



## **BUSA 542 – Applied Decision Modeling**

Spring 2025

### **INSTRUCTOR INFORMATION**

|   |   |
|---|---|
| <b>Instructor:</b>                      | Son Bui   |
| <b>Office Location:</b>                 | Zoom ID:2395126950 Pass: busa or DAL 2060                               |
| <b>Office Hours:</b>                    | 12:00 pm – 3:00 pm Online Monday, 2:00 pm –<br>4:00 pm Office Wednesday |
| <b>Office Phone:</b>                    | 903-886-5692  |
| <b>Office Fax:</b>                      | 903-886-5693  |
| <b>University Email Address:</b>        | <a href="mailto:son.bui@tamuc.edu">son.bui@tamuc.edu</a>                |
| <b>Preferred Form of Communication:</b> | email   |
| <b>Communication Response Time:</b>     | within 24 hours   |

### **COURSE INFORMATION**

**ISBN:** 978-1- 285-418681 – Spreadsheet Modeling and Decision Analysis: A Practical Introduction to Business Analytics (7th Edition).

**Access to Microsoft Excel 2010 or higher version.** For Mac users, please make sure to access Excel from Windows since some advanced data analytics functions are not available in Mac.

**Access to Analytic Solver.** The software has 15-day trial window with full features, and students are required to purchase the software after trial license is expired. Codes to purchase software with discounted price are provided in D2L.

## Course Description

This course covers the development, implementation, and utilization of business models for managerial decision making. Discovered patterns, relationships and statistical findings from data mining efforts are often used as input in these mathematical models which are implemented in decision support systems.

Students will learn techniques for analytical modeling including decision analysis, optimization and simulation. Examples are introduced that cover applications in strategic planning, financial management, operations, project management, and marketing research.

## Learning Outcomes

1. Gain an understanding of how business problems are frequently solved using decision models.
2. Develop an ability to identify situations where decision modeling can be useful.
3. Understand the assumptions and limitations of decision modeling.
4. Understand and critically review reports by technical specialists.

## Student Learning Outcomes

Upon successful completion of the course, the student should be able to:

1. Demonstrate an ability to solve problems by creating and running linear programming models.
2. Demonstrate an understanding of linear & non-linear programming, transportation & transshipment modeling, simulation, decision analysis, and goal programming for making multi-criteria decisions.
3. Demonstrate skill in reading, interpreting and evaluating technical reports.

## COURSE REQUIREMENTS

### Minimal Technical Skills Needed

High school algebra, experience in using Excel spreadsheet, Excel functions and Excel graphics. If you are first time Excel learner, it is recommended to self-learn Excel from Udemy: <https://www.udemy.com/microsoft-excel-2013-from-beginner-to-advanced-and-beyond/>

Please note that completion the Excel training is optional, and there is no credit assigned for completion the training.

*The syllabus/schedule are subject to change.*

## Instructional Methods

Each week learning materials are opened on Monday at 12:00 am in D2L. Online discussion will be conducted based on class schedule. Recorded video will be provided for students who can't attend the online discussion. Questions can be asked via email or during online discussion.

## Student Responsibilities/Tips for Success in the Course

1. Students are expected to:
  - a. Read text assignments as scheduled
  - b. Watch tutorial videos as scheduled
  - c. Attend online discussions or watch recorded videos as scheduled
  - d. Work the homework assignments independently. Submit the homework assignments in the appropriate D2L assignment submission folder.
2. This syllabus is tentative for the semester. Certain topics maybe stressed more or less than indicated in schedule. Depend on class progress, certain topics may be omitted or added.
3. Homework assignments are graded bi-weekly. **Assignment solutions are not posted in D2L. Instead, detail assignment walkthroughs are provided during online discussion.** It is highly recommended for students to attend the meeting to ask questions.
4. Feel free to ask questions through email or during online discussion. I am accessible 24/7 through these channels even during weekends or holidays. You can ask any questions related to course topics, assignments, and exams and I try to answer them within few hours (maximum 24 hours). In online discussion, you can also try to answer others' questions. But you are expected to maintain etiquette and decency in your responses.
5. Behavior: "All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment." (See Student's Guide Book). During your collaboration with me and your fellow students online or in class, professionalism and respect will be expected. I encourage you to assist one another, but always respect one another's opinion and communicate professionally with each other and with me.
6. **Any form of cheating – copying, sharing files, submitting the work of another as your own – is not permitted.** Students who participate (as givers/receivers) in any form of cheating will fail the course.
7. Attendance Policy: regular attendance will be taken. There is no penalty for absence but opportunity for any grace points based on class participation will lost if there is too much absence. You are yourself responsible for getting class notes from friends

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for missed classes due to unavoidable circumstances. However, assignments and tests have corresponding due dates which will not be extended for your personal excuses.

