Course number: Stat 435/535
Course title: Design / Analysis of Experiments
Credit hours: 3.00
Prerequisites: Stat 330 or 310-331 or 431/531 or equivalent
Instructor name: Dr. Norou Diawara
Instructor contact information: Phone: 757-683-3886, e-mail: ndiawara@odu.edu, webpage: www.odu.edu/~ndiawara
Course: TTh 5:45-7:00 pm Dragas Room 2107
Course material: Graphing calculator Software: You can use the software of your choice to solve homework problems or analyze data (for ex: SAS, Matlab, Minitab, Splus, or R). However, mainly SAS and R will be supported in this course.
Office hours: MWF: 11:00 am- 12:00 pm 2317 ECSB or by appointment

Course description: This course examines the principles, design structures and analysis of statistical experiments. That includes the analysis of variance and applications to real data, the concepts of experimental units, randomization and replications, linear and orthogonal contrasts which play significant role in virtually all fields. Also, we will study the different concepts of designs: completely randomized, randomized block, Latin square, nested, factorial. Repeated measurements and analysis of covariance will be discussed. The material is studied with software output with details of model building and derivations.

Course Outline: Chapters and Sections:
Chapter 1: Sections 1.1-1.4 Introduction
Chapter 2: Sections 2.1-2.6 Simple Comparative Experiments
Chapter 3: Sections 3.1-3.10 Experiments with a Single Factor: The Analysis of Variance
Chapter 4: Sections 4.1-4.4 Randomized Blocks, Latin Squares, and Related Designs
Chapter 5: Sections 5.1-5.4 Introduction to Factorial Designs
Chapter 6: Sections 6.1-6.6 The $2^k$ Factorial Design
Chapter 7: Sections 7.1-7.4 Blocking and Confounding in the $2^k$ Factorial Design
Chapter 8: Sections 8.1-8.7 Two-Level Fractional Factorial Designs
If time allows:
Chapter 9: Three and Mixed-Level Factorial and Fractional Factorial Designs
Chapter 10: Fitting Regression Models
Chapter 11: Response Surface methods and Designs
I will also address the basis of Chapters 14 and 15.

Attendance is mandatory. All absences must be justified. Refer to the ODU honor code for academic honesty. You are encouraged to work with other students on homework assignments. However, each student should produce his/her own work to be graded, and verbatim copying of homework is not allowed.
You will have 5 to 6 homework assignments this semester, each will be due one week from when it is assigned, and they will be due in class on the announced due date. No late homework assignment will be graded. They will be the basis of the tests and final exam. You will also have 4 or 5 chapter tests, and a final exam. Please, be aware that you must present your work neatly and in detail on paper since that is all I will have to grade. There will be no make up test. No homework or test will be dropped for graduate students. For the undergraduate students, the test with the lowest grade will be dropped. Please contact me via e-mail if you have a question that does not require an appointment.

Chapter tests (4 or 5): 45%
Homework assignments (5 or 6): 20%
Classes begin January 12
January 21: Martin Luther King, Jr. Holiday
March 11 – 16: Spring Break Holidays
Last day of class: April 24th
Departmental Final Exam: Tuesday May 7, 3:45-6:45 pm : 35%
Grades: $A \leftrightarrow 90 - 100 ; B \leftrightarrow 80 - 89 ; C \leftrightarrow 70 - 79 ; D \leftrightarrow 60 - 69 ; F \leftrightarrow Below 60$