



## **TMGT 489-01W DECISION THEORY**

### **COURSE SYLLABUS: SPRING 2022**

#### **INSTRUCTOR INFORMATION**

**Instructor:** Dr. Andrea M. Graham, Assoc. Dean, College of Science and Engineering

**Office Location:** Charles J. Austin Engineering & Technology Building, 213D

**Office Hours:** Monday & Wednesday 10:00-11:30am

Tuesday & Thursday 1:00-2:30pm

Call E&T Department Admin at 903-886-5474 to schedule an on-campus appointment.

You will be required to present a valid and current TAMUC student ID at the time of your scheduled on-campus appointment.

**Office Phone:** 903-886-5442

**Office Fax:** 903-886-5960

**University E-mail Address:** [Andrea.Graham@tamuc.edu](mailto:Andrea.Graham@tamuc.edu)

**Preferred Form of Communication:** E-mail

**Communication Response Time:** 24 hours

#### **COURSE INFORMATION**

**Materials – Textbooks, Readings, Supplementary Readings**

**Textbook(s) Required**

**An Introduction to Decision Theory**

Author: Martin Peterson

2<sup>nd</sup> Edition

Publisher: Cambridge University Press

ISBN:978-1-316-60620-9

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## Course Description

Decision theory deals with methods for determining the optimal course of action when a number of alternatives are available and their consequences cannot be forecast with certainty. This course will use quantitative methods (models) for problem solving and decision making. Theories and models to be covered include probability theory, utility theory and game theory, linear programming models, nonlinear programming models, and integer programming models. Prerequisites: [TMGT 340](#) and [TMGT 411](#).

## Student Learning Outcomes

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

1. Explain the major theoretical frameworks of decision theory (which include but are not limited to: normative and descriptive) and be able to identify the characteristics of each type in an applied setting. .
2. Be able to systematically formulate, structure and/or frame a decision problem by employing the various decision support tools introduced during the course (e.g., decision tables, matrices, utility tables, weighted decision tables, and others).
3. Be able to apply utility functions to solve expected utility & expected value problems (e.g., probability calculations, probability reward, expected value calculations, etc.).
4. Describe and be able to apply the standard representation relating to individual decisions (e.g., alternatives (options), states of nature, outcomes, etc.).
5. Describe and be able to apply the fundamentals of decision-making under uncertainty and risk
6. (e.g., paradoxes of uncertainty, measures of probability, uncertainty criteria, etc.).
7. Explain the use and apply examples of Game Theory that demonstrate interaction strategies used by decision makers.
8. Be able to explain the human decision-making process (or behaviors) in light of psychological decision theory (e.g., prospect theory, attribution theory, regret theory, etc.) and be able to describe the practical implications of their use.

## COURSE REQUIREMENTS

### General Overview of this Course of Study

***This class will be conducted in an environment similar to what one would expect to find in a well-operated business.*** It should be the objective of each of us to carry ourselves in a professional, business-like manner. In the context of this class, that

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means taking responsibility for one's assignments, producing **quality** work, submitting it **on time**, communicating clearly, and acting in a civil manner.

***As you are aware, this is a senior-level course.*** This fact alone dictates a different learning environment than what you may have experienced in other classes and will require, in some cases, a new approach to the learning process on your part. You will be expected to develop your reading, research, and writing skills to a level that you may never have experienced previously. This will require personal dedication and a desire to advance your education. Additionally, as an online class, your time management skills will be put to the test as you try to balance other courses, career, family, leisure time, and other obligations along with your responsibilities to this course. Do not fall behind in this class. **Being busy is not an excuse for turning in assignments late!**

***The educational philosophy of this course.*** The student is the center of the learning process; therefore, you are expected to assume the responsibility for your learning—to the degree that learning is achieved. Much of the learning achieved in this class will come as a result of student discussions. In this environment, the instructor will serve largely as a guide and facilitator for the student learning experience. You are expected to approach learning with purpose, commitment, dedication, seriousness, and an attitude of discovery. Accordingly, you must be self-driven by reading carefully all materials provided by the instructor, completing all course assignments in accordance with the instructions and specifications provided by the instructor, complying with assignment deadlines, and working within the assignment/course evaluation criteria.

As the student you are to be an active learner, fully engaged in all facets of the course and its content. You will be expected to proof and assess the quality of your work **before** it has been presented to your instructor. It is critical to your success for you to comply with the writing and formatting guides associated with this course of study and for you to have a high level of understanding of these documents. Before you turn any work into the instructor, it is your responsibility to compare your written material with the requirements/specifications of the writing and formatting guides provided for this course of study and to ensure to the instructor that you have fully complied with all requirements of the assignments.

### ***Student Responsibilities***

This course will require you to read, conduct extensive research, and write at a level appropriate for a senior-level student. It is assumed that you can read and write at this level coming into the course.

