Department of Mathematics and Statistics
MATH 1342.016—Introduction to Probability and Statistics
Fall 2021

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Office: MTH 339

Office Hours (Held through Zoom):
Monday: No Office Hours
Tuesday: 3:30 – 5:00 pm
Wednesday: 10:00 – 11:00 am
Thursday: 10:45 am – 12:15 pm
Friday: 10:00 – 11:00 am
*Available other times by appointment*

Link to join office Hours: sfasu.zoom.us/my/busbeeb (Meeting ID: busbeeb Password: 138220)

Class meeting time and place: Tuesday and Thursday at 12:30 am in Room 210
Final Exam Date and Time: Thursday, December 9th from 10:30 am – 12:30 pm No Exceptions

Course Description: Probability essential for statistics, random variables, mean and variance, binomial distribution, normal distribution, t distribution, descriptive statistics, process of statistical inference, confidence intervals, hypothesis testing and linear regression

Text and Materials
Textbook bundle: Introductory Statistics (custom published) by Neil A. Weiss
This package includes required access to My Stat Lab (online homework). You can also purchase the online access from My Stat Lab. When you purchase the online access through My Stat Lab, you will not have a physical textbook but you will have online access to the textbook.

Calculator: A scientific calculator is required. Graphing calculators are permitted, but not required. Please make sure to have your calculator with you each day for class. I recommend buying the TI -30XS Multiview! Having a fraction button on your calculator will come in handy.

Other Supplies: A binder, dividers, pens, pencils, paper. You will also need to print out case studies, notes and worksheets from D2L throughout the semester and bring them with you to class. You will also need to have access to Excel throughout the semester. As a student, you are able to use and/or download Excel through your mySF A account.

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

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Weight</th>
<th>Grading Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exam 1 (Intro/CS1A) [CO 1, 2, 3]</td>
<td>10%</td>
<td>90% - 100% A</td>
</tr>
<tr>
<td>Exam 2 (CS1) [CO 1, 2, 3]</td>
<td>20%</td>
<td>80% - 90% B</td>
</tr>
<tr>
<td>Exam 3 (CS2A) [CO 1, 2, 3]</td>
<td>20%</td>
<td>70% - 80% C</td>
</tr>
<tr>
<td>MyStatLab Homework [CO 1, 2, 3]</td>
<td>15%</td>
<td>60% - 70% D</td>
</tr>
<tr>
<td>Quizzes [CO 1, 2, 3]</td>
<td>15%</td>
<td>0% - 60% F</td>
</tr>
<tr>
<td>Comprehensive Final Exam [CO 1, 2, 3]</td>
<td>20%</td>
<td></td>
</tr>
</tbody>
</table>
Course Requirements

Exams
Exams will be given during your scheduled class time. There are no make-ups for missed exams. Department policy requires that you bring and be recognizable from either your SFASU Student ID or another valid photo ID before you are permitted to take each exam. The final exam is comprehensive and mandatory. You must have a complete understanding of the course material in order to pass the final exam.

MyStatLab
Online homework will be required using My Stat Lab at www.mystatlab.com. When you create an account, use the following course ID: busbee92828
There are complete instructions at the end of the syllabus. You need to get your account setup as soon as possible. It is your responsibility to keep up with all due dates. My advice is to check MyStatLab daily. It is extremely important to keep up with the homework on MyStatLab. Due dates on MyStatLab will not be extended. There are several computer labs on campus including at the library for you to use if you have computer problems. At the end of the semester I will drop your 3 lowest homework grades. There will also be suggested from the textbook for practice for some material during the semester.

Quizzes
Quizzes will be online on D2L. You have one attempt at each quiz and you must work by yourself. You are allowed to use your notes during the quizzes.

*My advice to you:
- Your notes are the most important pieces of material for this course. Take good notes and read back through them often.
- Statistics is not your typical math course. You will learn a lot of new things this semester. It will be good though! Don’t let too much time pass if you do not understand something. Make sure to ask a question anytime you are confused and/or need clarification. If you don’t get time to ask your question in class, PLEASE come by my office.

D2L
Course materials will be located on D2L. It is your responsibility to check D2L daily. You will use your MySFA username and password on the website www.D2L.sfasu.edu.
You are responsible for everything that is posted on D2L for this course.

AARC Tutoring
The AARC (Academic Assistance and Resource Center) in the Steen Library has free help available! The AARC is also available through Zoom. Please go to the following website to get up to date information about getting help through the AARC: http://www.sfasu.edu/aarc/tutoring
See http://www3.sfasu.edu/math/docs/syllabi/MATH1342Syllabus.pdf for elements common to all sections.
<table>
<thead>
<tr>
<th>Week #</th>
<th>Week Starting on:</th>
<th>Material Covered and Exam Schedule</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>August 23rd</td>
<td>Course Introduction&lt;br&gt;Introduction to Statistics</td>
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<tr>
<td>2</td>
<td>August 30th</td>
<td>Case Study 1A</td>
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<tr>
<td>3</td>
<td>September 6th</td>
<td>Case Study 1A</td>
</tr>
<tr>
<td>4</td>
<td>September 13th</td>
<td>Case Study 1A</td>
</tr>
<tr>
<td>5</td>
<td>September 20th</td>
<td>Case Study 1A&lt;br&gt;&lt;b&gt;Exam 1: Thursday, September 23rd&lt;br&gt;(Exam 1 Material: Introduction to Statistics and Case Study 1A)&lt;/b&gt;</td>
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<tr>
<td>6</td>
<td>September 27th</td>
<td>Case Study 1B</td>
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<tr>
<td>7</td>
<td>October 4th</td>
<td>Case Study 1B</td>
</tr>
<tr>
<td>8</td>
<td>October 11th</td>
<td>Case Study 1B&lt;br&gt;&lt;b&gt;Exam 2: Thursday, October 14th&lt;br&gt;(Exam 2 Material: Case Study 1)&lt;/b&gt;</td>
</tr>
<tr>
<td>9</td>
<td>October 18th</td>
<td>Case Study 2A</td>
</tr>
<tr>
<td>10</td>
<td>October 25th</td>
<td>Case Study 2A</td>
</tr>
<tr>
<td>11</td>
<td>November 1st</td>
<td>Case Study 2B</td>
</tr>
<tr>
<td>12</td>
<td>November 8th</td>
<td>Case Study 2B</td>
</tr>
<tr>
<td>13</td>
<td>November 15th</td>
<td>Case Study 2A&lt;br&gt;&lt;b&gt;Exam 3: Tuesday, November 16th&lt;br&gt;(Exam 3 Material: Case Study 2)&lt;br&gt;Case Study 3A&lt;/b&gt;</td>
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<tr>
<td></td>
<td>November 22nd</td>
<td>Thanksgiving Break</td>
</tr>
<tr>
<td>14</td>
<td>November 29th</td>
<td>Case Study 3A&lt;br&gt;Case Study 4A</td>
</tr>
<tr>
<td>15</td>
<td>December 6th</td>
<td>Final Exam: Thursday, December 9th from 10:30 am to 12:30 pm</td>
</tr>
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</table>
Student Registration Instructions

To register for MATH 1342 Fall 2021:

2. Under Register, select Student.
3. Confirm you have the information needed, then select OK! Register now.
4. Enter your instructor’s course ID: busbee92828, 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 MATH 1342 Fall 2021 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 MATH 1342 Fall 2021 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 MATH 1342 Fall 2021.
5. Enter an access code or buy access with a credit card or PayPal.

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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:

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

sfasu.edu/math
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.

Date of document: 08/09/2021