Department of Mathematics and Statistics
MATH 1342-504 Introduction to Probability and Statistics
Fall 2021

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Office: Math 327 and Zoom office hours link below
Email: rotenberm@sfasu.edu
Department: Mathematics and Statistics

Class meeting time and place: This will be an online, asynchronous course. We do not have a scheduled class time. At the start of the week, I will post lectures videos for you to watch. I suggest you watch the videos as soon as possible. Work on the practice in D2L and ask questions. Then complete the assigned homework and quizzes by the due date.

Office Hours: These hours have been set aside specifically to help students.

<table>
<thead>
<tr>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
</tr>
</thead>
<tbody>
<tr>
<td>By appointment</td>
<td>10:45 am–12 pm</td>
<td>10 am–11:15 am</td>
<td>10:45 am–12 pm</td>
<td>10 am–11:15 am</td>
</tr>
</tbody>
</table>

Reach me in my office hours in Math 327 or over Zoom.
Zoom Meeting ID: 343 914 7977
Zoom Password: letmein

Additional times are available by appointment.
I always do my best to myself available for additional office hours for students.

Course Description: Probability, random variables, mean and variance, binomial distribution, normal distribution, t distribution, statistical inference, and linear regression.

Program Learning Outcomes: A complete list of program learning objectives, general education core curriculum objectives/outcomes and other course information can be found using the following link:
http://www2.sfasu.edu/math/docs/syllabi/MATH1342Syllabus.pdf

Text and Materials
Textbook and homework: You will need to purchase an access code to login to the homework website we will be using. This will include access to an online copy of the textbook. You do not need to purchase a copy of the textbook and I will not be using the Hawkes online system.

Case Study Manual (CSM): We will be working through a CSM. There is a PDF of this available on D2L. I do not recommend printing the CSM, instead download it to your computer/tablet for easy access.

Calculator: A scientific calculator is required. Graphing calculators are permitted, but not required. I will be using the TI-84 Plus. You must have your calculator in class daily starting on week 2. You are not allowed to use your phone as a calculator. You need to do your best to not let your phone distract you while you’re in class. Just remember that you are paying to come to class and learn the material; do not let your phone or the internet distract for our one hour and fifteen-minute lecture.

Other Supplies: A 1”– 2” binder, dividers, different colored highlighters, paper, and pencils. Using highlighters/colored pens/colored pencils to help emphasize what you have written is encouraged. Class notes will be taken fill-in-the-blank style and can be found on D2L.

Scanner: You will need to scan a copy of your written work for quizzes and exams to be submitted to the drop box on D2L. If you do not have access to a scanner you can use one of the following options: Google drive has a scanning feature, iPhone’s have a scanning option within the notes app, and I can also recommend the app ‘Scannable’. What you submit to the drop box must be scanned in a single PDF file.

Course Requirements
D2L
Course materials will be located on D2L. You need to be checking D2L daily; I will use the news feed on D2L for class announcements. You will use your MySFA username and password on the website www.D2L.sfasu.edu.
Online homework will be required using My Stat Lab at www.mystatlab.com. When you create an account, use the following course ID: rotenberry47630
There are complete instructions at the end of the syllabus. You need to get your account setup as soon as possible as you will have homework due this week. **It is your responsibility to keep up with all due dates.** Homework for the week will typically be due on Sunday but it will benefit you most to complete homework **before** taking quizzes. It is extremely important to keep up with the homework on MyStatLab. Computer problems should be conveyed to me immediately – this is especially important with remote learning. At the end of the semester I will drop your 3 lowest homework grades. There will also be suggested problems from the textbook for extra practice during the semester.

**Quizzes**
There are no make-ups for missed quizzes. Quizzes will be given through D2L. Quizzes will open Sunday at 8am and will be due on that same day at 1:59pm. When taking quizzes, you can use your notes and book, **but no other person can help.** Quizzes must be an individual effort to help you (and myself) gage your knowledge and understanding of the material. I will drop two quiz grades at the end of the semester. You need to keep up with the material and be prepared for 1-2 quizzes every week.

**Exams**
There are **no** make-ups for missed exams. Exams will be given through D2L. Exams will open Sunday at 8am and will be due on that same day at 11:59pm. With the exception of Spring break, when the exam is scheduled for the Friday before the break. When taking exams, you can use your notes and book, **but no other person can help.** The final exam is comprehensive and mandatory. You must convey to me that you have a complete understanding of the course material to pass the final exam.

**Tutoring**
- The CoReq Corner is a tutoring service offered through the math department. You can find the CoReq corner on the third floor of the math building, room 305.
- The AARC (Academic Assistance and Resource Center) in the Steen Library has free tutoring available. They can be reached at 936-468-4108, or the website [http://libweb.sfasu.edu/aarc](http://libweb.sfasu.edu/aarc). The AARC also has walk in tables available for different subjects.
- Hours for the tutoring services will be announced the second week of the semester.

