

University of Texas at Arlington
College of Business

FINANCE 5351: SEMINAR IN FINANCIAL MODELING

Spring 2018

Section 001: Tuesday & Thursday, 5:30–6:50 p.m., COBA 339

INSTRUCTOR: Dr. Sanjiv Sabherwal

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OFFICE HOURS: Tuesday and Thursday, 3:30–5:15 p.m., and by appointment

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PROFILE: <https://mentis.uta.edu/explore/profile/Sanjiv-Sabherwal>

COURSE DESCRIPTION

This course is intended for graduate students who wish to learn the application of rigorous computational approaches to implement the concepts of finance studied in introductory and other finance courses. The course provides students with the opportunity to develop the skills needed to build financial models. The course primarily focuses on models used for pricing and analyzing derivative stock options. Portfolio models are also covered.

PREREQUISITE

An introductory finance course (FINA 5311) is a prerequisite for Financial Modeling. An additional finance course (such as Investments or Derivatives) is helpful, but is not a prerequisite. A basic working knowledge of Excel is assumed, although advanced functions in Excel and Visual Basic for Applications will be covered.

STUDENT LEARNING OUTCOMES

At the conclusion of the course, the students will be able to:

1. demonstrate how to apply advanced functions in Excel
2. use Excel's programming language, Visual Basic for Applications (VBA), to set-up user-defined functions and macros to automate repetitive operations
3. implement portfolio optimization models to calculate efficient portfolios and the efficient frontier
4. describe the basics of stock options
5. discuss the binomial option-pricing model
6. build binomial option-pricing models using VBA
7. describe the mechanics of the Black-Scholes option pricing model
8. implement the Black-Scholes option pricing model by using VBA to program new functions

REQUIRED TEXTBOOK

Simon Benninga, *Financial Modeling*, 4th edition, The MIT Press

RECOMMENDED READING

The Wall Street Journal

COVERAGE

The following topics and chapters will be covered. We will spend a little more than half of the semester on the first three topics (Excel functions, Portfolio Models, and Visual Basic) and the rest on option pricing models.

Excel Functions, Data Tables, and Matrices

Chapter 1: Basic Financial Calculations

Chapter 33: Excel Functions

Chapter 31: Data Tables

Chapter 32: Matrices

Portfolio Models

Chapter 8: Portfolio Models: Introduction

Chapter 9: Calculating Efficient Portfolios when there are No Restrictions on Short-Sales

Chapter 10: Calculating the Variance-Covariance Matrix

Visual Basic for Applications

Chapter 36: User-Defined Functions with VBA

Chapter 38: Subroutines and User Interaction

Option Pricing Models

Chapter 15: Introduction to Options

Chapter 26: Simulating Stock Prices

Chapter 17: The Black-Scholes Model

Chapter 16: The Binomial Option-Pricing Model

Some of the above chapters will be covered in more detail than others.

COURSE REQUIREMENTS

Exams

There will be four exams, including three interim exams and a final exam.

The final exam will be **comprehensive**.

The interim exams and the final exam will be open book and open notes.

There will be no makeup exams. If you have to miss an interim exam because of an excusable and verifiable reason, you must contact me before the exam. Failing to do so or failing to provide documentation of the reason for absence from a medical doctor or UTA official will result in a grade of zero on the exam. If I were to excuse you from an interim exam, the weight of the exam will be added to the weight of the comprehensive final exam.

Assignments

There will be several assignments. You are required to turn in your solutions to the assignments by the due date. The due dates will be announced in class.

You need to submit the solutions to the assignments via email. Assignments are due by the time indicated on the assignment. You should send the email from your UTA account because emails sent from other accounts such as yahoo, Gmail, etc., may end up in the UTA spam box. I am not responsible for any e-mail submission that I do not receive – a grade of zero will be awarded in such a case. There is no provision for making up a missed/late submitted assignment. A grade of zero will be awarded for such assignments.

GRADING

Assignments	25%
Interim Exams I, II, and III	45% (15% x 3)
Final Exam (Comprehensive)	30%

No extra credit work will be given to any individual student.

The final letter grade will be based on the following schedule:

90 - 100	A
80 - 89.99	B
70 - 79.99	C
60 - 69.99	D
< 60	F

BLACKBOARD

Some of the files used in class and some other materials, such as assignments, may be made available via Blackboard.

