Washington State University
MAJOR CURRICULAR CHANGE FORM - - COURSE
(Submit original signed form and <u>ten</u> copies to the Registrar's Office, zip 1035.)

Future Effective Date: 01/15/2014 ☑ New course ☐ Temporary course ☐ Drop service course
(effective date cannot be retroactive) ☐ There is a course fee associated with this course (see instructions)

☐ Variable credit _____ ☐ Repeat credit (cumulative maximum _____ hours)

☐ Increase credit (former credit _____) ☐ Lecture-lab ratio (former ratio _____)

☑ Number (former number 592) ☑ Prefix (former prefix SOC)

☐ Crosslisting (between WSU departments) ☐ Cooperative listing (UI prefix and number _____)
(Must have both departmental signatures) taught by: WSU ☐ UI ☐ jointly taught ☐

☐ Conjoint listing (400/500) ☐ S, F grading

☐ Request to meet Writing in the Major [M] requirement **(Must have All-University Writing Committee Approval)**

☐ Request to meet GER in _____ **(Must have GenEd Committee Approval)** ☐ Fulfills GER lab (L) requirement
☐ Professional course **(Pharmacy & Vet Med only)** ☑ Graduate credit **(professional programs only)**

☐ Other (please list request) _____

SOC	511	Data Management
course prefix	course no.	title

3	3			Graduate standing or instructor permission
credit	lecture hrs per week	lab hrs per week	studio hrs per week	prerequisite

Description (**20 words or less**) An introduction to core concepts and procedures that are used regularly in the quantitative analysis of sociological data

Instructor: Thomas Rotolo   Phone number: (509) 335-4414   Email: rotolo@wsu.edu
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Campus Zip Code: 4020

- Please attach rationale for your request, a current and complete syllabus, and explain how this impacts other units in Pullman and other branches (if applicable).
- Secure all required signatures and provide 10 copies to the Registrar's Office.

Lisa McIntyre 27 AUG 2013   _Carol Ivory_ 29 Aug '13
Chair/date   **Dean/date**   **General Education Com/date**

_____ _____ _____
Chair (if crosslisted/interdisciplinary)*   **Dean (if crosslisted/interdisciplinary) ***   **Graduate Studies Com/date**

_____ _____ _____
All-University Writing Com/date   **Academic Affairs Com/date**   **Senate/date**

***If the proposed change impacts or involves collaboration with other units, use the additional signature lines provided for each impacted unit and college.**

Rationale for request:

This request is to change a "special topics" course (Sociology 592) to its own dedicated course number (Sociology 511). No new resources are required because the course is already in the graduate course rotation as a special topics course. Sociology 511 (Data Management) course will teach students skills that are regularly required for the quantitative analysis of data. The Department of Sociology will offer this course once per academic year in the fall semester and it will a requirement for all incoming graduate students.

One of the primary objectives of the Graduate Program in the Department of Sociology is "To enable students to conduct original, empirical sociological research". This objective involves learning outcomes related to the collection, analysis, and interpretation of data (see attached syllabus for specific learning outcomes related to each of these areas). The Department of Sociology currently offers courses in methodology (sociological research design and the collection of sociological data) and several statistics courses focused on specific statistical techniques that are used by sociologists. While important, these methods and statistics courses do not provide graduate students in sociology with all the skills that are needed to conduct empirical research, as stated in the objective.

A course on data management techniques is required for sociology graduate students in order for the Department to meet its stated learning outcomes. Data management techniques involve skills that lie between the collection of data and the statistical analysis of the data. Sociology faculty teaching statistics courses often have to spend class time addressing students' deficiencies in data management before moving on to course material. In the past, students who enrolled in statistics courses without the requisite data management skills have been at a disadvantage because they are unfamiliar with existing data sets and they do not know how to manage their own data. Students with knowledge of existing data sets are better able to formulate relevant sociological research questions. And, students must learn data management skills early on in their careers, before beginning work on an MA or Ph.D.

This course is distinct from other courses taught on campus for several reasons. First, the course introduces students to the "most popular" data management software – the software that most faculty in the Department of Sociology rely upon to conduct their research. The course content is flexible in that the software used in the course can be changed if the sociology faculty members begin to rely on different software and data analysis tools. Second, no other WSU graduate-level course focuses on how to teach students the skills to collect and assemble datasets that are tailored to answer sociological research questions. The sociologists in the Department of Sociology are the best-qualified individuals to assess sociological research projects. Third, the course introduces students to large, archival data sources that are regularly used by professional sociologists. These sociological data sources tend use large samples that present unique data management challenges (e.g., merging). The data sources involve social and demographic questions that require specific analytical approaches (e.g., categorical data analysis or scale/index construction) taken by faculty in the Department of Sociology.

