College of Sciences & Mathematics Class Syllabus / Policy Sheet
Spring 2019 - MTH 220 - Introduction to Probability & Statistics

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Background: 22nd Year at SFA, 52nd time to teach course

Text and Materials:

Case Study Manual: Available for Download on D2L after first day of class.
- The course follows the material in the order it is presented in this manual. It is the 2nd most important item for our class next to your class notes.
- You should have an electronic or paper copy of the Case Study Manual with you EVERYDAY that you come to class.

Required Software: MyStatLab

MyStatLab is the online software that you will use to complete and submit all of your homework assignments. It also contains an electronic copy of a supplemental textbook Weiss, Introductory Statistics that you can access for additional reading and help. The text is not a required part of the course and you do not need a printed copy of the book.

There are two ways to register for MyStatLab:
Method 1 (Cheapest, $60, requires credit card or Paypal)
1. Google “mystatlab” and click on the top result that pops up called MyLab Statistics | Pearson”
2. On the right hand side of the screen you now see click “Student” under the “Register Now” banner.
3. You will now need three things: your method of payment, your email address and the course i.d. which is miller26547. Click the yellow button that say “OK! Register now” and follow the directions. You’re done.

Method 2 (More expensive. $110. To be used if you must buy books in a bookstore for financial or do not have access to a credit card or Paypal and are using only cash at a local bookstore)
1. Go to a local bookstore and buy the custom version created for SFA of the textbook Weiss, Introductory Statistics. The textbook has a picture of pine trees on the front and a purple circle in the middle. It will be wrapped in plastic.
2. On the inside flap of the book will be a scratch off section that contains an access code. Scratch this section off to reveal your personal access code.
3. Follow the Method 1 instructions and when it asks for payment, just insert the access code instead.

Method 1 (for financial reasons) is obviously preferred. Realize: YOU DO NOT NEED TO GO TO A BOOKSTORE IF YOU ARE USING METHOD 1.
Course Goals: To equip students with the skills necessary to use data in order to make better decisions. Specifically, to master basic skills in the sciences of probability and statistics that will empower students when it comes to interpreting data. A major goal of the course is to teach the students that data drives decision making in all facets of life. Learning to organize, summarize and make inference from data will allow us to develop more successful policies in among other disciplines business, education, medicine, engineering, law, and politics.

Specific Topics Covered: the basic language of populations and samples, variation and distributions, the statistical inference process, the role of probability in making statistical decisions, analysis of one and two proportions, analysis of one and two means, regression and correlation.

Specific Course Policy: No make-up exams are given. Exception to the no make-up policy concerning exams is handled on a case by case basis only if the student provides notification to the instructor before 5:00 on the day that the exam was given. There is no need to notify me when and if you were to ever miss class -- I keep no record of such instances -- and missing a class with as much detail as this one polices itself as far as grades are concerned. (Consistently on faculty reviews, students tell me that getting notes from a friend and reading them is NOTHING like sitting through the lecture and it was a big mistake of theirs to think it would be OK)

If a lecture is missed, class notes are the students’ responsibility to obtain from a fellow classmate. My lecture notes are not available after the lecture has been given. Any handout given on the date of absence can be downloaded from D2L.

Exams: There will be three closed notes exams. You will get your exam back one week after you take it. You will not get your exam back the lecture after you take it. Do not ask.

The Final Exam is closed notes and partially comprehensive. The concepts portion of the Final is comprehensive and the Problems portion is not. You must take the final at the designated time. You cannot switch times.

The exams are often more difficult than students expect them to be. That is because students typically underestimate the level of detail that they are expected to master.

The effort required in Introductory Statistics is quite high. The subject is typically seen as more challenging than other core classes. You will probably view this course as either your most challenging or 2nd most challenging course this semester.

Exam Schedule:

Exam 1: Tuesday, February 12
Exam 2: Tuesday, March 5
Exam 3: Tuesday, April 16
Final: TR 12:30 Class: Tuesday, May 14 at 10:30 AM
        TR 2:00 Class: Thursday, May 16 at 1:00 PM
All exams during Spring 2019 are 100% multiple choice.
Part I: Concepts – this part of the exam tests definitions, terminology and other general concepts. There are no calculations on this part of the exam.