COURSE SCHEDULE

January 16	Tuesday	Syllabus, Best practices in financial modeling, Chapter 1
January 18	Thursday	Chapter 1, Chapter 33
January 23	Tuesday	Chapter 33
January 25	Thursday	Chapter 31, Chapter 32
January 30	Tuesday	Chapter 8
February 1	Thursday	Chapter 8
February 6	Tuesday	Interim Exam I
February 8	Thursday	Chapter 9
February 13	Tuesday	Chapter 9
February 15	Thursday	Chapter 9
February 20	Tuesday	Chapter 10
February 22	Thursday	Chapter 10
February 27	Tuesday	Chapter 10
March 1	Thursday	Chapter 36
March 6	Tuesday	Interim Exam II
March 8	Thursday	Chapter 36
March 13	Tuesday	Spring Break
March 15	Thursday	Spring Break
March 20	Tuesday	Chapter 36
March 22	Thursday	Chapter 38
March 27	Tuesday	Chapter 15
March 29	Thursday	Chapter 15
April 3	Tuesday	Interim Exam III
April 5	Thursday	Chapter 15
April 10	Tuesday	Chapter 15
April 12	Thursday	Chapter 26
April 17	Tuesday	Chapter 26
April 19	Thursday	Chapter 17
April 24	Tuesday	Chapter 17
April 26	Thursday	Chapter 17
May 1	Tuesday	Chapter 16
May 3	Thursday	Chapter 16
May 8	Tuesday	Final Exam (5:30–8:00 p.m.)

As the instructor for this course, I reserve the right to adjust this schedule in any way that serves the educational needs of the students enrolled in this course.

RELEVANT UNIVERSITY & COLLEGE OF BUSINESS CALENDAR DATES

January 31	Wednesday	Census Date
March 12–17	Monday–Saturday	Spring Break
March 30*	Friday	Last Day to Drop Classes
May 4	Friday	Last Day of Classes

* If you want to receive a “W”, you must drop the class by this date (submit requests to advisor prior to 4:00 pm). In accordance with the university policy, I will not assign a “W” grade to anyone after this date.

EXAM DATES

Interim Exam I	February 6, Tuesday
Interim Exam II	March 6, Tuesday
Interim Exam III	April 3, Tuesday
Final Exam	May 8, Tuesday, 5:30–8:00 p.m.

Interim Exam dates are subject to change.

NOTES

Audio or video recording of my classes is NOT allowed. Students who wish to record classes under the Americans with Disabilities Act must first contact UTA’s Office for Students with Disabilities and provide me official documentation prior to recording a lecture.

Though we are having the class in the lab so that we can access a computer whenever we need to, there will be times when the focus needs to be on the lecture and not on the computer. At those times, I require your undivided attention to the lecture.

Do not use e-mail or surf the web during class.

All cell phones must be turned off and out of sight during class.

I will often send information via e-mail to your UTA e-mail address. It is your responsibility to check your UTA e-mail account.

I reserve the right to make any modifications to this syllabus. You are responsible for all changes announced in class or via e-mail.

SYLLABUS ADDENDUM

Academic Integrity:

Students enrolled all UT Arlington courses are expected to adhere to the UT Arlington Honor Code:

I pledge, on my honor, to uphold UT Arlington's tradition of academic integrity, a tradition that values hard work and honest effort in the pursuit of academic excellence.

I promise that I will submit only work that I personally create or contribute to group collaborations, and I will appropriately reference any work from other sources. I will follow the highest standards of integrity and uphold the spirit of the Honor Code.

UT Arlington faculty members may employ the Honor Code as they see fit in their courses, including (but not limited to) having students acknowledge the honor code as part of an examination or requiring students to incorporate the honor code into any work submitted. Per UT System Regents' Rule 50101, §2.2, suspected violations of university's standards for academic integrity (including the Honor Code) will be referred to the Office of Student Conduct. Violators will be disciplined in accordance with University policy, which may result in the student's suspension or expulsion from the University. Additional information is available at <https://www.uta.edu/conduct/>.

Disability Accommodations:

UT Arlington is on record as being committed to both the spirit and letter of all federal equal opportunity legislation, including The Americans with Disabilities Act (ADA), The Americans with Disabilities Amendments Act (ADAAA), and Section 504 of the Rehabilitation Act. All instructors at UT Arlington are required by law to provide "reasonable accommodations" to students with disabilities, so as not to discriminate on the basis of disability. Students are responsible for providing the instructor with official notification in the form of a letter certified by the Office for Students with Disabilities (OSD). Only those students who have officially documented a need for an accommodation will have their request honored. Students experiencing a range of conditions (Physical, Learning, Chronic Health, Mental Health, and Sensory) that may cause diminished academic performance or other barriers to learning may seek services and/or accommodations by contacting:

The Office for Students with Disabilities, (OSD) www.uta.edu/disability or calling 817-272-3364. Information regarding diagnostic criteria and policies for obtaining disability-based academic accommodations can be found at www.uta.edu/disability.

