

# POLITICAL SCIENCE 305 – Section 1 INTRODUCTION TO EMPIRICAL POLITICAL INQUIRY Fall, 2015

## INTRODUCTION

**COURSE:** Tuesday & Thursday, 10:50 – 12:05, in **WALL #110**

**INSTRUCTOR:** Dr. Mikel Norris

**OFFICE:** Brittain Hall #341

**OFFICE HOURS:** Monday & Wednesday, 3 – 5 pm; and by appointment

**E-MAIL and PHONE:** [mnorris1@coastal.edu](mailto:mnorris1@coastal.edu) / (843) 349-4033

## INTRODUCTION

### Catalog Description

POLI 305 Introduction to Empirical Political Inquiry. (3) An introduction to the modern empirical methodology in political inquiry. A survey of the theoretical foundations of the modern quantitative approach to political inquiry; an introduction to theory building, data gathering, data analysis, data evaluation, and to the writing of a written report.

### Course Objectives

1. Develop an understanding of statistical tools in political science, including descriptive and inferential statistics.
2. Execute data analysis by analyzing data and reporting the findings in a format suitable for a political science journal.
3. Improve research skills and familiarity with research in political science.
4. Become familiar with SPSS statistical software.

### Student Learning Outcomes

Upon successful completion of the course, students are expected to be able to:

1. Use descriptive statistics to summarize data.
2. Identify the characteristics of data and apply proper statistical techniques to analyze that data.
3. Demonstrate competency in hypothesis testing using inferential statistical techniques.
4. Understand the importance of statistical analysis in conducting empirical research in political science.
5. Recognize and execute multiple commands in SPSS to properly analyze data.

Yes, this is a math class. More specifically, this is a statistics class. Although statistics often scare students, there's no need to be afraid. The material may be difficult at times. However, we are examining *political data*. We won't be looking at numbers for their own sakes. The numbers we examine will *mean something*, and will hopefully be of interest to you. Furthermore, I will do my best to slowly walk students through the course. No one will be left behind, regardless of their mathematical competency.

## BOOKS and SUPPLEMENTARY MATERIALS

The following required book is available for purchase at the University Bookstore:

- ❖ Agresti, Alan; and Barbara Finley. 2014. *Statistical Methods for the Social Sciences, 4<sup>th</sup> Edition*. Pearson. ISBN: 978-0-13-027295-9.

I don't care how you obtain this textbook, but it is imperative that you purchase it or rent it IMMEDIATELY. You will not be able to complete course assignments without it. Furthermore, not all information in the text will be covered in class; however, this information is still fair game for tests and quizzes. It is the student's responsibility to read ALL assigned material during the semester. Other readings are assigned throughout the semester and will be available either on JSTOR or on Moodle.

We will be sharing a lot of data in this course in order to complete homework and in-class assignments. In order to facilitate data storage and sharing, each student needs to have a **FLASH DRIVE** and will need to bring it to **EVERY CLASS**.

We will be using **MOODLE** extensively in class. Each student needs to make sure they have access to this course on Moodle at the beginning of the semester. Students should see me if they cannot access this course on Moodle, or if they are having difficulty on Moodle retrieving course material.

We will be using SPSS and STATA software this semester as well. Although it is not necessary – and is extremely expensive – students may wish to purchase their own software or textbooks that teach you how to use this software. If students have the desire to do so I would be glad to provide a useful list of books that may be helpful. SPSS is installed on all public computers on campus, including our classroom. This is the program we will be using the most. STATA is not on public computers on campus. I will only use STATA for class examples. Although you will not be required to use STATA, I think you should be introduced to this software package as it is now one of the most widely used statistical software packages in the discipline.

## ASSIGNMENTS

The assignments for the course are listed below:

- ❖ **HOMEWORK:** Twelve (12) homework assignments will be given during the semester. Homework will be worth 20% of your final grade.
- ❖ **QUIZZES:** Three (3) quizzes will be assigned during the semester. Quizzes will be worth 15% of your final grade (5% for each quiz). The first quiz will be **Tuesday, September 15<sup>th</sup>**. The second quiz will be **Tuesday, October 27<sup>th</sup>**. The third quiz will be **Thursday, November 19<sup>th</sup>**.
- ❖ **MID-TERM EXAMINATION:** The mid-term examination will be worth 25% of your final grade. The exam will be given in 2 parts. The first part will be in a typical “pencil and paper” format and will be given in class on **Tuesday, October 6<sup>th</sup>**. The second part will be a

computer-based format, and will be given in class *Thursday, October 8<sup>th</sup>*. The date of this exam is also listed in the course schedule.

