Department of Mathematics and Statistics  
Math 1342.502 and 504—Introduction to Probability and Statistics (Online)  
Spring 2024

Instructor: Anali Segura  
Email: lopezay5@sfasu.edu  
Class Times & Place: This class is completely online  
Office Phone: 936-468-3709  
Office: Math 328

Office Hours: Tuesdays and Thursdays; 8:15am-10:45am  
Office hours are held on Zoom and in person.  
Link to join office hours: https://sfasu.zoom.us/my/asegura (Meeting ID: asegura)

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

Text and Materials: Discovering Statistics (Bundle) by Hawkes and Marsh, 3rd Edition.  
Online access to the Hawkes Learning System is required. You can gain access by either using the access code from the bundle or by purchasing access from Hawkes. You will also need a scientific calculator. I will be using the TI-30XS MultiView. A graphing calculator is permitted but not required. Please make sure that you are comfortable with the calculator that you select. You must have access to Excel starting with lesson 4.1. SFA provides Excel to all students and you can access Excel through your mySFA account.

Attendance Policy  
This is an online class. You are responsible for all due dates and material. Please use the calendar located at the end of the syllabus to help you stay on track.

Grading Policy:  
Grading Scale:  
90% - 100%: A  
80% - 90%: B  
70% - 80%: C  
60% - 70%: D  
Below 60%: F

<table>
<thead>
<tr>
<th>Course Requirements</th>
</tr>
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<tbody>
<tr>
<td>Hawkes Lessons—The lesson schedule is located at the end of the syllabus. [CO 1, 2, 3]</td>
</tr>
<tr>
<td>Two WebTests—The WebTests are designed to make sure that you are keeping up with the material. These are online tests through Hawkes. Additional information about the WebTests can be found later in the syllabus. [CO 1, 2, 3]</td>
</tr>
<tr>
<td>Midterm Exam—The midterm exam is an online exam through Hawkes. [CO 1, 2, 3]</td>
</tr>
<tr>
<td>Comprehensive Final Exam—The final exam is an online exam through Hawkes [CO 1, 2, 3]</td>
</tr>
<tr>
<td>Student Responsibility—It is your responsibility to keep up with all due dates and exam dates. It is your responsibility to check Hawkes and d2l daily.</td>
</tr>
</tbody>
</table>

Exam Calendar and Information:  

<table>
<thead>
<tr>
<th>Exam</th>
<th>Due Date</th>
<th>Exam Material</th>
</tr>
</thead>
<tbody>
<tr>
<td>WebTest 1</td>
<td>February 12th</td>
<td>All material covered from 1.1 through 4.3 (see schedule for a detailed list of sections)</td>
</tr>
<tr>
<td>Midterm Exam</td>
<td>March 7th</td>
<td>All material covered from 1.1 through 8.2 (see schedule for a detailed list of sections)</td>
</tr>
<tr>
<td>WebTest 2</td>
<td>April 29th</td>
<td>All material covered from 8.3-11.4b (see schedule for a detailed list of sections)</td>
</tr>
</tbody>
</table>
| Final Exam     | May 8th   | All material covered in the course  
The final exam is comprehensive (see schedule for a detailed list of sections) |

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
Hawkes Learning System Lessons:

The Hawkes lessons are how you will learn and gain confidence in the material for this course. These lessons play the role of lecture and homework in a face-to-face class. There are 25 total lessons to complete on Hawkes. Your two lowest Hawkes lessons will be dropped. Each time you work through a lesson, you will work through the lesson in three parts: learn, practice, certify.

1. Part 1: Learn
   The first part of the Hawkes lesson plays the role of the lecture that you would have in a face-to-face course. This part will introduce you to the material covered in that sections. You will see examples completed step by step.

2. Part 2: Practice
   The second part of the lesson allows you to practice with what you just learned. This part allows you to gain confidence in the new material.

3. Part 3: Certify
   The final part is where you get your grade for the lesson. You must certify each lesson in order to get a grade. Once you certify each lesson, your grade for that lesson is 100%. You will see a required mastery for each lesson. This tells you how many questions you need to get correct in order to master the lesson. Once you have mastered the lesson, it is certified and your grade for that lesson is 100%. For example, if it says that the required mastery is 10 out of 13 then once you get 10 questions right, you have certified the lesson.

Note: You can go through any of the three parts as many times as you want

Due dates are posted on the schedule at the end of the syllabus as well as on the Hawkes Learning System. On the scheduled due date, the assignment is due at 11:59 pm.

