## 1. General Information

1a. Submitted by the College of: ARTS &SCIENCES

Date Submitted: 1/5/2015

1b. Department/Division: Sociology

1c. Contact Person

Name: Keiko Tanaka

Email: ktanaka@email.uky.edu

Phone: 859-25-6878

Responsible Faculty ID (if different from Contact)

Name:

Email:

Phone:

1d. Requested Effective Date: Semester following approval

1e. Should this course be a UK Core Course? No

## 2. Designation and Description of Proposed Course

2a. Will this course also be offered through Distance Learning?: No

2b. Prefix and Number: SOC 781

2c. Full Title: Quantitative Data Analysis II

2d. Transcript Title: Quant Data Analysis II

2e. Cross-listing:

2f. Meeting Patterns

SEMINAR: 3

2g. Grading System: Letter (A, B, C, etc.)

2h. Number of credit hours: 3

2i. Is this course repeatable for additional credit? No

If Yes: Maximum number of credit hours:

If Yes: Will this course allow multiple registrations during the same semester?

2j. Course Description for Bulletin: This intermediate statistics course emphasizes the fundamentals of multivariate regression. The goal is to develop a foundational toolkit to model a variety of dependent variables. The course will teach students how to make decisions about how to model data, how to estimate equations, and how to solve common problems with multivariate regressions. This is an applied course that will utilize Stata to analyze quantitative social science data.

2k. Prerequisites, if any: SOC 681, PS 572 or consent of the instructor

2l. Supplementary Teaching Component:

3. Will this course taught off campus? No

If YES, enter the off campus address:

4. Frequency of Course Offering: Spring,

Will the course be offered every year?: Yes

If No, explain:

5. Are facilities and personnel necessary for the proposed new course available?: Yes

If No, explain:

6. What enrollment (per section per semester) may reasonably be expected?: 20

7. Anticipated Student Demand

Will this course serve students primarily within the degree program?: Yes

Will it be of interest to a significant number of students outside the degree pgm?: Yes

If Yes, explain: Political Science students may be allowed to take this course to fulfill their statistics requirement in the program.

8. Check the category most applicable to this course: Traditional – Offered in Corresponding Departments at Universities Elsewhere,

If No, explain:

9. Course Relationship to Program(s).

a. Is this course part of a proposed new program?: No

If YES, name the proposed new program:

b. Will this course be a new requirement for ANY program?: Yes

If YES, list affected programs: Master's and doctoral programs in Sociology

10. Information to be Placed on Syllabus.

a. Is the course 400G or 500?: No

b. The syllabus, including course description, student learning outcomes, and grading policies (and 400G-/500-level grading differentiation if applicable, from **10.a** above) are attached: Yes

## Distance Learning Form

Instructor Name:

Instructor Email:

Internet/Web-based: No

Interactive Video: No

Hybrid: No

1.How does this course provide for timely and appropriate interaction between students and faculty and among students? Does the course syllabus conform to University Senate Syllabus Guidelines, specifically the Distance Learning Considerations?

2.How do you ensure that the experience for a DL student is comparable to that of a classroom-based student's experience? Aspects to explore: textbooks, course goals, assessment of student learning outcomes, etc.

3.How is the integrity of student work ensured? Please speak to aspects such as password-protected course portals, proctors for exams at interactive video sites; academic offense policy; etc.

4.Will offering this course via DL result in at least 25% or at least 50% (based on total credit hours required for completion) of a degree program being offered via any form of DL, as defined above?

If yes, which percentage, and which program(s)?

5.How are students taking the course via DL assured of equivalent access to student services, similar to that of a student taking the class in a traditional classroom setting?

6.How do course requirements ensure that students make appropriate use of learning resources?

7.Please explain specifically how access is provided to laboratories, facilities, and equipment appropriate to the course or program.

8.How are students informed of procedures for resolving technical complaints? Does the syllabus list the entities available to offer technical help with the delivery and/or receipt of the course, such as the Information Technology Customer Service Center (http://www.uky.edu/UKIT/)?

9.Will the course be delivered via services available through the Distance Learning Program (DLP) and the Academic Technology Group (ATL)? NO

If no, explain how student enrolled in DL courses are able to use the technology employed, as well as how students will be provided with assistance in using said technology.

