Applied Probability and Statistics
MATH 3342.001
Department of Mathematics & Statistics
Summer I 2015

A. COURSE INFORMATION
   Course number/section: MATH 3342-001
   Class meeting time: MTWR 4:00 PM – 5:53 PM
   Class location: CS-112
   Course Website: Blackboard Math-3342

B. INSTRUCTOR INFORMATION
   Instructor: DR. LEI JIN
   Office location: CI 307
   Office hours: MTWR 2:35-3:50; other times by appointment
   Telephone: 361-825-2099
   E-mail: lei.jin@tamucc.edu
   Appointments: Via Email

C. COURSE DESCRIPTION
   Catalog Course Description
   This is an introduction to statistical methods. Emphasis is placed on interpretation and understanding of statistical concepts. A computer statistical package will be used to work with real data. Students use data analysis to learn and detect patterns and structure in data. They explore the basic concepts of statistics such as discrete and continuous distributions, numerical summary measures, probability, sampling distributions, fitting a line to bivariate data, estimation, confidence intervals and hypothesis testing.

D. PREREQUISITES AND COREQUISITES
   Prerequisites
   MATH 2413, Calculus I, or the equivalent.

E. REQUIRED TEXTBOOK(S), READINGS AND SUPPLIES
   Required Textbook(s)
   Text: Devore, Jay L., Probability and Statistics for Engineering and the Sciences, 8th edition. Although this is listed as “Required”, I will discuss in class the extent to which you really need this.
   Supplies
   Calculator: You will need a calculator. No specific calculator is required. A TI-83/84 calculator or similar is recommended.
F. STUDENT LEARNING OUTCOMES AND ASSESSMENT

Assessment is a process used by instructors to help improve learning. Assessment is essential for effective learning because it provides feedback to both students and instructors. A critical step in this process is making clear the course’s student learning outcomes that describe what students are expected to learn to be successful in the course. The student learning outcomes for this course are listed below. By collecting data and sharing it with students on how well they are accomplishing these learning outcomes students can more efficiently and effectively focus their learning efforts. This information can also help instructors identify challenging areas for students and adjust their teaching approach to facilitate learning.

By the end of this course, students should be able to:

1. Perform elementary probability calculations using important probability distributions, both discrete and continuous, and apply them to model real world problems
2. Estimate sampling distributions of statistics using theoretical and computational methods, and choose appropriately between them for specific data
3. Calculate point estimates and confidence intervals for unknown parameters using bootstrap and parametric methods
4. Perform hypothesis tests for unknown parameters using bootstrap and parametric methods
5. Choose among the various inferential statistical methods from this course to answer specific research questions
6. Interpret and write up the results of statistical calculations and graphics to answer research questions using appropriate language

G. INSTRUCTIONAL METHODS AND ACTIVITIES

Classroom meetings will be primarily lecture, with some demonstrations and in-class problem solving. There will substantial homework and computer assignments.

H. MAJOR COURSE REQUIREMENTS AND GRADING

The following assessments will be given during the semester:

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<thead>
<tr>
<th>Homework or Quizzes</th>
<th>In class semester tests</th>
<th>Final</th>
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</thead>
<tbody>
<tr>
<td>25%</td>
<td>25%</td>
<td>50%</td>
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Grade Scale:

From these evaluations, your grade will be computed using the standard scale: A = 90-100; B = 80-89; C = 70-79; D = 60-69; F = below 60.

I. COURSE CONTENT/SCHEDULE

• Weeks 1: Introduction to the course; the nature of data; samples; remedial discrete math
• Weeks 1: Probability (Chapter 2)
• Week 1-2: Discrete Random Variables (Chapter 3)
• Weeks 2: Continuous Random Variables (Chapter 4)
• Weeks 2: Continuous Random Variables (Chapter 4)
• Week 3: Joint distributions & Sampling Distributions (Chapter 5 & 6)
  Test (June 16th)
• Weeks 3: Confidence Intervals & the Bootstrap (Chapter 7)
• Weeks 4: Hypothesis Testing I: Single Means (Chapter 8);
• Week 4: Hypothesis Testing II: Comparing Two Means (Chapter 9)
• Week 5: Hypothesis Testing III: Comparing Multiple Means (Chapter 10)
• Week 5: Correlation and Regression (Chapter 12)

Note: Changes in this course schedule may be necessary and will be announced to the class by
the Instructor. The assignments and exams shown are directly related to the Student Learning
Outcomes described in Section F.

