MTH 220: Introduction to Probability and Statistics  
Fall 2019

Name: Mrs. Cook  
Department: Mathematics and Statistics  
Email: mmcook@sfasu.edu  
Phone: 936-468-1586  
Office: Math 335  
Office Hours: MWF 10:00-10:50  
TR 8:30-9:30  
Other times available by appointment

Class meeting time and place:  
Section .002 MWF 9:00-9:50 Room 202  
Section .007 MWF 11:00-11:50 Room 208  
Section .009 MWF 12:00-12:50 Room 202  
Section .016 TR 9:30-12:45 Room 202

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

Objectives and 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/courses/syllabi/MTH220Syllabus.pdf

Required Materials:  
Text: Introductory Statistics (custom published) by Neil A. Weiss  
Package ISBN: 1269959719

Calculator: A scientific calculator with statistics capabilities is required. Graphing calculators are permitted, but not required.

Other Supplies: A 2” binder, dividers, different colored highlighters, pencils

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

Grading Policy:  
Grade Breakdown  
The final course grade will be computed using the following weights:  
Exam 1 - 3 60% (20% each)  
Daily Work 10%  
Project 10%  
Comprehensive Final exam 20%

Daily Work  
- Online homework will be required using My Math Lab at www.mymathlab.com. When you create an account, use the following:  
  - Section 002: cook39415  
  - Section 007: cook89869  
  - Section 009: cook91084
Section 016: cook89515

- At the beginning of class, you may ask questions on material covered the previous class period.
- You earn your grade by communicating your understanding of the material through the homework and tests. Clearly communicating mathematics will be essential in this course.
- I will send e-mails to the entire class during the semester. Check your SFA e-mail account frequently.
- **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](http://www.D2L.sfasu.edu).
- To contact me, you may call my office, drop by my office, or e-mail me. I will do my best to reply quickly.
- Students are expected to respect the learning environment of their fellow students. Towards this end, use of mobile phones, mp3 players, PDAs, etc., is forbidden during class.

**Exams**

- If you miss a test and have a valid excuse, I will replace your missed test grade by your final exam grade. However, your final may only replace one other score.
- **Attendance Policy**: Over 3 unexcused absences may result in a grade reduction.
- 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.
- Since you have a full semester to arrange any travel plans, they are not an excuse for missing the final.
- Students are expected to attend every class meeting, arriving on time. If you have 3 or less absences and score a 70% or better on the final, that score may replace your lowest test grade or your homework grade. If a student leaves class early without permission, the student will be marked absent.
- You may get help on work that is assigned to be done outside of class, unless otherwise instructed, but I expect any work that you turn in to reflect your understanding of the material. On in-class graded work, I expect you to only use your brains, pencil, paper, and, sometimes, a calculator.

**Final Exam**

The final exam is comprehensive and counts 20% toward the final grade. The final exam is mandatory.

**Resurrection Policy**: Your final exam score can replace your lowest exam score. The final exam score can only replace ONE exam score and it cannot replace any other score.

**Attendance Policy**: Attendance is expected. You are responsible for any notes and assignments that you miss.

**Tutoring**: The AARC (Academic Assistance and Resource Center) in the Steen Library has free tutoring available! They can be reached at 468 - 4108, or the website [http://libweb.sfasu.edu/aarc](http://libweb.sfasu.edu/aarc). The AARC also has walk in tables available.

**Learning Team**

**Learning Team Leader**: Christine Koenig

Walk In Table hours: Sunday’s -Thursday’s 3 to 7 pm
Course Calendar / 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]

Approximate time spent

- Descriptive Statistics [CO 1, 2, 3] 10%
- Probability [CO 1, 2, 3] 20%
- Probability Distributions [CO 1, 2, 3] 20%
- Sampling Distributions [CO 1, 2, 3] 10%
- Statistical Inference [CO 1, 2, 3] 30%
- 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 by thinking critically, communicating logically ordered solutions with complete and correct notation, and applying empirical or quantitative skills as appropriate to the problem.

Program Learning Outcomes:
This is a general education core curriculum course and no specific program learning outcomes for this major are addressed in this course.

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]
<table>
<thead>
<tr>
<th>#</th>
<th>Week of</th>
<th>Topic(s)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>August 26</td>
<td>Syllabus and Introductory Material</td>
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<tr>
<td>2</td>
<td>September 2</td>
<td>Introductory Material</td>
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<tr>
<td>3</td>
<td>September 9</td>
<td>Case Study 1A</td>
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<td>4</td>
<td>September 16</td>
<td>Case Study 1A: Conclusion and Summary</td>
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<td>5</td>
<td>September 23</td>
<td>Case Study 1B</td>
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<tr>
<td>6</td>
<td>September 30</td>
<td>Case Study 1B: Conclusion and Summary</td>
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<tr>
<td>7</td>
<td>October 7</td>
<td>Case Study 2A</td>
</tr>
<tr>
<td>8</td>
<td>October 14</td>
<td>Case Study 2A: Conclusion and Summary</td>
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<td>9</td>
<td>October 21</td>
<td>Case Study 2B</td>
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<td>10</td>
<td>October 28</td>
<td>Case Study 3A</td>
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<td>11</td>
<td>November 4</td>
<td>Case Study 3A</td>
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<td>12</td>
<td>November 11</td>
<td>Case Study 4: Introduction</td>
</tr>
<tr>
<td>13</td>
<td>November 18</td>
<td>Case 4</td>
</tr>
<tr>
<td>14</td>
<td>November 25</td>
<td>Thanksgiving Holiday</td>
</tr>
<tr>
<td>15</td>
<td>December 2</td>
<td>Projects</td>
</tr>
<tr>
<td>16</td>
<td>December 10</td>
<td>Final Exams</td>
</tr>
</tbody>
</table>