Counseling and Psychological Services, (CAPS) www.uta.edu/caps/ or calling 817-272-3671 is also available to all students to help increase their understanding of personal issues, address mental and behavioral health problems and make positive changes in their lives.

Non-Discrimination Policy:

The University of Texas at Arlington does not discriminate on the basis of race, color, national origin, religion, age, gender, sexual orientation, disabilities, genetic information, and/or veteran status in its educational programs or activities it operates. For more information, visit uta.edu/eos. For information regarding Title IX, visit www.uta.edu/eos.

Title IX Policy:

The University of Texas at Arlington ("University") is committed to maintaining a learning and working environment that is free from discrimination based on sex in accordance with Title IX of the Higher Education Amendments of 1972 (Title IX), which prohibits discrimination on the basis of sex in educational programs or activities; Title VII of the Civil Rights Act of 1964 (Title VII), which prohibits sex discrimination in employment; and the Campus Sexual Violence Elimination Act (SaVE Act). Sexual misconduct is a form of sex discrimination and will not be tolerated. *For information regarding Title IX, visit www.uta.edu/titleIX or contact Ms. Jean Hood, Vice President and Title IX Coordinator at (817) 272-7091 or jmhood@uta.edu.*

Attendance Policy:

At the University of Texas at Arlington, taking attendance is not required but attendance is a critical indicator in student success. Each faculty member is free to develop his or her own methods of evaluating students' academic performance, which includes establishing course-specific policies on attendance. As the instructor of this section, I expect students to attend each class. Any student who must miss a class is responsible for securing any and all assignments for coursework missed. I will take attendance. Though there is no weight assigned to attendance in the grading scheme, only students present in a class will earn points on any extra-credit exercises completed in that class.

Student Support Services:

UT Arlington provides a variety of resources and programs designed to help students develop academic skills, deal with personal situations, and better understand concepts and information related to their courses. Resources include [tutoring](#), [major-based learning centers](#), developmental education, [advising and mentoring](#), personal counseling, and [federally funded programs](#). For individualized referrals, students may visit the reception desk at University College (Ransom Hall), call the Maverick Resource Hotline at 817-272-6107, send a message to resources@uta.edu, or view the information at <http://www.uta.edu/universitycollege/resources/index.php>.

University Tutorial & Supplemental Instruction (Ransom Hall 205): UTSI offers a variety of academic support services for undergraduate students, including: 60 minute one-on-one [tutoring](#) sessions, [Start Strong](#) Freshman tutoring program, and [Supplemental Instruction](#). Office hours are Monday-Friday 8:00 am-5:00 pm. For more information visit www.uta.edu/utsi or call 817-272-2617.

The IDEAS Center (2nd Floor of Central Library) offers **FREE** tutoring to all students with a focus on transfer students, sophomores, veterans and others undergoing a transition to UT Arlington. Students can drop in, or check the schedule of available peer tutors at www.uta.edu/IDEAS, or call (817) 272-6593.

The English Writing Center (411LIBR): [Optional.] The Writing Center offers **FREE** tutoring in 15-, 30-, 45-, and 60-minute face-to-face and online sessions to all UTA students on any phase of their UTA coursework. Register and make appointments online at <https://uta.mywconline.com>. Classroom visits, workshops, and specialized services for graduate students and faculty are also available. Please see www.uta.edu/owl for detailed information on all our programs and services.

The Library's 2nd floor Academic Plaza offers students a central hub of support services, including IDEAS Center, University Advising Services, Transfer UTA and various college/school advising hours. Services are available during the library's hours of operation. <http://library.uta.edu/academic-plaza>

Librarian to Contact:

Ruthie Brock; brock@uta.edu; 817-272-7152.

