Department of Mathematics and Statistics
Mathematics in Society
MTH 099/110.032
Spring 2019

Instructor: Cheryl Janusa
Office: Math 329
Email: janusace@sfasu.edu (preferred method of contact)

Office Hours: These hours have been set aside specifically to help students. Additional times are available by appointment.

<table>
<thead>
<tr>
<th>Monday and Wednesday</th>
<th>1:00 – 2:30 pm</th>
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<td>Tuesday and Thursday</td>
<td>10:50 – 11:20 am; 1:50 – 2:30 pm</td>
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Class meeting times and room:
Section .032: 9:00 – 9:50 MWF and 9:30 – 10:45 TR, room Math 206

Course Description:
Mathematics in Society provides an introduction to mathematical thinking emphasizing analysis of information for decision-making. (MATH 1332) Prerequisite(s): MTH 099 or TSI complete/exempt status in mathematics.

Text and Materials:
Textbook: A Survey of Mathematics with Applications Custom Package for Stephen F Austin State University (custom edition from 10th ed.) w/ MyMathLab
You may choose either version
- Custom SFASU 10th edition (bundled with MyMathLab Access)
- eBook (bundled with MyMathLab Access)

Calculator: The recommended calculator is TI-30XS (retails for under $20). Other calculator recommendations include TI-34 Multiview or TI-36. Calculators on cell phones, computers or tablets are not permitted. You may use a graphing calculator for this course, but you may not use a calculator equivalent to a TI-89 or higher. Students are responsible for learning how to operate their calculators.

Notebook: 100 - 150 sheet note book designated for this course.
2 pocket folder (or have pockets in the notebook)
Pencils, transparent tape

Course Requirements
- Exams
  - Three exams will be given over the course of the semester (approximate dates listed in calendar). Each exam grade comprises 20% of a student’s overall course grade. A student’s final exam grade will replace their lowest regular exam grade (provided that the final exam grade is higher). Students are required to take the final exam.
  - The final exam for this course will be given as scheduled on the university calendar, in our normal classroom. No alternate arrangements will be allowed.

- Core Assessment: Students must submit a designated assignment for the core assessment. The assignment will be submitted for the core assessment by March 4, 2019. The instructor will provide details regarding the assignment.

- Assignments consist of online MyMathLab (MML) homework, D2L assignments, in-class quizzes/activities, notebooks, and worksheets/paper assignments. “Work” provided from any type of mathematical step assistance program will be awarded a grade of zero. All assignments will be accepted only if turned in on time with the exception of MML online homework which can be completed after the due date but before the exam for 50% credit.

Low Assignment Scores – Three low assignment grades will be dropped to accommodate for missed work/emergency situations.
MyMathLab Homework and Summary & Review Assignments

- Each textbook section covered in the course has a corresponding homework assignment on MyMathLab. Each assignment consists of 10 – 20 questions. Students will have up to three attempts to answer each question correctly. Generally, the due date for all homework assignments covered in a particular week will be Friday of the week, at 11:59 PM, but there are some exceptions to this rule.
- In addition to MML homework for each section, there will be a Chapter Summary and Review assignment for each chapter and a final exam review for each chapter. The Chapter Summary and Review assignments are intended to serve as a review for the exam. As such, they will not include the various help resources that are available on the normal homework. Note: though different, these Chapter Summary and Review assignments are found under the “Homework” tab on MyMathLab, will become available one week before the exam day, and will be due at 11:59 PM the night before each exam.

To create a MML account, students will need:
1. a valid SFA email address
2. an access code (bundled with new textbooks, or may be purchased separately online with a credit card at time of registration)

To access MyMathLab:
- log in to D2L/Brightspace
- Scroll down to My Courses and select MTH110
- In the D2L course, scroll down to the icon located on the right, and click-on ‘Pearson MyLab and Mastering’
- Now you will see a picture of the book. Just to the right of the book, click on the orange button, Open MyLab & Mastering.
- Follow the directions to enroll in MyMathLab

NOTE: You will need to allow pop-ups. When prompted, select to permanently allow pop-ups from Pearson.