## GRADING

Final grades in this course will be based on the following scale:

A = 90%-100%

B = 80%-89%

C = 70%-79%

D = 60%-69%

F = 59% or Below

| Assignments/Projects   | Percentage |
|------------------------|------------|
| Application Assignment | 60%        |
| Midterm Exam           | 20%        |
| Final Exam             | 20%        |

## Assessments

**Exams:** There will be 2 exams during the semester. The exams will be counted as 40% of your final grade. **These exams will be open-book, open-note, and open-internet. However, they are not open-neighbor, and you can't discuss with your friends including people who are and aren't taking the class. No late exams will be accepted.**

**Application Assignments:** You will have 9 assignments that help you to master materials in class. Each assignment will be graded separately, but only the best 8 assignment scores will be used to calculate for your final grade. These application assignments will be counted as 60% of your final grade. **Late assignments are highly discouraged. For each day an assignment is late it will be deducted 10%. Under NO circumstances will I accept an assignment more than a week late.**

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## TECHNOLOGY REQUIREMENTS

### LMS

All course sections offered by Texas A&M University-Commerce have a corresponding course shell in the myLeo Online Learning Management System (LMS). Below are technical requirements

LMS Requirements:

<https://community.brightspace.com/s/article/Brightspace-Platform-Requirements>

LMS Browser Support:

[https://documentation.brightspace.com/EN/brightspace/requirements/all/browser\\_support.htm](https://documentation.brightspace.com/EN/brightspace/requirements/all/browser_support.htm)

YouSeeU Virtual Classroom Requirements:

<https://support.youseeu.com/hc/en-us/articles/115007031107-Basic-System-Requirements>

## ACCESS AND NAVIGATION

You will need your campus-wide ID (CWID) and password to log into the course. If you do not know your CWID or have forgotten your password, contact the Center for IT Excellence (CITE) at 903.468.6000 or [helpdesk@tamuc.edu](mailto:helpdesk@tamuc.edu).

**Note:** Personal computer and internet connection problems do not excuse the requirement to complete all course work in a timely and satisfactory manner. Each student needs to have a backup method to deal with these inevitable problems. These methods might include the availability of a backup PC at home or work, the temporary use of a computer at a friend's home, the local library, office service companies, Starbucks, a TAMUC campus open computer lab, etc.

## COMMUNICATION AND SUPPORT

If you have any questions or are having difficulties with the course material, please contact your Instructor.

### Technical Support

If you are having technical difficulty with any part of Brightspace, please contact Brightspace Technical Support at 1-877-325-7778. Other support options can be found here:

<https://community.brightspace.com/support/s/contactsupport>

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## Interaction with Instructor Statement

I generally response to students' questions in a few hours (maximum 24 hours), and feedback on assignments is provided bi-weekly.

## COURSE AND UNIVERSITY PROCEDURES/POLICIES

### Course Specific Procedures/Policies

**Missed homework assignment will result in 0 points while missing the exams will results in grade 'F'. There will be no make-up exam, or make-up assignment.** No late exam will be accepted. Late assignments are highly discouraged. For each day an assignment is late it will be deducted 10%. Under NO circumstances will I accept an assignment more than a week late.

Regular attendance will be taken. There is no penalty for absence but opportunity for any grace points based on class participation will lost if there is too much absence. You are yourself responsible for getting class notes from friends for missed classes due to unavoidable circumstances. However, exams have corresponding due dates which will not be extended for your personal excuses.

### Syllabus Change Policy

The syllabus is a guide. Circumstances and events, such as student progress, may make it necessary for the instructor to modify the syllabus during the semester. Any changes made to the syllabus will be announced in advance.

### University Specific Procedures

#### Student Conduct

All students enrolled at the University shall follow the tenets of common decency and acceptable behavior conducive to a positive learning environment. The Code of Student Conduct is described in detail in the [Student Guidebook](http://www.tamuc.edu/Admissions/oneStopShop/undergraduateAdmissions/studentGuidebook.aspx).  
<http://www.tamuc.edu/Admissions/oneStopShop/undergraduateAdmissions/studentGuidebook.aspx>

Students should also consult the Rules of Netiquette for more information regarding how to interact with students in an online forum:  
<https://www.britannica.com/topic/netiquette>

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### **TAMUC Attendance**

For more information about the attendance policy please visit the [Attendance](#) webpage and [Procedure 13.99.99.R0.01](#).

