency reason that can be documented and verified, there will be a makeup final to be arranged as soon as possible. Otherwise, a grade of zero will be assigned to the final exam. <https://classes.usc.edu/term-20223/finals/>

Final grades represent the student’s performance in the class relative to other students. The rank of the weighted average of class participation, homework, mid-term exams and final exam will be compared to others in the class and used to determine the grade. The average grade for this class is expected to be about 3.5.

STATEMENT ON ACADEMIC CONDUCT AND SUPPORT SYSTEMS
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Academic Conduct:

Plagiarism – presenting someone else’s ideas as your own, either verbatim or recast in your own words – is a serious academic offense with serious consequences. Please familiarize yourself with the discussion of plagiarism in SCampus in Part B, Section 11, “Behavior Violating University Standards” policy.usc.edu/scampus-part-b. Other forms of academic dishonesty are equally unacceptable. See additional information in SCampus and university policies on [Research and Scholarship Misconduct](#).

Students and Disability Accommodations:

USC welcomes students with disabilities into all of the University’s educational programs. The Office of Student Accessibility Services (OSAS) is responsible for the determination of appropriate accommodations for students who encounter disability-related barriers. Once a student has completed the OSAS process (registration, initial appointment, and submitted documentation) and accommodations are determined to be reasonable and appropriate, a Letter of Accommodation (LOA) will be available to generate for each course. The LOA must be given to each course instructor by the student and followed up with a discussion. This should be done as early in the semester as possible as accommodations are not retroactive. More information can be found at osas.usc.edu. You may contact OSAS at (213) 740-0776 or via email at osasfrontdesk@usc.edu.

Support Systems:

Counseling and Mental Health - (213) 740-9355 – 24/7 on call
studenthealth.usc.edu/counseling

Free and confidential mental health treatment for students, including short-term psychotherapy, group counseling, stress fitness workshops, and crisis intervention.

National Suicide Prevention Lifeline - 1 (800) 273-8255 – 24/7 on call
suicidepreventionlifeline.org

Free and confidential emotional support to people in suicidal crisis or emotional distress 24 hours a day, 7 days a week.

Relationship and Sexual Violence Prevention Services (RSVP) - (213) 740-9355(WELL), press “0” after hours – 24/7 on call
studenthealth.usc.edu/sexual-assault

Free and confidential therapy services, workshops, and training for situations related to gender-based harm.

Office for Equity, Equal Opportunity, and Title IX (EEO-TIX) - (213) 740-5086

eeotix.usc.edu

Information about how to get help or help someone affected by harassment or discrimination, rights of protected classes, reporting options, and additional resources for students, faculty, staff, visitors, and applicants.

Reporting Incidents of Bias or Harassment - (213) 740-5086 or (213) 821-8298

usc-advocate.symplicity.com/care_report

Avenue to report incidents of bias, hate crimes, and microaggressions to the Office for Equity, Equal Opportunity, and Title for appropriate investigation, supportive measures, and response.

The Office of Student Accessibility Services (OSAS) - (213) 740-0776

osas.usc.edu

OSAS ensures equal access for students with disabilities through providing academic accommodations and auxiliary aids in accordance with federal laws and university policy.

USC Campus Support and Intervention - (213) 821-4710

campussupport.usc.edu

Assists students and families in resolving complex personal, financial, and academic issues adversely affecting their success as a student.

Diversity, Equity and Inclusion - (213) 740-2101

diversity.usc.edu

Information on events, programs and training, the Provost's Diversity and Inclusion Council, Diversity Liaisons for each academic school, chronology, participation, and various resources for students.

USC Emergency - UPC: (213) 740-4321, HSC: (323) 442-1000 – 24/7 on call

dps.usc.edu, emergency.usc.edu

Emergency assistance and avenue to report a crime. Latest updates regarding safety, including ways in which instruction will be continued if an officially declared emergency makes travel to campus infeasible.

USC Department of Public Safety - UPC: (213) 740-6000, HSC: (323) 442-120 – 24/7 on call

dps.usc.edu

Non-emergency assistance or information.

Office of the Ombuds - (213) 821-9556 (UPC) / (323-442-0382 (HSC)

ombuds.usc.edu

A safe and confidential place to share your USC-related issues with a University Ombuds who will work with you to explore options or paths to manage your concern.

Occupational Therapy Faculty Practice - (323) 442-3340 or otfp@med.usc.edu

chan.usc.edu/otfp

Confidential Lifestyle Redesign services for USC students to support health promoting habits and routines that enhance quality of life and academic performance.

COURSE OUTLINE AND ASSIGNMENTS

The material coverage is subject to change with adequate notice.

