Anthropology

Anthro 309 - Statistical Methods in Anthropology.

Second Semester 2018

LECTURER: Prof. P.J. Sheppard, Rm. 719,

OFFICE HOURS: Monday 11-12:00 AM.

LECTURES: Monday 9-10 AM   206-216 (Arts 1, Room 216)

Tuesday 11- 12 AM 201E-704 (Human Sciences - East, Rm 704)

LABS: Thursday 10-11 AM . 201E-259 (Human Sciences - East, Rm 259)

COURSEWORK: 100% coursework based on 2 exercises worth 20% each, 1 Mid-Term test worth 25 % and 2 assignments: A. a research proposal (DUE August 21st) worth 15% and B. Final report on proposed research (DUE Oct 15th), worth 20%.

REQUIRED TEXT: Shennan, S. 1997 Quantifying Archaeology 2nd Edition. Edinburgh Univ. Press.

OVERVIEW:

This course is designed as an introduction to quantitative methods used in anthropology. It assumes no statistical or computer background and requires only basic mathematics. The emphasis will be on quantitative analysis as an anthropological research tool not on probability or statistical theory, although these will be discussed. Students will be taught the use of the SPSS computer package. Computer Labs will be conducted in HSB 259. These will consist of 8 labs. Students will have full access to the computing facilities in HSB259 and the other Arts computing Facilities in front of Pacific Studies and the Kate Edgar Commons. There will be a data collection exercise in the Symonds St Cemetery (https://en.wikipedia.org/wiki/Symonds_Street_Cemetery) on July 26th. Please make certain you have updated your email address with the University system as I may send out group e-mails. This syllabus and the powerpoints and labs, etc. will be available through Canvas.

The goals of this course are to teach the student to A: read and understand statistical applications in anthropology B: design and conduct basic quantitative analysis C. introduce the student to the range of quantitative techniques useful in anthropological research. The lectures will stress the virtue of simplicity in data presentation and analysis.

Week 1a. July 16th. Introduction and History of Quantitative Research. Why Quantification?

Reading: Shennan "Introduction"

Week 1b. Research Design. The importance of theory. Theory in anthropology. Development of a research problem and quantification. Data collection and coding.

Lab 1. Development of a research design and coding system for a joint class project. Symonds St Cemetery Class Discussion.

Reading: Cannon A, 1989. The historical dimension in mortuary expressions of status and sentiment [and comments and reply]. *Current Anthropology* 30(4):437-458.

Week 2a. July 23rd . Quantitative Methods in Archaeology. What is possible? Introduction to SPSS on the PC.

Week 2b. Introduction to Statistics: the concept of sample and data type. SPSS database definition.

Reading: Shennan Chap. 2.

July 26th Lab 1 Collection of Data at Symonds St Cemetery

Week 3a. Overview of Data Analysis in Biological Anthropology Guest Lecture Dr Bruce Floyd

Week 3b Discussion of Student Research Topics.

Lab 2: Data entry and database development using SPSS

Week 4a. Investigating Data structure: the use of graphics. SPSS Graphics.

Reading: Shennan. Chap. 3.

Whallon, R. 1987 "Simple Statistics"

Lab 3: Use of SPSS Graphics and Descriptive Statistics

Week 4b. Describing data: Descriptive statistics.

Reading: Shennan. Chap 4.

ASSIGNMENT 1. Use of descriptive statistics (Problem set I).

Week 5a. Introduction to inferential statistics. The Normal Distribution.

Reading: Shennan Chap. 8 "Numeric Variables: The Normal Distribution".

Lab 4: Use of frequency and data transformation.

Week 5b. The shape of the distribution. From sample to population.

Reading: Rowntree, D. "Statistics Without Tears:" Chap. 4-5.

Week 6a. Estimation and comparing samples.

Reading: Rowntree, D. Chap. 6.

Week 6b. Significance testing; Z and T-test.

Reading: Rowntree, D. Chap. 7.

Shennan, Chap. 5-6

Thomas, D. "Refiguring Anthropology" Chap. 9

Lab 5: T-test.

Week 7a. Review

Reading: Thomas, D. chap. 10 section 10.7 Orton, C. 1980 " Mathematics in Archaeology" pp.90-105.

Week 7 b. TEST 20%

Week 8a. Analysis of Non-parametric data. Probability Theory and frequency distributions.

Reading: Thomas, D. chap. 5.

Week 8b. Probability Continued

Reading: Shennan chap. 7.

Week 9a. Comparing Proportions. Chi-square and association

Lab 6 Non-parametric Statistics in SPSS Chi-Square

Week 9b. Non-parametric statistics continued.

Reading: Shennan chap. 7.

Lab 7: Non-Parametric Statistics in SPSS.

Week 10a. Correlation and Regression. Link to Lecture

Reading: Shennan chap. 8-9.

Lab 8: Correlation and Regression.

Week 10b. Introduction to Numerical Classification and seriation.

Reading: Shennan chap. 11. Orton C. chap. 3.

Week 11a. Introduction to spatial analysis:

Reading: Orton: chap. 4 Hodder and Orton 1976 chap. 3. Point Pattern Analysis.

Week 11b. Spatial analysis: Introduction to GIS

Reading:

Lab 9: Introduction to GIS

ASSIGNMENT II. Problem set II.

Week 12a. Sampling in Anthropology.

Reading: Shennan chap. 14

Week 12b . The use and abuse of statistics.

Reading: Thomas, D. 1978 "The Awful Truth About Statistics in Archaeology."

List of Assigned Readings and Texts

Hodder, I. and C. Orton

1976 Spatial Analysis in Archaeology. Cambridge: Cambridge Univ. Press.

Madrigal, L.

1998 Statistics For Anthropology. Cambridge: Cambridge University Press.

Orton, C.

1980 Mathematics in Archaeology. Cambridge: Cambridge Univ. Press.

Rowntree, D.

1984 Statistics Without Tears: A Primer for Non-mathematicians. Auckland: Penguin Books.

Shennan, S

1988 Quantifying Archaeology. Edinburgh: Edinburgh Univ. Press.

Thomas, D.H.

1986 Refiguring Anthropology: First Principles of Probability and Statistics. Prospect Heights: Waveland Press.

Thomas, D.

1978 "The Awful Truth About Statistics in Archaeology." American Antiquity Vol. 43(2): 231-244.

Whallon, R.

1987 "Simple Statistics"In Quantitative Research in Archaeology. M. Aldenderfer (Ed.) Sage Publishing.pp. 135-150.

Other Useful Texts

Madrigal, L.

1998 Statistics For Anthropology. Cambridge: Cambridge University Press.

Sokal, R. and J. Rohlf

1981 Biometry: The Principles and Practice of Statistics in Biological Research. San Francisco: W.H. Freeman and Co. (especially for Biological Anthropology)

Clark, W. and P. Hoskings

1986 Statistical Methods for Geographers. New YorK: John Wiley and Sons.

for spatial analysis and good general text.