TEXAS A&M UNIVERSITY

Math 141 Syllabus

Course Title: Finite Mathematics
Term: Fall 2018
Class days & times: MW 4:10 – 5:25 pm.
Location: HELD 111

Instructor Information

Name	Tolulope Oke
Office	BLOC 630D
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E-mail	toluoke@math.tamu.edu
Office hours	MR (11:00-12:00), T(12:00-1:30pm) and by appointment
Course webpage	http://www.math.tamu.edu/~toluoke/Fall_2018.html
Help Sessions	http://www.math.tamu.edu/courses/helpsessions.html
Week in Reviews	http://www.math.tamu.edu/courses/weekinreview.html

Course Description and Prerequisites

Description: Finite Mathematics (Credit 3) Linear equations and applications; systems of linear equations, matrix algebra and applications, linear programming, probability and applications, statistics.

Prerequisites: High school algebra I and II and geometry.

Course Learning Outcomes:

This course is focused on quantitative literacy in mathematics found in both business and everyday life. Upon successful completion of this course, students will be able to:

- Logically find relationships among variables to formulate mathematical models for everyday applications, including business applications, such as cost, revenue, profit, supply and demand.
- Understand matrices and their applications, including solving systems of linear equations.
- Construct linear programming problems for various applications and solve using graphical techniques, including finding the optimal point(s) where a company minimizes its cost or maximizes its profit.
- Understand set terminology and its relationship to symbolic notation.
- Use Venn diagrams to model the relationship between sets and set operations, with applications to real-world problems.
- Understand the principles of probability and counting and apply these concepts to a variety of problems, such as finding the number of ways or probability of obtaining particular card hands.
- Identify types of random variables and calculate probabilities and statistics for random variables.
- Apply the concepts of finance to real-world situations, such as financing a car or house.

Core Objectives

Critical Thinking

• Students will carefully examine and interpret statements to determine equivalent mathematical notation and/or equations.
• Students will think creatively in order to set up a system of equations and solve a word problem.
• Students will analyze given information to set up a linear programming problem, including a system of linear inequalities.
• Students will use inquiry to determine if a solution exists to a linear programming problem.
• Students will examine given information about sets to find the number of elements in particular subsets.
• Students will innovatively use counting techniques (multiplication principle, combinations, permutations) to determine the number of ways a task can be completed and to find the probability the task occurs.
• Students will synthesize information to determine whether or not events are independent.
• Students will differentiate between basic and conditional probability, including knowing when Bayes' Theorem is appropriate.
• Students will evaluate probabilities involving Venn diagrams, tree diagrams, and independent events.
• Students will classify random variables as finite discrete, infinite discrete, or continuous and find all possible values they may assume.
• Students will understand the difference between odds and the probability of an event, and be able to determine one given the other.
• Students will use inquiry to resolve whether or not an experiment is binomial.
• Students will calculate probabilities of binomial and normal random variables.
• Students will understand the difference between simple and compound interest and when to use each.

Communication Skills

• Students will express mathematical concepts both abstractly with equations and in writing.
• Students will exhibit functions, as well as solutions to linear inequalities, graphically.
• Students will explain why a matrix operation is possible or not, and interpret the meaning of the entries of the resulting matrix when the operation makes sense.
• Students will solve linear programming problems graphically.
• Students will effectively communicate information about sets and experiments using written symbolic notation.
• Students will visually represent sets with Venn diagrams.
• Students will visually display experiments and associated probabilities using tree diagrams.
• Students will communicate statistics through probability distributions and graphically through histograms.
• Students will answer questions during lecture concerning topics discussed in class.

Empirical and Quantitative Skills

• Students will develop business-related mathematical models from given data, such as cost, revenue, profit, supply, demand, or depreciation.
• Students will create empirical probability distributions based on a given set of data.
• Students will describe numerical data by finding relevant statistics, including expected value, median, mode, standard deviation, and variance.
• Students will use statistics to make informed conclusions about real-world problems, such as determining the premium for an insurance policy.
• Students will use effective interest rates to select the best loan or savings option.
• Students will analyze financial information to make decisions regarding everyday applications, such as loan payments, annuities, amortizations, or sinking funds.

Textbook and Resources:
Textbook: *Finite Mathematics for the Managerial, Life and Social Sciences, 11th Edition, by Tan*

Access Code to Webassign: You will be required to purchase access to the online homework system, WebAssign. There are multiple ways to do this (including Cengage Unlimited). But most of these options will grant you access to both the online homework and an electronic copy of the textbook. You will be granted a 14 day grace starting from the first day of class to determine which option of purchase you want. Thus, you are not required to purchase a hard copy of the textbook. It is one of the options mentioned above. For more information, click on "Student Information Page" on the following webpage: http://www.math.tamu.edu/courses/eHomework.

Calculator Policy: A TI-83, TI-83PLUS, TI-84, TI-84PLUS, or TI-Nspire Non-CAS (with an 84 faceplate) is REQUIRED. These are the only types of calculators that you are allowed to use on quizzes and exams. You must bring your calculator to every class period. NOTE: It is considered a violation of the Aggie Honor Code to have any programs, notes, etc. in your calculator that have not been approved by your instructor.

Course Webpage:
My Math 141 course webpage which can be accessed through the link above will be a major source of communication to you aside from the usual class times and office hours. On the website you will find a link to the following:
- Completed class notes
- Announcements
- eHomeworks on WebAssign
- Help session schedule
- Week-in-Review Schedule
- TI-calculator Tutorials

Office Hours:
My office hours will hold in BLOC 630D at the days and times indicated. Please feel free to stop by during these period. However, If you are unable to attend office hours or you wish to meet me outside of office hours, you will need to schedule an appointment.