**Grading Policy**
**Grade Breakdown**
The final course grade will be computed using the following weights:

<table>
<thead>
<tr>
<th>Component</th>
<th>Weight</th>
<th>Grade Range</th>
<th>Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exam 1 [CO 1,2,3]</td>
<td>10%</td>
<td>90% - 100%</td>
<td>A</td>
</tr>
<tr>
<td>Exam 2 [CO 1,2,3]</td>
<td>15%</td>
<td>80% - 89%</td>
<td>B</td>
</tr>
<tr>
<td>Exam 3 [CO 1,2,3]</td>
<td>20%</td>
<td>70% - 79%</td>
<td>C</td>
</tr>
<tr>
<td>Comprehensive Final Exam [CO 1,2,3]</td>
<td>25%</td>
<td>60% - 69%</td>
<td>D</td>
</tr>
<tr>
<td>MyStatLab Assignments [CO 1,2,3]</td>
<td>10%</td>
<td>0% - 59%</td>
<td>F</td>
</tr>
<tr>
<td>Quizzes [CO 1,2,3]</td>
<td>15%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Attendance, participation, and professionalism*</td>
<td>5%</td>
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</table>

*Attendance: This class does not have a scheduled meeting time. I will grade attendance based on two things – that you are regularly logging into D2L (at minimum of twice a week), you are submitting your written work for quizzes and exams to the dropbox, and that you are participating in the discussion posts. I will announce and give instructions about discussion posts on the D2L news feed. We will have a total of 3-6 discussion posts throughout the semester.

Participation: I expect you to ask questions when you are unsure about the material. I expect you to keep up with and complete discussion posts, quizzes, and homework by the assigned due date.

Professionalism: You are in college and now is the time to conduct yourself in a professional manner. You need to stay mindful and on task. I typically give time in class for students to practice the new problems we are learning. Take advantage of this by pausing the lecture video so that you can have the time to practice – then, if you have a question, email me. You need to be prompt when communicating to me if you need further explanation.
<table>
<thead>
<tr>
<th>Week #</th>
<th>Monday’s Date</th>
<th>Material Covered and Exam Schedule</th>
<th>HW</th>
<th>Quiz</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>August 23rd</td>
<td>Course Introduction</td>
<td>1</td>
<td>1</td>
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<tr>
<td></td>
<td></td>
<td>Introduction to Statistics</td>
<td></td>
<td></td>
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<tr>
<td>2</td>
<td>August 30th</td>
<td>Case Study 1A</td>
<td>2, 3</td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>September 6th</td>
<td>Case Study 1A</td>
<td>4, 5</td>
<td>3</td>
</tr>
<tr>
<td>4</td>
<td>September 13th</td>
<td>Finish Case Study 1A</td>
<td>6</td>
<td>4</td>
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<tr>
<td></td>
<td></td>
<td><strong>Exam 1: Sunday 9/19</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>September 20th</td>
<td>Case Study 1B</td>
<td>7, 8-</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>September 27th</td>
<td>Finish Case Study 1B</td>
<td>9, 10-</td>
<td>5</td>
</tr>
<tr>
<td>7</td>
<td>October 4th</td>
<td>Case Study 1A &amp; 1B</td>
<td></td>
<td>6</td>
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<tr>
<td></td>
<td></td>
<td><strong>Exam 2: Sunday 10/10</strong></td>
<td></td>
<td></td>
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<tr>
<td>8</td>
<td>October 11th</td>
<td>Case Study 2A</td>
<td>11</td>
<td>7</td>
</tr>
<tr>
<td>9</td>
<td>October 18th</td>
<td>Case Study 2A</td>
<td>12, 13,</td>
<td>8</td>
</tr>
<tr>
<td>10</td>
<td>October 25th</td>
<td>Case Study 2A &amp; 2B</td>
<td>14, 15-, 16-</td>
<td>9</td>
</tr>
<tr>
<td>11</td>
<td>November 1st</td>
<td>Case Study 2A &amp; B</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td><strong>Exam 3: Sunday 10/31</strong></td>
<td></td>
<td></td>
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<tr>
<td>12</td>
<td>November 8th</td>
<td>Case Study 3A</td>
<td>17-</td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>November 15th</td>
<td>Case Study 3A</td>
<td>18 (review)</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Thanksgiving Break</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>November 29th</td>
<td>Case Study 4A</td>
<td>19</td>
<td>11</td>
</tr>
<tr>
<td>15</td>
<td>December 6th</td>
<td><strong>Final Exam</strong></td>
<td></td>
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<tr>
<td></td>
<td>Finals Week</td>
<td>The final exam will open on D2L at 8 am on Sunday, Dec. 5th.</td>
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<tr>
<td></td>
<td></td>
<td>The final exam will close on D2L at 11:59 pm on Thursday, Dec. 9th.</td>
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</table>
Student Registration Instructions

To register for Intro. Stats. Online__Fall 2021__Rotenberry:

2. Under Register, select Student.
3. Confirm you have the information needed, then select OK! Register now.
4. Enter your instructor’s course ID: rotenberry47630, and Continue.
5. Enter your existing Pearson account username and password to Sign In.
   You have an account if you have ever used a MyLab or Mastering product.
   » If you don’t have an account, select Create and complete the required fields.
6. Select an access option.
   » Enter the access code that came with your textbook or that you purchased separately from the bookstore.
   » If available for your course,
      • Buy access using a credit card or PayPal.
      • Get temporary access.