Finally, the course provides an essential bridge between existing research methods and statistics courses that are taught in sociology. The faculty teaching Sociology 511 will be very familiar with the content in each of these areas.

Faculty support: The directors of graduate studies in the Department of Sociology approved the offering of this course as a special topics course in the fall 2012 and evaluated it after its completion. The data management course was viewed as a success by the department (e.g., chair, directors of graduate study, and instructors of methods and statistics courses). Students and faculty involved with graduate statistics and methods courses noted improved data management skills in graduate-level courses offered in the spring 2013.

Sociology 592: Data Management
Fall 2013 (3 credits), Tuesdays: 2:50-5:50 PM, Wilson-Short Hall Room 3

Professor Thomas Rotolo
Office: Wilson Hall 252
Office Hours: TBA in class
Office Phone: 335-4414
E-mail: rotolo@wsu.edu (write **Soc 592** in subject line)

Introduction: This course will introduce you to core concepts and procedures that are used regularly by sociologists in the quantitative analysis of data. The techniques we will cover are focused on those used regularly by sociologists in universities and other research settings. The skills are also necessary for you to succeed in subsequent statistics and methods courses offered by the Department of Sociology. We will cover basic data management and basic statistical procedures in Stata, a powerful statistical software package used by many social scientists, including the most of the WSU Sociology faculty.

Goals of the course: The Sociology Graduate Program at Washington State University has three stated Graduate Program Objectives. This graduate course addresses the first objective: "To enable students to conduct original, empirical sociological research". The Graduate Program has a series of learning outcomes for this objective. This course meets the following learning outcomes:

Sociology Graduate Learning Outcome	Course topics and dates that advance these learning goals	The objective will be evaluated primarily by
1. Formulate an important, viable sociological research question within field of expertise, including situating that research question within the relevant literature.	The development of a relevant sociological research question precedes data collection and determines data management tasks. Specific dates of note: Week 1: Introduction to sociological research Week 2: Identifying sociological data; Describing variables Weeks 4-5: Reading and writing your own datasets; archival data used regularly by sociologists Week 8: Sociological literature search Weeks 13-14: Statistical association in sociology Week 7 and Week 14: Exams will relate to this outcome	Assignments #1, #2, #3 Exam #1 and Exam #2

Sociology Graduate Learning Outcome	Course topics and dates that advance these learning goals	The objective will be evaluated primarily by:
2. Collect or identify data from which to draw conclusions about the research question.	Data management is an essential part of the collection and identification of data. The course will always stress the importance of drawing proper conclusions from data analysis. Specific dates of note: Weeks 3-5: Using archival data; data cleaning Week 9-11: Hypothesis testing and statistical significance; One- and two-sided tests; z-tests / t-tests Week 7 and Week 14: Exams will relate to this outcome	Assignments #1, #2 Exam #1 and #2
3. Appropriately analyze research data and present results in a clear, concise manner.	Each week of the course will address important issues related to the collection and identification of data, by covering specific data management skills in Stata. Specific dates of note: Weeks 4-5: The normal distribution; standardized variables Week 11: Scale / index construction Week 7 and Week 14: Exams will relate to this outcome	Assignments #4, #5 Exam #1 and Exam 2
4. Draw implications about sociological knowledge from research findings.	Research findings will be discussed in the context of evaluations of statistical association between sociological variables. Specific dates of note: Weeks 13, 15: Statistical association Week 7 and Week 14: Exams will relate to this outcome	Assignments #3, #4, #5 Exam #1 and Exam #2

There are no formal course prerequisites for this class. In order to complete this class successfully, you need to have access to your own computer with a version of Stata installed or you will need to use the computer lab in Wilson-Short Hall. All computers in this lab have Stata installed. You do not know anything about this statistical software package, or any other software, however some familiarity with other statistical software, along with experience with a spreadsheet software package such as Microsoft Excel will ease the learning process. It will also help if you have completed successfully at least one introductory statistics course.

