CLASS TIMES AND LOCATIONS
- MATH 140-513 (Blue)....TR 11:10 AM–12:25 PM...BLOC 166
- MATH 140-508 (Green)....TR 12:45–2:00 PM..........BLOC 166

CATALOG DESCRIPTION AND PREREQUISITES
Mathematics for Business and Social Sciences (Math 1324) Application of common algebraic functions, including polynomial, exponential, logarithmic and rational, to problems in business, economics and the social sciences; includes mathematics of finance, including simple and compound interest and annuities; systems of linear equations; matrices; linear programming; and probability, including expected value. Only one of the following will satisfy the requirements for a degree: Math 140, Math 141 and Math 166. Prerequisite: High school algebra I and II and geometry.

LEARNING OUTCOMES
Upon successful completion of this course, students will:
- Apply elementary functions, including linear, quadratic, polynomial, rational, logarithmic, and exponential functions to model and solve real-world problems.
- Solve mathematics of finance problems, including the computation of interest, annuities, and amortization of loans.
- Apply basic matrix operations, including linear programming methods, to solve application problems.
- Demonstrate fundamental probability techniques and application of those techniques, including expected value, to solve problems.
- Apply matrix skills and probability analyses to model applications to solve real-world problems.

CORE OBJECTIVES

Critical Thinking
- Students will carefully examine and interpret statements to determine equivalent mathematical notation and/or equations.
- Students will think logically 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 understand how to determine the probability of an event and apply this to real-world applications.
- 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 and with matrices.
- 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 use statistics (expected value) to make informed conclusions about real-world problems, such as determining the premium for an insurance policy.
- Students will use data on business resources and constraints to set up and solve linear programming problems.
- Students will analyze financial information to make decisions regarding everyday applications, such as loan payments, annuities, amortizations, or sinking funds.
INSTRUCTOR INFORMATION

Name Kathryn Bollinger, Instructional Assistant Professor
Email bollingr@math.tamu.edu
Office BLOC 247D
Office Hours MW 11:00 AM – 12:30 PM in BLOC 246 and TR 3:30-4:30 PM in BLOC 246, and by appointment
Course Page https://www.math.tamu.edu/~bollingr
Phone Math Department: 979-845-3261 (There is no phone in my office, so email is a better way to reach me.)

REQUIRED MATERIALS

TEXTBOOK: *Business Mathematics* by Tomastik/Epstein, First Edition

Note: You will be required to purchase access to the online homework system, WebAssign, but doing so will automatically give you access to the eBook. There are a variety of purchasing options available (course specific access or Cengage Unlimited). This access can be purchased through the local bookstores or on WebAssign. Starting on the first day of classes, you will be granted access for a trial period while you determine the appropriate purchasing option for you.

WEBASSIGN ACCESS: WebAssign will be used for homework in this class. In order to use WebAssign, you must purchase access. For access purchasing information and options, please visit http://www.math.tamu.edu/courses/eHomework/

CALCULATOR: A TI-83 (any version), TI-84 (any version) or the TI-Nspire (non-CAS version) calculator is REQUIRED and you must bring your calculator to each class. If you need to use a calculator other than those listed, it MUST NOT perform symbolic mathematics and you must have my permission to do so. I will be demonstrating calculator techniques using the TI-84. You must bring your calculator to every class period. You may not share calculators during exams or quizzes.

TEXAS A&M STUDENT ID: Bring your student ID to each class. If you have a question about your grade, please come see me in person and bring your ID.

WRITING UTENSIL: You need to use a pencil or a pen with blue or black ink when you submit any written work for this class. You may use additional colored pencils or pens when allowed.

