Advanced Empirical Analysis

University of Maryland, College Park

Fall 2023

Instructor Information

- Dr. Candace Turitto
- turitto@umd.edu
- Office Hours
    - Tuesday 12:30pm-1:30pm (in office)
    - Wednesday 12:30pm-1:30pm (on Zoom; see ELMS)
        - *No office hours on 9/6, 10/4, 11/1, 12/6*
    - (or email me at the address below for another time or Zoom appt)
    - Tydings 1147

Teaching Assistant Information

- Corinne Allen
- cnallen2@terpmail.umd.edu
- Office Hours – TBA on ELMS

Course Information

- T/Th 11a – 12:15p
- TYD 2111

Course Overview and Goals

This class will allow students to build on the knowledge of statistical inference they gained from GVPT 201. Topics include data collection, data cleaning, data analysis, and data visualization. By the time students complete this class, they will be able to do basic statistical modeling independently, using OLS regression and logistic regression.

Upon Completion of this Course, students will:

- Reinforce and further develop a firm understanding of the theoretical foundations underlying common statistical analyses;
- Gain comfort navigating, displaying, and analyzing data using R;
- Conduct and interpret basic descriptive statistics on voter data;
- Produce sound statistical analyses and proper conclusions of relationships using advanced regression skills; and
- Independently investigate a research question employing logistic modeling techniques.

Course Requirements

By the start of October, each student needs their own personal laptop in class. Please consult your resources (the Library, your Advisor(s), Me) in securing this in time, if you need to loan one from the University. At this time in the semester, we will work entirely in R, and students will NOT be provided the code we cover in class. Instead, students are expected to create their own coding scripts as we work through problem sets together.

Each student will also be required to download and utilize the statistical software, R and its user interface partner, RStudio. These programs are free to download and use on any personal or campus lab computer. **YOU SHOULD DOWNLOAD AND INSTALL EACH OF THESE PROGRAMS ASAP.** For anyone who simply needs to update these existing programs, please see the guidance document under FILES in ELMS.

R: https://cran.r-project.org/

RStudio: https://rstudio.com/products/rstudio/download/ (free desktop version)

Reading Comps

As we cover regression theory in the first part of the course, students will be required to complete readings provided on ELMS. These readings are paired with six (6) short, graded reading comprehension worksheets. These readings further develop students' ability to "read math" and understand the logic behind the estimation formulas used in regression.

Midterm

There will be a mid-semester exam focused on the basics of statistical theory as well as linear and logistic regression. The test will be open book and timed. There will be no R work on the midterm.

R Homework Assignments

There will be three homework assignments throughout the semester, meant to give you practice doing on your own what we have done in class. All three assignments will be in R and will cover basic commands (i.e., descriptive statistics), then linear regression, and finally logistic regression. Total points for each assignment vary, based on the number of questions and elements asked for in each. Any element missed will result in the loss of one point. Missed elements will be noted in the comments, so please review these notes to improve on consecutive assignments. The Basic R Commands Assignment (#1) is very time-consuming, so plan ahead, and start it early.

Game Day

Attendance will be taken on this day and there will be no Zoom option. Fear not, it's easy and fun!

Anatomy of a Journal Article

Students will read a recently published journal article in political science and complete an assignment which identifies the basic components of the research (i.e., hypotheses, variables, etc.). As a class, we will discuss these elements thoroughly, in addition to the structural components found in quality research. Note that this assignment will necessary carry a late penalty if it is not submitted before the class dedicated to discussing it in detail.

Research Design Assignment

After practice in class, students will demonstrate their understanding of the conditions necessary and ideal for an experimental design, and how to create an observation research design when an experiment is not applicable. This assignment will ask each student to briefly construct and describe a research design that would answer specific questions provided.

Individual Research Project

At the end of the semester, each student will use a provided dataset to write a short research paper including a logistic regression with multiple independent variables, predicted probabilities, and data visualization. This project will begin with a research proposal meant to aid you in selecting the right kind of DV, and appropriate IVs. We will also have an Operationalization Workshop in class to discuss how to recode your chosen variables and plan out the predicted probabilities and visualizations to use in the final paper. This research project includes three total assignments: a research proposal, a predicted probabilities plan, and the final research paper.