Grading Policy

<table>
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<tr>
<th>Final Grade Components</th>
<th>Course Grade</th>
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<tbody>
<tr>
<td>20% Assignments -MyMathLab (MML),</td>
<td>90% - 100%</td>
</tr>
<tr>
<td>Homework and Class Assignments</td>
<td>80% - 89.5%</td>
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<tr>
<td>60% Exams (3 at 20% each)</td>
<td>70% - 79.5%</td>
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<tr>
<td>20% Final Exam (Comprehensive and required)</td>
<td>60% - 69.5%</td>
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<tr>
<td></td>
<td>&lt; 60%</td>
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Attendance Policy and Attendance/Participation Grade

Attendance will be recorded each class day. Students who are tardy, who do not participate properly in group activities, or who engage in off-task behavior (use cell phone, sleep, work on different class, etc.) may be marked absent and/or assessed a daily grade penalty. Participating in class and asking questions to receive the benefit of understanding the material is of utmost importance.

Class Tardiness: Arriving late or leaving class early (10 minutes or more) will result in being counted absent for the class session. Students will be counted “tardy” if the student misses class time for less than 10 minutes – tardy, leaves class for personal reasons or leaves early. The student is responsible for informing the instructor after class or else be counted absent. Three times tardy will be counted as one absence.

Attendance Bonus: Students who have fewer than three absences will be awarded 2 percentage points for the Assignments grade at the end of the semester. The only exception will be absences excused for approved school functions. Other absences (excused or not) will be counted in your absence total.
Additional Help:
- Students may visit the instructor during office hours for additional help.
- Students may attend tutoring sessions held by our graduate assistants. Their tutoring times will be posted during the second week of class.
- The AARC (Academic Assistance and Resource Center) provides free tutoring. No appointments are needed for the walk-in tables available MTWR 1-8 and Sun. 4-8. You may sign-up for a Learning Team (a small group of students that meet weekly) during open enrollment:
  Wednesday/Thursday, January 23/24: 11 am - 6 pm. (learning teams only)
  Wednesday/Thursday, February 20/21: noon - 5 pm
  Wednesday/Thursday, March 27/28: 1 pm - 4 pm
For more information, visit the AARC (Steen Library) or the AARC webpage, http://sfasu.edu/aarc/

Intervention Activity Requirement: The success of the student is most important. Your instructor may require you to participate in intervention activities if the instructor recognizes the need. Failure to participate as instructor may result in a reduction of your grade as not completing these required activities will result in a grade of zero on the activities.

General Policies and Information: Students are expected to respect the learning environment.
- Bring required materials to class. Be prepared to begin learning at the start of class time.
- No eating during class.
- Please silence your phone and remove it from the table.

Testing, Grading, and Make-up Policies
- If you miss an exam for any reason, your zero exam grade will be replaced by your final exam grade. If more than one exam is missed, the final exam grade will replace only one of the missed exams.
- You must bring and display either your SFASU Student ID or a valid driver’s license before you will be permitted to take each test and the final exam. I must be able to recognize you from the photo on the ID.
- You may only use an approved calculator on exams. The instructor may clear the memory. Students may not use cell phone calculators, etc during an exam.
- Students may not share calculators during an exam.
- Students are required to take the final exam; travel plans are not an excuse for missing the final.
- You may get help on work that is assigned to be done outside of class, unless otherwise instructed, but any work that you turn in must reflect your understanding of the material. During class assignments, you are expected to only use your brain, pencil, paper, and a calculator.

