QUANTITATIVE METHODS IN ARCHAEOLOGY
Anthropology 726
Spring 2021

Professor Vin Steponaitis
Office: Alumni 108
Hours: By appointment (set up by email)
Email: vin@unc.edu

Course Description: This course is an introduction to quantitative methods that are particularly useful to archaeologists. It is not intended to be a substitute for an introductory course in basic inferential statistics. Rather, the emphasis is placed on quantitative pattern-recognition techniques such as exploratory data analysis (EDA), cluster analysis, principal components analysis, and correspondence analysis. Topics in archaeological sampling, seriation, and spatial analysis will also be covered. During the semester, students will use two software packages – MYSTAT and TFQA – to analyze both real and constructed datasets.

Course Objectives: Students who take this course will gain a working knowledge of how to analyze archaeological data using the methods enumerated above.

Course Structure: There will be two lectures per week (Tu, Th 2:00-3:15, via Zoom). Each topic will be covered in one or more lectures, after which I will assign a take-home exercise, typically due in a week. I reserve the right to make minor adjustments to the course schedule and readings over the course of the semester, but the basic structure of the course will remain the same. Note that it is perfectly OK to collaborate on lab assignments, so long as the write-up is your own work.

Course Requirements: Besides attending class and doing the assigned readings, you are expected to spend considerable time on weekly take-home exercises (75%). There will also be a final exam (25%).

Books and Software: I have ordered two books that are available at Student Stores: William Cleveland’s The Elements of Graphing Data and M. J. Baxter’s Exploratory Multivariate Analysis in Archaeology. Stephen Shennan’s Quantifying Archaeology is available online through the UNC Library. All the necessary software is available free of charge on UNC servers.

Course Web Site: In addition to an electronic version of this syllabus, all the take-home exercises (including datasets) will routinely be posted on the web (rla.unc.edu/courses/anth726/).

Course Schedule (subject to minor changes):
1/19-2/2 Introduction and basics
2/4-2/11 Univariate distributions and graphs
2/18-3/2 Association and correlation
3/4-3/9 Sampling
3/16-3/18 Diversity
3/23-3/25 Classification and cluster analysis
3/30-4/1 Seriation
4/6-4/8 [Catch-up & review]
4/13-4/15 Principal components analysis
4/20-4/22 Correspondence analysis
4/27-4/30 [Additional topics & review]
5/13 Final exam (12 pm)
Honor Code: Students are expected to adhere to UNC's Honor Code (honor.unc.edu). Please note that you are encouraged to work together on exercises, to ask questions, and to refer to the readings as you are doing the analysis for each exercise. You may generate graphs, tables, and other illustrations jointly and share them freely within your working groups. However, the write-up of each exercise must be your own work. If you have any questions about this policy, please feel free to ask.

Accessibility Resources: UNC-Chapel Hill facilitates the implementation of reasonable accommodations, including resources and services, for students with disabilities, chronic medical conditions, a temporary disability or pregnancy complications resulting in barriers to fully accessing University courses, programs and activities. Accommodations are determined through the Office of Accessibility Resources and Service (ARS) for individuals with documented qualifying disabilities in accordance with applicable state and federal laws. See the ARS website (ars.unc.edu) for contact information or connect by email (ars@unc.edu).

Counseling and Psychological Services: CAPS is strongly committed to addressing the mental health needs of a diverse student body through timely access to consultation and connection to clinically appropriate services, whether for short or long-term needs. Go to their website: https://caps.unc.edu/ or visit their facilities on the third floor of the Campus Health Services building for a walk-in evaluation to learn more.

Title IX Resources: Any student who is impacted by discrimination, harassment, interpersonal (relationship) violence, sexual violence, sexual exploitation, or stalking is encouraged to seek resources on campus or in the community. Please contact the Director of Title IX Compliance (Adrienne.Allison@unc.edu), Report and Response Coordinators in the Equal Opportunity and Compliance Office (reportandresponse@unc.edu), Counseling and Psychological Services (confidential), or the Gender Violence Services Coordinators (gvsc@unc.edu; confidential) to discuss your specific needs. Additional resources are available at safe.unc.edu.

UNC Community Standards and Guidelines: This fall semester, while we are in the midst of a global pandemic, all enrolled students are required to wear a mask covering your mouth and nose at all times in the classroom and when meeting in person. This requirement is to protect our educational community — your classmates and me — as we learn together. If you choose not to wear a mask, or wear it improperly, I will ask you to leave immediately, and I will submit a report to the Office of Student Conduct. At that point you will be disenrolled from this course for the protection of our educational community. An exemption to the mask wearing community standard will not typically be considered to be a reasonable accommodation. Individuals with a disability or health condition that prevents them from safely wearing a face mask must seek alternative accommodations through Accessibility Resources and Services (ars.unc.edu). For additional information, see Carolina Together (carolinatoggether.unc.edu).

[rev. 1/18/21]
Readings

**Basics:**


**Univariate Distributions and Graphs:**

Velleman and Hoaglin (1981). *ABC's of EDA*, chapters 3-6 (ignore the computer programs).
Cleveland, William S. (1994). *The Elements of Graphing Data* (revised edition). Read the preface and chapters 1-2; skim chapter 3 (paying special attention to the figure captions); read chapter 4.

**Association and Correlation:**

Shennan, Stephen (1997). *Quantifying Archaeology*, chapter 8 (read for the concepts, not for the math).

**Sampling:**


**Diversity:**


**Classification and Cluster Analysis:**


[The above three articles are also reprinted in *Man's Imprint from the Past*, edited by James Deetz (1971).]


Seriation:


Principal Components Analysis:


Correspondence Analysis:


Additional Topics:

[TBA]

[rev. 1/18/21]