	Lecture	Financial Application	Topics/ Activities	In-Class Exercises & Readings	Assignments
Week 1	1 8/27	Understanding basic coding	Excel Set-up Basics of Financial Modeling Understanding Excel Dates	2 ND : Chapter 1 BEN: pgs 1 -10	Wkshp: 1. Training Day
	2 8/27	Understanding the Basics of Functions & Formulae	Basics of Financial Modeling FORMULATEXT & Error Checks	2 nd : Chapter 3 BEN: Chapter 1	Wkshp: 1. Cont'd Wkshp: 2. Error Checks
Week 2	1 9/3	No Class Labor Day Weekend			
	2 9/3	No Class Labor Day Weekend			
Week 3	1 9/10	The Importance of Documentation	Revising a Bad Financial Model	2 ND : Chapter 8	Wkshp: 3. Documentation
	2 9/10	Calculating Accrued Interest, Day Counts & Annual Interest Expense	Understanding the ACCRINT function	Lecture	Wkshp: 4. & 5. Interest calcs
Week 4	1 9/17	Understanding the Excel Basics of Accounting	Modeling a Business Start-up	Lecture BEN: Ch. 5	Wkshp: 6. f/s extrapolation Homework 1 Due
	2 9/17	Reconstructing Financial Statements Detecting False Financial Statements	Using Ratio Analysis to Understand Financial Statements. Benford's Law	Lecture	Wkshp: 7. & 8. f/s preparation & e.p.s.
Week 5	1 9/24	Modeling Integrated Financial Statements	Using Solver to resolve circular reference	Lecture	Wkshp: 9. Debt plugs
	2 9/24	Restating Financial Statements	Modeling Operating Leases Understanding eps (in & out of the money)	BEN: Ch. 7	Wkshp: 10 & 11. f/s re-statement, e.p.s calcs

Week 6	1 10/1	Understanding Bond Refunding	Modeling the refunding decision using Excel TVM	Lecture	Wkshp: 12. Re-issuing debt Homework 2 Due
	2 10/1	Modeling TVM with Excel Functions	Modeling NPV with different lives & risks Modeling Capital Budgeting Decisions	BEN: pgs 14-16, 856, 871-872	Wkshp: 13 & 14. Modeling npv
Week 7	1 10/8	Modeling TVM with Excel Functions (cont'd) Midterm Exam #1 Due	Modeling NPV with different lives & risks Modeling Capital Budgeting Decisions (cont'd)	Lecture	Wkshp: 13 & 14. Constrained cap. budget & value metrics
	2 10/8		Class will be held Catch up session		
Week 8	1 10/15	Modeling issues in the Dividend Growth Model	Preparation for WACC calculations	BEN: pgs 71-113 2 nd : Ch. 8	Wkshp: 15. Applications of conditional IF Homework 3 Due
	2 10/15	The Weighted Average Cost of Capital	Modeling various methods of measurement	BEN: pgs 493-511	Wkshp: 16. Drop down boxes
Week 9	1 10/22	Understanding the differences in Betas	Downloading external data	BEN: pgs 715-720	Wkshp: 17 & 18. Revising cap structure
	2 10/22	Modeling a Cash Funded Valuation	Forecasting debt requirements (Adjusting iterations)	Lecture	Wkshp: 19. Project finance
Week 10	1 10/29	Modeling a LBO	Forecasting the returns to a LBO	Lecture	Wkshp: 20. LBO modeling Homework 4 Due
	2 10/29	Scenario Analysis in Excel	Modeling issues in Depreciation	Lecture 2 nd : Ch. 33	Wkshp: 21. Scenario switching
Week 11	1 11/5	Scenario Analysis in Excel	Modeling issues in Capital Structure (Solver & Goal Seek)	2 nd : Ch. 34 & 35	Wkshp: 22. Scenario switching cont'd

	2 11/5	Modeling Credit Issues	Determination of a Borrowing Base	<i>Lecture</i>	<i>Wkshp: 23. Credit issues</i>
<i>Week 12</i>	1 11/12	Modeling Corporate Insolvency <i>Midterm Exam #2 Due</i>	Valuation of a Distressed Company	<i>Lecture</i>	<i>Wkshp: 24. Identification using Z-scores</i>
	2 11/12		<i>Class will be held Catch up session</i>		
<i>Week 13</i>	1 11/19	Modeling Risk and Value-at- Risk	Standard risk measures for Investments	<i>BEN: pgs 723-744</i>	<i>Wkshp: 25. Corporate risk Homework 4 Due</i>
	2 11/19	Modeling Risk and Value-at- Risk	Forecasting maximum expected losses	<i>BEN: pgs 723-744</i>	<i>Wkshp: 26. VaR</i>
<i>Week 14</i>	1 11/26	<i>No Class Thanksgiving</i>			
	2 11/26	<i>No Class Thanksgiving</i>			