Staying Informed

Any good student of anything is constantly learning. On your own throughout the semester, you are highly encouraged to stay informed with current events and political happenings. You can do this in several ways – The Washington Post (or others), Politico, FiveThirtyEight, podcasts, etc. Know your source and cast a wide net.

Grading of Assignments

The grade for this course will be determined according to the following formula:

Assignments/Activities	% of Final Grade
Attendance	[10%]
Research Design Assignment	[5%]
Reading Comps (6)	[10%]
Anatomy of a Journal Article	[10%]
Midterm	[20%]
R Homework Assignments (3)	[15%]
Game Day	[5%]
Research Proposal Assignment	[5%]
Research Paper	[20%]

Letter Grades

Letter grades for the entire course will be assigned as follows:

Letter Grade	Points	Percent
A+	4.00	97-100
A	4.00	94-96
A-	3.7	90-93
B+	3.3	87-89
B	3.0	84-86
B-	2.7	80-83
C+	2.3	77-79
C	2.0	74-76
C-	1.7	70-73
D+	1.3	67-69
D	1.0	64-66
D-	0.7	60-63
F	.00	Below 60

View Grades

Assignment grades will be made available on the UMD ELMS site. Note that the “final grade” listed on ELMS is NOT, in fact, your final grade, as assignments are weighted differently (see Assignments/Activities section above).

Course Schedule - Topics & Assignments
[Subject to change with notice from Instructor**]**

Part I – Welcome! What do you remember?

8.29.23 -- Introductions and Syllabus

8.31.23 – What do you remember from 201? Let's find out!

Part II – Regression Theory

9.5.23 – Research Design, Experiments, and Observational Studies

9.7.23 – Experiments and stuff!
Research Design Assignment* ***due by midnight on SEPTEMBER 11, 2023*

9.12.23 – Linear Regression Theory
**Read GP Chapter 1 for next class*
Reading Comp #1* ***due by midnight on SEPTEMBER 13, 2023* *on ELMS*

9.14.23 – Linear Regression Theory
**Read GP Chapter 2 for next class*
Reading Comp #2* ***due by midnight on SEPTEMBER 18, 2023* *on ELMS*

9.19.23 -- Linear Regression Theory
**Read GP Chapter 3 for next class*
Reading Comp #3* ***due by midnight on SEPTEMBER 20, 2023* *on ELMS*

9.21.23 -- Linear Regression Theory
**Read GP Chapter 5 for next class*
Reading Comp #4* ***due by midnight on SEPTEMBER 25, 2023* *on ELMS*

9.26.23 -- Linear Regression Theory/Logistic Regression Theory
**Read GP Chapter 7 for next class*
Reading Comp #5* ***due by midnight on SEPTEMBER 27, 2023* *on ELMS*

9.28.23 -- Logistic Regression Theory
**Read GP Chapter 15 for next class*
Reading Comp #6* ***due by midnight on OCTOBER 2, 2023* *on ELMS*

10.3.23 -- Logistic Regression Theory

10.5.23 – Logistic Regression Theory
Article Autopsy Assignment* ***due by midnight on OCTOBER 9, 2023* *on ELMS*

10.10.23 – Anatomy of a Research Article (*this class will NOT be recorded*)

10.12.23 -- Midterm Review

10.17.23 to 10.18.23 – MIDTERM – Take home; ***due by midnight (11:59pm) on OCTOBER 18, 2023*** *on ELMS*

Part III – Coding in R

10.19.23 -- Basic R commands

10.24.23 – Basic R commands

10.26.23 – Basic R commands
**Start R Homework #1 – it's long…*

10.31.23 -- Basic R commands

11.2.23 – Basic R commands
R Homework #1* ***due by midnight on NOVEMBER 6, 2023* *on ELMS*

Part IV – Regression in R

11.7.23 -- Linear Regression in R

11.9.23 -- Linear Regression in R

11.14.23 -- Linear Regression in R // Logistic Regression in R
R Homework #2* ***due by midnight on NOVEMBER 15, 2023* *on ELMS*

