COURSE SYLLABUS
FOR
DESIGN AND ANALYSIS OF EXPERIMENTS
STA 380-01 – SPRING 2008
ROOM LOCATION: CSF 123 – MEETING TIME 8:00-9:20 TTh

TITLE: Design and Analysis of Experiments

INSTRUCTOR: Dr. Cecil Hallum

OFFICE: LDB 420C   **OFFICE HOURS:** 9:30 - 11:00 MW
                                                                                2:00 – 3:00 MW
                                                                                11:00 – 12:00 TTh
                                                                                & by appointment
PHONE: 294-3706

TEXT: *Fundamental Concepts in the Design of Experiments,* by Charles R. Hicks and
    Kenneth V. Turner, Jr., Oxford University Press, 1999.

DESCRIPTION: This course covers the fundamental concepts in the design and analysis
    of experiments using simple numerical problems, many from actual
    research work. Specific topics include those from the standard analysis
    of variance modeling: single factor experiments, multiple factor
    experiments, nested and nested factorial experiments. Coverage will also
    include the more general designs in the areas of fixed, mixed and random
    effects models plus the standard 2^k and 3^k screening designs.   Students
    will also be introduced to the Statistical Analysis System (SAS) software
    package for use in carrying out various analyses.

OBJECTIVE: To develop an understanding of and the facility for the application and
    results interpretations in experimental design modeling and analysis.

APPROACH:

    1. Lectures on new concepts and applications.

    2. Assigned problems for experience and familiarity with techniques.

    3. Classroom discussions on applications --- appropriate usage and value.

    4. Examinations to demonstrate understanding and ability to utilize
       methods.

APPRAISAL:

Exam I.................................30%
Exam II...............................30%
Final Exam.........................25%
Homework..........................15%

TOTAL   100%

SPECIAL NOTE: Performance on exams is directly related to homework performance ---
               all homework is to be kept current, neatly together, in sequence, and
               ready to be handed in upon request.

POLICIES:

1. Make-up Exams --- DO NOT MISS AN EXAM!! Make-up exams are to be
   avoided; however, if you miss an exam (and have a authentic excuse -- i.e., a
   doctor's or other professional's written excuse), a day will be set aside at
   the end of the semester for all make-ups.

2. Withdrawal --- University policy will be followed: the last day for
   drop/with-drawal is March 7, 2008. It is your personal responsibility to
   initiate and complete the drop/withdrawal process.

3. Homework --- Since topics in the course sequence build upon preceding
   topics, it is expected that you will remain current in all assignments; also
   you should have your homework neatly assembled together at all times
   and be ready to hand it in upon request.

4. Incomplete --- A grade of "X" or "Incomplete" is not appropriate for this
   course.

5. Attendance --- Since lectures and in-class discussions are for your benefit,
    you are expected to be in attendance at all classes.

6. Class Behavior --- Students will refrain from behavior in the
   classroom that intentionally or unintentionally disrupts the learning
   process and, thus, impedes the mission of the university.
   Cellular telephones and pagers must be turned off before class begins.
   Students are prohibited from eating in class, using tobacco products,
   making offensive remarks,
   reading newspapers, sleeping, talking at inappropriate times, wearing
   inappropriate clothing, or engaging in any other form of distraction.
   Inappropriate behavior in the classroom shall result in a directive to
   leave class. Students who are especially disruptive also may be
   reported to the Dean of Students for disciplinary action in accordance
   with university policy.

7. **Academic Honesty --- All work that is handed in for evaluation is to reflect solely your individual performance. All students are expected to engage in all academic pursuits in a manner that is above reproach. Students are expected to maintain complete honesty and integrity in the academic experiences both in and out of the classroom. Any student found guilty of dishonesty in any phase of academic work will be subject to disciplinary action. The University and its official representatives may initiate disciplinary proceedings against a student accused of any form of academic dishonesty including, but not limited to, cheating on an examination or other academic work which is to be submitted, plagiarism, collusion and the abuse of resource materials.**

EXAM SCHEDULE

- **Exam I will be given approximately one-third of the way through the semester.**

- **Exam II will be given approximately two-thirds of the way through the semester.**

- **The final exam will be given at the time advertised in the schedule of classes.**

SCHEDULE OF COVERAGE

WEEK 1: Chapters 1 and 2 – Introduction to the experiment, design and analysis as well as a review of statistical inference.

WEEK 2: Chapter 3: Single factor experiments and the use of SAS.

WEEK 3: Chapter 4: Randomized block and Latin square designs and the use of SAS.

WEEK 4: Chapter 5: Factorial experiments and the use of SAS.

WEEK 5: Review of chapters 1 through 5 and SAS.

WEEK 6: Exam 1 will be given at the first class meeting of week 6; Chapter 6 coverage will be initiated the latter part of this week.

WEEK 7: Chapter 6 will be completed along with further use of SAS.

WEEK 8: Chapter 7: Nested and nested-factorial experiments along with the use of SAS.

WEEK 9: Spring Break Week

WEEK 10: Chapter 8: Experiments of two or more factors; restrictions on randomization.

WEEK 11: Review of chapters 6 through 8 and SAS.

WEEK 12: Exam 2 will be given at the first class meeting of week 12; Chapter 9 coverage

of 2^k screening designs will be initiated the latter part of this week.

WEEK 13: Completion of chapter 9 and beginning of chapter 10.

WEEK 14: Completion of chapter 10 plus the use of SAS.

WEEK 15: Chapter 11 – Factorial experiments: split-plot designs.

WEEK 16: Choosing the Appropriate Analysis/General Review.

WEEK 17: Final Exam.

HAVE A FANTASTIC SEMESTER!!