<http://www.tamuc.edu/admissions/registrar/generalInformation/attendance.aspx>

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/academic/13.99.99.R0.01.pdf>

### **Academic Integrity**

Students at Texas A&M University-Commerce are expected to maintain high standards of integrity and honesty in all of their scholastic work. For more details and the definition of academic dishonesty see the following procedures:

[Undergraduate Academic Dishonesty 13.99.99.R0.03](#)

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/undergraduates/13.99.99.R0.03UndergraduateAcademicDishonesty.pdf>

[Graduate Student Academic Dishonesty 13.99.99.R0.10](#)

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/13students/graduate/13.99.99.R0.10GraduateStudentAcademicDishonesty.pdf>

### **Students with Disabilities-- ADA Statement**

The Americans with Disabilities Act (ADA) is a federal anti-discrimination statute that provides comprehensive civil rights protection for persons with disabilities. Among other things, this legislation requires that all students with disabilities be guaranteed a learning environment that provides for reasonable accommodation of their disabilities. If you have a disability requiring an accommodation, please contact:

#### **Office of Student Disability Resources and Services**

Texas A&M University-Commerce

Gee Library- Room 162

Phone (903) 886-5150 or (903) 886-5835

Fax (903) 468-8148

Email: [studentdisabilityservices@tamuc.edu](mailto:studentdisabilityservices@tamuc.edu)

Website: [Office of Student Disability Resources and Services](#)

<http://www.tamuc.edu/campusLife/campusServices/studentDisabilityResourcesAndServices/>

### **Nondiscrimination Notice**

Texas A&M University-Commerce will comply in the classroom, and in online courses, with all federal and state laws prohibiting discrimination and related retaliation on the

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basis of race, color, religion, sex, national origin, disability, age, genetic information or veteran status. Further, an environment free from discrimination on the basis of sexual orientation, gender identity, or gender expression will be maintained.

### **Campus Concealed Carry Statement**

Texas Senate Bill - 11 (Government Code 411.2031, et al.) authorizes the carrying of a concealed handgun in Texas A&M University-Commerce buildings only by persons who have been issued and are in possession of a Texas License to Carry a Handgun. Qualified law enforcement officers or those who are otherwise authorized to carry a concealed handgun in the State of Texas are also permitted to do so. Pursuant to Penal Code (PC) 46.035 and A&M-Commerce Rule 34.06.02.R1, license holders may not carry a concealed handgun in restricted locations.

For a list of locations, please refer to the [Carrying Concealed Handguns On Campus](#) document and/or consult your event organizer.

Web url:

<http://www.tamuc.edu/aboutUs/policiesProceduresStandardsStatements/rulesProcedures/34SafetyOfEmployeesAndStudents/34.06.02.R1.pdf>

Pursuant to PC 46.035, the open carrying of handguns is prohibited on all A&M-Commerce campuses. Report violations to the University Police Department at 903-886-5868 or 9-1-1.

### **A&M-Commerce Supports Students' Mental Health**

The Counseling Center at A&M-Commerce, located in the Halladay Building, Room 203, offers counseling services, educational programming, and connection to community resources for students. Students have 24/7 access to the Counseling Center's crisis assessment services by calling 903-886-5145. For more information regarding Counseling Center events and confidential services, please visit [www.tamuc.edu/counsel](http://www.tamuc.edu/counsel)

### **AI Use Policy**

Texas A&M University-Commerce acknowledges that there are legitimate uses of Artificial Intelligence, ChatBots, or other software that has the capacity to generate text, or suggest replacements for text beyond individual words, as determined by the instructor of the course.

Any use of such software must be documented. Any undocumented use of such software constitutes an instance of academic dishonesty (plagiarism).

Individual instructors may disallow entirely the use of such software for individual assignments or for the entire course. Students should be aware of such requirements

*The syllabus/schedule are subject to change.*



BUSA 542 Spring 2025

and follow their instructors' guidelines. If no instructions are provided the student should assume that the use of such software is disallowed.

In any case, students are fully responsible for the content of any assignment they submit, regardless of whether they used an AI, in anyway. This specifically includes cases in which the AI plagiarized another text or misrepresented sources.

