College of Science
GGS 300: Quantitative Methods for Geographical Analysis
Course Syllabus

Associated Term: Spring 2015
Levels: Non-Degree, Undergraduate, Consortium
Attributes: Undergraduate - Upper Division
Instructors: Donglian (Lillian) Sun (P)
Fairfax Campus
Lecture Schedule Type
3.000 Credits
CRN: 71719

Course Instructor: Dr. Donglian (Lilian) Sun
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Office hours : 2.00-4.00 PM on Thursday or by appointement
Course Web Page: http://courses.gmu.edu

Class Location: Exploratory Hall 2312
Class Times: 3:00 p.m. to 4:15 p.m.
Class Dates: January 20, 2015 to May 13, 2015

Required Texts:
McGrew, J.C., Lembo, A.J., and C.B. Monroe. 2014. An Introduction to Statistical Problem Solving in Geography (Third Edition). Waveland Press, Inc., Illinois. ISBN: 1478611197
Make sure to get the Third Edition! Available at the GMU Bookstore or order online at www.waveland.com

Other Requirements: Flash drive/memory stick.

Course Overview: A survey of quantitative methods commonly used in geographic research. Emphasizes spatial analysis techniques.

Lab assignments will be based on the lecture material previously delivered and available as Power Points on Blackboard. Each lab assignment will be due one week after it is assigned (and at the start of the lecture). Late labs will only be marked for the usual documented medical reasons or by previous agreement with the instructor. Deployment of any family member is, of course, an acceptable reason for special arrangements to be made.

Course Grading:

Initial Test	5%
(Each student will be awarded	5% for completing this test i.e. every student will get an A since I simply want to see what you know at the start of the course)
Attendance	10%
Eight Lab Exercises	5% each
Mid-term Exam	20%
Final Exam	25%

All parts of the course are graded with a letter grade e.g. A+ B C- etc. For the multiple choice tests and labs letter grades are assigned as follows:
A+ 87% and over or top mark; A 84 to 86; A- 80 to 83
B+ 77 to 79; B 74 to 76; B- 70 to 73
C+ 67 to 69; C 64 to 66; C- 60 to 63
D+ 57 to 59; D 50 to 56; F less than 50

CLASS SCHEDULE (subject to change)
note: the Lab dates below refer to the date they will be assigned!

Date	Topic	Textbook/Assignments
1/21W	Introduction to the Course **Benchmark Test to Establish Student's Level of Knowledge**	McGrew, Ch 1: The Context of Statistical Techniques
1/26 M	Characteristics of Geographic Data: Concepts	McGrew, Ch 2
1/28 W	Descriptive Statistics	McGrew, Ch 3
2/2 M	Descriptive Spatial Statistics	McGrew, Ch 4 Lab 1: Context for Statistical Analysis: Questionnaires and Surveys
2/4 W	Probability	McGrew, Ch 5
2/9 M	Probability Continued	Lab 2: Data Presentation & Description with SPSS
2/11 W	Sampling	McGrew, Ch 6
2/16 M	Sampling continued	Lab 3: Data Description Using SPSS (continued); Probability Theory
2/18 W	Estimation in sampling	McGrew, Ch 7
2/23 M	Estimation in sampling, continued	Lab 4: SPSS, Normal Distribution; Standard Error of the Mean
2/25 W	Elements of Inferential Statistics	McGrew, Ch 8
3/2 M	Contd.	Prepare for mid-term
3/4 W	**Mid-term**	
3/9-3/15	**Spring Break**	
3/16 M	Two Sample and Matched Pairs Difference Tests	McGrew, Ch 9
3/18 W	Contd.;	Lab 5: Chi-Square One-Sample Goodness-of-Fit Test; Two Sample Difference Tests
3/23 M	Three-or-More sample Difference Tests: Analysis of Variance	McGrew, Ch 10
3/25 W	Goodness-of-Fit Tests and Categorical Difference Tests	McGrew, Ch 11

3/30 M	Lec 11 Contd.;	Lab 6: Wilcoxon-Mann-Whitney Test for Two Independent Samples (using SPSS); Chi-Square 2 to K Sample Test (Contingency Table Analysis).
4/1 W	Inferential Spatial Statistics	McGrew, Ch 13 and 14
4/6 M	Lec 12 Contd.;	Lab 7: One and Two Way Analysis of Variance Using SPSS
4/8 W	Correlation	McGrew, Ch 16
4/13 M	Correlation (Contd.)	
4/15 W	Regression	McGrew, Ch 17
4/20 M	Regression (cont.)	Lab 8: Correlation and Regression Analysis
4/22 W	Multiple Regression	McGrew, Ch 18
4/27 M	Cluster Analysis	McGrew, Ch 18
5/4 W	Epilogue: Statistical Problem Solving in Geography	
5/6 M	Reading day	
5/11 W	Final Exam	