J. COURSE POLICIES

Attendance/Tardiness
Talking during class time and tardiness are often disruptive to the whole class and are
not appreciated. If you are delayed and arrived late please do so quietly. Excessive
tardiness, disruptive talking, disruptive behavior or performing activities not related to
the class will be counted as absences and cancel bonus points for attendance. The
instructor is NOT responsible for informing absent students what was covered in
previous classes, homework or any other announcements.

Late Work and Make-up Exams
It is your responsibility to keep track of course deadlines and due dates. NO late
HW/Quizzes will be accepted. No Make-up HW/Quizzes will be allowed. Two lowest
scores on HW/quizzes will be dropped to compensate possible missing HW/Quizzes due
to some valid excuses.
All students should plan to take their tests at the scheduled times. If you do not have a
valid written excuse and you miss a test, you will NOT be allowed to make up the test
and you will score a zero for that test. To request a make-up test, a valid written excuse
must be provided within ONE DAY after the missed test. The make-up test must be
taken in three days after the scheduled test time. In the case that you have a valid written
excuse and you are not able to take a makeup test in time, your score of the test will be
replaced by the score on your final exam with some possible adjustment (according to
the medians of two tests).

Extra Credit
No less than 95% attendance or more will result in 2% as bonus points to your course
average that usually is helpful to determine borderline grades.

Cell Phone Use
Cell phones and such must be turned off before class.
Final
Final exam will be administered in class, Thursday, July 2. It is a comprehensive examination over all material covered during the semester. ABSOLUTELY NO EARLY final examination, so make travel arrangements accordingly. A missed final exam will result on a score of 0 points.

K. COLLEGE AND UNIVERSITY POLICIES

- **Academic Integrity (University)**
  It is expected that university students will demonstrate a high level of maturity, self-direction, and ability to manage their own affairs. Students are viewed as individuals who possess the qualities of worth, dignity, and the capacity for self-direction in personal behavior.
  See Full University Policy at http://catalog.tamucc.edu/content.php?catoid=10&navoid=313#Academic_Integrity

- **Classroom/Professional Behavior**

- **Deadline for Dropping a Course with a Grade of W (University)**
  The grade of W will be assigned to any student officially dropping a course by June 19, 2015. No student is eligible to receive a W without completing the official drop process by this deadline. Visit the Office of the University Registrar for the Course Drop Form that must be submitted. After June 19, 2015 a student will not be allowed to drop a course.

- **Grade Appeals (College of Science and Engineering)**
  As stated in University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures, a student who believes that he or she has not been held to appropriate academic standards as outlined in the class syllabus, equitable evaluation procedures, or appropriate grading, may appeal the final grade given in the course. The burden of proof is upon the student to demonstrate the appropriateness of the appeal. A student with a complaint about a grade is encouraged to first discuss the matter with the instructor. For complete details, including the responsibilities of the parties involved in the process and the number of days allowed for completing the steps in the process, see University Procedure 13.02.99.C2.01, Student Grade Appeal Procedures. These documents are accessible through the University Rules website at http://www.tamucc.edu/provost/university_rules/index.html, and the College of Science and Engineering Grade Appeals webpage at http://sci.tamucc.edu/students/GradeAppeal.html. For assistance and/or guidance in the grade appeal process, students may contact the chair or director of the appropriate department or school, the Office of the College of Science and Engineering Dean, or the Office of the Provost.

- **Disability Services**
  Disability Services (DS) is the hub for coordinating services and accommodations to
ensure accessibility and utilization of all programs for all Texas A&M University-Corpus Christi students with disabilities. Our services are designed to meet the unique educational needs of enrolled students with documented permanent or temporary disabilities. DS provides intake and consultation services to students seeking to register with our office. DS reviews an individual’s documentation of disability and assesses eligibility for services and the determination of reasonable accommodations. For more information visit the Disability Services Office at 116 Corpus Christi Hall or go to http://disabilityservices.tamucc.edu/

GENERAL DISCLAIMER
I reserve the right to modify the information, schedule, assignments, deadlines, and course policies in this syllabus if and when necessary. I will announce such changes in a timely manner during regularly scheduled lecture periods.