Late Penalty Policy for Hawkes Lessons

0% penalty for a lesson that is certified one day late *
0% penalty for a lesson that is certified two days late *
0% penalty for a lesson that is certified three days late *
25% penalty for a lesson that is certified four days late (The highest grade that can be earned is now a 75% score)
50% penalty for a lesson that is certified five days late
75% penalty for a lesson that is certified six days late
100% penalty for a lesson that is certified more than six days late

*The 0% penalty for a lesson certified up to three days late is in place to allow you to fit the course better into your schedule and allow you that extra day or so when emergencies happen. All lessons must be completed by December 2nd. You always want to stay on track with the due dates and only rely on the late submission penalty policy in an emergency situation. This late penalty policy is for Hawkes lessons only.

You need to figure out blocks of time throughout the week that you plan to work on the lessons. Do NOT wait until the due date to try and complete the lessons due that day. Any Hawkes work done after May 8th will not count. You need to pace yourself in order to successfully complete the lessons for that week. You should always try to stay at least a lesson ahead of schedule. One lesson might take you longer than another one.

Miscellaneous:

- It is your responsibility to keep up with all due dates for the course. It takes dedication and time management to succeed in an online course.
- It is your responsibility to check D2L (https://d2l.sfasu.edu/) and Hawkes on a daily basis. You are responsible for anything posted on D2L or on Hawkes.
- I like to use D2L for storage and communication. I will store course files on D2L. I put announcements on the D2L newsfeed. You will spend most of your time in this course on the Hawkes Learning System.
- Email is the best way to get a hold of me outside of class and office hours. Please contact me through email instead of using my office phone number.
- If you ever email me during the school week and you do not get a reply within 24 hours, please resend the email because I did not receive it.
- See https://math.sfasu.edu/docs/syllabi/MATH1342Syllabus.pdf for elements common to all sections
Exam Dates and Information
Spring 2024

All Webtests/exams, and their practices can be found on Hawkes under the WEBTESTS tab

- **WebTest 1:**
  - WebTest 1 is to be completed online through Hawkes
  - WebTest 1 covers our lessons in chapters 1 through 4 (see schedule on next page)
  - WebTest 1 is due by **Monday, February 12th, 2024 at 11:59pm**
  - Once you have finished the lessons on WebTest 1, you will want to do the following:
    - Review the lessons
    - Complete the practice for WebTest 1 on Hawkes
      - The practice is called PRACTICE for WebTest 1
      - The practice is not for a grade but I highly recommend working through the practice as many times as needed
    - Complete WebTest 1
  - You have one attempt at WebTest 1
  - You have 120 minutes to complete WebTest 1 once you start it
  - You need to have our class Excel spreadsheet open while you take WebTest 1
  - You will receive your score on this WebTest immediately after it is submitted. You will then be allowed to review the WebTest starting February 13th.

- **Midterm Exam:**
  - The midterm exam is to be completed online through Hawkes
  - The midterm covers all lessons covered so far this semester through 8.2 (see schedule). Once you complete the lessons covered on the midterm, you will want to take the practice midterm located under WebTests on Hawkes.
  - The midterm exam is due by **Thursday, March 7th, 2024 at 11:59pm**
  - You have one attempt on the midterm exam
  - You have 120 minutes to complete the midterm exam once you start it
  - You need to have our class Excel spreadsheet open while you take the midterm exam
  - You will receive your score on this midterm immediately after it is submitted. You will then be allowed to review the midterm starting March 8th.

- **WebTest 2:**
  - WebTest 2 is to be completed online through Hawkes
  - WebTest 2 covers all lessons covered from 8.3-11.4b (see schedule on next page)
  - WebTest 2 is due by **Monday, April 29th, 2024 at 11:59pm**
  - Once you have finished the lessons on WebTest 2, you will want to do the following:
    - Review the lessons
    - Complete the practice for WebTest 2 on Hawkes (under the test tab)
    - Complete WebTest 2
  - You have one attempt at WebTest 2
  - You have 120 minutes to complete WebTest 2 once you start it
  - You will receive your score on this WebTest immediately after it is submitted. You will then be allowed to review the WebTest starting April 30th
  - You need to have our class Excel spreadsheet open while you take WebTest 2

