Department of Mathematics, Computer & Information Science

MATHEMATICAL STATISTICS
MA 5230 • SYLLABUS FALL 2014

Professor: **Frank Sanacory**
Office: **NAB 2014**
Email: SanacoryF@oldwestbury.edu *Web Page:* **sanacory.net**

TEXTBOOK: Mathematical Statistics with applications by by K.M. Ramachandran and Chris P. Tsokos, 2009, ISBN-13: 978-0123748485.

PREREQUISITES: MA2320: Calculus II, MA3160: Linear Algebra and MA3210: Introduction to Probability and Statistics.

COURSE DESCRIPTION: Designed for upper division students in mathematics or statistics. Review of probability, inferences, regression and correlation. Also we will cover ANOVA, analysis of covariance, experimental design, building statistical models, and use of computer statistical packages.

COURSE OBJECTIVES: After successful completion of this course students should understand experimental design and be familiarity with scripting in a statistical package, as well as, understand the application of statistics. The student should be able to model a basic real world scenario with statistics, design an experiment and perform the statistical analysis.

COURSE EVALUATION & GRADING: Your grade for the course will be based on your homework/quiz performance (10%), two tests (40%) and one project (20%) and a comprehensive final exam (35%). The grading scale is as follows:

A = [93, 100] **A–** = [90, 92]	**B +** = [87, 89] **B** = [83, 86] **B –** = [80, 82]	**C +** = [77, 79] **C** = [73, 76] **C –** = [70, 72]	**D +** = [67, 69] **D** = [63, 66] **D –** = [60, 62]	**F** = [0, 59]

TUTORIAL: Drop-in tutorial is available in the mathematics learning center, Room **H211a.**

ACCOMMODATIONS FOR STUDENTS WITH SPECIAL NEEDS: If you have, or suspect you may have a physical, psychological, medical or learning disability that may impact how you function academically and/or your access to activities on campus, please contact Dr. Lisa Whitten, Director of the Office of Services for Students with Disabilities (OSSD). She will determine whether or not you qualify for academic accommodations and arrange them with your professors if you do. The OSSD is located in the NAB, Room 2064. You can reach Dr. Whitten at 516-876-3009 or whittenl@oldwestbury.edu.

HYBRID NATURE OF THE COURSE:

This course will be split into two distinct pieces: the in-class portion and the online/self study portion. For the in-class portion we will meet once per week (on Tuesdays) and we will typically start with a quiz and cover old material and a bit of new material. Every week you hand in the homework (to be graded) of the material covered from the previous class. For example, on Week 3 you will turn in 1.5: 1,6,8,10,17, Project 1A.

The online/self study portion will include readings and a self study guide through SAS as well as preparing a report for Analysis. Each week (by Tuesdays) you will turn in a printout of the work from your SAS booklet or email me a pdf of the competeed work. The first nine weeks will train you in SAS and prepare you to complete the Statistics Report.

	In-Class - Tuesday	**Online**
Week 1: 09/02/14	1.4: 6,14	
Week 2: 09/09/14	1.5: 1,6,8,10,17, Project 1A	Ch. 1 Enterprise Guide book
Week 3: 09/16/14	2.2: 3,4,6,8,12,13,16,18,19,21	Ch. 2 Enterprise Guide book
Week 4: 09/23/14	2.3: 1,2,5,9,10,11,14,20	Ch. 3 Enterprise Guide book
Week 5: 09/30/14	2.4: 1,2,3,8,10,11,12,16,17,20,21,22,29	Ch. 4 Enterprise Guide book
Week 6: 10/07/14	2.5: 1-9 odd, 10,12	Ch. 5 Enterprise Guide book
Week 7: 10/14/14	2.6: 1,3,4,6,7,10,14,16	Prep for test 1
Week 8: 10/21/14	Test 1	Ch. 6 Enterprise Guide book
Week 9: 10/28/14	3.2: 1,2,3-9odd,10,15,17,21,22,27	Ch. 7 Enterprise Guide book
Week 10: 11/04/14	3.3: 1,3,5,6,7,9,15,16	Get Data Source – Get Professors approval
Week 11: 11/11/14	3.4: 1-6,15	Run some preliminary data analysis
Week 12: 11/18/14	3.5: 1-8,11,14,15,17,19,20,21	Draw preliminary conclusions
Week 13: 11/25/14	Test 2	Rough Draft of Paper due on December 2
Week 14: 12/02/14	4.1: 1,3,4,5,7,9,13,15 4.2: 1-7, 9, 11	
Week 15: 12/09/14	4.4: 1,3,4,5,7,8,9-13odd, Project Due, FE Review	Review for final exam
Week 16: 12/16/14	Final Exam	

Project Outline

This statistics project should be written in proper Enilish, typed and cited properly. This project should be written with the same care you use in an English class.

Introduction (1.5 pages minimum):

- What is the problem/question: background and description?
- Why is it a problem or question?
- How are we to address this?

Data (1 page minimum excluding the data)

- Describe the data
- What are the problems with the data
- How did you address these problems

Analysis (2 page minimum)

- What is the method of analysis used
- Why did you use this method? Justify being able to use this method
- Report the Analysis (visuals required)

Conclusions (1 page minimum)

- How does this answer our question
- What went wrong with our study? What are the limitations of the study?
- Further studies. How could we improve our solution/answer?

The grading for the project will include points for:

- Data Source approval,
- Preliminary conclusions,
- Rough Draft,
- And of course your Final Report.

Project work schedule

- Week 1 – 9: Learn SAS
- Week 10: Find some data
- Week 11: Exploratory analysis
- Week 12: Preliminary conclusions
- Week 13: Work on your Rough Draft. Make sure to turn in a copy by December 2.
- Week 14-15: Finish project and turn in by December 9.

Final Exam: Tuesday December 16, 2014.