

## Term Information

Effective Term Autumn 2021  
*Previous Value* Summer 2012

## Course Change Information

What change is being proposed? (If more than one, what changes are being proposed?)

Changing course to undergraduate/graduate level (from 6649 to 5649).

What is the rationale for the proposed change(s)?

Course to be used in Sociology BS program. See attached letter.

What are the programmatic implications of the proposed change(s)?

(e.g. program requirements to be added or removed, changes to be made in available resources, effect on other programs that use the course)?

None

Is approval of the request contingent upon the approval of other course or curricular program request? No

Is this a request to withdraw the course? No

## General Information

Course Bulletin Listing/Subject Area Sociology  
Fiscal Unit/Academic Org Sociology - D0777  
College/Academic Group Arts and Sciences  
Level/Career Graduate, Undergraduate  
*Previous Value* Graduate  
Course Number/Catalog 5649  
*Previous Value* 6649  
Course Title Intro to Quantitative Research/Multiple Regression  
Transcript Abbreviation Quan Rsch/Mult Reg  
Course Description Assumptions, principles, and applications of the multiple regression model in sociological practice; basic model, dummy variables, and special functional forms.  
Semester Credit Hours/Units Fixed: 3

## Offering Information

Length Of Course 14 Week, 12 Week  
Flexibly Scheduled Course Never  
Does any section of this course have a distance education component? No  
Grading Basis Letter Grade  
Repeatable No  
Course Components Laboratory, Lecture  
Grade Roster Component Lecture  
Credit Available by Exam No  
Admission Condition Course No  
Off Campus Never  
Campus of Offering Columbus

## Prerequisites and Exclusions

**Prerequisites/Corequisites**

Prereq: Math 1151, SOCIOL 3487, 3549 and junior standing or above; or Grad standing; or permission of instructor.

*Previous Value*

*Prereq: Honors standing, and Grad standing; or permission of instructor.*

**Exclusions**

*Previous Value*

Not open to students with credit for 648 or 649.

**Electronically Enforced**

Yes

*Previous Value*

**No**

## Cross-Listings

**Cross-Listings**

## Subject/CIP Code

**Subject/CIP Code**

45.1101

**Subsidy Level**

Doctoral Course

**Intended Rank**

Junior, Senior, Masters, Doctoral

*Previous Value*

*Masters, Doctoral*

## Requirement/Elective Designation

Required for this unit's degrees, majors, and/or minors

## Course Details

**Course goals or learning objectives/outcomes**

- Students will develop a clear understanding of multiple regression, various functional forms of the generalized model, and regression diagnostics.
- Students will understand the assumptions inherent in regression analysis.

*Previous Value*

**Content Topic List**

- Underlying assumptions and statistical principles of Regression Analysis
- Statistical Methods
- Social Research
- Descriptive Statistics
- Exploratory Data Analysis
- Probability Theory
- Inferential Statistics

**Sought Concurrence**

No

**COURSE CHANGE REQUEST**  
5649 - Status: PENDING

Last Updated: Vankeerbergen, Bernadette  
Chantal  
03/13/2021

**Attachments**

- SOCIOL 5649 Syllabus.pdf: proposed syllabus  
*(Syllabus. Owner: VanPelt, Susan J)*
- BS degree curricular map (1).pdf: curriculum map  
*(Other Supporting Documentation. Owner: VanPelt, Susan J)*
- Course renumbering 5649\_5608.pdf  
*(Other Supporting Documentation. Owner: Downey, Douglas B)*

**Comments**

- DUS response to feedback 3/8/21 *(by VanPelt, Susan J on 03/09/2021 03:28 PM)*
- Please see Panel feedback email sent 02/11/21 *(by Hilty, Michael on 02/11/2021 02:56 PM)*
- 12/18/20: Please attach a curriculum map. *(by Haddad, Deborah Moore on 12/18/2020 04:21 PM)*