- You will be expected to read and comprehend the course syllabus, e-mails, and announcements.
- You will be expected to manage your time effectively and efficiently throughout the semester.
- **You will be expected to meet all deadlines and due dates. Assignments turned in late will be subject to a ten percent (10%) score reduction for**

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**each day they are late. After five (5) days, assignments will receive a grade of zero (0). This policy will be enforced strictly!**

- You will be expected to participate fully in the course by checking announcements and e-mails and responding to e-mails when requested. This should be a daily habit!
- You will be expected to employ a formal business writing style and format in all of your written correspondence (including e-mails).
- You will be expected to practice civility in your verbal interactions with the instructor, staff, and other students.
- You will be expected to devote at least twelve (12) clock hours to this course each week of the semester.
- E-mail will be our primary means of communication. Consequently, you will be expected to log into D2L Brightspace often to check for correspondence from your instructor.

## **GRADING**

### **Point Distribution**

<b>Assessment Type</b>	<b>%</b>
Weekly Quizzes	30
Written Assignments	30
Midterm Exam	20
Final Exam	20
<b>Total</b>	<b>100</b>

Based on the points received, the grades will be determined according to the criteria below.

### **Grade Criteria**

<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>F</b>
100 - 90	89 - 80	79 - 70	69 - 60	59 - 0

## **Brief Explanation of Course Assessments**

### **Quizzes:**

Weekly topical quizzes covering the various topics within the course will be administered worth 10 points each. Sample exercises are available at the end of each of the chapter accompanied by solutions. These exercises will serve as a summary guide for studying. Quizzes are timed and can only be accessed once each; so, be ready to complete the entire quiz once it is entered. Quizzes automatically close at the

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posted deadline and will not be reopened for late submission. Each quiz MUST be completed by the posted deadline or a zero will be earned.

### **Written Assignments:**

Written assignments given will be in the format of a case study analysis. The student will be presented with a published case study and will use concepts and tools presented in the course to provide a thorough assessment. Delivery will be in essay format utilizing APA formatting guidelines.

### **Midterm and Final Exam:**

The mid-term and final exams are evaluations of the learners' overall understanding of the principles that support the knowledge areas presented in the textbook and lecture presentations. The mid-term and final exams will cover material from approximately the first and second halves of the term, respectively. The final will cover content addressed after that which is covered on the mid-term exam. The exams are timed and can only be accessed once; so, be ready to complete the exam in its entirety once it is entered. Exams automatically close at the posted deadline and will not be reopened for late submission. Each exam MUST be completed by the posted deadline or a zero will be earned.

## **TECHNOLOGY REQUIREMENTS**

### **Browser support**

D2L is committed to performing key application testing when new browser versions are released. New and updated functionality is also tested against the latest version of supported browsers. However, due to the frequency of some browser releases, D2L cannot guarantee that each browser version will perform as expected. If you encounter any issues with any of the browser versions listed in the tables below, contact D2L Support, who will determine the best course of action for resolution. Reported issues are prioritized by supported browsers and then maintenance browsers.

Supported browsers are the latest or most recent browser versions that are tested against new versions of D2L products. Customers can report problems and receive support for issues. For an optimal experience, D2L recommends using supported browsers with D2L products.

Maintenance browsers are older browser versions that are not tested extensively against new versions of D2L products. Customers can still report problems and receive support for critical issues; however, D2L does not guarantee all issues will be addressed. A maintenance browser becomes officially unsupported after one year.

Note the following:

- Ensure that your browser has JavaScript and Cookies enabled.

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- For desktop systems, you must have Adobe Flash Player 10.1 or greater.
- The Brightspace Support features are now optimized for production environments when using the Google Chrome browser, Apple Safari browser, Microsoft Edge browser, Microsoft Internet Explorer browser, and Mozilla Firefox browsers.

### Desktop Support

Browser	Supported Browser Version(s)	Maintenance Browser Version(s)
Microsoft® Edge	Latest	N/A
Microsoft® Internet Explorer®	N/A	11
Mozilla® Firefox®	Latest, ESR	N/A
Google® Chrome™	Latest	N/A
Apple® Safari®	Latest	N/A

### Tablet and Mobile Support

Device	Operating System	Browser	Supported Browser Version(s)
Android™	Android 4.4+	Chrome	Latest
Apple	iOS®	Safari, Chrome	The current major version of iOS (the latest minor or <b>point</b> release of that major version) and the previous major version of iOS (the latest minor or <b>point</b> release of that major version). For example, as of June 7, 2017, D2L supports iOS 10.3.2 and iOS 9.3.5, but not

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Device	Operating System	Browser	Supported Browser Version(s)
			iOS 10.2.1, 9.0.2, or any other version. Chrome: Latest version for the iOS browser.
Windows	Windows 10	Edge, Chrome, Firefox	Latest of all browsers, and Firefox ESR.

