**MTH 220 Course Syllabus**  
**2018 / Fall**  
**MTH 220.011**  
*Introduction to Probability and Statistics*

**Instructor:** Jacob Turner, Ph.D.  
**Department:** Mathematics and Statistics  
**Email:** turnerja2@sfasu.edu  
**Phone:** 936-468-1692  
**Office:** 342 NM  
**Office Hours:**

<table>
<thead>
<tr>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-3</td>
<td>9-11</td>
<td>10-1050</td>
<td>130-230</td>
<td>10-1050</td>
</tr>
</tbody>
</table>

**Class meeting time and place:** 1200 pm – 12:50 pm, MWF, Mathematics 213

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

**Text and Materials:**

| The Case Study Manual Freely available in D2L |
| TI-83/84 Calculator |


**Course Requirements:**  
Homework, In Class Exercises, Exams, and Final Exam

**Course Calendar:**

<table>
<thead>
<tr>
<th>Course outline:</th>
<th>Approximate time spent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Descriptive Statistics</strong></td>
<td>10%</td>
</tr>
<tr>
<td>o Graphical Display of Data</td>
<td></td>
</tr>
<tr>
<td>o Measures of location</td>
<td></td>
</tr>
<tr>
<td>o Measures of Dispersion</td>
<td></td>
</tr>
<tr>
<td><strong>Probability Distributions</strong></td>
<td>20%</td>
</tr>
<tr>
<td>o Random Variables</td>
<td></td>
</tr>
<tr>
<td>o Discrete Distributions</td>
<td></td>
</tr>
<tr>
<td>□ Binomial Distribution</td>
<td></td>
</tr>
<tr>
<td>o Continuous Distributions</td>
<td></td>
</tr>
<tr>
<td>□ Normal Distribution</td>
<td></td>
</tr>
<tr>
<td><strong>Sampling Distributions</strong></td>
<td>10%</td>
</tr>
<tr>
<td>o Random Samples</td>
<td></td>
</tr>
<tr>
<td>o Central Limit Theorem</td>
<td></td>
</tr>
<tr>
<td><strong>Statistical Inference</strong></td>
<td>40%</td>
</tr>
<tr>
<td>o Estimation</td>
<td></td>
</tr>
<tr>
<td>□ Point Estimation</td>
<td></td>
</tr>
<tr>
<td>□ Interval Estimation</td>
<td></td>
</tr>
</tbody>
</table>
Hypothesis Testing
- Two sample inference

- Linear Regression 20%

**Grading Policy:** The final average will be computed using the following weights:

- **HW and Group Exercises 10%**
  - Due on almost every Friday before class begins.

- **Two midterm exams 25% each**
  - 1 may be replaced by your final exam
  - Given in Lecture Sections

- **Project 10%** (In class group presentation, 2-3 member groups)

- **Final exam 20%**
  - Mandatory and comprehensive
  - Cannot be dropped

**Homework and Group Exercises** (Due on almost every Friday before class begins)

HW assignments will be provided through D2L. Students will submit their HW in class on the appropriate due date. In addition to regular HW, additional group exercises in class will be conducted as well as a few potential quizzes. Participation is required for these additional assignments, so if you miss class that day, then you will not receive credit for the assignment that day.

**Exams (Tentatively Oct 5, Nov. 16)**

There are no make-ups for missed exams, so make every effort to be at class on exam day. If you know ahead of time that you will miss an exam, see me at least one class before the scheduled exam and we will work something out. 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.

**Final Exam**

The final exam is comprehensive and counts 20% toward the final grade. The final exam schedule is **Wednesday, Dec 12, 1:00pm-3:00pm.**

**Project (TBD)**

You can select any topic as long as it is related inferential procedures. That is, you have to use both hypothesis testing and confidence interval methods to answer appropriate questions related to the population (s) of the selected project. You have to inform me what you are going to do to make sure you are on the right track (get my approval). Projects can be completed in groups of 2-3 class members and all members must participate in all project activities including the final class presentation. A portion of your grade will be based on peer evaluation from the other members of your group.
Grading Scale:

<table>
<thead>
<tr>
<th>Letter Grade</th>
<th>% Scale</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>90-100</td>
</tr>
<tr>
<td>B</td>
<td>80-89</td>
</tr>
<tr>
<td>C</td>
<td>70-79</td>
</tr>
<tr>
<td>D</td>
<td>60-69</td>
</tr>
<tr>
<td>F</td>
<td>below 59</td>
</tr>
</tbody>
</table>

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]

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 MTH220 you are also enrolling in a Core Curriculum Course that fulfills the CO1, CO2, or CO3 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 MTH220 dropbox and the CO1, CO2, or CO3 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 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 CO1, CO2, or CO3 dropbox this semester, and the date the assignment(s) should be uploaded to the D2L CO1, CO2, or CO3 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 CO1, CO2, or CO3 dropbox.

<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>N/A</td>
<td>N/A</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>N/A</td>
<td>N/A</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>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

**Expectations and Class Rules:**
I expect you to come to class ready and prepared. This includes keeping up to date with reading the case study manual, completion of all HWs, active participation during class room exercises, and studying the material regularly. 

ALL cell phones are to be turned OFF and put away. If someone violates this rule (texting, playing games, etc.), then the person must leave the class room for that class period without any further delay according to the professor’s instructions. No food in the classroom. Don’t leave the classroom in the middle of the lecture.

**Attendance Policy:**
Attendance is expected and will be reflected in everything you submit. It will be increasingly difficult to get a good grade or even pass if you miss class regularly. When a student misses class, s/he is expected to proactively and promptly acquire the missed information before the next calendar class day and meet all requirements administered by the instructor and the student must: Submit an official, dated note from attending doctor, parent, or supervisor, depending on the nature of the absence. Documentation must be submitted promptly.

**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.