

UNC Greensboro
Department of Economics
ECO 625-01: Data Methods in Economics
Fall 2023

Professor: Chris Swann
Email: chris_swann at uncg dot edu

Course Description

ECO 625 is about data. In this course we will explore how to manipulate data (including reading and combining data files), how to prepare data for research purposes (including variable construction, sample selection, and issues related to missing data), and how to create figures and tables for descriptive analysis using SAS software. We will also cover the basics of statistics and econometrics including hypothesis tests and linear regression, and we will learn to conduct hypothesis tests and estimate linear regression models using SAS software.

There are no prerequisites for this course.

Target Audience

The target audience is anyone who is interested in learning to work with data, can find their way around a computer, and is willing to put in some effort. No previous training in economics, computer programming, or statistics is required. If you have taken a statistics course, that's great – even better if you remember what was in the course! If you haven't taken one, there is an excellent statistics resource available. We will cover some parts of it in this course, but the entire resource is available for you to explore as needed.

That said, ECO 625 is a required course for the Quantitative Business Economics, Post-Baccalaureate Certificate, the Economics of Health Analytics, Post-Baccalaureate Certificate, the MA in Applied Economics, and (in many cases) the Ph.D. in Economics. In all cases, it serves as an introduction to the issues that arise when working with data as well as an introduction to SAS. For anyone who is thinking about enrolling in the MA program, it also provides either a refresher of or an introduction to statistics and regression depending on if and when you have taken those courses.

Student Learning Outcomes

Upon completion of this course, students will be able to:

1. describe the process of data analysis.
2. describe common data issues.
3. recall basic syntax of Base SAS data steps and procedures.
4. utilize SAS software within SAS Studio to manipulate data.
5. produce descriptive statistics and graphs using SAS software.
6. analyze data using hypotheses tests and simple and multiple regression using SAS software.

Procedures

ECO 625 is entirely online. It consists of 15 units (or modules) numbered from 0 to 14. The topics will be discussed later, but Unit 0 is a set-up module and Unit 14 is a summary module, so the course material is covered in Units 1 through 13. After Unit 0, two units will be available at any point in time during the semester. The reason for having two units open is to provide some flexibility for you to adjust your effort to other demands on your time.

Each unit will have a discussion area where you can ask me or each other questions. Participation is not required, but civility is. Be professional.

Getting Help & Communication Expectations

In addition to the discussion board, you are welcome to send me a message within Canvas or email me at [caswann2 at uncg dot edu](mailto:caswann2@uncg.edu). I do not have a preference at the present time. I may develop a preference for one or the other during the semester. If so, I will let you know.

I do not have regularly scheduled office hours, but we can set up a Zoom call if we need to meet.

Grading

Your grade will be determined by quizzes, assignments, and a project. Each unit will have a quiz, an assignment, or both.

A unit-level percentage correct is calculated for each unit. For example, if a unit has a quiz worth 10 points and an assignment worth 20 points, the unit percentage for that unit is the sum of the points correct on the quiz and assignment divided by 30. Thus, if one person receives 5 points on the quiz and 20 points on the assignment while another receives 10 points on the quiz and 15 points on the assignment, both students will receive the same percentage for that unit. The next unit may have a 40-point assignment and no quiz. The unit percentage for that unit will be calculated as points correct divided by 40.

You will be working on the project throughout the semester as you do the unit assignments. Some part of each assignment – and in many cases the entire assignment – will contribute to the project in some way. For example, if you are asked to create graphs in an assignment, it is likely that at least some, and perhaps all, those graphs will be part of the assignment.

For the project itself, you will assemble the pieces you have completed during the semester and create a document that ties the pieces together. I will remind you during the semester to be working on the project.

Units 1 through 13 are each worth $6\frac{2}{3}\%$ of the final grade, and the project is worth $13\frac{1}{3}\%$ of the final grade. (Units 0 and 14 do not count toward your grade.)

All unit assignments are due on Monday nights at 11:59 PM. Answer keys will become available at 12:00 AM on Tuesdays. Since the assignments build on each other and build toward the project, it is imperative that you study the answer key and any feedback you receive from me on your assignments and fix any issues before the next assignment.

Late work is not accepted without prior written permission.

Grading scale

We will use the following grading scale, subject to the caveat that follows it:

Letter Grade	Percentage Score
A	93 to 100%
A-	90 to 92%
B+	87 to 89%
B	83 to 86%
B-	80 to 82%
C+	77 to 79%
C	70 to 76%
F	below 70%

(C- and D grades are not allowed by the graduate school.)

