PLSC 350 Scope and Methods (Fall 2018)

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Course Information
Section: 001 (CRN 12748)
Credit hours: 3
Classroom: Owens G04
Class Time: MW 02:00 – 3:15 PM

COURSE DESCRIPTION AND OBJECTIVES

The purpose of this course is to train students in how to analyze political phenomena in a rigorous and scientific manner. This knowledge requires an understanding of two different components: research design and statistics. In the first component, students will learn how to discriminate between theories, pose proper research questions, construct a relevant hypothesis, make valid causal inferences, operationalize concepts, and test their hypotheses. The latter component offers the student a "statistical toolbox" to use as s/he pursues the scientific study of all things political. This component covers quantitative topics such as central tendency and dispersion, measures of association, and regression analysis. By the end of this course, hopefully, the student should have mastered the basic requirements to begin conducting, comprehending, and critiquing research in political science.

This class involves a little math, but this is not a math class. I will assume zero mathematical background beyond high-school algebra and zero statistical computing experience. The philosophy of this course is the best way to learn data analysis is to analyze data. We will be learning largely through applications and we will see datasets at every turn – lecture, computer lab, and assignments. Remember, while we will be learning formulas and computer functions and other technical material, these are just tools to help us better understand the data. They are a poor replacement for our brains and our own reasoning is a crucial component to any data analysis.

This course contributes to the mastery of the following **university-level competencies** (ULCs):

1. Winthrop graduates think critically and solve problems.

Winthrop University graduates reason logically, evaluate and use evidence, and solve problems. They seek out and assess relevant information from multiple viewpoints to form well-reasoned conclusions. Winthrop graduates consider the full context and consequences of their decisions and continually reexamine their own critical thinking process, including the strengths and weaknesses of their arguments.

4. Winthrop University graduates communicate effectively.

Winthrop graduates communicate in a manner appropriate to the subject, occasion, and audience. They create texts – including but not limited to written, oral, and visual presentations – that convey content effectively. Mindful of their voice and the impact of their communication, Winthrop graduates successfully express and exchange ideas.

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STUDENT LEARNING OUTCOMES

Students who successfully complete the course will demonstrate an understanding of core tenets of research design and analysis for the discipline of political science. First, students will acquire knowledge of how to conduct quantitative political science research including: how to develop theory, how to create testable hypotheses, how to design accurate and precise measures, how to work with large data sets to create aggregated graphical summaries of the data, how to use statistics to test hypotheses and how survey research is conducted. Second, students will demonstrate a good understanding of statistical concepts and tools including central tendency and dispersion, measures of association, causal inference, and regression analysis. Third, students will have a good hands-on experience of using the statistical package **R and RStudio**.

WHO SHOULD AND SHOULD NOT TAKE THIS CLASS?

This course assumes no prior statistical or mathematical experience beyond high-school algebra. In principle, *anyone* can be successful in this class. While this is true, the course will require a good amount of work and dedication to learning the craft of data analysis. Many, many people before you (your instructor included) have found themselves lost when trying to learn statistics and data analysis. This feeling is completely normal and there will be many opportunities for you to get help from me. The key to remember is that you *can* do it, but it might take some extra work to get there. If you have taken a statistics class before, you may find the class to be on the slow side.

REQUIRED TEXTS

The following textbooks are required for this course:

- Freedman, D., Pisani, R. and Purves, R., 2007. Statistics (4th edn). Norton & Company. *New York*.
- John Verzani, *SimpleR: using Introductory Statistics.*
  This is a free e-book about R, which we will use for computation. Note that I may circulate additional (mostly optional) readings during the term.

RECOMMENDED TEXTS

- Agresti, Alan. 2017. *Statistical Methods for the Social Sciences*. Fifth Edition. Upper Saddle River, New Jersey: Pearson Prentice Hall.
- Larry Gonick and Woollcott Smith. 1993. *The Cartoon Guide to Statistics*. Harper-Perennial (Amazon). (Good intuitive explanations of some of the key concepts in the course.)
- Shively, W. Phillips. 2013. *The Craft of Political Research*. Upper Saddle River, NJ: Prentice-Hall, Inc.
- Schacht, Steven P., and Jeffrey E. Aspelmeier. 2005. *Social And Behavioral Statistics: A User-Friendly Approach.* (second edition) Cambridge, MA: Westview Press.

- Bailey, M. (2015). *Real Stats: Using Econometrics for Political Science and Public Policy*. Oxford University Press.

R AND R STUDIO

Many data analysis problems require computation and we will be using a free statistical software package called R and a frontend to that package called RStudio. In Owens 204 and other computer labs on campus, R and RStudio have already been installed for your use.