TENTATIVE COURSE TOPICS AND CALENDAR OF ACTIVITIES

<table>
<thead>
<tr>
<th>WEEK</th>
<th>TOPIC</th>
<th>SECTIONS</th>
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<tbody>
<tr>
<td>Week 1</td>
<td>8/26-8/30 Review of Lines</td>
<td>1.1</td>
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<tr>
<td>Week 2</td>
<td>9/2-9/6 Linear Functions and Models, Systems of Linear Equations,</td>
<td>1.1, 1.2, 1.3</td>
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<tr>
<td></td>
<td>Gauss-Jordan Elimination and Solving Systems of Linear Equations</td>
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<tr>
<td>Week 3</td>
<td>9/9-9/13 Systems with Non-Unique Solutions, Matrix Arithmetic,</td>
<td>1.4, 2.1, 2.2</td>
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<td></td>
<td>Matrix Multiplication</td>
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<tr>
<td>Week 4</td>
<td>9/16-9/20 Matrix Inverses, Review, EXAM I (1.1–1.4, 2.1–2.3)</td>
<td>2.3</td>
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<tr>
<td>Week 5</td>
<td>9/23-9/27 Setting up Linear Programming Problems, Graphing Systems</td>
<td>3.1, 3.2, 3.3</td>
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<td></td>
<td>of Linear Inequalities, Solving Linear Programming Problems</td>
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<tr>
<td>Week 6</td>
<td>9/30-10/4 Simplex Method, Sample Spaces</td>
<td>3.4, 4.1</td>
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<td>Week 7</td>
<td>10/7-10/11 Basics of Probability, Rules of Probability, Expected</td>
<td>4.2, 4.3, 4.4</td>
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<td>Value</td>
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<td>Week 8</td>
<td>10/14-10/18 Review, EXAM II (3.1–3.4, 4.1–4.4)</td>
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<tr>
<td>Week 9</td>
<td>10/21-10/25 Polynomial, Power, Rational, and Piecewise-Defined</td>
<td>5.1, 5.2</td>
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<td></td>
<td>Functions</td>
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<tr>
<td>Week 10</td>
<td>10/28-11/1 Exponential Functions</td>
<td>5.3</td>
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<tr>
<td>Week 11</td>
<td>11/4-11/8 Combinations of Functions, Logarithmic Functions</td>
<td>5.4, 5.5</td>
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<td>Week 12</td>
<td>11/11-11/15 Review, EXAM III (5.1–5.5)</td>
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<tr>
<td>Week 13</td>
<td>11/18-11/22 Simple and Compound Interest, Annuities</td>
<td>6.1, 6.2</td>
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<td>Week 14</td>
<td>11/25-11/26 Annuities, Amortization, THANKSGIVING HOLIDAY</td>
<td>6.2, 6.3</td>
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<td>Week 15</td>
<td>12/2-12/4 Review for Final Exam</td>
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<tr>
<td>FINALS</td>
<td>12/6-12/11 Final Exams</td>
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GRADING POLICIES
The course grading will be based on the tables below. At the end of the semester you will receive the grade you earned, according to the scale given. Due to FERPA privacy issues, I cannot discuss grades over email or phone. If you have a question about your grade, please come see me in person.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Date</th>
<th>Percentage</th>
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</thead>
<tbody>
<tr>
<td>Homework / ICAs</td>
<td>Weekly</td>
<td>10%</td>
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<tr>
<td>Quizzes</td>
<td>Weekly</td>
<td>10%</td>
</tr>
<tr>
<td>Exam I (1.1–1.4, 2.1–2.3)</td>
<td>9/19/19</td>
<td>20%</td>
</tr>
<tr>
<td>Exam II (3.1–3.4, 4.1–4.4)</td>
<td>10/17/19</td>
<td>20%</td>
</tr>
<tr>
<td>Exam III (5.1–5.5)</td>
<td>11/14/19</td>
<td>20%</td>
</tr>
<tr>
<td>Final Exam</td>
<td>See below</td>
<td>20%</td>
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<tr>
<td>TOTAL</td>
<td></td>
<td>100%</td>
</tr>
</tbody>
</table>

Grades will not be posted online. It is your responsibility to keep up with your graded papers in order to calculate your grade according to the information given above.