**Workflow Information**

Status	User(s)	Date/Time	Step
Submitted	VanPelt, Susan J	12/18/2020 10:22 AM	Submitted for Approval
Approved	Downey, Douglas B	12/18/2020 10:25 AM	Unit Approval
Revision Requested	Haddad, Deborah Moore	12/18/2020 04:21 PM	College Approval
Submitted	Downey, Douglas B	12/20/2020 08:39 AM	Submitted for Approval
Approved	Hayford, Sarah	12/21/2020 08:33 AM	Unit Approval
Revision Requested	Haddad, Deborah Moore	12/21/2020 10:31 AM	College Approval
Submitted	VanPelt, Susan J	12/27/2020 11:49 PM	Submitted for Approval
Approved	King, Ryan David	12/28/2020 07:48 AM	Unit Approval
Approved	Haddad, Deborah Moore	12/28/2020 08:45 AM	College Approval
Revision Requested	Hilty, Michael	02/11/2021 02:56 PM	ASCCAO Approval
Submitted	VanPelt, Susan J	03/09/2021 03:28 PM	Submitted for Approval
Approved	Williams, Kristi L.	03/09/2021 03:29 PM	Unit Approval
Approved	Vankeerbergen, Bernadette Chantal	03/13/2021 10:37 AM	College Approval
Pending Approval	Jenkins, Mary Ellen Bigler Hanlin, Deborah Kay Oldroyd, Shelby Quinn Hilty, Michael Vankeerbergen, Bernadette Chantal	03/13/2021 10:37 AM	ASCCAO Approval



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## Sociology 5649

### Introduction to Quantitative Research/Multiple Regression

Autumn 2021

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#### **The Basics**

- Lecture: Mondays & Wednesdays 11:30am-12:30pm
- Recitation: Fridays 11:30am-12:30pm  
Student Instructional Lab (SIL) 250 Townshend Hall
- Professor: Cynthia G. Colen, PhD  
Office is located in 217 Townshend Hall  
Office hours are by appointment [colen.3@osu.edu](mailto:colen.3@osu.edu)
- GTA: Qi (Amelia) Li  
Office is located in 223A Townshend Hall  
Office hours are Wednesdays & Fridays 1:00-2:30pm  
[li.6109@osu.edu](mailto:li.6109@osu.edu)
- Website <https://carmen.osu.edu/>

#### **Course Overview**

Sociology 5649 is the first course of a two-semester sequence providing an introduction to statistics for the social sciences. This class is designed specifically for graduate and advanced undergraduate students to help you develop an understanding of the logic behind various statistical techniques, particularly linear regression models. My approach to teaching stresses conceptual comprehension based on an understanding of statistical theory rather than mathematical manipulation. To accomplish this I employ a “hands-on” approach to analyzing real data.

Please note, however, that I am assuming a basic understanding of algebra, calculus, and introductory statistics. You will learn the principles of multiple regression analysis by using a popular statistical program called Stata. The material covered in this course falls into one of four categories: (1) descriptive statistics, (2) principles of multiple regression, (3) functional forms of the generalized linear model, and (4) regression diagnostics. Throughout the course, I will be emphasizing the assumptions inherent in regression analyses, consequences of violating these assumptions, and possible solutions when assumptions have been violated.

#### **Lecture vs. Recitation**

Broadly speaking, I will introduce statistical concepts in lecture and discuss them in an in-depth manner. Then, the Graduate Teaching Assistant (GTA) will show you how to apply these concepts by using Stata to analyze real data from the General Social Survey (GSS), which is a publically

availably longitudinal dataset that has been administered to U.S. adults since 1972. In order to do well in this class, you will need to attend both lecture and recitation. The content provided in each is not redundant. Thus, if you miss lecture, you will not have another opportunity to hear the same material repeated in recitation.

### **Required Course Materials**

1. Gordon, Rachel A. 2012. *Applied Statistics for the Social and Health Sciences*. New York, NY: Routledge.
2. Stata will be available to you for free on computers in the Student Instructional Lab (SIL). You can use the SIL during business hours if it is not otherwise being used for a class. A copy of the SIL schedule will be available on Carmen once the semester is underway. If you wish to buy a copy of Stata for your personal computer, I recommend purchasing an individual license through Stata's Grad Plan, the details of which are outlined at the following URL:

<http://www.stata.com/order/new/edu/gradplans/student-pricing/>

The best options are Stata/IC 15 with a 6-month license for \$48, a 1-year license for \$94, or a perpetual license for \$225. I do not recommend buying Small Stata because it places stringent restrictions on the size of the dataset that can be analyzed. If you anticipate relying on large datasets to complete your research, you may want to consider getting Stata/SE. The maximum number of variables allowed with Stata IC and SE is 2,048 and 32,767, respectively. The maximum number of observations does not differ between the two versions at 2.14 billion. It is unnecessary to purchase the complete set of reference manuals since much of their content can be accessed either through Stata or online. While I realize that Stata is not available on all university computers, I believe strongly that it is the best software package on the market for analyzing quantitative data. The little you will lose in convenience, you will more than make up for in utility and quality.

### **Recommended Texts**

Acock, Alan C. 2008. *A Gentle Introduction to Stata*. Second Edition. College Station, TX: Stata Press.

Agresti, Alan & Barbara Finlay. 2008. *Statistical Methods for the Social Sciences (4th Edition)*. Boston, MA: Allyn & Bacon.