**Final Exams:**
Section .002-Monday December 9th 8:00-10:30 am  
Section .007-Monday December 9th 10:45-1:15 pm  
Section .009-Wednesday December 11th 1:30-4:00 pm  
Section .016- Thursday December 12th 10:30-12:30 pm
Per SFA policy 5.4, this schedule reflects that there is (1) an amount of student work per credit hour that reasonably approximates not less than one hour of class or direct faculty instruction and two hours of out-of-class student work per week for fifteen weeks over a long semester, 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.

**General Education Core Curriculum**

This course has been selected to be part of Stephen F. Austin State University’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.

By enrolling in Math 220 you are also enrolling in a Core Curriculum Course that fulfills the Critical Thinking Skills, Communication Skills, or Empirical and Quantitative Skills requirement. You will see this course on your D2L list. At one point during the semester, you will receive an assignment that fulfills both the requirements of this course and the needs of Stephen F. Austin State University's Core Curriculum Assessment Plan with the Texas Higher Education Coordinating Board. When you complete this one assignment, you need to upload the assignment to both your standard course dropbox determined by your Instructor and the “Core Curriculum” dropbox. The Core Curriculum dropbox will be identified by the Objective for which work is being collected. (Examples: Critical Thinking, Teamwork, Social Responsibility Empirical & Quantitative Skills, Personal Responsibility, Communication Skills-Written, Communication Skills-Written & Visual, and Communication Skills- Oral & Visual.) Please note that this only applies to the approved assignment. All other assignments should be submitted according to regular class operations.

When you complete the assignment mentioned above, you will upload the assignment to both the Math 220 dropbox and the Critical Thinking Skills, Communication Skills, or Empirical and Quantitative Skills dropbox.

Please note that this only applies to the specific assignment listed in the matrix below. All other assignments should be submitted according to regular class operations.

If you have any questions, please see your instructor, or contact the at Office of Student Learning and Institutional Assessment at (936) 468-1130.

The chart below indicates the core objectives addressed by this course, the assignment(s) that will be used to assess the objectives in this course and uploaded to the D2L Critical Thinking Skills, Communication Skills, or Empirical and Quantitative Skills dropbox this semester, and the date the assignment(s) should be uploaded to the D2L Critical Thinking Skills, Communication Skills, or Empirical and Quantitative Skills dropbox. Not every assignment will be submitted for core assessment every semester. Your instructor will notify you which assignment(s) must be submitted for assessment in the D2L Critical Thinking Skills, Communication Skills, or Empirical and Quantitative Skills dropbox.

*Include only the core objectives taught in this course and indicate which objectives are being formally assessed in this semester.*

<table>
<thead>
<tr>
<th>Core Objective</th>
<th>Definition</th>
<th>Course Assignment Title</th>
<th>Date Due in D2L</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>Hypothesis Testing Write Up</td>
<td>11/21/2019</td>
</tr>
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<td>Communication Skills</td>
<td>To include effective development, interpretation and expression of ideas though written, oral, and visual communication.</td>
<td>Hypothesis Testing Write Up</td>
<td>11/21/2019</td>
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<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>Hypothesis Testing Write Up</td>
<td>11/21/2019</td>
</tr>
</tbody>
</table>
Academic Integrity (Policy A-9.1)
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
Academic dishonesty includes both cheating and plagiarism. Cheating includes but is not limited to (1) using or attempting to use unauthorized materials to aid in achieving a better grade on a component of a class; (2) the falsification or invention of any information, including citations, on an assigned exercise; and/or (3) helping or attempting to help another in an act of cheating or plagiarism. Plagiarism is presenting the words or ideas of another person as if they were your own. Examples of plagiarism are (1) submitting an assignment as if it were one’s own work when, in fact, it is at least partly the work of another; (2) submitting a work that has been purchased or otherwise obtained from an Internet source or another source; and (3) incorporating the words or ideas of an author into one’s paper without giving the author due credit.

Please read the complete policy at http://www.sfasu.edu/policies/academic_integrity.asp.

Withheld Grades Semester Grades Policy (A-54)
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 D-34.1 http://www.sfasu.edu/policies/student_conduct_code.asp). 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.