- ❖ **FINAL EXAMINATION:** The final examination will be worth 30% of your final grade. The format of the final exam will be similar to the format of the mid-term exam, except both sections of the exam will be given on the same day. The date of the final exam will be *Thursday, December 10<sup>th</sup>*. The date and time of this exam is also listed in the course schedule.
- ❖ **CLASS PARTICIPATION:** Class participation will be worth 10% of your final grade. Your class participation will be based on attendance, actual participation in class discussion, and cell phone usage. Pop quizzes will be administered at my discretion if class participation and preparedness do not meet my expectations.

### GRADING

A total of 500 points can be earned in this class. You will earn points as follows:

- ❖ Homework: 100 points
- ❖ Quizzes: 75 points (25 points each)
- ❖ Mid-Term Examination: 125 points
- ❖ Final Examination: 150 points
- ❖ Class Participation: 50 points

Your grade will be based on the following calculations:

- ❖ A (90% - 100%) = 450-500 points
- ❖ B+ (88% - 89%) = 438-449 points
- ❖ B (80% - 87%) = 400-437 points
- ❖ C+ (78% - 79%) = 388-399 points
- ❖ C (70% - 77%) = 350-387 points
- ❖ D+ (68% - 69%) = 338-349 points
- ❖ D (60% - 67%) = 300-337 points
- ❖ F (0% - 59%) = 299 points or less

### ATTENDANCE and your CLASS PARTICIPATION GRADE

It should be common knowledge that students who attend and participate in class discussion perform better in class exercises (tests, quizzes and homework) and ultimately receive higher grades. Therefore, class attendance **WILL BE MANDATORY**. Attendance will be taken regularly. Due to the nature of this particular course, students are only allowed **TWO (2)** free absences. 5 points will be deducted from a student's participation grade beginning with their third absence and each absence thereafter. Per University policy, professors reserve the right to fail any student who is absent for more than 25% of regularly scheduled class meetings. This comes out to eight (8) classes a semester. **THIS POLICY WILL BE STRICTLY ENFORCED**. I will notify a student via e-mail after their seventh absence that they cannot miss any more classes or else they will fail the course. If a student misses the eighth class they will automatically fail the course **REGARDLESS OF PREVIOUS COURSE PROGRESS**. There will be no exceptions to this rule.

**Excused Absence Policy:** I will only accept excused absences for three instances. Please make sure you are absolutely clear about these instances if you plan on missing class:

- ❖ ***University Representation:*** A student will have an excused absence if they miss class because they are representing the University in an official capacity (ex: sports, mock trial, Model UN, SCSL, etc.). Students must supply me with documentation of this event on Coastal Carolina University letterhead **BEFORE THE EVENT** to have these absences excused.
- ❖ ***Death of a Family Member:*** A student will have an excused absence if they miss class due to a death in the family. However, merely telling me this is not sufficient. If you miss class for this reason you **MUST** inform the Dean of Students Office that you will be missing time because of this event. Your absence will **ONLY** be excused when I receive notification from the Dean of Students' Office that you will be missing extended class time.
- ❖ ***Incapacitating Illness:*** The key word in this incidence is **INCAPACITATING**. I **WILL NOT** excuse single absences for illness, and I **WILL NOT** accept doctor's notes or paperwork from Health Services as an excuse. If you are going to miss extended time due to illness, you **MUST** inform the Dean of Students' Office that you will be missing time because of this event. Your absence will **ONLY** be excused when I receive notification from the Dean of Students' Office that you will be missing extended class time.

Class participation is also important to class success. All students should come to class prepared to discuss the materials to be covered for each lecture. Class preparation includes reading and thinking critically about all class material. Students should also be prepared to ask questions about material they do not understand, answer questions during class, and make appropriate comments and insights that will benefit and enhance class discussion. Participation will keep your participation grade steady and, in some circumstances, may raise it if it has fallen due to absences and cell phone usage. These points will be given at the discretion of the professor.

Students are also asked to speak and act appropriately during class. This includes not talking to other students in a disruptive manner during class, or making inappropriate comments toward other students. **Cell phones should also not be used during class.** They are disruptive to the instructor and other students. 3 points will be deducted from a student's class participation grade each time I see a student using their cell phone in class. Depending on circumstances, more points may be deducted, and I will ask the student to leave the class.

I would ask all students to think of their participation grade as a clean slate. Everyone has a 100% on the first day of class. If you regularly attend class, come to class prepared, participate in discussion and don't use your cell phone you will get a 100% participation grade. If you don't exhibit these behaviors your grade will drop. It will ultimately be up to you what this final grade will be.