GRADE APPEAL POLICY: Any questions concerning the grading of any assignment must be presented to me within two working days of the return of the assignment. Otherwise, you must accept the grade you receive.

HOMEWORK
GRADED HOMEWORK: Graded homework assignments will be primarily done online, but will include an occasional written assignment.

• Online homework will be done in WebAssign. For important information on how to purchase WebAssign access, how to log in, how to access and take assignments, the Student Help Request Form, and other WebAssign issues, please see the WebAssign Information Page at http://www.math.tamu.edu/courses/eHomework. I will not give extensions or grade adjustments due to technical difficulties at the last minute. At the end of the semester, the lowest 3 WebAssign homework grades will be dropped before calculating your homework average for the final grade calculation.

• Any written homework will be collected at the beginning of the class period it is due. Each collected homework assignment must contain your NAME, SECTION COLOR, and SEAT # in the top right corner of the front page. If an assignment contains multiple pages, all pages must be STAPLED together. All of your work must be shown and it must be neat and legible, with all answers clearly marked. You should be using pencil, but if you choose to use pen, then it must have blue or black ink. Failure to follow these instructions may result in a grade of zero. No written homework grades will be dropped; all grades from written homework will be used in calculating your homework average for the final grade calculation.

SUGGESTED (NON-GRADED) HOMEWORK: Math cannot be learned by watching someone else do math. It requires a lot of practice. I strongly suggest that you work additional practice problems from the book, in addition to the graded homework. For some of the sections there are also additional practice problems in eCampus you can work. Working extra problems to help you learn the material is very important.

IN-CLASS DAILY ASSIGNMENTS (ICAs)
At various times throughout the semester, you will be given assignments (that are not homework problems or quizzes) which must be completed before leaving class. In order to complete the ICAs you will need to have standard size loose-leaf notebook paper and something to write with (a pencil or pen with blue or black ink). Always come to class with these materials. Many times the ICAs will be due within the first five minutes of class, so it is imperative that you arrive to class prepared and on time each day. Other times the ICAs may be given at the end of class, so it is imperative that you do not leave early. None of the grades on these assignments may be dropped unless you are missing a grade due to a verified University-approved excused absence.
QUIZZES
There will be quizzes given throughout the semester and may be announced or unannounced, in class or take home, so please keep up with the material. **You will be expected to show all of your work, including calculator methods, on all problems for full credit, unless it is stated otherwise.** I will use your best ten quiz grades in the final grade calculation at the end of the semester.

EXAMS
There will be **three in-class exams** during the semester. Everything discussed in class, quizzes, and homework is fair game for content on these exams. **You will be expected to show all of your work, including calculator methods, on all problems for full credit, unless it is stated otherwise.** Remember to bring your Texas A&M student ID and an approved calculator to all exams. Before entering the exam, your calculator lid must be removed and the memory in your calculator must be reset. The tentative exam schedule is as follows:

Exam I: Thursday, September 19, 2019  Exam II: Thursday, October 17, 2019  Exam III: Thursday, November 14, 2019

FINAL EXAM
The final exam will be **comprehensive** and is **required** for all students. If your final exam grade is higher than your lowest test grade, the grade on your final will replace that test grade in the final grade calculation. The final exam schedule is as follows:

<table>
<thead>
<tr>
<th>Section</th>
<th>Class Time</th>
<th>Final Exam Date, Time, and Location</th>
</tr>
</thead>
<tbody>
<tr>
<td>140-513 (Blue)</td>
<td>TR 11:10 AM–12:25 PM</td>
<td>Friday, Dec 6th...3:00–5:00 PM in BLOC 166</td>
</tr>
<tr>
<td>140 508 (Green)</td>
<td>TR 12:45–2:00 PM</td>
<td>Wednesday, Dec 11th ...8:00–10:00 AM in BLOC 166</td>
</tr>
</tbody>
</table>

(You can refer to [http://registrar.tamu.edu/Courses,-Registration,-Scheduling/Final-Examination-Schedules](http://registrar.tamu.edu/Courses,-Registration,-Scheduling/Final-Examination-Schedules) for the University final exam schedule.)

