

Oakland University
College of Arts and Sciences
Department of Mathematics and Statistics

Course: STA 6114: Mathematical Statistics II

4 credits

Semester: Winter 2018

Instructor: Theo Ogunyemi

E-mail: ogunyemi@oakland.edu

Office: 373 MSC

Office Phone: (248)-370-2890

Class Time: 7:30-9:17 pm, MW

Office Hours: 6:30 -7:00 pm MW, or by appt.

Class Meeting Room: 376 MSC

Course (Catalog) Description: Statistical models; methods of estimation; comparison of estimates; optimality theory; optimal tests and confidence intervals; linear models, decision theory.

Course Objectives:

The course essentially represents the central core of statistical inference, point and interval estimation, and hypothesis testing. Therefore, the primary goal of the course is to build a fundamental understanding of statistical inference based on a combination of theory and applications, built on the previous knowledge on common distributions, transformations, and special families of distributions. The successful student will be able to demonstrate mastery of finding statistically appropriate techniques and optimal methods of evaluating the techniques.

Prerequisite(s): Student must meet prerequisite (STA 613 or STA 6113).

Required Text and Supporting Materials:

Statistical Inference by George Casella and Roger L. Berger (2nd Edition), Duxbury.

Expectations of Students: Attendance at every class is expected.

Tests: There will be two in-class tests each is worth 100 points. The tests will be designed to meet the objectives of the course. If the university is officially closed on a scheduled exam date, the exam will be held on the next class date that the university is officially open.

Final Examination: There will be a comprehensive final examination in the course, worth 200 points. The final exam is on **Monday, April 23, 2018; 7:00 - 10:00 PM.**

The room for the final exam will be announced prior to the exam.

Homework Assignments: There will be a number of homework problems assigned, collected, and graded. The assignments will be worth 100 points. The assignments, selected from within and outside the required textbook, will be used to help the class achieve the goals and objectives of the course. Late homework assignments are not acceptable.

Grade Determination:

Grades will be based on:

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|----------------------|------------|
| Homework Assignments | 100 points |
| Test 1 | 100 points |
| Test 2 | 100 points |
| Final Exam | 200 points |

Grading Scale: Your grade in the course will be based on the total points you earn out of 500 points. There is no fixed grading scale for this course. A conversion formula from your score to Oakland University grades will be determined at the end of the course. However, the following list shows the lowest possible grade that a given percentage score will earn (the grade may be higher than this): 95 → 4.0; 80 → 3.0; 65 → 2.0; 50 → 1.0.

MAKE-UP POLICY: There will be no make-up tests. If you miss a test and have a valid excuse, your grade will be determined by giving more weight to the final exam.

CALCULATOR POLICY: You may use a calculator for all tests and homework assignments. To receive full credit on tests and homework, be sure to show all the necessary work for setting up a calculation.

SOFTWARE USAGE AND COMPUTER LAB: Computer software is an essential tool for applied statistics. Methods will be illustrated using R and SAS software packages, but you are free to use other any statistical software for homework or the project. Some lectures may be held in 557 MSC, a computer laboratory containing several PCs with a variety of software installed.

Academic Conduct Policy:

ACADEMIC HONESTY: Cheating is a serious academic crime. Oakland University policy requires that all suspected instances of cheating be reported to the Academic Conduct Committee for adjudication. Anyone found guilty of cheating in the course will receive a course grade of 0.0, in addition to any penalty assigned by the Academic Conduct Committee. Working with others on homework assignments does not constitute cheating; handing in an assignment that has essentially been copied from someone else does. Receiving help from someone else or from unauthorized written materials during tests is cheating, so is using a calculator as an electronic “crib sheet.”

STA 6114 TENTATIVE SYLLABUS
(subject to change)

| Week | Topic | Chapter |
|-------------|------------------------------------|----------------|
| 1 | Properties of a Random Sample | Ch. 5 |
| 2 | Properties of a Random Sample | Ch. 5 |
| 3 | Principles of Data Reduction | Ch. 6 |
| 4 | Principles of Data Reduction | Ch. 6 |
| 5 | Point Estimation; Test 1 | Ch. 7 |
| 6 | Point Estimation | Ch. 7 |
| 7 | Point Estimation | Ch. 7 |
| 8 | Interval Estimation | Ch. 9 |
| 9 | Interval Estimation; Test 2 | Ch. 9 |
| 10 | Hypothesis Testing | Ch. 8 |
| 11 | Hypothesis Testing | Ch. 8 |
| 12 | Hypothesis Testing | Ch. 8 |
| 13 | Asymptotic Evaluation | Ch. 10 |
| 14 | Linear Models; Review | Ch. 12 |

IMPORTANT DATES

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| January 3 | Classes begin 7:30 am |
| January 10-17 | Second week of late registration – instructor permission is required to register/add class(es) in MySAIL |
| January 15 | Martin Luther King, Jr. Day---No classes |
| | Last day 100% tuition refund |
| January 17 | Last day to add a class |
| | Last day “no–grade” drop |
| January 18 | First day 0% tuition refund. First day grade of “W” assigned for drops |
| February 17 | Winter recess begins 10 p.m. |
| February 26 | Classes resume 7:30 a.m. |
| March 14 | Last day official withdrawal—full semester classes |
| April 17 | Winter classes end 10:00 pm |
| April. 23rd (Monday) | Final Examination, 7:00 – 10:00 pm |
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