Aiken, Leona S. & Stephen G. West. 1991. *Multiple Regression: Testing and Interpreting Interactions*. Thousand Oaks, CA: Sage Publications.

Allison, Paul. 1998. *Multiple Regression: A Primer*. Thousand Oaks, CA: Pine Forge Press.

Cohen, Jacob, Patricia Cohen, Stephen G. West & Leona S. Aiken. 2002. *Applied Multiple Regression/Correlation Analysis for the Behavioral Sciences (3<sup>rd</sup> Edition)*. Hillsdale, NJ: Lawrence Erlbaum Associates.

Fox, John. 2015. *Applied Regression Analysis and Generalized Linear Models (3<sup>rd</sup> Edition)*. Thousand Oaks, CA: Sage Publications.

Gelman, Andrew & Jennifer Hill. 2006. *Data Analysis Using Regression and Multilevel/Hierarchical Models*. New York, NY: Cambridge University Press.

Jaccard, James J. & Robert Turrisi. 2003. *Interaction Effects in Multiple Regression (2<sup>nd</sup> Edition)*. Thousand Oaks, CA: Sage Publications.

Wooldridge, Jeffrey M. 2016. *Introductory Econometrics: A Modern Approach (6<sup>th</sup> Edition)*. Boston, MA: Cengage Learning.

### **Course Webpage**

I make heavy use of the course website on Carmen to post lecture notes, homework assignments, data sets, Stata code, etc. You are responsible for checking the course website frequently, especially in the morning on class days.

### **Grading**

1. There will be five homework assignments, each of which is worth 13% of your overall course grade. Each assignment requires that you use Stata to analyze data, interpret the results of these statistical analyses, and demonstrate an understanding of statistical principles discussed in class. Homework assignments will be submitted electronically via Carmen. You should never come late to class or miss a class session in order to complete assignments.

I believe that cooperation is the basis for good learning. Therefore, I encourage you to work together on homework assignments. I leave it up to your individual consciences to determine the fine line between cooperative work and copying from one another. Please keep in mind that the purpose of this class is for you to *understand* how to use multiple regression techniques to analyze data. This goal will be facilitated by working in small groups – not by copying each other's answers. Therefore, talk and consult with other students as much as you like, but in the end **each student is required to complete their own individual written work**. If you have any questions or concerns about this distinction, please discuss them with me or the GTA prior to turning in your assignment.

There will be a take-home final exam that accounts for 35% of your overall course grade. I will distribute the final at 9am on Monday, December 9<sup>th</sup> via Carmen. You must turn in your final exam by noon on Wednesday, December 11<sup>th</sup>. **Late exams will not be accepted.** The content of the examination will include the range of topics covered during the course. It will be divided into three sections. The first part consists of short answer questions, while the second part involves interpreting and explaining Stata output that I will provide. To complete the third and final section, you will need to read a previously selected journal article and answer specific questions about the analytic approach and results presented therein. **In contrast to the homework assignments, the final exam is exclusively a test of individual work; therefore, you are not permitted to work together.** Any question regarding the content or format of the exam should be directed to me, not the GTA.

3. All written assignments must be typed, double-spaced, and use 12-point font. Formulas should be created using an equation editor. Tables should be constructed in Excel; graphs should be

generated via Stata unless otherwise specified by the GTA, in which case you will use Excel to produce them. Always keep an electronic copy of your assignment prior to turning it in. All assignments will be submitted via Carmen.

4. The definition of grades at Ohio State as approved by the Ohio Board of Trustees is specified in Faculty Rule 3335-8-21. This rule states that the instructor is expected to judge the extent to which the student achieved the stated objectives of the course “based upon a comparison with other students in the course, and/or with students who have taken the course previously, and/or the instructor's personal expectations relative to the stated objectives of the course, based on the instructor's experience and expertise.”. Thus, grades are not based on effort. Students should not expect that completing all course requirements will result in a specific grade. I will use all of these stated criteria to determine a final course grade.

### **Attendance**

Attendance in *both* lecture and recitation is required to gain an adequate understanding of the course material, complete homework assignments, and pass the final exam. You do not need to email me to tell me that you will not be or were not in class on a specific day. However, if you need to miss more than one class session during the course of the semester, you should alert me to the necessity of your absences. It is your responsibility to find out what we covered in class when you were not in attendance. Do this by asking other students in the course or consulting with the GTA. Do not email me to ask what we covered in lecture when you were not there.

### **Additional Notes**

#### *Religious Holidays*

Please contact me regarding any conflict between religious observance dates and course examinations or assignments.

