MATHEMATICS 410B
ADVANCED STATISTICAL METHODS II, SPRING 2009

PREREQUISITE: Math 410A or equivalent or permission.

Tuesday, Thursday 2:30 – 3:45 P.M., (Bouillon 103)

Instructor: Dr. Yvonne Chueh
Office: Bouillon 107G (Tel: 963-2124)
e-mail: chueh@cwu.edu
Office hours: MTWTh 1:00-1:50, and by appointments

STUDENT OUTCOMES FOR MATH 410B:

This course is designed to help students acquire in-depth statistical and mathematical
knowledge of analysis of variance, design of experiments, goodness-of-fit techniques, and
simulation methods.

ATTENDANCE:

To achieve success in *any* mathematics class, **regular attendance is almost imperative**.
Unlike most subjects, new topics in statistics build on previous knowledge; failure to
learn something early will haunt you throughout the course. There will be some topics
and techniques I introduce that are NOT covered in the book. You will be responsible for
these.

PROJECT:

One of the main course goals is for you to do a complete project, beginning with the design of the
experiment, and progressing through the data collection, the analysis, and finally the write-up and
presentation. The project write-up should in the format of a 10-page, double spaced paper that
gives the project summary, statistical methods, data sources, data display, statistical analysis, and
conclusions. Projects presented (either oral or poster presentation) at the undergraduate research
symposium SOURCE (http://www.cwu.edu/~source/source2009.php) on May 21 tend to receive
high mark. In the past years, almost the entire class participated in the SOURCE research
symposium and felt accomplished. The abstract deadline for presentations at SOURCE is April
15. Abstracts should be submitted via the web early to ensure the opportunity.

TESTING AND GRADING: You will be asked to maintain a course portfolio that contains the in-calss
worksheets, notes, handouts, and test papers for quarter end evaluation. The two tests will be take-home

and the final exam will be in class. The project presentation can be scheduled during the SOURCE week and the written paper is due in the last week. Students must take final exam and turn in a complete project in order to pass this course.

- ➢ Homework and course portfolio   (100 points)
- ➢ Two take-home tests   (60 points)
- ➢ Project   (60 points)
- ➢ Final exam   (30 points)
      Total   **250 points**

Average: 100-93   92-90   89-87   86-83   82-80   79-77   76-73   72-70

       69-67   66-63   62-60   Below 60

Grade: A   A-   B+   B   B-   C+   C   C-

       D+   D   D-   F

TEXT: Statistics, by McClave and Sincich, Prentice Hall, 11th Edition. This book is non-mathematical and covers the important topics for both this and the next quarter. I will supplement this book in certain areas.

COMPUTER: There are three heavily used statistical packages: SAS, MINITAB, and SPSS. Professional statisticians use SAS. Social science workers use SPSS. MINITAB is a very nice compromise choice. While not as powerful as SAS, it is powerful enough to do most real-world applications. What really makes it stand out is *ease of use*. We have recently upgraded the lab machines in Bouillon 103 to the full-blown, high-powered version. If you feel a strong affinity to another statistical package, feel free to use it. All in-class demonstrations, however, will use MINITAB.

Tentative Schedule (Any change will be announced in class.)

Week	**Reading Assignment**
1. 3/31-4/3	Chapter 10 Analysis of variance 10.1-10.2
2. 4/6-4/10	10.3-10.4
3. 4/13-4/17	10.5 **Test 1 (ANOVA)**

4. 4/20-4/24	Chapter 13 Categorical Data Analysis (so called goodness-of-fit techniques) 13.1-13.2
5. 4/27-5/1	13.3-13.4
6. 5/4-5/8	**Test 2 (Categorical Data Analysis)**
7. 5/11-5/15	Research project
8 5/18-5/22	Presentations
9. 5/25-5/29	Simulation lecture and workshop Topics drawn from SOA/CAS Exam C
10. 6/1- 6/5	Simulation Project report due (the written project is due this week)
11. 6/8-6/12	**FINAL EXAM**

The **Final Exam**
Coverage: Simulation topics covered