

FBE-445:
APPLIED FINANCIAL MODELING: PRINCIPLES AND CONCEPTS
Spring 2023
4 units
This class will meet Tuesdays & Thursdays at 10am Bri 5

Instructor: Mark D. Griffiths
Office: N/A
Office Hours: Days and Times by zoom appointment
Phone:
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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.

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).
- Analyze complicated financial situations, design specialized Excel tools and models not covered by built-in Excel functions, present analyses in a coherent professional manner

Learning Objectives

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

- (1) Make effective financial decisions in an uncertain business context in a timely manner by applying principles.
- (2) Perform financial analysis in an efficient and creative manner for target audience approval.
- (3) Make effective quantitative and graphical presentations.
- (4) Clearly and concisely convey the impact of change on different aspects of the financial analysis (the effect of economic scenarios).
- (5) Explain the value of the role of a financial analyst as a team player in a complex investment environment.
- (6) Describe the types of individuals and employment expectations in an I-Banking/Private Equity context.

Course Materials

- (1) Mark D Griffiths & Tal Weiss, Financial Modeling for Mere Mortals (Book 1), (Wkshp) *available electronically at amazon.com*. (Required). Download Excel Templates and Read-only Solutions from alternate web site indicated on the Amazon web page.
- (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)

Prerequisites and/or Recommended Preparation:

BUAD 215, BUAD 306 or BUAD 308.

Course Notes:

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 Parallel.** 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 as the devices are used for the specific problem (Workshop/caselet) 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

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.

Grading Policies:

Assignments	Points	% of Overall Grade
Contributions & Professionalism	10	10%
Homework	10	10%
2 Mid-Term Exams	65 each	40%
Final Exam	50	40%
TOTAL	200	100%

Note: This is a hands-on course in which students are expected to work collaboratively in class to solve the issues raised in the various caselets (workshops). It is also possible that there is not sufficient in-class time to complete the caselet (workshop). Hence, students are expected to work outside of the classroom to complete the workshop. The effort outside of the classroom can continue to be collaborative. Exams must represent the student's individual effort.

1. **Contributions & Professionalism (10%).** A student earning this grade will be engaged in class discussions, which means he/she/they will answer questions if called upon, if not correctly, then at least in a way that shows he/she/they was/were 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 contributions & professionalism is possible.
2. **Homework (10%).** Homework will be based upon the Workshops assigned in this course. It is expected that students will work on the assigned Workshops by the assigned due dates. **Working in groups is acceptable but individual Workshops must be submitted.** Performance on class contributions & professionalism, 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.
3. **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. The mid-term exams will be taken at home and submitted electronically.
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-20201/finals/> The final exam will be taken at home and submitted electronically.

GRADING DETAIL

Final grades represent how you perform in the class relative to other students. The average grade point for this class is expected to average about (3.5). Three items are considered when assigning final grades:

1. Your average weighted score as a percentage of the available points for all assignments (the points you receive divided by the number of points possible).
2. The overall average percentage score within the class.
3. Your ranking among all students in the class.

Collaboration policy (for non-quiz/exam assignments).

Students are permitted and encouraged to discuss with others their ideas for completing assignments; however, once a student begins writing the deliverable, all work must be individual and independent. Students may not seek help from anyone outside the class, including but not limited to former students of this course, friends and family, tutors, and online forums. Students may consult course materials and web resources. Students may not post anything related to the assignments online. Failure to abide by the above guidelines may constitute a case of suspected plagiarism or cheating, which will be reported and investigated. Please see the “Academic Integrity and Conduct” section below for further details. For more information about unauthorized collaboration, visit <https://libraries.usc.edu/tutorial/academic-dishonesty> or http://lib-php.usc.edu/tutorials/academic-dishonesty/story_html5.html.

Assignment Submission Policy:

Assignments must be turned in on the due date/time electronically via Blackboard. Any assignment turned in late, even if by only a few minutes, will receive a grade deduction (for example, if your work is a B+ grade, you will be given a C+ grade). If your internet breaks down on the due date, you must deliver a hard copy at the beginning of class on that day. If you are unable to attend class on that day, make arrangements for it to be delivered to the classroom or to my box by the start of class. Late or not, however, you must complete all required assignments to pass this course.