ATTENDANCE AND MAKE-UP POLICIES
Attendance is essential to complete this course successfully. By attendance, I mean arriving to class on time, ready to **actively** participate throughout the entire class time, and not leaving early.

- **Excused Absences:** University student rules concerning excused and unexcused absences, as well as makeups, can be found at [http://student-rules.tamu.edu/rule07](http://student-rules.tamu.edu/rule07). In particular, make-up exams and quizzes or late homework will NOT be allowed unless a **University approved reason is given to me in writing**. Notification before the absence is **required** when possible. Otherwise (e.g. accident, or emergency), you must notify me **within 2 working days** of the missed exam, quiz, or assignment to arrange a makeup. In all cases where an exam/quiz/assignment is missed due to an injury or illness, whether it be more or less than 3 days, **I require a doctor’s note**. I will not accept the “University Explanatory Statement for Absence from Class” form. Further, an absence due to a non-acute medical service or appointment (such as a regular checkup) is **not** an excused absence.

- **Make-up assignments** will only be allowed provided the above guidelines are met. You will be allowed to make up a missed assignment during one of the scheduled makeup times provided by your instructor. According to Student Rule 7, you are expected to attend the scheduled makeup unless you have a University-approved excuse for missing the makeup time as well. If there are multiple makeup times, you must attend the **earliest** makeup time for which you do not have a University-approved excuse.

- Students with an official University-approved excused absence are permitted to make up work only for the dates of the absence. It is the student’s responsibility to contact me within the proper time period, in order to schedule make-up assignments.

- If class is officially cancelled for any reason, you can expect that the assignments due/taken on the missed class day will be due/taken the next time the class meets.
ACADEMIC INTEGRITY

"An Aggie does not lie, cheat, or steal, or tolerate those who do."

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 please visit http://aggiehonor.tamu.edu/.

For this class, I encourage you to study with your classmates (unless I specifically state otherwise). However, all graded work (exams, quizzes, homework, etc.) must clearly be your own individual work, and you should not discuss graded work with anyone who has not completed that work yet. If you use a source when completing work, cite the source.

Note:

• It is considered Academic Dishonesty to provide falsified documentation in order to obtain an excused absence.
• It is considered Academic Dishonesty to have any programs, notes, etc. in your calculator that have not been approved by your instructor. Your calculator will be checked before each exam.
• If you provide falsified documentation or show improper use of your calculator, you will be reported to the Aggie Honor Council and you will receive an F* in the course.

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 979-845-1637. For additional information, visit http://disability.tamu.edu.

If you require accommodations, please see me as soon as possible so that we can make sure you have the necessary paperwork in order.

TITLE IX AND STATEMENT ON LIMITS TO CONFIDENTIALITY
Texas A&M University and the College of Science are committed to fostering a learning environment that is safe and productive for all. University policies and federal and state laws provide guidance for achieving such an environment. Although class materials are generally considered confidential pursuant to student record policies and laws, University employees (including instructors) cannot maintain confidentiality when it conflicts with their responsibility to report certain issues that jeopardize the health and safety of our community. As the instructor, I must report (per Texas A&M System Regulation 08.01.01) the following information to other University offices if you share it with me, even if you do not want the disclosed information to be shared:

- Allegations of sexual assault, sexual discrimination, or sexual harassment when they involve TAMU students, faculty, or staff, or third parties visiting campus.

These reports may trigger contact from a campus official who will want to talk with you about the incident that you have shared. In many cases, it will be your decision whether or not you wish to speak with that individual. If you would like to talk about these events in a more confidential setting, you are encouraged to make an appointment with the Student Counseling Service (https://scs.tamu.edu/).

Students and faculty can report non-emergency behavior that causes them to be concerned at http://tellsomebody.tamu.edu.
ADDITIONAL CLASS POLICIES

EMAIL
You are responsible for checking your official TAMU email account every day. When sending an email to me, include your full name, course number (140) and section color (blue or green) in your email. If any of this information is missing, it will delay my response.