11.16.23 -- Logistic Regression in R

11.21.23 – Logistic Regression in R
R Homework #3* ***due by midnight on NOVEMBER 22, 2023* *on ELMS*

11.23.23 – NO CLASS (FALL BREAK)

Part V – Independent Research Projects

11.28.23 – Introduction of Research Project and dataset

11.30.23 – Game Day/Review Research Proposal and Predicted Probabilities Assignment *(Attendance required)*

12.5.23 -- Evaluations & Operationalization Workshop on Zoom (link under Zoom in ELMS)
Research Proposal and Predicted Probabilities Assignment* ***due by midnight on DECEMBER 5, 2023* *on ELMS*
**Note the due date is the same day as class, so I have time to grade and give feedback*

12.7.23 – Zoom Open Class / Writing Day – ask me your questions about the Final Project (link under Zoom in ELMS)

12.12.23 – Zoom Open Class / Writing Day – ask me your questions about the Final Project (link under Zoom in ELMS)

12.13.23 – FINAL PAPER (***due by midnight on DECEMBER 13, 2023,*** *on ELMS*)
**Late submission will lose 10 pts per day without a doctor's note*

Course Materials

Required Textbooks & Materials

There are no required textbooks to purchase for this course. Instructor will provide excerpts for students from *Basic Econometrics* by Gujarati & Porter ("GP") and any other readings via ELMS.

Each student will also be required to download and utilize the statistical software, R (https://cran.r-project.org/) and its user interface partner, Rstudio (https://rstudio.com/products/rstudio/download/). Throughout the course, we will also utilize the "poliscidata" package created by Philip H. Pollock III & Barry C. Edwards.

Instructor will provide R scripts in class with directions on how to use an array of common commands that help us explore datasets, manipulate variables, and execute statistical tests.

Resources

- **Access your course materials**: https://elms.umd.edu
- **Databases, journal articles, and more**: https://www.lib.umd.edu/
- **Assistance with strengthening your writing**: https://www.english.umd.edu/academics/writingcenter/schedule
- **See all University course policies:** https://ugst.umd.edu/courserelatedpolicies.html
- **Obtain 24/7 technology assistance:** https://it.umd.edu/

Course Policies

ELMS:

Important communication regarding the class is conducted via ELMS. This includes posting of the syllabus, announcements, and grades. Students are required to be proficient users of ELMS and to ensure that their emails registered with ELMS are up to date and checked regularly.

Recordings of Class:

Each class session will be recorded on Panopto and stored on our ELMS course site. Use this as a resource when you have questions. Also note that when we are in class, while you will not be seen on the recording, you may be heard. I will remind us in each class about the recording, but know that by attending you are providing consent. I will not share these recordings outside of our ELMS site.

If you miss a class meeting, this is your primary resource. However, this is not a suitable substitute for attending class – we both know watching a recorded class is not as engaging and might not even happen, which will reflect itself in your grade. Also, note that I will not record our class meeting on the Article Autopsy assignment, nor any of our Zoom Open Classes.

Attendance and Tardiness:

We will largely use “synchronous”, in person classes. Although I will record class for those who are sick or otherwise unable to attend class, this is not a proper substitute for attending class in person. I will take attendance at each class, which counts for 10% of your final grade.

There are a few classes noted on the schedule as Virtual Office Hours – these classes are optional, but I highly recommend you use them. If you have any questions or doubts about your understanding of our current topic, show up (at any point during normal class time) and ask me about it. You can also leave at will. Know that when these sessions occur, many students have the same question, and you may find your answer simply by listening to others for 15 minutes.

In the instance where I get sick, one of two things will occur. If I am just germy, I will create a Zoom link in our ELMS course site for class that day, and we'll proceed as "normal", just online for that class period. Students can feel free to use the classroom space to stream the class if necessary or desired. If I'm down for the count, I will send an announcement on ELMS to cancel class, and we will make any necessary adjustments to the syllabus after that.

Major Grading Events:

In this course, there are two major grading events – the Midterm and the Final Paper. You cannot "miss" these events with a self-signed note; you must have a doctor's note or other valid documentation. In absence of such documentation, late submission of the final will lose 10 points per day; days round up.