- **Final Exam:**
  - The final exam is to be completed online through Hawkes
  - The final covers all lessons covered in this course (see schedule). There are several practices for the final exam on Hawkes under WebTests.
  - The final exam will open on **Friday, May 3rd, 2024**, and can be completed at any time before May 8th, 2024.
  - The final exam is due by **Wednesday, May 8th, 2024 by 11:59 pm**
  - You have 120 minutes to complete the final exam once you start it
  - You have one attempt on the final exam
  - You need to have our class Excel spreadsheet open while you take the final exam
## Spring 2024 Lesson Due Date Schedule

<table>
<thead>
<tr>
<th>Lesson Name</th>
<th>Due Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1-1.8 Introduction to Statistical Thinking</td>
<td>1/22</td>
</tr>
<tr>
<td>3.1 Frequency Distributions</td>
<td>1/22</td>
</tr>
<tr>
<td>3.4 Histograms and Other Graphical Displays of Quantitative Data</td>
<td>1/25</td>
</tr>
<tr>
<td>4.1 Measures of Location</td>
<td>1/29</td>
</tr>
<tr>
<td>4.2 Measures of Dispersion</td>
<td>2/1</td>
</tr>
<tr>
<td>4.3 Measures of Relative Position, Box Plots, and Outliers</td>
<td>2/5</td>
</tr>
<tr>
<td>6.1 Introduction to Probability</td>
<td>2/15</td>
</tr>
<tr>
<td>7.1 Types of Random Variables</td>
<td>2/19</td>
</tr>
<tr>
<td>7.2 Discrete Random Variables</td>
<td>2/22</td>
</tr>
<tr>
<td>7.4 The Binomial Distribution</td>
<td>2/26</td>
</tr>
<tr>
<td>8.2 The Normal Distribution</td>
<td>2/29</td>
</tr>
<tr>
<td>8.3 The Standard Normal Distribution</td>
<td>3/21</td>
</tr>
<tr>
<td>8.4 Applications of the Normal Distribution</td>
<td>3/21</td>
</tr>
<tr>
<td>9.3 The Distribution of the Sample Mean and the Central Limit Theorem</td>
<td>3/25</td>
</tr>
<tr>
<td>9.4 The Distribution of the Sample Proportion</td>
<td>4/1</td>
</tr>
<tr>
<td>10.2 Interval Estimation of the Population Mean</td>
<td>4/4</td>
</tr>
<tr>
<td>10.3 Estimating the Population Proportion</td>
<td>4/8</td>
</tr>
<tr>
<td>11.1 Introduction to Hypothesis Testing</td>
<td>4/11</td>
</tr>
<tr>
<td>11.2a Testing a Hypothesis about a Population Mean with Sigma Known</td>
<td>4/11</td>
</tr>
<tr>
<td>11.2b Testing a Hypothesis about a Population Mean with Sigma Unknown</td>
<td>4/15</td>
</tr>
<tr>
<td>11.2c Testing a Hypothesis about a Population Mean using P-values</td>
<td>4/18</td>
</tr>
<tr>
<td>11.4a Testing a Hypothesis about a Population Proportion</td>
<td>4/22</td>
</tr>
<tr>
<td>11.4b Testing a Hypothesis about a Population Proportion using P-values</td>
<td>4/22</td>
</tr>
<tr>
<td>5.1 Scatterplots and Correlation</td>
<td>5/2</td>
</tr>
<tr>
<td>5.2 Fitting a Linear Model</td>
<td>5/2</td>
</tr>
</tbody>
</table>

- Please see previous pages in the syllabus for details on all assignments.
- Most of your semester is spent on Hawkes but I will make announcements on D2L or contact you through email.
- My advice is to always stay at least one lesson ahead of schedule.
NEW STUDENTS
1. Go to [https://learn.hawkeslearning.com](https://learn.hawkeslearning.com)
2. Click Create an Account
3. Choose one of the following:
   - Complete the account creation steps.
   - If you selected Temporary Access, to make your account permanent:
     4. Click Activate. Note: you are able to click here, even if your temporary access code has expired.
     5. Using the pop-up window, complete one of the following steps:
        - If you have purchased a license number from the bookstore, type it in and click Activate Now.
        - If you need to purchase your materials, click Purchase Online to do so with a credit card.

RETURNING STUDENTS
1. Sign in to your account at [https://learn.hawkeslearning.com](https://learn.hawkeslearning.com)
2. Locate the product being used in this course on your Dashboard and click Upgrade. **If you do not see Upgrade on your Dashboard, click Enroll, select the following for both your instructor and section: Upgrade to New Edition, and click Enroll. Then select Upgrade.**
3. Upon selecting Upgrade, you will be prompted to enroll into your course. Select your instructor name and section, then click Enroll.
4. This will complete the process, and you will see your upgraded access to the new edition courseware on your Dashboard.