Drop Policy:

Students may drop or swap (adding and dropping a class concurrently) classes through self-service in MyMav from the beginning of the registration period through the late registration period. After the late registration period, students must see their academic advisor to drop a class or withdraw. Undeclared students must see an advisor in the University Advising Center. Drops can continue through a point two-thirds of the way through the term or session. It is the student's responsibility to officially withdraw if they do not plan to attend after registering. **Students will not be automatically dropped for non-attendance.** Repayment of certain types of financial aid administered through the University may be required as the result of dropping classes or withdrawing. For more information, contact the Office of Financial Aid and Scholarships (<http://www.uta.edu/ses/fao>).

Student Feedback Survey:

At the end of each term, students enrolled in face-to-face and online classes categorized as "lecture," "seminar," or "laboratory" are directed to complete an online Student Feedback Survey (SFS). Instructions on how to access the SFS for this course will be sent directly to each student through MavMail approximately 10 days before the end of the term. Each student's feedback via the SFS database is aggregated with that of other students enrolled in the course. Students' anonymity will be protected to the extent that the law allows. UT Arlington's effort to solicit, gather, tabulate, and publish student feedback is required by state law and aggregate results are posted online. Data from SFS is also used for faculty and program evaluations. For more information, visit <http://www.uta.edu/sfs>.

Electronic Communication:

UT Arlington has adopted MavMail as its official means to communicate with students about important deadlines and events, as well as to transact university-related business regarding financial aid, tuition, grades, graduation, etc. All students are assigned a MavMail account and are responsible for checking the inbox regularly. There is no additional charge to students for using this account, which remains active even after graduation. Information about activating and using MavMail is available at <http://www.uta.edu/oit/cs/email/mavmail.php>.

Final Review Week:

For semester-long courses, a period of five class days prior to the first day of final examinations in the long sessions shall be designated as Final Review Week. The purpose of this week is to allow students sufficient time to prepare for final examinations. During this week, there shall be no scheduled activities such as required field trips or performances; and no instructor shall assign any themes, research problems or exercises of similar scope that have a completion date during or following this week *unless specified in the class syllabus*. During Final Review Week, an instructor shall not give any examinations constituting 10% or more of the final grade, except makeup tests and laboratory examinations. In addition, no instructor shall give any portion of the final examination during Final Review Week. During this week, classes are held as scheduled. In addition, instructors are not required to limit content to topics that have been previously covered; they may introduce new concepts as appropriate.

Campus Carry:

Effective August 1, 2016, the Campus Carry law (Senate Bill 11) allows those licensed individuals to carry a concealed handgun in buildings on public university campuses, except in locations the University establishes as prohibited. Under the new law, openly carrying handguns is not allowed on college campuses. For more information, visit <http://www.uta.edu/news/info/campus-carry/>.

College of Business Bomb Threat Policy:

Effective April 8, 1996, the College of Business adopted a policy to deal with the classroom disruption caused by bomb threats in the building. Section 22.07 of the Texas Criminal law states that a Class A misdemeanor is punishable by (1) a fine not to exceed \$4,000, (2) a jail term of not more than one year, or (3) both such a fine and confinement. If anyone is tempted to call in a bomb threat, be aware that UTA has the technology to trace such phone calls.

Every effort will be made to avoid cancellation of presentations/tests caused by bomb threats to the Business Building. Unannounced alternate sites will be available for these classes. If a student who has a class with a scheduled test or presentation arrives and the building has been closed due to a bomb threat, the student should immediately check for the alternate class site notice which will be posted on/near the main doors on the south side of the Business Building. If the bomb threat is received while class is in session, your instructor will ask you to leave the building and reconvene at another location.

To provide information about anyone making a bomb threat, call UTA's crime prevention program at 817-272-3381.

Emergency Exit Procedures:

Should we experience an emergency event that requires us to vacate the building, students should exit the room and move toward the nearest exit. When exiting the building during an emergency, one should never take an elevator but should use the stairwells. All those in the North tower side of the building should proceed to the fire escape stairs located on the East and West sides of that wing. With the current fire alarm system, the elevators will all go to the first floor and stay there until the system is turned off. Faculty members and instructional staff will assist students in selecting the safest route for evacuation and will make arrangements to assist disabled individuals.

For disabled persons: Please go to the Northeast fire stairs. There is an evacu track chair located on the 6th floor stairwell. There are people trained in the use of this chair and there will be someone who will go to the 6th floor to get the chair and bring it to any lower floor stairwell to assist disabled persons.

Emergency Phone Numbers:

In case of an on-campus emergency, call the UT Arlington Police Department at 817-272-3003 (non-campus phone), 2-3003 (campus phone). You may also dial 911. The non-emergency number is 817-272-3381.