Using a free package allows you to work on your own computer. You should attend all classes to learn how to use R for each assignment and budget time to trial and error as you work. Over the course of the term, I will also produce notes that will help you complete specific tasks in R. This class, though is not a test of your R ability and you should always feel free to ask the professor and peer-tutors for help.

To install R and RStudio, follow these steps:

1. Download R first from the following website: https://cran.r-project.org/. There are three options, which will look like the following. Download and install one that matches your PC's operating system.

    - Download R for Linux
    - Download R for (Mac) OS X
    - Download R for Windows

2. Download R Studio from the following website: https://www.rstudio.com/products/rstudio/download/. You can choose "R Studio Desktop Open Source License FREE." Once you choose the link, you will be asked to choose a download option depending on your PC's operating system. Choose the version that matches your operating system.

    RStudio 1.1.456 - Windows Vista/7/8/10   85.8 MB 2018-07-19

    RStudio 1.1.456 - Mac OS X 10.6+ (64-bit) 74.5 MB 2018-07-19

COURSE REQUIREMENTS AND OPTIONAL ACTIVITY

Course grades will be calculated as follows:

- **Problem Sets/Assignments** (20%)
- Group Data Analysis Essays (40%)
- Exams 1 and 2 (40%)
- *(Optional)* Winthrop Poll (Up to 5% toward the final course grade)

Attendance

Each class meeting is very important; you will have a hard time keeping up with the material if you miss lectures. There will be material covered in lecture that is not in the readings. And lecture will provide you the tools (mathematical and computational) necessary to complete your assignments.

Therefore, class attendance is required. I allow **the maximum of *two absences* throughout the semester as students may have unforeseen emergencies** such as medical and family emergencies without any penalty. However, missing **a class beyond those two absences will deduct 1% from your course grade**.

To encourage your class attendance, I will not allow students to use my office hours to substitute your class attendance. While you are more than welcome to come to my office hours to ask questions about the lecture (that you attended), about the readings and assignments, etc., I will not repeat any lecture during my office hours for you in case you missed any lecture. It is your responsibility to review class notes in addition to all required assignments for class to catch up any missed class.

Problem Sets (20%)

Problem sets will count for 20% of the course grade. Please hand in your answer at the beginning on time. Since a solution set will be available on the course website as soon as a problem set is handed in, late problem sets will not be accepted (which means you will receive a zero).

Group Data Analysis (40%)

On the first day of class, you will be randomly assigned into your group (composed of no more than 3 students). Cumulatively, this data analysis project is worth 20% of your grade. In addition to building your data analysis skills, this assignment is designed to help you with your critical thinking and effective communication skills, as you apply the concepts and methods we will be learning in class to a real-world dataset and learn how to present evidence effectively by clearly summarizing your data through tables, graphs, statistical tests, and your interpretation. I will provide you with several datasets and their codebooks from which you can choose at the beginning of the semester. You may choose any of the datasets or combinations of them and choose variables relevant to answer your research question. When choosing variables, you must choose *one continuous dependent variable*, and three to five independent variables. Your independent variables must include at least one continuous variable and one dummy or categorical variable.

The data analysis exercise will have six parts, and each will be worth 5% of your grade:
(1) a 1-page proposal of your essay including the topic, research question, thesis statement, variables and hypotheses to be examined, worth 5% of your grade due on September 13 (5%)
(2) a complete dataset due on September 26.
(3) a descriptive summary of the relationship between your dependent and independent variables including graphs and summary statistics with your brief (approximately 300 words) interpretation due on October 8.
(4) a brief report on a simple regression analysis (approximately 300 words), including the tables and interpretation of the results due on October 24. (5%)
(5) a brief report on a multiple regression analysis (approximately 300 words) without interaction terms, including the tables and interpretation of the results due on November 5. (5%)
(6) a brief report on a multiple regression analysis (approximately 300 words) with interaction terms, including the tables and interpretation of the results due on November 14. (5%)
(7) A 150 word abstract based on your final data analysis project; this should be a submission-ready to SOURCE and other academic conferences. It is mandatory to submit your abstract to SOURCE 2019. Due on November 26. (5%)

(8) Group Poster Presentation (5%) on December 3

Late Policy on Data Analyses: Without any documented reason and previous consultation with me about the possibility of extension, I will not accept any late assignment.

Turnitin:
ALL written components of the group data ahalysis must be submitted to Turnitin.com by the due date in order to be graded. The Class ID is 18789689 and the Enrollment Password is scope.

Exams (40%)

Exam 1 (20%) will take place on October 10, with a review session during the lecture on October 18. The final exam (20%) will not directly cover the first half of the course, but concepts in the first half of the course are needed to use techniques in the second half of the course. The final will be on December 5. The review session will be held. (Time and Location TBA)

Missed Exams - The midterm and final exam dates are firm. Missed exams may only be re-taken under the following circumstances: (1) death in the family within two weeks before the exam, (2) participation in a University-sponsored academic or sporting event, (3) unforeseen medical emergency. In the case of (1) and (2), you must inform me within 24 hours of the exam that you will miss it. In some cases, I may require supporting documentation out of fairness to other students.