WE CAN HELP
If you have any questions about your account, please contact Hawkes Technical Support:

1-800-426-9538
Monday–Friday, 8:00 a.m.–10:00 p.m. ET

Online Chat
[http://chat.hawkeslearning.com](http://chat.hawkeslearning.com)
24 hours a day, 7 days a week
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 Displays of Data
  - Measures of Location, Dispersion, and Position

- Sampling Distributions [CO 1, 2, 3]
  - Random Variables and Samples
  - Binomial Distribution
  - Normal Distribution
  - Student’s-t Distribution
  - Central Limit Theorem

- Statistical Inference [CO 1, 2, 3]
  - Hypothesis Testing
  - Estimation
    - Point Estimation
    - Interval Estimation

- Simple Linear Regression [CO 1, 2, 3]

Approximate time spent

10%

20%

60%

10%

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 the bulleted content. 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.

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.

Academic Integrity

The Code of Student Conduct and Academic Integrity outlines the prohibited conduct by any student enrolled in a course at SFA. It is the responsibility of all members of all faculty, staff, and students to adhere to and uphold this policy.

Articles IV, VI, and VII of the new Code of Student Conduct and Academic Integrity outline the violations and procedures concerning academic conduct, including cheating, plagiarism, collusion, and misrepresentation. Cheating includes, but is not limited to: (1) Copying from the test paper (or other assignment) of another student, (2) Possession and/or use during a test of materials that are not authorized by the person giving the test, (3) Using, obtaining, or attempting to obtain by any means the whole or any part of a non-administered test, test key, homework solution, or computer program, or using a test that has been administered in prior classes or semesters without permission of the Faculty member, (4) Substituting for another person, or permitting another person to substitute for one’s self, to take a test, (5) Falsifying research data, laboratory reports, and/or other records or academic work offered for credit, (6) Using any sort of unauthorized resources or technology in completion of educational activities.

Plagiarism is the appropriation of material that is attributable in whole or in part to another source or the use of one’s own previous work in another context without citing that it was used previously, without any indication of the original source, including words, ideas, illustrations, structure, computer code, and other expression or media, and presenting that material as one’s own academic work being offered for credit or in conjunction with a program course or degree requirements.

Collusion is the unauthorized collaboration with another person in preparing academic assignments offered for credit or collaboration with another person to commit a violation of any provision of the rules on academic dishonesty, including disclosing and/or distributing the contents of an exam.

Misrepresentation is providing false grades or résumés; providing false or misleading information in an effort to receive a postponement or an extension on a test, quiz, or other assignment for the purpose of obtaining an academic or financial benefit for oneself or another individual or to injure another student academically or financially.

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. For additional information, go to https://www.sfasu.edu/policies/course-grades-5.5.pdf.

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.

Student Wellness and Well-Being

SFA values students’ overall well-being, mental health and the role it plays in academic and overall student success. Students may experience stressors that can impact both their academic experience and their personal well-being. These may include academic pressure and challenges associated with relationships, emotional well-being, alcohol and other drugs, identities, finances, etc.
If you are experiencing concerns, seeking help, 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:**
The Dean of Students Office  (Rusk Building, 3rd floor lobby)
www.sfasu.edu/deanofstudents
936.468.7249
dos@sfasu.edu

SFA Human Services Counseling Clinic  Human Services, Room 202
www.sfasu.edu/humanservices/139.asp
936.468.1041

The Health and Wellness Hub  “The Hub”
Location: corner of E. College and Raguet St.

To support the health and well-being of every Lumberjack, the Health and Wellness Hub offers comprehensive services that treat the whole person – mind, body and spirit. Services include:

- Health Services
- Counseling Services
- Student Outreach and Support
- Food Pantry
- Wellness Coaching
- Alcohol and Other Drug Education

www.sfasu.edu/thehub
936.468.4008
thehub@sfasu.edu

**Crisis Resources:**
- Burke 24-hour crisis line: 1.800.392.8343
- National Suicide Crisis Prevention: 9-8-8
- Suicide Prevention Lifeline: 1.800.273.TALK (8255)
- Crisis Text Line: Text HELLO to 741-741

**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.

*Date of document: 08/23/2023*