Part II: Problems – this part of the exam tests your ability to solve computational problems. You will work the problems and then use your solutions to answer multiple choice questions. Generally, there are 2-3 problems per test and roughly 5 on the final.

Overall, regular exams consist of approximately 50 to 60 multiple choice questions and the final consists of approximately 75 multiple choice questions.

**Homework:** Online homework will be assigned using MyStatLab. The due dates for these assignments will be posted online and announced in class. This homework is graded by the online system.

**Grading Breakdown:** Homework 15%, Final Exam: 25%, Each Regular Exam: 20%.

If the Final is greater than your lowest test grade: Homework: 15%, Final Exam: 35%, Two Regular Exams: 20%, Lowest Exam: 10%.

**Preferred Method of Communication:** If you cannot come by during office hours or talk to me before or after lectures, the preferred method of communication is via e-mail. Although frequently you will be able to get through to talk to me on the phone, I tend to answer e-mail messages with more regularity than I check phone messages. Often, I screen phone calls or disconnect the phone in my office altogether. However, rest assured that outside of class or office hours you will be able to communicate with me via e-mail. I can check these messages from both home and off campus and can often reply at hours that are not during the typical work day. PLEASE ONLY USE THE E-MAIL ADDRESS LISTED ABOVE. I will not reply at other addresses which are posted in university literature.

**Note about Expectations:** I expect you to review the notes I give you in class on average four to five times a week. Studying just a few hours a week for this course is unacceptable. Not studying for this course for a period of three consecutive days is unacceptable. Just reviewing homework and the case study manual for the test will not make you prepared. You must have a deep, deep understanding of the notes you take in class to be successful. Just being "loosely familiar" with the notes is not close to being prepared for exams.
Things You are Not Allowed To Do

1) **You are not allowed to have your cell phone out during class.** This is a meeting. If you went to a committee meeting at the organization you will work for after you graduate and sat there and texted or looked at your phone all during the meetings it would be frowned upon. Cell phones should not be a part of meetings. Don’t let me catch you with your cell phone on your desk or looking at it during class. My method of punishment is to embarrass you in the most extreme of ways. People tell me I’m pretty good at it.

2) **You are not allowed to ask me what your current course grade is or what you need to make on a test in order to get a certain grade in the course.** These calculations only involve addition, subtraction, multiplication and division. You learned all of these things before you went to junior high school. Do it yourself.

3) **You are not allowed to ask questions during exams.** Sorry, other people ruined it for you. There are those among you that would ask 20 ticky-tacky “fishing for help” questions during exams, getting up and disturbing others, commenting on why I centered one phrase and left-justified another, asking me if what is italicized is italicized for any particular reason, asking me to restate the question three different ways, asking if you can write on the back of the paper, asking if I will take off points if you doodle stick figures while you are thinking, etc., etc. It got out of hand. So, we just won’t do it anymore. No questions during exams. Blame the generation before you.

4) **Please do not tell me why you missed class or even that you did miss class.**

Exceptions: A university sponsored event (band, club/organization travel that is university approved, athletics, speaking at a conference), Death in Family.

Reason for this policy: I don’t need to know why you couldn’t make it to class. I fully realize people get sick from time to time. But, frankly, you are an adult. I don’t need to know why you made the choice to come to class or not.

5) **You are not allowed to contact me between the final exam and when grades are posted.** You finished the class. Go home. Stop worrying. Study for your other finals. Go Christmas shopping with your family and friends. Grades get posted when I’m done. You aren’t helping yourself by asking me: Are you done grading yet? Are you done grading yet? Are you done grading yet? You sound like the five year old in the back seat of a car asking their parents: “Are we there yet?”. How did that make your parents feel? Yeah, avoid that. I don’t return student emails during Finals week. It is one of the busiest times of the year for faculty and I assure you that I am grading diligently. Learn to accept when people tell you: “It’s done when it gets done. Chill.”