13.99.99.R0.03 Undergraduate Academic Dishonesty

13.99.99.R0.10 Graduate Student Academic Dishonesty

## **COURSE OUTLINE**

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| Week            | Topic   | Reading Assignment   | Homework Assignment   |
|-----------------|---|--|---|
| <b>WEEK 1:</b>  | <ul style="list-style-type: none"> <li>Review Syllabus</li> <li><b>Mandatory to attend online discussion</b></li> </ul>   |  | <ul style="list-style-type: none"> <li>Submit Academic Dishonesty Policy</li> </ul>   |
| <b>WEEK 2:</b>  | <ul style="list-style-type: none"> <li>PP #1: Introduction to Modeling &amp; Decision Analysis</li> <li>PP #2: Introduction to Optimization and Linear Programming</li> <li><b>Mandatory to attend online discussion</b></li> </ul>         | <ul style="list-style-type: none"> <li>Ch. 1</li> <li>Ch. 2</li> </ul> |   |
| <b>WEEK 3:</b>  | <ul style="list-style-type: none"> <li>PP #3: Modeling &amp; Solving LP Programs in a Spreadsheet</li> <li><b>Mandatory to attend online discussion</b></li> </ul>  | <ul style="list-style-type: none"> <li>Ch. 3</li> </ul>                | HW #1 – Linear Programming  |
| <b>WEEK 4:</b>  | <ul style="list-style-type: none"> <li>PP #4: Sensitivity Analysis &amp; the Simplex Method</li> <li><b>Mandatory to attend online discussion</b></li> </ul>  | <ul style="list-style-type: none"> <li>Ch. 4</li> </ul>                | <ul style="list-style-type: none"> <li>HW #2 – Sensitivity Analysis</li> </ul>  |
| <b>WEEK 5:</b>  | <ul style="list-style-type: none"> <li>PP #5: Network Modeling</li> <li><b>Mandatory to attend online discussion</b></li> </ul>   | <ul style="list-style-type: none"> <li>Ch. 5</li> </ul>                | HW #3 – Network Modeling  |
| <b>WEEK 6:</b>  | <ul style="list-style-type: none"> <li>PP #6: Integer Linear Programming</li> <li><b>Review Midterm Exam - Mandatory to attend online discussion</b></li> </ul>   | <ul style="list-style-type: none"> <li>Ch. 6</li> </ul>                | <ul style="list-style-type: none"> <li>HW #4 – Integer Linear Programming</li> </ul>  |
| <b>WEEK 7:</b>  | <ul style="list-style-type: none"> <li>Midterm Exam</li> </ul>  |  |   |
| <b>WEEK 8:</b>  | <ul style="list-style-type: none"> <li>PP #7: Goal Programming &amp; Multiple Objective Optimization</li> <li>PP #8: Nonlinear Programming &amp; Evolutionary Optimization</li> <li><b>Mandatory to attend online discussion</b></li> </ul> | <ul style="list-style-type: none"> <li>Ch. 7 &amp; 8</li> </ul>        | <ul style="list-style-type: none"> <li>HW #5 – Goal Programming, Multiple Objective Optimization and Nonlinear Programming</li> </ul> |
| <b>WEEK 9:</b>  | <ul style="list-style-type: none"> <li>Spring Break – No Class</li> </ul>   |  |   |
| <b>WEEK 10:</b> | <ul style="list-style-type: none"> <li>PP #9: Regression Analysis</li> <li><b>Mandatory to attend online discussion</b></li> </ul>  | <ul style="list-style-type: none"> <li>Ch. 9</li> </ul>                | <ul style="list-style-type: none"> <li>HW #6 – Regression Analysis</li> </ul>   |
| <b>WEEK 11:</b> | <ul style="list-style-type: none"> <li>PP #10: Data Mining</li> <li><b>Mandatory to attend online discussion</b></li> </ul>   | <ul style="list-style-type: none"> <li>Ch. 10</li> </ul>               | <ul style="list-style-type: none"> <li>HW #7 – Data Mining</li> </ul>   |

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BUSA 542 Spring 2025

|                 |  |  |   |
|-----------------|--|--|---|
| <b>WEEK 12:</b> | <ul style="list-style-type: none"><li>• PP #11: Time Series Forecasting</li><li>• <b>Mandatory to attend online discussion</b></li></ul> | <ul style="list-style-type: none"><li>• Ch. 11</li></ul> | <ul style="list-style-type: none"><li>• HW #8 – Time Series Forecasting</li></ul> |
| <b>WEEK 13:</b> | <ul style="list-style-type: none"><li>• PP #12: Monte Carlo Simulation</li><li>• <b>Mandatory to attend online discussion</b></li></ul>  | <ul style="list-style-type: none"><li>• Ch. 12</li></ul> | <ul style="list-style-type: none"><li>• HW #9 – Monte Carlo Simulation</li></ul>  |
| <b>WEEK 14:</b> | <ul style="list-style-type: none"><li>• Final Exam</li></ul>   |  |   |

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