Teaching Assistant:

You have a very smart TA this semester, Corinne Allen! She will be grading the majority of your assignments, using rubrics I have created, and in consultation with me. If you ever have questions about your grading, contact me. However, Corinne is also another major resource for you, and she has taken this class herself with great success. If you have a question about homework, or class concepts, or R code, ask Corinne via email first. I promise I am here to help if needed, but she's great!

As a matter of conduct, you should address and treat Corinne as my appointed proxy – do not say or do anything that you would not say or do with me.

Late Assignments:

Late submission of assignments will lose a letter grade for each day it is late, including weekends (i.e., and A+ becomes an A, then an A-, then a B+, etc.). If you have reason to request an extension on any assignments, please communicate that need directly to me as soon as possible via email, including supporting documentation. The deadlines for Major Grading Events will not be altered and late submissions of those assignments will lose 10 points per day. In all late assignments, days late round up as they accumulate.

If an illness interferes with an assignment deadline, you may submit one (1) self-signed note per semester to have an extra 24 hrs for that assignment before the late penalty is applied. Subsequent instances or cases requiring more than 24 hrs require an extension request. Any extension will need supporting documentation and formal approval from the instructor.

Absence due to illness:

Any student missing a Major Scheduled Grading Event is required to provide documentation (e.g., from the Health Center or from an outside health care provider that verifies the dates of treatment and time frame during which the student was unable to meet academic responsibilities). This documentation should be sent to me as soon as possible – keep an open line of communication. Again, while self-signed notes are approved by the University for absences, they do not apply to assignment deadlines.

In the graded Attendance portion of the class, the final 10% will drop the lowest two occurrences for each student. Attendance will not be taken on the first day of class.

Grade Challenges:

Any challenges to a grade must be submitted *in writing* ***no sooner*** than one week after the grades have been released online. That 1-week buffer is there so you have time to digest and better understand the grade and any corrections. Any challenge to a grade needs a substantive explanation of why you were improperly graded.

Extra Credit and Incompletes:

Graded assignments in the class provide students with ample opportunity to demonstrate mastery of the materials. **No extra credit assignments** will be assigned in the class.

Important Note about Class Communication:

Please allow the professor 24 hours to respond to emails (48 to 72 hours on weekends).

Code of Conduct:

It is assumed that all students are familiar with and adhere to the code of academic integrity. See http://www.studenthonorcouncil.umd.edu/index.html

Statement on Diversity and Inclusivity:

The Government and Politics department deeply values the voices and perspectives of all people. We are committed to having a diverse department that recognizes and appreciates the differences in race, ethnicity, culture, gender, sexual orientation, religion, age, abilities, class, nationality, and other factors. Our department prioritizes diversity and seeks to foster a diverse community reflected in its faculty, staff, and students.

In this class, students are invited to share their thoughts and a diversity of opinions is welcome. Respectful communication is expected, even when expressing differing perspectives.

Supporting one's statement with research findings is encouraged. In accordance with free speech statues, speech that contains threats of violence is prohibited.

Reporting Racism and Other Forms of Hate and Bias:

If you experience racism or other forms of bias in this class or any GVPT course, we encourage you to do at least one of the following:

· Please report the experience to the instructor or teaching assistant

· Report the experience to David Cunningham, the GVPT Director of Undergraduate Studies at dacunnin@umd.edu

· Report the experience to the GVPT Diversity, Equity, and Inclusion committee, led by Professor Antoine Banks at abanks12@umd.edu

Please also report all incidents of hate and bias to the Office of Diversity and Inclusion at https://diversity.umd.edu/bias/.

Religious Observances:

In accordance with the University's policy on the observance of religious holidays, it is the student's responsibility to inform me of any absences due to these holidays well in advance and **in writing** within the first two weeks of the semester.

Students with disabilities:

I will make every effort to accommodate students registered with the Accessibility and Disability Services (ADS) Office. I am not able to accommodate students who are not registered with ADS or who do not provide me with documentation that has been reviewed by ADS.