

WINTER 2021

ENST 5050 – QUANTITATIVE RESEARCH METHODS

ARCH 5113 – METHOD AND THEORY IN ARCHAEOLOGY

Instructor: Dr. Adam Cornwell

E-mail: acornwel@lakeheadu.ca

Meetings: Wednesdays, 2:30-5:30

Text: Roberts, Kampen, and Peter (2010), *The Statistics Coach: Learning Through Practice*, Oxford University Press.

An additional text on the practice of statistics should also be in your possession.

Course Objectives

The central goal of this course is to explore and analyze quantitative research methodologies in the context of environmental studies. The intentions are to assist students in identifying obstacles and limitations that frequently arise when conducting quantitative research, and to encourage them to interact with other graduate and faculty researchers who may have expertise that can prove valuable to their career. Students will develop renewed confidence in their ability to incorporate these concepts into their theses.

A secondary goal is assisting in the production of the thesis research plan. Students are expected to participate in the LU Graduate Student Conference during Research and Innovation Week. Formal research plans will be presented as part of faculty presentations later that month.

Evaluation Scheme	Weight	Due Dates
Assignment 1	5%	January 27
Assignment 2	5%	February 10
Preview Presentation	10%	February 24
Graduate Student Conference	10%	March 3
Assignment 3	5%	March 17
Assignment 4	5%	March 24
Assignment 5 (GIS)	10%	April 7
Assignment 6	10%	April 14
Participation	10%	
Examination	30%	TBA

Course Description

The basic approaches of quantitative research will be reviewed and put into practice through the completion of assignments and the context of developing thesis research plans. *It is expected that students will be in regular contact with their thesis advisors in developing their plan.* Included in the regular course meetings will be sessions for exploring software such as SPSS and ArcGIS.

Course Delivery

In accordance with the safety protocols at Lakehead University during the pandemic of Winter 2021, this course will be delivered using on-line methods. The primary mode of contact will be synchronous meetings during the scheduled period each week.

Course materials and tests will be delivered through the **Desire2Learn** platform available through CourseLink. Meetings will be hosted by the instructor using the **Zoom** platform; links to the sessions are in the CourseLink Calendar.

Recordings of **Zoom** meetings will be made available asynchronously for students who are unable to attend at the scheduled times, due to technological limitations or other reasons. Students are responsible for participating with the class.

Student licenses of the software for this course (SPSS and ArcGIS) can be obtained through the LU HelpDesk.

Learning Outcomes

Knowledge

- Review common descriptive statistics and the appropriate usage of each
- Apply probability theory and representation techniques to data sampling
- Verify and categorize bivariate and multivariate relationships
- Utilize standard statistical approaches for making inferences from samples
- Design and test hypotheses using a variety of parametric and non-parametric techniques
- Incorporate spatial information into quantitative analysis

Skill Development

- Data models, analysis, and graphic representation in SPSS
- Statistical mapping and analysis in ArcGIS
- Research plan development
- Effective communication of scholarly research in both written and verbal formats

Syllabus (*subject to change as necessary*)

Date	Topic(s)
January 13	Introduction and discussion of thesis topics and objectives.
January 20	Review of Descriptive Statistics and Introduction to SPSS
January 27	Probability, Distributions, and Sampling.
February 3	Bivariate Analysis and Crosstabulation.
February 10	Written and Oral Communication.
February 17	Reading Week. No session this week.
February 24	Preview Presentations.
March 3	<i>LU Graduate Student Conference. No session this week.</i>
March 10	Correlation and Regression.
March 17	Inferential Statistics: Samples to Populations.
March 24	Hypothesis Testing and Parametric Distributions.
March 31	Geographical Information Systems.
April 7	Multivariate Inference and Non-Parametric Tests.

LU Notice for Recording Lectures and Class Activities

In ENST 5050/ARCH 5113, in the context of remote instruction and participation, video and audio recordings of class activities will be made to ensure students' and instructors' easy and comprehensive access to those activities. The recordings are confidential and are intended only for the use of the course students and instructors. They may otherwise not be used or disclosed. During recording, to protect others' privacy, each student should ensure that no one else is present in the location where they are being recorded without that non-student's consent. The recordings are made under the authority of sections 3 and 14 of The Lakehead University Act, 1965. Questions about the collection of the images and sounds in the recordings may be directed to the Dean of Science and Environmental Studies, ses@lakeheadu.ca.

LU Accommodation Statement

Lakehead University is committed to achieving full accessibility for persons with disabilities/medical conditions. Part of this commitment includes arranging academic accommodations for students with disabilities/medical conditions to ensure they have an equitable opportunity to participate in all of their academic activities. If you are a student with a disability/medical condition and think you may need accommodations, you are strongly encouraged to contact Student Accessibility Services (SAS) and register as early as possible. For more information, please email sas@lakeheadu.ca or visit <https://www.lakeheadu.ca/faculty-and-staff/departments/services/sas>.