   If you're taking another semester of a course, you skip this step.
7. From the You're Done! page, select Go To My Courses.
8. On the My Courses page, select the course name Intro. Stats. Online__Fall 2021__Rotenberry to start your work.

To sign in later:

2. Select Sign In.
3. Enter your Pearson account username and password, and Sign In.
4. Select the course name Intro. Stats. Online__Fall 2021__Rotenberry to start your work.

To upgrade temporary access to full access:

2. Select Sign In.
3. Enter your Pearson account username and password, and Sign In.
4. Select Upgrade access for Intro. Stats. Online__Fall 2021__Rotenberry.
5. Enter an access code or buy access with a credit card or PayPal.
By signing the bottom of this page, you are acknowledging: that you have read this syllabus, all the useful information it contains, and the final exam date and time.

This paper will be your first assignment due to the drop box on D2L. Please sign your name at the bottom (you may sign electronically) and submit it to the drop box by 11:59pm on Sunday, August 29\textsuperscript{th}.

Below I have also compiled a list of the tasks you can complete to give yourself a great start in this course:

- Create an account on Pearson for access to the homework. The first homework assignment is due 8/29/2021.
- Be prepared to take notes this week.
- Turn in this signed paper into the drop box on D2L.

________________________________________  ____________________________
Your Signature                              Date
Math 1342 – Introduction to Probability and Statistics
Course Syllabus

Course description: Probability, random variables, mean and variance, binomial distribution, normal distribution, statistical inference and linear regression.

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.

By enrolling in MATH 1342 Introduction to Probability and Statistics you are also enrolling in a Core Curriculum Course that fulfills the Mathematics Core Objective requirement.

The chart below indicates: (a) The core objectives that are required to be taught in this course per the Texas Higher Education Coordinating Board (THECB), (b) How the required core objectives will be addressed.
Core Curriculum Objective Table

<table>
<thead>
<tr>
<th>Core Objective</th>
<th>Definition</th>
<th>How the Core Objective Will be Addressed.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Critical Thinking Skills</td>
<td>To include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information.</td>
<td>Case study 1A</td>
</tr>
<tr>
<td>Communication Skills</td>
<td>To include effective development, interpretation and expression of ideas though written, oral, and visual communication.</td>
<td>Hypothesis testing in Case study 2A and 2B</td>
</tr>
<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>Case study 2A</td>
</tr>
</tbody>
</table>

Course outline: Approximate time spent

- Descriptive Statistics [CO 1, 2, 3] 10%
  - Graphical Display of Data
  - Measures of location
  - Measures of Dispersion
- Probability [CO 1, 2, 3] 20%
  - Classical Probability
  - Probability Laws (Rules)
  - Counting Techniques
- Probability Distributions [CO 1, 2, 3] 20%
  - Random Variables
  - Discrete Distributions
    - Binomial Distribution
    - Hypergeometric Distribution
  - Continuous Distributions
    - Uniform Distribution
    - Normal Distribution
- Sampling Distributions [CO 1, 2, 3] 10%
  - Random Samples
  - Central Limit Theorem
- Statistical Inference [CO 1, 2, 3] 30%
  - Estimation
    - Point Estimation
    - Interval Estimation
  - Hypothesis Testing
- Linear Regression [CO 1, 2, 3] 5%

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 limits and continuity, derivatives and antiderivatives, applications of derivatives and definite integration. This explicit instruction includes explanation of solving mathematical problems.
problems by thinking critically, communicating logically ordered solutions with complete and correct notation, and applying empirical or quantitative skills as appropriate to the problem. 5%

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.

SFASU Mental Health Statement: SFASU values students’ mental health and the role it plays in academic and overall student success. SFA provides a variety of resources to support students mental health and wellness. Many of these resources are free, and all of them are confidential.

On-campus Resources:
SFASU Counseling Services
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 220, a student who has studied and learned the material should be able to:
1. Exhibit an understanding of basic probability rules and concepts [CO:1,3]
2. Demonstrate an understanding of different probability models and ways they are used in statistical inference. [CO: 1, 2, 3]
3. Demonstrate an understanding of point estimation of population parameters. [PLO: 1,3]
4. Demonstrate an understanding of interval estimation about population parameters and inference that can be drawn from such techniques. [CO:1,3]
5. Demonstrate an understanding of hypothesis testing concerning population parameters and inference that can be drawn from such techniques. [CO:1,3]

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.