#### *Disability Statement*

The University strives to make all learning experiences as accessible as possible. If you anticipate or experience academic barriers based on your disability (including mental health, chronic or temporary medical conditions), please let me know immediately so that we can privately discuss options. To establish reasonable accommodations, I may request that you register with Student Life Disability Services. After registration, make arrangements with me as soon as possible to discuss your accommodations so that they may be implemented in a timely fashion. SLDS contact information: [slds@osu.edu](mailto:slds@osu.edu); 614-292-3307; [slds.osu.edu](http://slds.osu.edu); 098 Baker Hall, 113 W. 12th Avenue.

#### *Academic Misconduct*

Academic integrity is essential to maintaining an environment that fosters excellence in teaching, research, and other educational and scholarly activities. Thus, The Ohio State University and the Committee on Academic Misconduct (COAM) expect that all students have read and understand the University's *Code of Student Conduct*, and that all students will complete all academic and scholarly assignments with fairness and honesty. Students must recognize that failure to follow the rules and guidelines established in the University's *Code of Student Conduct* and this syllabus may constitute “Academic Misconduct.”

The Ohio State University's *Code of Student Conduct* (Section 3335-23-04) defines academic

misconduct as: “Any activity that tends to compromise the academic integrity of the University, or subvert the educational process.” Examples of academic misconduct include (but are not limited to) plagiarism, collusion (unauthorized collaboration), copying the work of another student, and possession of unauthorized materials during an examination. Ignorance of the University’s *Code of Student Conduct* is never considered an “excuse” for academic misconduct, so I recommend that you review the *Code of Student Conduct* and, specifically, the sections dealing with academic misconduct.

If I suspect that a student has committed academic misconduct in this course, I am obligated by University Rules to report my suspicions to the Committee on Academic Misconduct. If COAM determines that you have violated the University’s *Code of Student Conduct* (i.e., committed academic misconduct), the sanctions for the misconduct could include a failing grade in this course and suspension or dismissal from the University.

If you have any questions about the above policy or what constitutes academic misconduct in this course, please contact me. Other sources of information on academic misconduct (integrity) to which you can refer include:

- The Committee on Academic Misconduct web pages ([COAM Home](#))
- *Ten Suggestions for Preserving Academic Integrity* ([Ten Suggestions](#))
- *Eight Cardinal Rules of Academic Integrity* ([www.northwestern.edu/uacc/8cards.html](http://www.northwestern.edu/uacc/8cards.html))



## PROPOSED LECTURE SCHEDULE

DATE	TOPIC	READING
<i>Descriptive Statistics</i>		
August 26 <sup>th</sup>	The Counterfactual	Ch. 1, Morgan & Winship (Carmen)
Aug 28 <sup>th</sup> & Sept 4 <sup>th</sup> (No Class Sept 2)	Descriptive Statistics	Chapter 5, Gordon
Sept 9 <sup>th</sup> & 11 <sup>th</sup>	Transforming Your Data	Chapter 4, Fox (Carmen)
Sept 16 <sup>th</sup> & 18 <sup>th</sup>	Sampling Distributions	Chapter 6, Gordon
Sept 23 <sup>rd</sup> & 25 <sup>th</sup>	Bivariate Inferential Statistics	Chapter 7, Gordon
<i>Principles of Regression</i>		
Sept 30 <sup>th</sup> & Oct 2 <sup>nd</sup>	Bivariate Regression	Chapter 8, Gordon
Oct 7 <sup>th</sup> & 9 <sup>th</sup> (Fall Break Oct 10-11)	Multiple Regression (Part I)	Chapter 9, Gordon
Oct 14 <sup>th</sup> & 16 <sup>th</sup>	Multiple Regression (Part II)	
<i>Types of Regression Models</i>		
Oct 21 <sup>st</sup> & 23 <sup>rd</sup>	Dummy Variables	Chapter 10, Gordon
Oct 28 <sup>th</sup> & 30 <sup>th</sup>	Interactions	Chapter 11, Gordon
Nov 4 <sup>th</sup> & 6 <sup>th</sup>	Non-Linearity	Chapter 12, Gordon
<i>Regression Diagnostics</i>		
Nov 13 <sup>th</sup> (No Class Nov 11 <sup>th</sup> )	Outliers & Influential Observations	Chapter 14.1, Gordon
Nov 18 <sup>th</sup>	Non-Normality & Heteroskedasticity	Chapter 14.2, Gordon
Nov 20 <sup>th</sup>	Multicollinearity	Chapter 14.3, Gordon
Nov 25 <sup>th</sup> (No Class Nov 27-29)	Omitted Variable Bias Redux	Chapter 13, Gordon
Dec 2 <sup>nd</sup>	Logistic Regression	Chapter 16, Gordon
Dec 4 <sup>th</sup>	Review for Final Exam	



## Department of Sociology

College of Social and Behavioral Sciences  
238 Townshend Hall  
1885 Neil Ave. Mall  
Columbus, OH 43210

Phone (614) 292-6681  
Fax (614) 292-6687  
<http://sociology.osu.edu>

March 8, 2021

Dear curriculum committee:

Allow me to provide a bit of context regarding our requests to renumber 6608 and 6649 to 5000-level courses.