6) **No whining and complaining.** “I really like how intricate of a complainer she is” or “He has this really amazing quality of knowing just what degree of whining to utilize” SAID NO ONE EVER! Everyone needs to blow off steam and express frustration from time to time. It’s normal. Do it in the privacy of your own dorm, apartment, etc. in front of family and friends that can relate and don’t do it out in public where you’ll make yourself look like a toddler.
Just a few things about me that might help us to understand one another and work together better:

My mom taught public school for over 25 years in some tough neighborhoods in Houston. She taught me this about teaching: Be Firm, Be Fair, and Be Friendly, but only in that order. That’s how I roll. Virtually all of the best teachers I had in school were really demanding and seemed rigid at first, but then after you got to know them they were friendly and really accessible. That’s me. On day one, I may not even seem nice. That’s because I need to establish guidelines and expectations because I don’t compromise on them. Then, slowly, as you establish a work ethic and we mutually gain each other’s respect as teacher and student, we can relate in less of a militaristic way.

I am very compartmental in my life. Faith, family, my work, baseball and volleyball are about the only five things in life I care much about. If something doesn’t fit into one of those compartments I usually let it pass me by. When I am at work – I’m focused on teaching, students and research. When I’m with my wife and kids – they have my full attention. I am fully devoted in my faith. When working with SFA Volleyball, my academic side is put away and the writer, broadcaster, and sports enthusiast is all you see and hear.

So, I’d just encourage you to figure out what really matters to you and then be willing to cast all your energy towards those things. This sometimes takes patience, but I’ve found it better to devote a lot of energy to just a few really super important things as opposed to fracturing your efforts across tons and tons of little things. If something only gives you temporary gain or happiness, it probably isn’t worth it to include in your life. Don’t devote a lot of time or give away a large portion of yourself to things that basically equate to idle time or only benefit you for a short time.
HOW TO STUDY FOR THIS CLASS

The following bullets are in order of priority. Allocate your time in the order that these bullets appear, but leave none of them out as you prepare.

- The notes are ALWAYS the primary source of information when studying for exams. I expect you to be reviewing your notes and asking me questions about them continuously. Anything in the notes is fair game for exams. Anything.

When students don’t do well on exams, the primary reason is that they have a flimsy command over their notes. You should be extremely familiar with your notes and very precise in replicating the ideas in them. Studying notes should occupy roughly 75% of all your effort for this class.

- You should do all of the practice cases on D2L over and over until you can replicate their solutions perfectly. There are usually only two or three practice cases per exam so you should be able to work them inside and out with extreme detail.

- You should memorize all of the material on the “Case Recap Sheets” given out in class and posted on D2L. Have the entire sheet memorized. Pretty much everything on them eventually shows up on a test.

- You should keep up with the reading assigned in the Case Study manual and cross-reference the Case Study Manual with your notes. Be aware that some questions on each test are taken directly from the reading. Please freely ask questions about anything that you read in the Case Study Manual.

- You should review old MyStatLab assignments, especially the questions you missed on the homework.
General Education Core Curriculum

The Texas Higher Education Coordinating Board has identified six core learning objectives: 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 MTH 220 you are also enrolling in a Core Curriculum Course that fulfills the Critical Thinking Skills, Communication Skills, Empirical and Quantitative Skills requirements. 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 MTH 220 dropbox and the Critical Thinking Skills, Communication Skills, 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, Empirical and Quantitative Skills dropbox this semester, and the date the assignment(s) should be uploaded to the D2L Critical Thinking Skills, Communication Skills, 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, Empirical and Quantitative Skills dropbox.

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<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>Critical Thinking Skills</td>
<td>To include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information.</td>
<td></td>
<td></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></td>
<td></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>
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Academic Integrity (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.

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/.
Math 220 (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.

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>
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<tr>
<td>Critical Thinking Skills</td>
<td>To include creative thinking, innovation, inquiry, and analysis, evaluation and synthesis of information.</td>
<td>The instructor of each section will determine the assignment for this assessment.</td>
<td>Only assessed in fall of odd years. (See instructor for due date(s).)</td>
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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]  

Approximate time spent  
- 10%  
- 20%  
- 20%  
- 10%  
- 30%  
- 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.  

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.  

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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.

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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.

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