University of Texas at Arlington
College of Business

FINANCE 5351: SEMINAR IN FINANCIAL MODELING
Spring 2020
Section 001: Tuesday & Thursday, 5:30–6:50 p.m., Meeting via Teams

INSTRUCTOR: Dr. Sanjiv Sabherwal
OFFICE: College of Business, Room 434C
TEL: 817 272 3705
E-MAIL: sabherwal@uta.edu
PROFILE: https://mentis.uta.edu/explore/profile/Sanjiv-Sabherwal
OFFICE HOURS: Tuesday and Thursday, 4:15–5:15 p.m., and by appointment – via Teams

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

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 three exams, including two 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 in Canvas. Assignments are due by the time indicated on the assignment. I am not responsible for any submission that is not received in Canvas – 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 27.5%
Interim Exams I and II 35% (17.5% x 2)
Final Exam (Comprehensive) 37.5%

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

CANVAS
Some of the files used in class and some other materials, such as assignments, may be made available via Canvas.
## COURSE SCHEDULE

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<thead>
<tr>
<th>Date</th>
<th>Day</th>
<th>Topic</th>
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<tbody>
<tr>
<td>January 21</td>
<td>Tuesday</td>
<td>Syllabus, Best practices in financial modeling, Chapter 1</td>
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<td>January 23</td>
<td>Thursday</td>
<td>Chapter 1, Chapter 33</td>
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<td>January 28</td>
<td>Tuesday</td>
<td>Chapter 33</td>
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<td>January 30</td>
<td>Thursday</td>
<td>Chapter 31, Chapter 32</td>
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<td>February 4</td>
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<td>February 6</td>
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<td>February 11</td>
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<td>Interim Exam I (On Chapters 1, 31, 32, and 33)</td>
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<td>March 3</td>
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<td>March 5</td>
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<td>May 14</td>
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<td>Comprehensive Final Exam (5:30–8:00 p.m.)</td>
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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

February 5                Wednesday                Census Date
March 9–15                Monday–Sunday            Spring Break
April 3*                  Friday                    Last Day to Drop Classes
May 8                     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 11, Tuesday
Interim Exam II  March 5, Thursday
Interim Exam III  Canceled
Final Exam     May 14, Thursday, 5:30–8:00 p.m.

Interim Exam dates are subject to change.

INSTITUTION INFORMATION

UTA students are encouraged to review the below institutional policies and informational sections and reach out to the specific office with any questions. To view this institutional information, please visit the Institutional Information page: (https://resources.uta.edu/provost/course-related-info/institutional-policies.php). It includes the following policies among others:

• Drop Policy
• Disability Accommodations
• Title IX Policy
• Academic Integrity
• Student Feedback Survey
• Final Exam Schedule

NOTES

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.
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 misses 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. While UT Arlington does not require instructors to take attendance in their courses, the U.S. Department of Education requires that the University have a mechanism in place to mark when Federal Student Aid recipients “begin attendance in a course.” UT Arlington instructors will report when students begin attendance in a course as part of the final grading process. Specifically, when assigning a student a grade of F, faculty report must the last date a student attended their class based on evidence such as a test, participation in a class project or presentation, or an engagement online via Canvas. This date is reported to the Department of Education for federal financial aid recipients.

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): 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.

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, do not take an elevator but use the stairwells instead. 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.