COURSE SYLLABUS
FOR
STATISTICAL METHODS IN PRACTICE
(STA/MTH 379-01) – SUMMER 1, 2008
CLASS LOCATION: LDB 431 – MEETING TIME 10-12 M-F

TITLE: Statistical Methods in Practice

INSTRUCTOR: Dr. Cecil Hallum

OFFICE: LDB 420C   **OFFICE HOURS:** 9:00-10:00 M-F
                                                              2-2:30 M-F
                                                              & by Appointment

PHONE: 294-3706

TEXT: *Statistics, Principles and Methods,* 5th Edition, by Richard A. Johnson
         and Gouri K. Bhattacharyya, John Wiley & Sons, Inc., 2006.

DESCRIPTION: This course introduces the fundamentals of statistical concepts and will
         guide the student through basic statistical procedures to permit critical
         insight into the science of collecting, classifying, presenting, and
         interpreting information from data. The three primary topics covered
         are descriptive statistics (graphic presentation of data, histograms,
         plots, charts, measures of central tendency, dispersion, position, etc.),
         bivariate data analysis, linear correlation and regression analysis,
         probability concepts and rules for calculating probabilities of compound
         events. The probability coverage also includes the more commonly
         occurring probability distributions such as the binomial and normal
         distributions. Finally, the third area of coverage is that of inferential
         statistics, including inferences involving one and two populations.
         Students are also introduced to SPSS -- the Statistical Package for the
         Social Sciences (one of the most user-friendly, "forgiving" statistics
         packages in the world and one that is especially popular in the
         workplace).

OBJECTIVE: To develop an understanding of and a facility for the concepts and
          applications of descriptive and inferential statistics.

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 and SPSS Assign's………..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/withdrawal is June 30, 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.

COURSE
SEQUENCE

- Exam I will be given after approximately 150 pages of coverage.

- Exam II will be given after approximately 300 pages of coverage.

- The final exam will be given at the time advertised in the schedule of classes. It will be a limited comprehensive exam and will be over the materials covered beyond Exam II along with selected items from earlier in the semester.

DAY-BY-DAY COVERAGE

DAY 1: Introduction and Summarizing Data --
Graphical Methods and Measures of Central Tendency

DAY 2: Summarizing Data -- Measures of Variability,
Coding and the Box Plot

DAY 3: a) Introduction to Probability and Associated Fundamental
Properties
b) Basic Event Relations and Probability Laws, Conditional
Probability, Independence and Bayes Formula.

DAY 4: a) Discrete Probability Distributions
b) The Binomial Distribution

DAY 5: a) Continuous Probability Distributions
b) The Normal Distribution
c) The Central Limit Theorem.

DAY 6: Review for Exam I

DAY 7: Exam I

DAY 8: SPSS Session and Intro. to Confidence Intervals

DAY 9: Confidence Intervals for the Population Mean/Proportion

  a) **Large Sample Case**
  b) **Small Sample Case**
  c) **Sample Size Estimation**

DAY 10: a) Principles of Hypothesis Testing
  b) Tests on the Single Population Mean
  c) Type I and Type II Errors

DAY 11: a) Tests on the Population Proportion
  b) Confidence Interval Estimation of the Population Variance
  b) Tests on the Population Variance

DAY 12: Review for Exam II

DAY 13:   Exam II

DAY 14: SPSS Session

DAY 15: Inferences Concerning Two Population Means
  a) **Dependent Samples Case**
  b) **Independent Samples Case**

DAY 16: Wrap-up of the Two Population Case for the Means
  a) **Case 1: Unequal Variances**
  b) **Case 2: Equal Variances**

DAY 17:   a) Tests Between Two Population Proportions
  b)   **SPSS Session**

DAY 18:   Regression and Correlation Analysis

DAY 19: Regression and Correlation Analysis (continued) – SPSS Session

DAY 20: Review for Final Exam

DAY 21: Final Exam

HAVE A FANTASTIC SEMESTER!!