10.Does the syllabus contain all the required components? NO

11.I, the instructor of record, have read and understood all of the university-level statements regarding DL.

Instructor Name:

SIGNATURE|CRE227|Claire M Renzetti|SOC 781 NEW Dept Review|20140910

SIGNATURE|ACSI222|Anna C Harmon|SOC 781 NEW College Review|20141021

SIGNATURE|ZNNIKO0|Roshan Nikou|SOC 781 NEW Graduate Council Review|20141126

SIGNATURE|JEL224|Janie S Ellis|SOC 781 NEW Senate Council Review|20141201

SIGNATURE|CRE227|Claire M Renzetti|SOC 781 NEW Approval Returned to Dept|20150106

SIGNATURE|CRE227|Claire M Renzetti|SOC 781 NEW Dept Review|20150106

**SOC 781: Quantitative Data Analysis II**
**Spring 2016**
**Thursdays, 4:00-6:30pm**
**POT 1506**

## Instructor

Name: Prof. XXXX
Office: POT XXX
Office Hours: XXXX
E-mail: XXX
Phone Number: XXXX
Preferred Methods of Communication: XXX

## Course Description

This intermediate statistics course emphasizes the fundamentals of multivariate regression. The first half of the course covers the classical linear regression model estimated with Ordinary Least Squares (OLS), as well as its assumptions and some of its complexities. The second half of the course examines non-linear statistical models estimated with Maximum Likelihood Estimation (MLE). The goal is to develop a foundational toolkit to model a variety of dependent variables. The course will teach students how to make decisions about how to model data, how to estimate equations, and how to solve common problems with multivariate regressions. This is an applied course that will utilize Stata to analyze quantitative social science data.

## Learning Goals

By the end of the semester, students will be able to:

- Identify appropriate statistical techniques to answer research questions
- Understand when OLS or MLE estimation is most appropriate for analysis
- Perform multivariate regressions
- Diagnose and remedy common problems with multivariate regressions
- Become proficient in using Stata for statistical analyses
- Interpret and convey results from multivariate regressions
- Design and execute a research study using multivariate regressions

## Prerequisites

SOC 681, PS 572 or permission of instructor

Students who are granted permission of instructor are expected to be comfortable with basic data management, command syntax, and analysis with Stata.

## Attendance and Grades

*Students are expected to attend every class and stay for the entire time.* While it is understood that occasionally students may not be able to attend class, students are fully responsible for the material that they miss due to their absences. This class moves at a very fast pace and absences will be difficult to recover from.

Assignments are due on the dates listed on the Course Schedule below. ***Late assignments are not accepted and there are no make-up opportunities for any of the graded assignments.*** Rare exceptions may be granted for unusual circumstances, but this is very uncommon for graduate students.

Requests for extensions must be submitted by email with proper documentation prior to the due date for the assignment. Requests for accommodations due to religious observances must be submitted by email at least one week prior to the due date for the assignment.

Course grades will be determined based on four components:

| | | | |
|---|---|---|---|
| Problem sets | 13 X 1% | = | 13% |
| Article reviews | 3 X 5% | = | 15% |
| Lab exercises | 4 X 5% | = | 20% |
| Exams | 2 X 11% | = | 22% |
| Final project proposal | | = | 5% |
| Final project | | = | 25% |

- **Problem sets** are short assignments related to the required readings that are designed to encourage you to read actively and to ensure that you are prepared for class. These assignments will be graded as complete or incomplete. Answers will be provided at the beginning of class. We will use these assignments to start our discussion of the topic for the day. ***Problem sets are your ticket to class. If you do not complete the assignment then you are not allowed in class that day and you will have to learn the material on your own.*** Exceptions to this rule will only be made under extreme circumstances with proper documentation.

- **Article reviews** are short (2-3 pages each) writing assignments critically evaluating published quantitative work. Students are not allowed to collaborate on these assignments. *Late assignments will not be accepted.*

- **Lab exercises** are graded computing and problem-solving exercises that will be completed outside of class. They are designed to apply several weeks of material to an actual dataset. Students are allowed to work together on these labs, although the final written products submitted for grades should be unique to each individual. Labs are due on the dates listed in the Course Schedule below. *Late assignments will not be accepted.*

- The **two exams** will be in-class tests consisting of a written component and a computing exercise. You will be allowed to use your course notes and books during the exams, but you will complete the exams independently. *Students are expected to take the exams on the dates listed below.* Exceptions will only be made for extreme circumstances with proper documentation.