Now the caveat: It is possible that the final course grades will be curved. Because I curve the final course grade rather than individual assignments, I will not know the exact curve until the semester is over, but the curve would not be more “strict” than the scale above. If you are concerned about your grade during the semester, please feel free to contact me.

e-Portfolio

Students enrolled in the Master of Arts in Applied Economics degree program, the Certificate in the Economics of Health Analytics, and the Certificate in Quantitative Business Economics must successfully complete an e-Portfolio of significant assignments and final projects. As a requirement for graduation, students of these programs must receive approval of their e-Portfolio from the Director of Graduate Studies. The e-Portfolio demonstrates a student's cumulative knowledge of the program and fulfills the program's capstone requirement. This body of work can also be shared with prospective employers to help students distinguish themselves in the job market.

It is an expectation of this class that MA and economics graduate certificate students contribute to their e-Portfolio. Portfolio instructions may be found in the [Econ Grad Students](#) Canvas group. Links to the portfolio should be shared to economics@uncg.edu.

Software

The primary software package for this class is SAS. No previous experience with SAS is expected.

Required Books

The books and reads are discussed more in the Unit 0 page “Readings and Videos In This Course”. In a nutshell, 3 books are required.

Cody, Ron. 2021. *A Gentle Introduction to Statistics Using SAS® Studio in the Cloud*. Cary, NC: SAS Institute Inc. (abbreviated GIS)

Delwiche, Lora D. and Susan J. Slaughter. 2019. *The Little SAS® Book: A Primer, Sixth Edition*, Cary, NC: SAS Institute Inc. (abbreviated LSB)

SAS Institute Inc. 2015. *Step-by-Step Programming with Base SAS® 9.4, Second Edition*. Cary, NC: SAS Institute Inc. Available at

https://documentation.sas.com/?cdcId=pgmsascdc&cdcVersion=9.4_3.4&docsetId=basess&docsetTarget=titlepage.htm&locale=en (abbreviated SBSPBS)

LSB has been ordered for the bookstore. LSB and GIS are available as e-books from SAS and can be purchased on Amazon and other outlets. LSB and GIS are available through the library. SBSPBS is available as a web page and pdf from SAS (through the link above) and can be purchased on Amazon

Additional Readings

We will also have a number of readings from papers that have been presented at SAS conferences. These will be made available throughout the semester.

SAS Certification

A number of levels of SAS Certification are available. These will be discussed during the course.

Academic Integrity

Students are expected to be familiar with and abide by the University's Academic Integrity policy (see <http://academicintegrity.uncg.edu/>). In particular, students *may* be expected to work independently on homework assignments and are expected to work independently on the project.

Health Concerns

Health and well-being impact learning and academic success. Throughout your time in the university, you may experience a range of concerns that can cause barriers to your academic success. These might include illnesses, strained relationships, anxiety, high levels of stress, alcohol or drug problems, feeling down, or loss of motivation. Student Health Services and The Counseling Center can help with these or other issues you may experience. You can learn about the free, confidential mental health services available on campus by calling 336-334-5874, visiting the website at <https://shs.uncg.edu/> or visiting the Anna M. Gove Student Health Center at 107 Gray Drive. For undergraduate or graduate students in recovery from alcohol and other drug addiction, The Spartan Recovery Program (SRP) offers recovery support services. You can learn more about recovery and recovery support services by visiting <https://shs.uncg.edu/srp> or reaching out to recovery@uncg.edu

AI Policy

A specific policy will be forthcoming and will be posted in an update to this document and as a course announcement.

Course Schedule			
Unit	Topic	Becomes Available	Assignment Due (at 11:59 PM)
0	Course Setup	08/15/2023	08/21/2023
1	Course Introduction	08/22/2023	08/28/2023
2	Introduction to SAS	08/22/2023	09/04/2023
3	Reading Data	08/29/2023	09/11/2023
4	Working with Data	09/05/2023	09/18/2023
5	Creating Text Reports	09/12/2023	09/25/2023
6	Creating RTF and PDF Reports	09/19/2023	10/02/2023
7	Data Cleaning	09/26/2023	10/09/2023
8	Combining Files	10/03/2023	10/16/2023
9	Creating Graphs	10/10/2023	10/23/2023
10	Statistics Background	10/17/2023	10/30/2023
11	Hypothesis Tests	10/24/2023	11/06/2023
12	Correlation and Simple Regression	10/31/2023	11/13/2023
13	Multiple Regression	11/07/2023	11/20/2023
14	Course Summary	11/14/2023	No assignment
	PROJECT	11/14/2023	12/04/2023