### **HOMEWORK POLICY and GRADE CALCULATION**

Since this is a math class it is vitally important that students work on course material outside of the classroom. Therefore, students will be required to hand in twelve (12) different homework assignments during the semester. Each assignment will be worth 10 points, for 100 points total. I will drop each student's two lowest homework grades when final grades are calculated.

Students are not allowed to miss a homework assignment. If an assignment is not turned in the student will receive a zero for the assignment. Zeros will not be dropped from the final grade calculation. Rather, another (higher) grade will be dropped to reflect the fact that the assignment was missed. If a student anticipates missing class – regardless of whether it is an excused or unexcused absence – I will require that they turn in their homework assignment **BEFORE THE DUE DATE**. I will also not accept not having the textbook as a legitimate excuse for missing an assignment. This text is available at the bookstore *before classes even begin*. You can have the text rush ordered over the internet and, failing that, you can always share a textbook with someone to make sure the homework is completed on time.

**I WILL NOT ACCEPT LATE HOMEWORK ASSIGNMENTS.** All homework assignments will be due at the end of class on their assigned days. If they are not turned in at that time then a zero will be given for the assignment. I will not accept e-mailed homework assignments unless the nature of the assignment requires me to do so (for example, if I need an SPSS, STATA, or Excel dataset to review). These homework assignments will be due at the same time as the written homework. Since we will have class in a computer lab it should not be difficult to do this. Most of the homework assignments will be hand-written anyway, as they will require you to make “pencil and paper” calculations.

### **CHEATING AND PLAGIARISM**

Cheating and/or plagiarism are wrong and I do not like it. It is unfair to other students. Furthermore, it reflects very poorly on your character. Cheating and/or plagiarism carries with it a severe penalty, and may even lead to expulsion from the university. **DON'T DO IT**. It is wrong and will not be tolerated. Those caught cheating or plagiarizing (e.g., looking at someone else's paper during a test, consulting notes during a test, plagiarizing material on papers, etc.) in this class will receive a failing grade and zero points for that given assignment. I will also send the instance of plagiarism to academic affairs. The penalty I will ask the Academic Affairs Committee will be determined by the nature of the offense.

Coastal Carolina University operates under a Code of Student Conduct, which governs both academic and social conduct. The Code of Student Conduct may be reviewed here:

<http://www.coastal.edu/conduct/documents/codeofconduct.pdf>

Per the Code of Student Conduct, all students at Coastal Carolina pledge to oppose all instances of academic dishonesty. Plagiarism is listed as the first form of prohibited conduct in the Code of Conduct. This should make abundantly clear the importance of not engaging in this type of action. Students may talk to me privately if they have any questions or concerns involving cheating and plagiarism.

### **ACCOMODATION FOR STUDENTS WITH DISABILITIES**

I am committed to making all necessary accommodations for students with verified disabilities. Students with disabilities are urged to contact the Office of Accessibility and Disability Services (843-349-5042, or [wwoodsby@coastal.edu](mailto:wwoodsby@coastal.edu)) to learn more about the rights and responsibilities of disabled students attending Coastal Carolina University.

## ODDS AND ENDS

**WITHDRAWAL:** It is the responsibility of students to make sure they take all of the necessary steps to withdraw from a class if they choose to do so. If you withdraw from this class and continue to receive emails from me then there is still a problem and you will need to talk to the University registrar. If you remain on the class register after the withdraw date I will have no choice but to give you failing grade.

**INCOMPLETES:** No incompletes will be issued except in extraordinary and well-documented circumstances.

**\*\*\*\*\*THE PROFESSOR RESERVES THE RIGHT TO MAKE CHANGES TO THE SYLLABUS DURING THE COURSE OF THE SEMESTER. ANY CHANGES WILL BE DISCUSSED IN CLASS BEFOREHAND\*\*\*\*\***

## COURSE SCHEDULE AND ASSIGNMENTS

### TUESDAY, AUGUST 18<sup>th</sup>.....COURSE INTRODUCTION

- In this class we will review the syllabus and discuss the importance of statistical inference in political science. Many political science students want to major in political science because they think they won't have to do math. This is flat out wrong. Most political scientists work exclusively with statistics. We will discuss these points, and how the class will proceed going forward.