LATE WORK
All assignments due in class are due at the beginning of class. Late work without a University approved excuse may have a penalty imposed or may not be accepted at all. No extensions on online homework problem sets will be granted without a verified University excused absence.

COPYRIGHT OF MATERIALS
All exams, quizzes, printed handouts and web-materials are protected by US Copyright Laws. No multiple copies can be made without written permission by the instructor. Nothing may be shared with anyone outside of the class or posted on any website.

CLASSROOM ETIQUETTE

ELECTRONIC DEVICE POLICY
In order to promote learning in the classroom, unless you are given permission otherwise by me, all electronic devices (besides your calculator) must be TURNED OFF AND PUT AWAY WHILE YOU ARE IN THE CLASSROOM!

This means the following...

- You should never have a cell phone out or turned on in the classroom -- before, during, or after class (unless you specifically have been given permission from me before class). If I hear or see your cell phone out in the classroom, I may ask you to leave the classroom. If you are asked to leave the classroom, you will not be allowed to complete any assignments taken for a grade during the remainder of that class.

If I see your cell phone out in the classroom (whether turned on or not) WHILE a grade is being taken (ICA, quiz, or exam), you will receive a ZERO on the assignment and you will be asked to leave the classroom.

- You are not allowed to have any other electronic device (computer, tablet, smart watch, fitness tracker, etc.) out or turned on while in the classroom (unless you specifically have been given permission from me before class).

- You should always have your calculator out and ready to use by the time class starts. On exam days, you are not allowed to have your calculator lid.

COURTESY AND RESPECT

During class I will stay focused on teaching you mathematics, so please stay focused on learning the mathematics being taught. This means you should arrive to class on time and get out all needed materials before class starts, you should stay awake throughout class, you should not be working with materials from another course, you should refrain from discussion not related to class, and you should not leave class early (unless there is an emergency or you have talked to me before class). In other words, please do your part (attitude, words, actions) to make our class a place where everyone can feel comfortable exploring mathematical topics without distractions. If I feel you are being disruptive or disrespectful during class, you may be asked to leave the room.
ADDITIONAL HELP & PREPARING FOR EXAMS

YOUR PROFESSOR
I am here to help you but I can’t help if I don’t know there is a problem. I encourage each of you to talk to me, ask questions both in and out of class, come to office hours, send emails, etc. Your best bet for success is active participation!

CLASS NOTES
An outline of notes will be posted in eCampus before class each day. It will be beneficial to print these out and bring them with you to class. You should review your notes after class, and make sure to get any questions you have about the material in the notes answered, before the next class meeting, if possible. You should also review your notes when working on homework or when preparing for quizzes and exams. A completed set of notes will NOT be posted after each class. However, for the first week of classes a set of notes concerning the “Review of Lines” will be posted in its entirety.

WEEK-IN-REVIEW (WIR)
There will be Week-in-Review sessions conducted by Ms. Kathryn Bollinger each week (except for the weeks following an exam), starting the second week of classes. Each review is open to all Math 140 students to review the topics of the previous week and to provide additional examples. The schedule and problem sets that will be worked during these sessions can be found at

http://www.math.tamu.edu/~bollingr/140WIRpage.html

HELP SESSIONS
Help sessions are an opportunity for you to ask questions and get help with your homework. These sessions are led by students, where you may come and go, as your schedule allows. Once determined, the schedule will be announced in class, posted on our course webpage, and additionally posted at

http://www.math.tamu.edu/courses/helpsessions.html.

PRACTICE
In order to succeed in this course, it is essential that YOU practice extra problems ON YOUR OWN. While practicing, remember that it is also important to practice writing all of the work on paper, as you will be required to do on all assignments. Extra problems for you to practice can be found at the end of each section of your book, under the Additional Practice Problems on our eCampus page, and on the Week-in-Review page.