Evaluation of Your Work:

You may regard each of your submissions as an “exam” in which you apply what you have learned according to the assignment. I will do my best to make my expectations for the various assignments clear and to evaluate them as fairly and objectively as I can. If you feel that an error has occurred in the grading of any assignment, you may, within one week of the date the assignment is returned to you, write me a memo in which you request that I re-evaluate the assignment. Attach the original assignment to the memo and explain fully and carefully why you think the assignment should be re-graded. Be aware that the re-evaluation process can result in three types of grade adjustments: positive, none, or negative.

COURSE CALENDAR

	Lecture	Financial Application	Topics/ Activities	In-Class Exercises & Readings	Assignments
Week 1	1/10	Understanding basic coding	Excel Set-up Basics of Financial Modeling Understanding Excel Dates	<i>2ND: Chapter 1 BEN: pgs 1 - 10</i>	<i>Wkshp: 1. Training Day</i>
	1/12	Understanding the Basics of Functions & Formulae	Basics of Financial Modeling FORMULATEXT & Error Checks	<i>2nd: Chapter 3 BEN: Chapter 1</i>	<i>Wkshp: 1. Cont'd Wkshp: 2. Error Checks</i>
Week 2	1/17	The Importance of Documentation	Revising a Bad Financial Model	<i>2ND: Chapter 8</i>	<i>Wkshp: 3. Documentation</i>
	1/19	Calculating Accrued Interest, Day Counts & Annual Interest Expense	Understanding the ACCRINT function	Lecture	<i>Wkshp: 4. & 5. Interest calcs</i>
Week 3	1/24	Understanding the Excel Basics of Accounting	Modeling a Business Start-up	Lecture <i>BEN: Ch. 5</i>	<i>Wkshp: 6. f/s extrapolation Homework 1 Due</i>
	1/26	Reconstructing Financial Statements Detecting False Financial Statements	Using Ratio Analysis to Understand Financial Statements. Benford's Law	<i>Lecture</i>	<i>Wkshp: 7. & 8. f/s preparation & e.p.s.</i>
Week 4	1/31	Modeling Integrated Financial Statements	Using Solver to resolve circular reference	<i>Lecture</i>	<i>Wkshp: 9. Debt plugs</i>
	2/02	Restating Financial Statements	Modeling Operating Leases Understanding eps (in & out of the money)	<i>BEN: Ch. 7</i>	<i>Wkshp: 10 & 11. f/s re-statement, e.p.s calcs</i>
Week 5	2/07	Understanding Bond Refunding	Modeling the refunding decision using Excel TVM	<i>Lecture</i>	<i>Wkshp: 12. Re-issuing debt Homework 2 Due</i>

	2/09	Modeling TVM with Excel Functions	Modeling NPV with different lives & risks	<i>BEN: pgs 14-16, 856, 871-872</i>	<i>Wkshp: 13 & 14. Modeling npv</i>
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Week 6	2/14	Modeling TVM with Excel Functions (cont'd)	Modeling NPV with different lives & risks	<i>Lecture</i>	<i>Wkshp: 13 & 14. Constrained cap. budget & value metrics</i>
	2/16	Midterm Exam #1 Due	Class will be held Catch up session		
Week 7	2/21	Modeling issues in the Dividend Growth Model	Preparation for WACC calculations	<i>BEN: pgs 71-113 2nd: Ch. 8</i>	<i>Wkshp: 15. Applications of conditional IF</i>
	2/23	The Weighted Average Cost of Capital	Modeling various methods of measurement	<i>BEN: pgs 493-511</i>	<i>Wkshp: 16. Drop down boxes</i> Homework 3 Due
Week 8	2/28	Understanding the differences in Betas	Downloading external data	<i>BEN: pgs 715-720</i>	<i>Wkshp: 17 & 18. Revising cap structure</i>
	3/02	Modeling a Cash Funded Valuation	Forecasting debt requirements (Adjusting iterations)	<i>Lecture</i>	<i>Wkshp: 19. Project finance</i>
Week 9	3/07	Modeling an LBO	Forecasting the returns to a LBO	<i>Lecture</i>	<i>Wkshp: 20. LBO modeling</i>
	3/09	Scenario Analysis in Excel	Modeling issues in Depreciation	<i>Lecture 2nd: Ch. 33</i>	<i>Wkshp: 21. Scenario switching</i>
Week 10	3/14		No Class Spring Break		
	3/16		No Class Spring Break		
Week 11	3/21	Scenario Analysis in Excel	Modeling issues in Capital Structure (Solver & Goal Seek)	<i>2nd: Ch. 34 & 35</i>	<i>Wkshp: 22. Scenario switching cont'd</i>
	3/23	Modeling Credit Issues	Determination of a Borrowing Base	<i>Lecture</i>	<i>Wkshp: 23. Credit issues</i>