### THURSDAY, AUGUST 20<sup>th</sup>.....SAMPLING TECHNIQUES

- This is a short but important unit. Much of quantitative research – whether it's political research or otherwise – is performed on the assumption that the data being used is truly random. This assumption *rarely* is met in political science research. In this unit we will examine how we cope with this problem. We will also discuss some of the many ways that data is collected in political science.
- **TEXTBOOK:** pp. 1-25
- **HOMEWORK #1:** Due August 27<sup>th</sup> – Assignment is posted on Moodle

### TUESDAY, AUGUST 25<sup>th</sup> – THURSDAY, AUGUST 27<sup>th</sup>.....DESCRIPTIVE STATISTICS

- This will be our first venture into calculating statistics. Students will calculate descriptive statistics by hand and also learn to use SPSS to calculate statistics. Descriptive statistics are frequently overlooked in political science research. This is unfortunate. Descriptive statistics help us to better understand the nature of data in a dataset, and can guide us in interpreting inferential statistics. Students will be expected to be able to identify different types of variables, and learn and master the meaning and calculation of means, medians, modes, and standard deviations.
- **TEXTBOOK:** pp. 31-61
- **HOMEWORK #2:** Due September 3<sup>rd</sup> – Assignment is posted on Moodle

### TUESDAY, SEPTEMBER 1<sup>st</sup> – THURSDAY, SEPTEMBER 3<sup>rd</sup>.....PROBABILITY DISTRIBUTIONS

- I personally believe this may be the most difficult unit of the entire semester. However, it also may be the most important unit. All of statistics can be boiled down to this question: “Given all the possible values this statistic *could* have, how likely is it I ended up with the value that *I* have?” We will discuss how the theory of probability can help us answer this question. Students will be expected to describe and explain the different distributions discussed in this unit, as well as be able to calculate and interpret standard errors.
- **TEXTBOOK:** pp. 73-99
- **HOMEWORK #3:** Due September 10<sup>th</sup> – Assignment is posted on Moodle

### TUESDAY, SEPTEMBER 8<sup>th</sup> – THURSDAY, SEPTEMBER 10<sup>th</sup>.....INFERENCE: ESTIMATION

- In this unit start to get to the heart of why we calculate statistics: to see if our statistics can help us learn something about a given population. We will see why this is so important to all quantitative research, and particularly important to political science research. Students will master point estimates, margins of error, confidence intervals, *t*– distributions, and the choice of sample size.
- **TEXTBOOK:** pp. 107-133
- **HOMEWORK #4:** Due September 17<sup>th</sup> – Assignment is posted on Moodle

TUESDAY, SEPTEMBER 15<sup>th</sup> – THURSDAY, SEPTEMBER 17<sup>th</sup>.....SIGNIFICANCE TESTING

- In this unit we introduce the *science* to *political science!* The purpose of significance testing is to see if our data match predictions we have about the population. In order to do this we perform hypothesis testing and use significance tests to see if our inferential statistics support our hypotheses about populations of interest. Students will be expected to master different tests statistics, interpret  $p$  – values, understand null and alternative hypotheses, as well as Type I and Type II errors.
- **QUIZ #1: Tuesday, September 15th**
- **TEXTBOOK:** pp. 143-175
- **HOMEWORK #5:** Due September 24<sup>th</sup> – Assignment is posted on Moodle

TUESDAY, SEPTEMBER 22<sup>nd</sup> – THURSDAY, SEPTEMBER 24<sup>th</sup>.....COMPARING GROUPS

- In this unit we extend what we have learned in the last two units to analyses of much more interest to political scientists: we will compare two groups to see if there is a difference between them. We will begin by comparing means and proportions for independent samples. Next, we will explore how to compare means using dependent samples. Finally, we will review how to compare means and proportions given different types of data and different non-normal assumptions about the data.
- **TEXTBOOK:** pp. 183-209
- **HOMEWORK #6:** Due October 1<sup>st</sup> – Assignment is posted on Moodle

TUESDAY, SEPTEMBER 29<sup>th</sup> – THURSDAY, OCTOBER 1<sup>st</sup>.....MEASURES OF ASSOCIATION

- In this unit we shift our attention to relationships that may exist between ordinal variables. Instead of comparing, we will see if two ordinal variables are *associated* in any way. By the end of this unit students will be able to construct and interpret contingency tables and also understand why they are so important for measuring association between ordinal variables. We will learn about different measures of association, including the chi-squared test of association and gamma.
- **TEXTBOOK:** pp. 221-247
- **HOMEWORK #7:** Due October 13<sup>th</sup> – Assignment is posted on Moodle