We have recently instituted a new degree--a Bachelors of Science in Sociology--that is aimed at our very best undergraduates. This group probably constitutes our top 1%. With that in mind, we wanted these undergraduates to have access to higher level courses that would meet the more rigorous expectations of this degree. We have considered whether the 6000 level courses we want them to be able to take are within their reach, and we are confident that they are. One clear distinction is that the completion of the B.S. degree requires Calculus while the B.A. does not. For that reason, we have not changed the course content (the syllabi have not changed).

We also do not anticipate the course expectations varying for undergraduate and graduate students.

It is true that any undergraduate student (BS or BA) who has completed the prerequisites for the proposed 5649 (Math 1151, Soc 3487, Soc 3549, junior standing or above; or permission of the instructor) will be eligible for the class. But 5649 will not be in the curriculum plan for the BA and we do not anticipate BA students presenting themselves to take that course. If a small number do attempt to enroll, they will have the same curriculum background as the BS students enrolling.

Our experience so far is that the BS undergraduate students are exceptional and that access to these courses would be useful in preparing them for graduate programs and careers requiring advanced skill in data analysis. Our advisors have been highly selective in who they encourage to pursue the B.S. degree, and they would continue this practice.

Douglas B. Downey

Director of Undergraduate Studies

Department of Sociology

	Program Learning Goals				Population Dynamics and Wellness Learning Goals			Criminology, Law & Society Track Learning Goals		Social Inequality and Poverty Learning Goals		
	1	2	3	4	5	1	2	3	1	2	1	2
<b>Core Courses</b>												
SOC 3487		B/I	B/I	B								
SOC 3488				B								
SOC 3549	B/I		B/I	B/I								
<b>Population Dynamics and Wellness Track Required Courses</b>												
SOC 5629			B/I	I/A	A		I					
SOC 5450			B/I	I/A	A		A					
SOC 3597.02			B/I	I/A		A						
<b>Criminology, Law &amp; Society Track Required Courses</b>												
SOC 3410 or			B/I	B/I				B	I			
SOC 4511			B/I	B/I					I			
SOC 2309			B	B				B/I				
<b>Social Inequality Track Required Courses</b>												
SOC 3463			B	B/I						I	I	
SOC 3306				B/I						I	I	
SOC 3380				B/I						I	I	
SOC 4635				I						B/I	I	
<b>Population Dynamics and Wellness Track Elective Courses</b>												
SOC 2202				B	B							
SOC 2290				B	B	B						
SOC 3200				B/I		I/A					B	B
SOC 3463			B	B/I			I				I	I
SOC 3630				B/I	I/A							
SOC 5450			B/I	I/A	A		A					
SOC 5629			B/I	I/A	A		I					
<b>Criminology, Law &amp; Society Track Elective Courses</b>												
SOC 2209				B/I				B	B			
SOC 3410			B/I	B/I				B	I			
SOC 3463			B	B/I						I	I	
SOC 4507				I				A	A			
SOC 4509				I				A	I			
SOC 4511			B/I	B/I					I			
SOC 4611				I				I	A			
SOC 5525				I				B/I	I/A			
<b>Social Inequality and Poverty Track Elective Courses</b>												
SOC 2320				B							B/I	B/I
SOC 2367.01			I	I							B/I	I
SOC 2367.02				I							B/I	B/I
SOC 3200				B/I		I/A		I			B	B
SOC 3306				B/I							I	I
SOC 3380				B/I							I	I
SOC 3464				B/I							I	I
SOC 4635				I							B/I	I
SOC 4655				I							B/I	B/I
SOC 5463				A							A	A
SOC 5503				I/A							I/A	I/A
SOC 5605				I/A							I	I
<b>Required Research</b>												
SOC 4998	I/A		I/A	I	I/A							
SOC 4999.xx	A	I/A	A	A	A							
SOC 3783.03				I	I/A			I/A				
SOC 3783.04				I	I/A	I/A		I/A				
<b>Advanced Methods/Statistics</b>												
SOC 5649	I	A		A	A							
SOC 5650		A		A	A							
SOC 5608	I		A		A							