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Week 12	3/28	Modeling Corporate Insolvency	Valuation of a Distressed Company	<i>Lecture</i>	<i>Wkshp: 24. Identification using Z-scores</i>
	3/30	Midterm Exam #2 Due	Class will be held Catch up session		
Week 13	4/04	Modeling Risk	Standard risk measures for Investments	<i>BEN: pgs 723-744</i>	<i>Wkshp: 25. Corporate risk Homework 4 Due</i>
	4/06	Modeling Value-at-Risk	Forecasting maximum expected losses	<i>BEN: pgs 723-744</i>	<i>Wkshp: 26. VaR</i>
Week 14	4/11	Sensitivity Analysis in Financial Analysis	Black-Scholes Option Pricing	<i>BEN: pgs 426-462</i>	<i>Wkshp: 27. Modeling options</i>
	4/13	Real Option Valuation	Acquisition of a Resource Company	<i>BEN: pgs 493-511</i>	<i>Wkshp: 28. M&A with real options</i>
Week 15	4/18	Real Option Valuation in Bankruptcy	Valuation of Equity of a Bankrupt Airline	<i>BEN: pgs 493-511</i>	<i>Wkshp: 29. Assessing residual value</i>
	4/20	Modeling Corporate Liquidation	Valuation of returns to private equity in insolvency	<i>Lecture</i>	<i>Wkshp: 30. Corporate break-up – Homework 5 Due</i>
Week 16	4/25	Modeling Corporate Liquidation	Valuation of returns to private equity in insolvency Absolute Priority Rule	<i>Lecture</i>	<i>Wkshp: 30. Corporate break-up –</i>
	4/27		Exam Review		

Please note: The date/time of the Final Exam is determined by the University. For the date and time of the final for this class, consult the USC *Schedule of Classes* at www.usc.edu/soc. Select the corresponding semester to view and click on the “Final Examinations Schedule” link on the left side of the screen.

ADDITIONAL INFORMATION

Add/Drop

Process

Most Marshall classes are open enrollment (R-clearance) through the Add deadline. If there is an open seat, you can add the class using Web Registration. If the class is full, you will need to continue checking Web Registration or the *Schedule of Classes* (classes.usc.edu) to see if a space becomes available. Students who do not attend the first two class sessions (for classes that meet twice per week) or the first class meeting (for classes that meet once per week) may be dropped from the course. There are no formal wait lists for Marshall undergraduate courses, and professors cannot add students or increase the course capacity. If all sections of the course are full, you can add your name to an interest list by contacting the Office of Undergraduate Advising & Student Affairs; if new seats or sections are added, students on the interest list will be notified.

The last day to add the class or withdraw without receiving a “W” (and receive a refund) is *day, month date, year*. The last day to drop with a mark of a “W” (no refund) is *day, month date, year*.

Retention of Graded Coursework

Final exams and all other graded work which affected the course grade will be retained for one year after the end of the course *if* the graded work has not been returned to the student. If I returned a graded paper to you, it is your responsibility to file it.

Technology Policy

Laptop and Internet usage is not permitted during academic or professional sessions unless otherwise stated by the respective professor and/or staff. Use of other personal communication devices during academic or professional sessions is considered unprofessional and is not permitted. ANY e-devices (cell phones, iPads, other texting devices, laptops, I-pods) must be completely turned off during class time. Upon request, you must comply and put your device on the table in off mode and FACE DOWN. You might also be asked to deposit your devices in a designated area in the classroom. Videotaping faculty lectures is not permitted due to copyright infringement regulations. Audiotaping may be permitted if approved by the professor. Use of any recorded or distributed material is reserved exclusively for the USC students registered in this class. Exceptions to this policy may be granted to individual students with appropriate documentation on a case-by-case basis.

Use of Recordings

Pursuant to the USC Student Handbook (www.usc.edu/scampus, Part B, 11.12), students may not record a university class without the express permission of the instructor and announcement to the class. In addition, students may not distribute or use notes or recordings based on University classes or lectures without the express permission of the instructor for purposes other than personal or class-related group study by individuals registered for the class. This restriction on unauthorized use applies to all information that is distributed or displayed for use in relationship to the class.

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](#)."

Statement on Academic Conduct and Support Systems

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.