The following is an excerpt from SFA Policy 5.4:

*The federal definition of a credit hour is an amount of work represented in intended learning outcomes and verified by evidence of student achievement that is an institutionally established equivalency that reasonably approximates:

1. Not less than one hour of classroom or direct faculty instruction and a minimum of two hours out-of-class student work each week for approximately fifteen weeks for one semester or trimester hour of credit, or 10 to 12 weeks for one quarter hour of credit, or the equivalent amount of work over a different amount of time, or;
2. At least an equivalent amount of work as outlined in item 1 above for other academic activities as established by the institution including laboratory work, internships, practica, studio work, and other academic work leading to the award of credit hours.*

To this end, all students in courses offered by the Department of Mathematics and Statistics that wish to be successful should plan to spend a minimum of two hours outside of class for every credit hour associated with this course. Expected activities to be completed in the time outside of class include reviewing notes from previous class meetings, reading assigned course resources, completing all assigned exercises and projects, and performing periodic assessment preparation.
## MTH 110 Tentative course schedule

<table>
<thead>
<tr>
<th>Date</th>
<th>Topic</th>
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| January 22 - 25 | Course Introduction  
1.1 Inductive and Deductive Reasoning  
1.3 Problem Solving |
| Jan 28 – Feb 1 | 2.1 Sets  
2.2 Subsets  
2.3 Venn Diagrams  
2.4 Set Equality |
| Feb 4 - 8     | 2.5 Application of Sets  
3.1 Statements and Logical Connectives  
3.2 Truth Tables I |
| Feb 11 -15    | 3.3 Truth Tables II  
Review |
| Feb 18 - 22   | **Exam 1**: Chapters 1 and 2 and 3.1 - 3.3  
3.4 Equivalent Statements  
3.5 Symbolic Arguments |
| Feb 25 - Mar 1 | 3.6 Euler Diagrams/Syllogistic Arguments  
10.1 Percent  
10.2 Personal Loans and Simple Interest |
| Mar 4 - 8     | 10.3 Compound Interest  
10.4 Installment Buying  
10.5 Mortgages |
| Mar 11-15     | 10.6 Annuities and Sinking Funds  
Review  
**Exam 2**: Sections 3.4, 3.5, 3.6, Chapter 10 |
| Mar 25 - 29   | 11.1 Empirical and Theoretical Probability  
11.3 Expected Value |
| Apr 1 - 5     | 11.4 Tree Diagrams  
11.5 OR and AND Probability  
11.6 Conditional Probability |
| Apr 8 - 12    | 11.7 Counting Principle/Permutations  
11.8 Combinations  
11.9 Probability and Combinations |
| Apr 15 - 17   | 12.1 Sampling and Misuses of Statistics  
12.2 Frequency Distribution and Graphs  
Easter Holiday |
| Apr 22 - 26   | 12.3 Measures of Central Tendency  
12.4 Measures of Dispersion  
12.5 The Normal Curve |
| Apr 29 – May 3 | Review  
**Exam 3**: Chapters 11 and 12 |
| May 6 - 10    | Review for final |
| May 13 - 17   | **FINAL EXAM** |

See [http://www2.sfasu.edu/math/docs/syllabi/MTH110Syllabus.pdf](http://www2.sfasu.edu/math/docs/syllabi/MTH110Syllabus.pdf) for elements common to all MTH 099/110 sections.
Course description: Provides an introduction to mathematical thinking emphasizing analysis of information for decision-making.

Core Objectives (CO):
1. Critical Thinking [CO 1]: to include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information
2. Communication Skills [CO 2]: to include effective development, interpretation and expression of ideas through written, oral and visual communication
3. Empirical and Quantitative Skills [CO 3]: to include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions

Credit hours: 3

The following is an excerpt from SFA Policy 5.4:

The federal definition of a credit hour is an amount of work represented in intended learning outcomes and verified by evidence of student achievement that is an institutionally established equivalency that reasonably approximates:

1. Not less than one hour of classroom or direct faculty instruction and a minimum of two hours out-of-class student work each week for approximately fifteen weeks for one semester or trimester hour of credit, or 10 to 12 weeks for one quarter hour of credit, or the equivalent amount of work over a different amount of time, or;

2. At least an equivalent amount of work as outlined in item 1 above for other academic activities as established by the institution including laboratory work, internships, practica, studio work, and other academic work leading to the award of credit hours.