**CLASS-BASED MID-TERM EXAM: TUESDAY, OCTOBER 6<sup>th</sup>**  
**COMPUTER-BASED WORKSHOP: THURSDAY, OCTOBER 8<sup>th</sup>**

TUESDAY, OCTOBER 13<sup>th</sup> – THURSDAY, OCTOBER 15<sup>th</sup>.....CORRELATION & REGRESSION

- In this unit we will further extend our study of association between variables to purely quantitative variables. Students will learn how to measure linear association by calculating correlations for quantitative variables. Students will also be introduced to linear regression equations so they can predict the effect that different values of an explanatory variable will have on a response variable. Students will also be introduced to several of the important assumptions behind linear regression.
- **TEXTBOOK:** pp. 255-289
- **HOMEWORK # 8:** Due October 20<sup>th</sup> – Assignment is posted on Moodle

TUESDAY, OCTOBER 20<sup>th</sup> – THURSDAY, OCTOBER 22<sup>nd</sup>.....MULTIVARIATE ANALYSIS

- This unit builds off the previous unit by extending analysis to multiple variables at once. The concept of control will be introduced in this unit, as well as important questions involving association and causality. Other statistical concepts introduced in this unit are spurious and chain relationships, and statistical interaction.
- **TEXTBOOK:** pp. 301-315
- **HOMEWORK # 9:** Due October 27<sup>th</sup> – Assignment posted on Moodle



TUESDAY, OCTOBER 27<sup>th</sup> – THURSDAY, OCTOBER 29<sup>th</sup>.....MULTIPLE REGRESSION

- This unit will tie together what we have learned in the previous two units by showing how to perform a linear regression with multiple variables. Students will learn about  $R^2$  and the F-statistic. Multicollinearity and the problems it causes will be discussed.
- **QUIZ #2: Tuesday, October 27<sup>th</sup>**
- **TEXTBOOK:** pp. 321-355
- **HOMEWORK #10: Due November 3<sup>rd</sup> – Assignment posted on Moodle**

TUESDAY, NOVEMBER 3<sup>rd</sup> – THURSDAY, NOVEMBER 5<sup>th</sup>.....MODEL BUILDING

- This is one of the most important units of the semester. Now that students have the tools to perform multiple regression, they will be asked to demonstrate how to choose appropriate predictors to estimate those models. This is one of the most important parts of political science research. Multicollinearity will again be discussed, as well as the different methods that are used to assist in selecting proper explanatory variables. We will discuss exploratory versus theoretic research. We will also discuss regression diagnostics, time-series data, generalized linear models, and exponential and log transformations,
- **TEXTBOOK:** pp. 441-474
- **HOMEWORK #11: Due November 10<sup>th</sup> – Assignment posted on Moodle**

TUESDAY, NOVEMBER 10<sup>th</sup> – THURSDAY, NOVEMBER 12<sup>th</sup>.....ANALYSIS OF VARIANCE

- While analysis of variance (or ANOVA, for short) is an important statistical technique, it is not widely used in political science anymore. This is primarily due to the fact that we can perform ANOVA in a multiple regression analysis and avoid doing a separate ANOVA altogether. Still, the unit should be introduced if for no other reason than students are aware of what it is and why it is used. Note: there is no homework for this unit, and I will skip this unit if we are pressed for time.
- **TEXTBOOK:** pp. 369-402

TUESDAY, NOVEMBER 17<sup>th</sup> – THURSDAY, NOVEMBER 19<sup>th</sup>.....LOGISTIC REGRESSION

- Students will be introduced to methods of regressing explanatory variables on a binary dependent variable. We will discuss how logistic regression affects the odds and probabilities of outcomes, and how one can interpret these to make proper inferences. Time permitting; we will advance this topic further to explore ordinal logistic regression models. Much research in political science uses logistic regression. Therefore, it is important that students become well aware of what it is and when it is used.
- **QUIZ #3: Thursday, November 19<sup>th</sup>**
- **TEXTBOOK:** pp. 483-512
- **HOMEWORK #12: Due December 1<sup>st</sup> – Assignment posed on Moodle**

**TUESDAY, NOVEMBER 24 & THURSDAY, NOVEMBER 26: THANKSGIVING BREAK (NO CLASSES)**

**FINAL EXAM: THURSDAY, DECEMBER 10<sup>th</sup>, at 11am, in this classroom**

**\*\*\*\*\*THE PROFESSOR RESERVES THE RIGHT TO MAKE CHANGES TO THE SYLLABUS DURING THE COURSE OF THE SEMESTER. ANY CHANGES WILL BE DISCUSSED IN CLASS BEFOREHAND\*\*\*\*\***