MATH 431 (SPRING 2017)
MATHEMATICAL STATISTICS II

COURSE OUTLINE

Instructor Information:
Jin-Hong Park, Ph.D.
Office: Room 351 Robert Scott Small
Email: parkj@cofc.edu
Office Hours: Tuesday and Thursday from 11 – 12PM OR by appointment

Course Meeting: Monday and Wednesday Maybank 219 from 4 - 5:15PM (MW)

Course Description:
This course introduces the fundamentals of statistical inference including estimation, confidence intervals, and hypothesis testing. There are also more advance topics which are linear models and basic experimental design. In addition, the special topics such as analysis of categorical data, nonparametric statistics, time series analysis, and basic Bayesian methods are covered if time is permitted. This course is a continuation of Math 430, Mathematical Statistics I, which dealt mostly probability and distributions. Students are expected to be comfortable with the materials of MATH 430.

Student Learning Outcomes:
After completing this course, students will be able to
1. Explain the importance of the statistical theory in the development of the tools of statistical inference.
2. Recognize the connection between classical and non-classical statistical theory for inference.
3. Demonstrate an understanding of mathematical proofs in the development of mathematical statistical theory.
4. Implement the statistical package R to work with statistical models.
These outcomes will be assessed on the four in-class tests and final exam.

Undergraduate Mathematics Program Learning Outcomes:
Students are expected to display a thorough understanding of the topics covered. In particular, upon completion of the course, students will be able to
1. Using algebra, geometry, calculus and other track-appropriate sub-disciplines of mathematics, students model phenomena in mathematical terms.
2. Using algebra, geometry, calculus and other track-appropriate sub-disciplines of mathematics, students derive correct answers to challenging questions by applying the models from Learning Outcome 1.
3. Write complete, grammatically and logically correct arguments to prove their conclusions.
These outcomes will be assessed on the four in-class tests and final exam.

Accommodations for Students with Disabilities:
If there is a student in this class who has a documented disability and has been approved to receive accommodations through the Center for Disability Services/SNAP (Students Needing Access Parity), please come and discuss this with me during my office hours.

College Honor Code:
Any violation of the College's Honor Code will be reported to the Honor Board. For more details, see http://studentaffairs.cofc.edu/honor-system/ and the Student Handbook at http://studentaffairs.cofc.edu/honor-system/studenthandbook/
Course Topics:
Sampling Distribution and Central Limit Theorem (Ch 7), Fundamentals of statistical inference (Ch 8 – 10): estimation, confidence intervals, hypothesis testing, Linear Models (Ch 11 – 13): Regression & ANOVA - Design of Experiments

Textbook/References: Mathematical Statistics with Applications, Wackerly, Mendenhall and Sheaffer (Duxbury), 7th Edition (NOT international 7th edition)

Calculator: Any calculator except for TI-83 or above.

Grading Policy:
1. Four tests and Final Exam (80%)*
2. Homework & Quiz (20%)**

A: 90 or above; A-: 87-89; B+:83-86; B: 80-82; B-: 77-79; C+:73-76; C: 70-72;
C-: 67-69; D+: 63-66; D: 60-62; D-:57-59; F: 56 or below

* Each test is 20% of your course grade. Final Exam is a comprehensive test. You may drop the final if you are satisfied with all your tests. Nevertheless, you cannot drop one of tests without an official excuse. I do NOT plan on giving make-up tests.

** Most homework problems are selected from Textbook exercise. Homework due will be announced way in advance. No late homework will be accepted unless you have received an extension from me in advance of due date. There may be 30 minutes quizzes, whose date will not be announced in advance. I STRONGLY recommend bring your lecture notes and calculator to all classes. Your lowest scores among quizzes and homework will be dropped. Hence, a make-up quiz or homework is not necessary.

Attendance Policy:
1. Full participation in all classes is expected.
2. A student who misses three classes will get F in this course.*
3. If you are more than 10 minutes late or leave earlier, it will be counted as an absence.
   * Students are expected to inform the instructor in advance about ONE anticipated excused absences. You are required to submit an excuse document, for example, doctor appointment, conference attendance, or other official document which indicates the reason and the date of your absence. The college absence memo will not acceptable for an excuse document.

Midterm Policy:
Instructor strongly recommends withdrawing this course if your midterm grade is less than 60%.

Important Dates:
January 16: MLK holiday, No class
January 18: Last day of drop/add
February 6: Test 1
March 1: Test 2 (covers the first half)
March 6&8: Spring Break, No classes
March 23: Last day for students to withdraw with a W
April 3: Test 3
April 26: Test 4 (covers the second half)
Final Exam – TBA
NOTE:
1. I will utilize email to send the course materials and announce the important schedules fairly often. Therefore it is important that you check your email regularly. I encourage you to contact me via email if you have a question that does not require an office hour visit.
2. The course syllabus is a general plan for the course; deviations announced to the class by the instructor may be necessary.
3. The last test and final will not be returned to you based on college policy.