To this end, all students in courses offered by the Department of Mathematics and Statistics that wish to be successful should plan to spend a minimum of two hours outside of class for every credit hour associated with this course. Expected activities to be completed in the time outside of class include reviewing notes from previous class meetings, reading assigned course resources, completing all assigned exercises and projects, and performing periodic assessment preparation.

Course Prerequisites and Corequisites: See general course prerequisites.

General Education Core Curriculum: This course has been selected to be part of SFA’s core curriculum. The Texas Higher Education Coordinating Board has identified six objectives for all core courses: Critical Thinking Skills, Communication Skills, Empirical and Quantitative Skills, Teamwork, Personal Responsibility, and Social Responsibility. SFA is committed to the improvement of its general education core curriculum by regular assessment of student performance on these six objectives. Assessment of these objectives at SFA will be based on student work from all core curriculum courses. This student work will be collected in D2L, the assessment management system selected by SFA to collect student work for core assessment.

The chart below indicates the core objectives identified by SFA to be assessed in this course. The instructor of each section of the course will provide the assignment(s) that will be used to assess the objectives as well as the date(s) by which the assignments must be completed and uploaded in D2L.

<table>
<thead>
<tr>
<th>Core Objective</th>
<th>Definition</th>
<th>Course Assignment Title</th>
<th>Date Due in D2L</th>
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<tbody>
<tr>
<td>Empirical and Quantitative Skills</td>
<td>To include the manipulation and analysis of numerical data or observable facts resulting in informed conclusions.</td>
<td>The instructor of each section will determine the assignment for this assessment.</td>
<td>Only assessed in spring of odd years. (See instructor for due date(s).)</td>
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Outline of Suggested Topics: The following is a list of suggested topics. These topics can be augmented or diminished, as long as the objectives for the course are practiced. Decisions concerning order of presentation are left to individual instructors.

Course outline: Approximate time spent

- Critical Thinking (Chapter 1) [CO: 1,2,3] 16%
  - Inductive and Deductive Reasoning
  - Problem-Solving with Patterns
  - Problem-Solving Strategies
- Logic (Chapter 2) [CO: 1,2,3] 16%
  - Logic, Statements, and Quantifiers
  - Truth Tables, Equivalent Statements and Tautologies
  - The Conditional and Biconditional
  - The Conditional and Related Statements
  - Arguments
- Set Theory (Chapter 3) [CO: 1,2,3] 16%
  - Basic Properties of Sets
  - Complements, Subsets and Venn Diagrams
  - Set Operations
  - Infinite Sets
- Financial Mathematics (Chapter 11) [CO: 1,2,3] 16%
  - Simple Interest
  - Compound Interest
  - Credit Cards and Consumer Loans
  - Stocks, Bonds and Mutual Funds
  - Home Ownership
- Counting and Probability (Chapter 12) [CO: 1,2,3] 16%
  - The Counting Principle
  - Permutations and Combinations
  - Probability and Odds
  - Addition and Complement Rules
  - Conditional Probability
  - Expectations
- Statistics (Chapter 13) [CO: 1,2,3] 16%
  - Measures of Central Tendency
  - Measures of Dispersion
  - Measures of Relative Position
  - Normal Distributions
  - Linear Regression and Correlation
- Explicit instruction in Critical Thinking, Communication, and Empirical and Quantitative Reasoning is in addition to implicit instruction, modeling and practice that occur daily in the discussion of logic, sets, financial mathematics, counting, probability, and statistics. This explicit instruction includes explanation of solving mathematical problems by thinking critically, communicating logically ordered solutions with complete and correct notation, and applying empirical or quantitative skills as appropriate to the problem.

Academic Integrity

Academic integrity is a responsibility of all university faculty and students. Faculty members promote academic integrity in multiple ways including instruction on the components of academic honesty, as well as abiding by university policy on penalties for cheating and plagiarism.