We will use two required texts, available through the WSU Bookie or from other retailers:

1) **Mitchell, Michael N. 2010. Data Management Using Stata: A Practical Handbook. College Station, TX: Stata Press**

2) **Rowntree, Derek. 2004. Statistics Without Tears. Boston, MA: Allyn and Bacon.**

I also recommend, but do not require: **Hamilton, Lawrence C. 2009.** *Statistics with Stata.* **Belmont, CA: Brooks/Cole.**

We will progress sequentially through the texts.

Grading:

Your final grade will be based on your performance on two exams and participation on homework assignments. The format of the exams will be announced in class. The assignments will be related directly to the procedures covered in the textbook and in class. Some assignments will require simple replication, others might require you to replicate commands using your own data, and near the end of the semester, some of the assignments will require you to "put everything together". I will describe the structure of these assignments in class. Sometimes, you will be required to submit your work to the course web space on angel.wsu.edu. I will demonstrate the submission process in class. Most of the time, I will ask you to discuss the assignments in class with the intent to encourage class discussion. If it becomes evident that students have not completed the assignment before class, I will require you to submit a formal assignment to the web space within 24 hours. Submission details will be provided in class should this unfortunate situation occur.

Test dates and grading percentage breakdown

October 1, Exam #1:	25%
November 19, Exam #2:	25%

If you need to miss an exam, I would appreciate at least 24 hours notice, unless personal circumstances prevent you from providing such notice. Make-up exams will be arranged on case-by-case basis.

Five Assignments (10% each):   50%

         Assignment #1: Entering and describing your own sociological data
         Assignment #2: Archival data: General Social Survey, Current Population Survey, and more
         Assignment #3: Sociological literature search
         Assignment #4: Index / scale construction in sociology
         Assignment #5: Sociological application with Stata: An analysis of the 100 largest metro areas

You will have one week to complete assignments #1-4. Assignment #5 will be due by the date of the scheduled final exam (see schedule below). Late assignments will not be accepted.

This course will adhere to the following grading scheme, although I reserve the right to alter the percentages in your favor at the end of the semester.

A:	**94-100%**	**C+:**	**77-79%**	**F:**	**59% and below**
A-:	**90-93%**	**C:**	**74-76%**		
B+:	**87-89%**	**C-:**	**68-73%**		
B:	**84-86%**	**D+:**	**67-69%**		
B-:	**80-83%**	**D:**	**60-66%**		

Some Random Thoughts: At certain points throughout the semester, you might find yourself in a blind alley with the computer. You're staring at some gibberish on the screen and you can't get your program to run correctly. Here are some general tips: First, can you get back to where you started? If so, try to redo the analysis. I know this sounds like a lot of work (and in many cases this suggestion is impractical), but for most of the exercises we will be working on in this class, starting over can often be the best plan of action.

Second, ask yourself if this error has happened before? Have you seen a similar error message? If so, look back through your notes to see what you did then. Third, when all else fails you should read the documentation. I know it almost never helps, but it gives you something to do with your time. Seriously though, the Stata help documentation is quite good, and can actually help you figure your way out of a jam, or you may even pick up something that will help later, even if it didn't help you this time. And, there is one last hope: Ask me! I'm competent with Stata and most of its unusual behaviors; I've probably, at one time or another, faced the same problem you are facing.

I reserve the right to make course announcements and updates via email. You are responsible for any information presented in course announcements before noon on Friday. Check for messages anytime before Friday at noon to see if weekly tasks have been assigned or altered.

Schedule:

The table below provides an **approximate** schedule for the semester, based on the Mitchell textbook. The schedule is approximate because we will develop a pace that suits the needs and experience of the class. We will attempt to cover all the material in both of the assigned textbooks. Some of the topics might be covered in ten minutes while other topics might take an entire class period to cover. Some topics might extend over several class periods. The material is cumulative so we will often revisit topics learned early in the semester.

Week 1 (August 20)

Introduction to course
Introduction to Stata

Rowntree, Chapters 1-2: Sociological sampling and variables

Week 2 (August 27)

Mitchell Chapter 1: Using archival data; using your own data
Mitchell Appendix A: Sections A1-A3
Rowntree Chapter 3

Basic Stata syntax: List, Describe, Edit
Summarizing sociological data: Tables, central tendency, dispersion

Assignment #1: Entering and describing your own sociological data (due by start of class next week)

Week 3 (September 3)

Mitchell Chapter 2: Reading and writing datasets
Rowntree Chapter 4 (Pp. 57-64)