- For the **final project** students will formulate research questions, select an appropriate data set to analyze, and perform appropriate statistical analyses to answer their research questions. Students will demonstrate their ability to apply the various techniques learned throughout the semester to their own research projects. Collaboration is not allowed on this assignment. This assignment is required to pass the class. ***Students who do not turn in a final project that meets the minimum requirements will fail the course, regardless of their grades on the other course assignments.*** Students will write a **short proposal** midway through the course to get approval for the final project. *Late assignments will not be accepted.*

Final letter grades will be assigned according to the following scale:

A = 100-90%
B = 80-89%
C = 70-79%
D = 60-69%
E = 59% and below

**Academic Honesty**
Plagiarism and cheating will not be tolerated. All instances of academic dishonesty will be reported to University officials. It is the student's responsibility to understand the nature of these offenses and definitions are provided in the University's Code of Student Rights and Responsibilities at http://www.uky.edu/StudentAffairs/Code/part2.html. All violations of academic dishonesty will be dealt with according to section 6.4 of the UK Student Rights and Responsibilities. Note that one likely penalty for these offenses will be failing the course.

**Classroom and Learning Accommodations**
Students with documented disabilities who need special accommodations or services for this course should speak with me during the first week of the semester. You must provide a Letter of Accommodation from the Disability Resource Center (Room 2, Alumni Gym, 257-2754).

**Readings**

- Gujarati, Damodar N., and Dawn Porter. (2009). Basic Econometrics, 5th ed. McGraw Hill. (The fourth edition should suffice, but please make sure you are reading the correct chapters.)

- Long, Scott J., and Jeremy Freese. (2005). Regression Models for Categorical and Dependent Variables Using Stata, 2nd ed. Stata Press.

- Additional readings will be available on Blackboard.

Please note that reading statistics books is very different from other types of reading. You typically have to read slowly and re-read certain sections several times. Be careful to allot enough time to complete the readings before class. The problem sets are designed to encourage you to read actively and practice what you are learning.

**Course Schedule**

This schedule is subject to change during the course of the semester. All changes will be posted on Blackboard in a timely manner.

| Date | Topics | Readings | Assignments Due at 4:00 p.m. |
|---|---|---|---|
| Jan 14 | Review of bivariate regression | Gujarati Ch. 1 & 2 | Problem set |
| Jan 21 | OLS estimation and inference | Gujarati Ch. 3 -5 | Problem set |
| Jan 28 | Multiple regression | Gujarati Ch. 7 & 8 | Problem set<br>Article review 1 |
| Feb 4 | Moderation | Gujarati Ch. 9 | Problem set<br>Lab 1 |
| Feb 11 | Multicollinearity and heteroskeadasticity | Gujarati Ch. 10 & 11 | Problem set |
| Feb 18 | Autocorrelation | Gujarati Ch. 12 | Problem set<br>Article review 2 |
| Feb 25 | Nonlinearity, omitted variables & influential cases | Linneman Ch. 15 (BB)<br>Gujarati Ch. 13 | Problem set |
| Mar 3 | Mediation and endogeneity | Gujarati Ch. 18 | Problem set<br>Lab 2 |
| Mar 10 | Exam 1 | | Exam 1 |
| Mar 17 | Introduction to maximum likelihood estimation | Gujarati Ch. 15.1 – 15.4<br>Scott & Long Ch. 3 | Problem set |
| Mar 21-25 | SPRING BREAK | | |
| Mar 31 | Logit & probit | Gujarati Ch. 15.5 – 15.10<br>Scott & Long Ch. 4 | Problem set<br><br>Final project |
| Apr 3 | Ordered logit & probit | Scott & Long Ch. 5 | Problem set<br>Lab 3 |
| Apr 7 | Multinomial logit | Scott & Long Ch. 6 | Problem set<br>Article review 3 |
| Apr 14 | Poisson & negative binomial | Gujarati Ch. 15.12<br>Scott & Long Ch. 8 | Problem set |

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|---|---|---|---|
| Apr 21 | Presenting results | TBD | Lab 4 |
| April 28 | Exam 2 | | Exam 2 |
| **May 5, 5:00 p.m.** | **Final Projects due** | | **Final Project** |