The penalty for a student found cheating on any part of an assignment, quiz, or exam in this class will range from a grade of zero on the work to a grade of F in the course, and may result in additional, more severe disciplinary measures. A student who allows
another to copy his work and the student copying the work are both guilty of cheating. Do your own work. Do not show your completed work to others. Do not allow others to copy your work.

Definition of Academic Dishonesty (SFA policy 4.1):
Academic dishonesty includes both cheating and plagiarism. Cheating includes, but is not limited to:
- using or attempting to use unauthorized materials on any class assignment or exam;
- falsifying or inventing of any information, including citations, on an assignment;
- helping or attempting to help other student(s) in an act of cheating or plagiarism.

Plagiarism is presenting the words or ideas of another person as if they were one’s own. Examples of plagiarism include, but are not limited to:
- submitting an assignment as one’s own work when it is at least partly the work of another person;
- submitting a work that has been purchased or otherwise obtained from the Internet or another source;
- incorporating the words or ideas of an author into one’s paper or presentation without giving the author credit.

Withheld Grades Semester Grades (SFA Policy 5.5)
Ordinarily, at the discretion of the instructor of record and with the approval of the academic chair/director, a grade of WH will be assigned only if the student cannot complete the course work because of unavoidable circumstances. Students must complete the work within one calendar year from the end of the semester in which they receive a WH, or the grade automatically becomes an F. If students register for the same course in future terms the WH will automatically become an F and will be counted as a repeated course for the purpose of computing the grade point average. The circumstances precipitating the request must have occurred after the last day in which a student could withdraw from a course. Students requesting a WH must be passing the course with a minimum projected grade of C.

Students with Disabilities
To obtain disability related accommodations, alternate formats and/or auxiliary aids, students with disabilities must contact the Office of Disability Services (ODS), Human Services Building, and Room 325, 468-3004 / 468-1004 (TDD) as early as possible in the semester. Once verified, ODS will notify the course instructor and outline the accommodation and/or auxiliary aids to be provided. Failure to request services in a timely manner may delay your accommodations. For additional information, go to http://www.sfasu.edu/disabilityservices.

Acceptable Student Behavior
Classroom behavior should not interfere with the instructor’s ability to conduct the class or the ability of other students to learn from the instructional program (see the Student Conduct Code, policy 10.4). Unacceptable or disruptive behavior will not be tolerated. Students who disrupt the learning environment may be asked to leave class and may be subject to judicial, academic or other penalties. This prohibition applies to all instructional forums, including electronic, classroom, labs, discussion groups, field trips, etc. The instructor shall have full discretion over what behavior is appropriate/inappropriate in the classroom. Students who do not attend class regularly or who perform poorly on class projects/exams may be referred to the Early Alert Program. This program provides students with recommendations for resources or other assistance that is available to help SFA students succeed.

Student Learning Outcomes (SLO): At the end of MTH 110, a student who has studied and learned the material should be able to:
1. Demonstrate understanding of elementary logic in order to make persuasive arguments, understand conflicting reports, identify faulty reasoning, detect bias, assess risk, suggest alternatives, and draw solid conclusions. [CO: 1,2,3]
2. Use sets as a tool for organizing information, recognize that relationships between and among sets provide the foundation for many valid arguments. [CO: 1,2,3]
3. Use counting techniques, estimation, proportional reasoning, percents, and unit conversions to more ably interpret numerical quantities that occur in everyday life. [CO: 1,2,3]
4. Demonstrate understanding of basic probability and how it is involved in virtually every decision we make – either explicitly or implicitly. [CO: 1,2,3]
5. Use statistics to critically evaluate and interpret statistical studies and corresponding reports. [CO: 1,2,3]
6. Use functions to model various relationships with enough precision to gain insight into how things work and to make reasonable predictions about the future. [CO: 1,2,3]
There are no specific program learning outcomes for this major addressed in this course. It is a general education core curriculum course and/or a service course.

Date of document: 01/11/2019