

**MMI 409 – Syllabus**

**John Gatta, Ph. D.**

**Introduction to BioStatistics  
Spring 2011**

**Contact Information:**

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**Course Description:**

This course covers classic statistical inference. Applications and interpretation of data are emphasized. Mathematical proofs and derivations are not covered; however, theory is addressed conceptually. Readings are intended to be theoretical. Synch sessions, homework and exams will focus on applying statistical procedures using SPSS and interpreting data. Due to time restrictions, only selected topics are covered. The use of SPSS is a course requirement.

**Text:**

Title: BIOSTATISTICS, A Methodology for the Health Sciences

Authors: Belle, Fisher, Heagerty, Lumley

ISBN: 978-0-471-03185-7

**Software:**

IBM SPSS Statistics 19 – Premium Grad Pack

You may purchase an SPSS license or you can lease it for 6 or 12 months using the following link:

<http://www.onthehub.com/spss/>

## **Learning Goals:**

The objectives of the course are to:

1. Describe conceptually the theoretical basis and underlying assumptions for the statistical topics covered.
2. Analyze data with SPSS statistical software and draw meaningful inferences from data.
3. Recognize when and how to apply the diverse statistical methods discussed throughout the course in varying research situations.

## **Evaluation:**

Each student is required to complete a take-home mid-term examination (40 points) as well as a two-part final examination (50 points), which consists of a cumulative take-home part, and a short proctored part. The remaining 10 points will be awarded based on attendance and participation. All exams are to be completed without consultation or collaboration with other students. Course grades will be determined by adding the earned amount of points.

Homework for the course consists of readings and SPSS data analysis activities. Homework is not graded, but is intended to provide experience using SPSS and prepare students for synch sessions discussions. Students are encouraged to collaborate when completing homework activities.

## **Discussion Board Etiquette:**

The purpose of Discussion Boards is to allow students to freely exchange ideas and participation is highly encouraged. It is important that we always remain respectful of one another's viewpoints and positions and, when necessary, agree to disagree, respectfully. While active and frequent participation is encouraged, cluttering a Discussion Board with inappropriate, irrelevant, or insignificant material will not earn additional points. Please remember to cite all sources – when relevant – in order to avoid plagiarism.

## **Proctored Assessment:**

There is a proctored assessment requirement for this course.

## **Grading Scale:**

The grading scale for this course is as follows:

A	90 points
B	80 points
C	70 points
D	60 points
F	Less than 60 points

## **Attendance:**

Attendance and participation is required.

## **Late Work:**

Late submissions of exams will not be accepted.

## **Academic Integrity at Northwestern:**

Students are required to comply with University regulations regarding academic integrity. If you are in doubt about what constitutes academic dishonesty, speak with your instructor or graduate coordinator before the assignment is due and/or examine the University web site. Academic dishonesty includes, but is not limited to, cheating on an exam, obtaining an unfair advantage, and plagiarism (e.g., taking material from readings without citation or copying another student's paper). Failure to maintain academic integrity will result in a grade sanction, possibly as severe as failing and being required to retake the course, and could lead to a suspension or expulsion from the program. Further penalties may apply. For more information, visit: [http://www.scs.northwestern.edu/student/issues/academic\\_integrity.cfm](http://www.scs.northwestern.edu/student/issues/academic_integrity.cfm)

Plagiarism is one form of academic dishonesty. Students can familiarize themselves with the definition and examples of plagiarism, by visiting the site <http://www.northwestern.edu/uacc/plagiar.html>. Myriad other sources can be found online, as well.

Some assignments in this course may be required to be submitted through SafeAssign, a plagiarism detection and education tool. You can find an explanation of the tool [here](#). In brief, SafeAssign compares the submitted assignment to millions of documents in very large databases. It then generates a report showing the extent to which text within a paper is very similar or identical to pre-existing sources. The user can then see how or whether the flagged text is cited appropriately, if at all. SafeAssign also returns a percentage score, indicating the percentage of the submitted paper that is similar or identical to pre-existing sources. High scores are not necessarily bad, nor do they necessarily indicate plagiarism, since the score doesn't take into account how or whether material is cited. (If a paper consisted of just one long quote that was cited appropriately, the score would be 100%. This wouldn't be plagiarism, due to the appropriate citation. However, just submitting one long quote would probably be a pretty bad paper.) Low scores are not necessarily good, nor do they necessarily indicate a lack of plagiarism. (If a 50-page paper had all original material, except for one short quote that was not cited, the score might be around 1%. But, not citing a quotation would still be plagiarism.)

SafeAssign includes an option in which the student can submit a paper and see the resultant report before submitting it to the instructor as a final copy. This ideally will help students better understand and avoid plagiarism.

## **Other Processes and Policies:**

Please refer to your SCS student handbook at <http://www.scs.northwestern.edu/grad/information/handbook.cfm> for additional course and program processes and policies.

## Course Schedule

**Important Note:** Changes may occur to the syllabus at the instructor's discretion. When changes are made, students will be notified via an announcement in Blackboard.

Session 1	<u>Introduction to Biostatistics</u> READING: Chapters 1, 2, 3 SPSS: Acquire, install and explore SPSS software
Session 2	<u>Statistical Inference: Populations and Samples</u> READING: Chapter 4 SPSS: Check blackboard
Session 3	<u>One and Two-Sample Inference</u> READING: Chapter 5 SPSS: Check blackboard
Session 4	<u>ANOVA and the General Linear Model</u> READING: Chapters 10 and 12 SPSS: Check blackboard
Session 5	<u>Association and Prediction: One Predictor</u> READING: Chapter 9 SPSS: Check blackboard EXAM: Mid-term posted
Session 6	<u>Association and Prediction: Multiple Predictors</u> READING: Chapter 11 SPSS: Check blackboard EXAM: Mid-term Due
Session 7	<u>Categorical Data Analysis</u> READING: Chapter 7 SPSS: Check blackboard
Session 8	<u>To Be Determined</u> READING: Check blackboard SPSS: Check blackboard
Session 9	<u>Review Session</u> EXAM: Final Exam Posted
Session 10	<u>No Synch Session</u> EXAM: Final Exam Due