Email Policies:
Check your official TAMU email account every day. You are responsible for any information I send via email. Also, because of privacy rights, **I cannot discuss grades via email**. I will try to respond to your emails as soon as I can but there is no guarantee that this will always happen due to large volume of students. I encourage you to start your studying and/or homework early in time so you can stop by my office hours or a Math 141 Help Session to ask the right questions. Also, **please include your full name, course number (141), and section number (503) in your email**. If any of this information is missing, it could delay my response.

Class Policies:
To succeed in this class, attendance is a necessity. Be on time to class. Once in the classroom, you are expected to be respectful to everyone. This includes turning off and putting away cell phones, electronic devices and newspapers. You can be asked to leave the classroom if I see any of these in the classroom. Also, it is very disrespectful to talk during lecture. If you have any questions, kindly direct it to me for the interest of everyone in the classroom.

Grading Policies:

Computer Homework: There will be a graded computer homework assignment for each section we cover in class. This homework is available online through the WebAssign computer system and will be due **Friday** of every week. You have a free two-week trial period of access to WebAssign so that you can be sure to settle into this class. **Note that I will not give extensions on homework due to not purchasing WebAssign in time to submit homework before the weekly deadline**. Reread the student information page for full information and instructions at http://www.math.tamu.edu/courses/eHomework/.

In class quizzes: There will be weekly in-class quizzes which will be taken on either Monday or Wednesday. These will be given during the first or last 10-15 minutes of the lecture on the days they are taken.

Exams: There will be three in-class exams and a comprehensive final. When you attend the exam, you must bring your student ID and approved calculator. Calculators will be checked before or during the exams. If there are any programs, notes or formulas on your calculator which I did not give, the occurrence will be considered a case of scholastic dishonesty. Once an exam is returned, I will not give a makeup for that exam. If you believe you have a valid reason for receiving a makeup after any exams have been returned, then talk to me.

Grading scale summary: The final grade average will be determined based on the following scale;

Assignment	Date	Percentage
Exam I	Wed Sept 19	18%
Exam II	Wed Oct 17	18%
Exam III	Wed Nov 14	18%
Homework	Weekly	10%
Quizzes	Weekly	10%
Final Exam	Per University Final Exam Schedule	26%
TOTAL		100%

Range	Grade
$90 \leq$ Average ≤ 100	A
$80 \leq$ Average < 90	B
$70 \leq$ Average < 80	C
$60 \leq$ Average < 70	D
$0 \leq$ Average < 60	F

Attendance and Makeup Policies:

Attendance is mandatory and may affect your grade. No make-up quizzes, computer homework, or exams will be given without an official, written, University Excuse (falsification of documentation is a violation of the Aggie Honor Code). You MUST notify me in advance to ensure the right to a make-up. If advance notice is not possible (i.e. sudden illness), you MUST contact me within TWO working days of the missed quiz/homework/exam; otherwise, you forfeit the right to a make-up. An absence for a non-acute medical service or regular check-up does not constitute an excused absence. For more information please go to http://student-rules.tamu.edu/rule07. Please note that I will NOT accept the Explanatory Statement for Absence from Class form as sufficient written documentation of an excused absence. If you have a University approved absence for missing an exam, you will be expected to make up your exam according to arrangements made with your instructor. You must discuss (email is fine) the need for a make-up exam with me according to the rules stated above.

Americans with Disabilities Act (ADA):
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 believe you have a disability requiring an accommodation, please contact Disability Services, currently located in the Disability Services building at the Student Services at White Creek complex on west campus or call 845-1637. For additional information visit *http://disability.tamu.edu*.

Academic Integrity:

<p align="center">*"An Aggie does not lie, cheat, or steal, or tolerate those who do."*</p>

Upon accepting admission to Texas A&M University, a student immediately assumes a commitment to uphold the Honor Code, to accept responsibility for learning, and to follow the philosophy and rules of the Honor System. Students will be required to state their commitment on examinations, research papers, and other academic work. Ignorance of the rules does not exclude any member of the TAMU community from the requirements or the processes of the Honor System. For additional information on the Honor Council Rules and Procedures, consult *http://aggiehonor.tamu.edu*.

Weekly Schedule:

WEEK #	TOPIC	SECTIONS
1	Linear functions and Mathematical models	1.3, 1.4
2	Systems of linear equations *Guass Jordan elimination for a small system of linear equations using **rref** **Students will use **rref** to solve all systems in this section	2.1, 2.2*, 2.3**
3	Matrix arithmetic, Setting up Linear Programming problems	2.4, 2.5, 3.2
4	Review, **Exam 1** (1.3, 1.4, 2.1-2.5, 3.2)	
5	Graphing systems of linear inequalities, Linear Programming problems	3.1, 3.3
6	Sets, Counting, Multiplication principle	6.1, 6.2, 6.3
7	Multiplication principle, Permutations, Combinations, Experiments, Sample spaces, and Events	6.3, 6.4, 7.1
8	Review, **Exam 2** (3.1, 3.3, 6.1-6.4, 7.1)	
9	Definition and rules of Probability, Counting techniques in probability	7.2, 7.3, 7.4
10	Conditional probability, Independence, Bayes' Theorem	7.5, 7.6
11	Distributions of random variables, Expected Value, Variance, Standard Deviation	8.1, 8.2, 8.3
12	Binomial Distribution, Review, **Exam 3** (7.2-7.6, 8.1-8.4)	8.4
13	Normal distribution, Finance	8.5, 8.6, 5.1
14	Finance	5.2, 5.3
15	Review for Final Exam	
16	Final Exams	