- You will need regular access to a computer with a broadband Internet connection. The minimum computer requirements are:
  - 512 MB of RAM, 1 GB or more preferred
  - Broadband connection required courses are heavily video intensive
  - Video display capable of high-color 16-bit display 1024 x 768 or higher resolution
- For YouSeeU Sync Meeting sessions *8 Mbps* is required.** Additional system requirements found here: <https://support.youseeu.com/hc/en-us/articles/115007031107-Basic-System-Requirements>
- You must have a:
  - Sound card, which is usually integrated into your desktop or laptop computer
  - Speakers or headphones.
  - \*For courses utilizing video-conferencing tools and/or an online proctoring solution, a webcam and microphone are required.
- Both versions of Java (32 bit and 64 bit) must be installed and up to date on your machine. At a minimum Java 7, update 51, is required to support the learning management system. The most current version of Java can be downloaded at: [JAVA web site http://www.java.com/en/download/manual.jsp](http://www.java.com/en/download/manual.jsp)
- Current anti-virus software must be installed and kept up to date.

Running the browser check will ensure your internet browser is supported.

Pop-ups are allowed.

JavaScript is enabled.

Cookies are enabled.

- You will need some additional free software (plug-ins) for enhanced web browsing. Ensure that you download the free versions of the following software:

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- [Adobe Reader](https://get.adobe.com/reader/) <https://get.adobe.com/reader/>
  - [Adobe Flash Player](https://get.adobe.com/flashplayer/) (version 17 or later) <https://get.adobe.com/flashplayer/>
  - [Adobe Shockwave Player](https://get.adobe.com/shockwave/) <https://get.adobe.com/shockwave/>
  - [Apple Quick Time](http://www.apple.com/quicktime/download/) <http://www.apple.com/quicktime/download/>
- At a minimum, you must have Microsoft Office 2013, 2010, 2007 or Open Office. Microsoft Office is the standard office productivity software utilized by faculty, students, and staff. Microsoft Word is the standard word processing software, Microsoft Excel is the standard spreadsheet software, and Microsoft PowerPoint is the standard presentation software. Copying and pasting, along with attaching/uploading documents for assignment submission, will also be required. If you do not have Microsoft Office, you can check with the bookstore to see if they have any student copies.

## 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

### Brightspace Support

#### *Need Help?*

#### **Student 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 or click on the **Live Chat** or click on the words “[click here](#)” to submit an issue via email.



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## **System Maintenance**

D2L runs monthly updates during the last week of the month, usually on Wednesday. The system should remain up during this time unless otherwise specified in an announcement. You may experience minimal impacts to performance and/or look and feel of the environment.

## **Interaction with Instructor Statement**

The instructor will respond to your questions on D2L tools within 24 hours. For urgent questions, and for questions that are not answered within 24 hours, please prefer e-mail correspondence.

# **COURSE AND UNIVERSITY PROCEDURES/POLICIES**

## **Course Specific Procedures/Policies**

- All assignments have to be submitted under the designated dropbox at the D2L website. No e-mail submissions for assignments will be accepted.
- Do not forget to title the documents as: yourfirstname\_your lastname\_assignment number
- Late work is not accepted, unless student has an acceptable excuse proven by a doctor's note.

## **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>

Students should also consult the Rules of Netiquette for more information regarding how to interact with students in an online forum: [Netiquette](#)

<http://www.albion.com/netiquette/corerules.html>

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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>

## **ADA Statement**

### **Students with Disabilities**

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/>

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## **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 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.

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## COURSE OUTLINE / CALENDAR

Week #	Week of	Topic	Assessment
Weekly "Check-ins" required (refer to Syllabus for details)	Beginning Monday	Quizzes are due by midnight (CT), on Sunday of the week assigned and the primary response of discussion board activities are due by midnight (CT), on Wednesday of the week indicated, unless otherwise indicated.	
0	Jan 12	Familiarize yourself with the courseware and follow the initial instructions provided in the online course. Post on-line introductions with photo for class roster. Acquire copy of text.	Introduce yourself
1	Jan 17	Chapter 1 – Introduction of decision theory to include a brief history of the concept.	Quiz 1
2	Jan 24	Chapter 2- Understanding the elements of the Decision Matrix	Quiz 2
3	Jan 31	Chapter 3- Decisions under ignorance or uncertainty	Quiz 3
4	Feb 7	Chapter 4- Decision under risk	Quiz 4 Written Assignment #1
5	Feb 14	Chapter 5- Utility	Quiz 5
6	Feb 21	Chapter 6- The Mathematics of Probability Chapter 7- The Philosophy of Probability	Quiz 6
7	Feb 28	MIDTERM	Mid-term Examination due Thursday
8	Mar 7	Chapter 8 – Bayes Theorem	Quiz 7
9	Mar 14	Spring Break	
10	Mar 21	Chapter 9 – Casual vs Evidential Decision Theory	Quiz 8 Written Assignment #2
11	Mar 28	Chapter 9 – Casual vs Evidential Decision Theory	Quiz 9
12	Apr 4	Chapter 10- Risk Aversion	Quiz 10
13	Apr 11	Chapter 11- Game Theory	Quiz 11
14	Apr 18	Chapter 12- Game Theory	Quiz 12
15	April 25	Chapter 13- Social Choice Theory	Written Assignment #3
16	May 4	<b>Last week of Class/Study Period</b>	
		<b>Finals</b>	

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