Stata operators
Reading raw data into Stata
Types of datasets
Saving data files
Graphing in Stata
The shape of a distribution

Week 4 (September 10)

Mitchell, Chapter 3: Data cleaning
Rowntree, Chapter 4 (Pp. 64-79)

Checking your data
Correcting errors in data
Identifying duplicates
The normal distribution

Week 5 (September 17)

Mitchell, Chapter 4: Labeling
Rowntree, Chapter 4 (Pp. 79-81)

Describing data
Labeling: Variables, values
Labeling utilities
Comments in datasets
Standardized variables

Assignment #2: Archival data: General Social Survey, Current Population Survey, and more (due by start of class next week)

Week 6 (September 24)

Mitchell, Chapter 4 continued
Rowntree, Chapter 5 (Pp.82-94)

Formatting display of variables
Changing order of variables in dataset
Appendix A.5: Data types
Sampling distribution theory

Week 7 (October 1): Exam #1

Week 8 (October 8)

Mitchell, Chapter 5: Creating variables
Rowntree, Chapter 5 (Pp. 94-101)

Creating and recoding variables
Numeric expressions and functions
Appendix A.6: Logical expressions
Missing value coding
Dummy variable creation
Estimation

Assignment #3: Sociological literature search (due by start of class next week)

Week 9 (October 15)

Mitchell Chapter 5: Creating variables (continued)
Rowntree, Chapter 6 (Pp. 102-121)

Date variables
Date and time variables
Computations across variables
Computations across observations
The "egen" command
Converting string variables to numeric variables
Renaming variables
Hypothesis testing
Statistical significance

Week 10 (October 22)

Mitchell, Chapter 6: Combining datasets
Rowntree, Chapter 7 (Pp. 128-138)

Appending
Merging
Joining
Crossing
One-sided versus two-sided tests

Week 11 (October 29)

Mitchell, Chapter 7: Subgroup processing
Rowntree, Chapter 7 (Pp. 139-141)

Separate results for subgroups; computing values by subgroups
Computing values within subgroups: Subscripting observations
Computing values within subgroups: Computations across observations
Computing values within subgroups: Running sums
Appendix A.8-A.9: Subsetting observations with "if and in" and with "keep and drop"
z-tests versus t-tests

Assignment #4: Index / scale construction in sociology (due by start of class next week)

Week 12 (November 5)

Mitchell, Chapter 8: Changing the shape of data
Rowntree, Chapter 7 (Pp. 141-154)

Wide and long datasets
Reshaping long to wide
Reshaping wide to long
Comparing several means
Comparing proportions

Week 13 (November 12)

Mitchell, Chapter 8
Rowntree, Chapter 8 (Pp. 155-176)

Multilevel datasets; Collapsing datasets
Correlation

Week 14 (November 19): Exam #2

Week 15 (December 3)

Mitchell, Chapter 9: Data management programming
Rowntree, Chapter 8 (Pp. 176-184)

Data checking; Loops
Accessing results saved from Stata commands
Saving results of estimation commands as data
Analyzing relationships: Prediction and regression

Assignment #5: Sociological application with Stata: An analysis of the 100 largest metro areas

Attendance: I will note attendance in this class each week but this is only for my records. I will not provide any lecture materials outside of class, so if you miss class, you will need to get the notes from another student. <u>If you don't know anyone in the class, please make a friend early in the semester so you can rely on this person if you need any notes later in the semester.</u>

Academic Integrity: There is no excuse for using someone else's work or ideas and turning them in as your own. Academic integrity will be strongly enforced in this course. Any student caught cheating on any assignment or exam will be given an F grade for the course and will be reported to the Office Student Standards and Accountability. Cheating is defined in the Standards for Student Conduct WAC 504-26-010 (3). You should read and understand the definitions in the conduct standards document.

Students with Disabilities: Reasonable accommodations are available for students with a documented disability. If you have a disability and need accommodations to fully participate in this class, please either visit or call the Access Center (Washington Building 217; 509-335-3417) to schedule an appointment with an Access Advisor. All accommodations MUST be approved through the Access Center.

Safety information: Washington State University is committed to enhancing the safety of the students, faculty, staff, and visitors. It is highly recommended that you review the Campus Safety Plan (http://safetyplan.wsu.edu/) and visit the Office of Emergency Management web site (http://oem.wsu.edu/) for a comprehensive listing of university policies, procedures, statistics, and information related to campus safety, emergency management, and the health and welfare of the campus community.