Extra Credit: Poll (Up to 5 % of Final Course Grade)

Why do we do a poll? The answer to this question is two-fold: (1) a poll quite neatly encapsulates the research process. We form hypotheses to test theories, create questions to test these hypotheses, conduct a scientific sample, field the research, collect data, and analyze the results. It is a wonderful way to get real world, hands-on research experience. (2) As an institution, Winthrop is committed to *Experiential Learning*, that is, the integration of real-world experience and learning. In doing the poll, not only are you learning valuable lessons and skills, you are also serving the community. I am a firm believer that each of us has a duty as a citizen to serve her or his community. We use these polls to serve the community by providing local organizations and government with valuable information. These are real surveys and the results have real policy implications. In order to encourage each student to take advantage of this experiential learning and training opportunity that Winthrop Poll can offer you, I made participation in conducting a telephone poll for Winthrop Poll as an optional course activity.

If you decided to participate in the poll, you will be conducting a telephone poll. You will be expected to work one shift over a one week period. Your extra credit grade on this, which will be counted toward up to 5% of your final course grade, will be based on your overall contribution to the completion of the project. The only way to get an "A" on the poll is to complete your required shift. In order for you to complete this requirement, you need to complete the each of the following steps:

(a) plan in advance and sign up for the required training or a shift.

(b) do not skip your shift, and
(c) follow the CPOPR rules and scientific protocols

Calling Requirement in the Center for Public Opinion & Policy Research (CPOPR)

- **Mandatory training** – In order to complete your required calling shift, you must sign-up and attend new caller training with the Operations Manager, Summersby Okey-Hamrick. Signing up for training and calling must be done promptly before the deadline given by the Operations Manager. If you do not meet these requirements, you may not be guaranteed a calling shift. If you do not sign-up and attend this training, you will miss your opportunity to complete 10% of your final grade. Since new caller training is essential to the quality of our poll, you are expected to participate and engage in training as you would in class in order to adequately grasp the methods you need to learn to administer surveys for the Winthrop Poll.
- **Missing a shift** - If you must miss a shift, you must notify the CPOPR Operations Manager BEFORE the beginning of the shift. Failure to do so without a legitimate reason will lower your grade one full letter grade for each occurrence -- assuming all required shifts are later made up. Finally, if the CPOPR Operations Manager or your shift Supervisor report that you were goofing off, etc., your grade will be lowered whether you were sent home or not. If you are dismissed from your shift without completing it because of not following the CPOPR rules and scientific protocols you may receive a zero.
- **On time -** If you fail to complete your required shift because you are late or leave early, you will receive a one letter grade penalty for each 10 minutes of a shift you miss (rounding up from the first minute - missing 1 minute costs a letter grade; missing 11 minutes costs two letter grades, etc.)
- **Weekend shifts** - You may be required to work weekend "shifts" in order to get your requirement done. If you cannot do this, then you cannot complete the requirements of this class.

GRADING

This course employs Winthrop's +/- grading system. Course grades will be distributed as follows:

A	93-100 = A 90-92 = A-	*Designates work of superior quality* Performance on exams and all assignments are consistently strong; demonstrates a strong ability to apply statistical concepts and data analysis techniques learned in class to analyze real world data;
B	87-89 = B+ 82-86 = B 80-81 = B-	*Designates work of high quality (B+)* Performance on exams and all assignments are strong with minimal errors; demonstrates a good understanding of how to apply statistical concepts and data analysis techniques learned in class to analyze real world data; *Designates work that meets the course requirements (B and B-)* All exams and assignments are completed; performance on exams and all assignments demonstrates acceptable degree of mastery of statistical concepts and research methods tools; demonstrates an acceptable degree of mastery in

		applying statistical concepts and techniques learned in class to analyze real world data.
C	77-79 = C+ 72-76 = C 70-71 = C-	*Designates work that minimally meets the course requirements* All exams and most assignments are completed; performance on exams and all assignments demonstrates marginally acceptable level of understanding of statistical concepts and research methods tools; demonstrates a marginally acceptable level of mastery in data application and analysis.
D	67-69 = D+ 62-66 = D 60-61 = D-	*Reflects minimal clarity and comprehension* All exams are completed; some assignments are not completed; performance on exams and all assignments are consistently weak and are marred by errors; demonstrates poor level of understanding of statistical concepts and research methods tools; demonstrates a minimal mastery of data application and analysis.
F	0-59 = F	*An exam is not completed; Unsatisfactory performance* along most (or all) measures.

The "N" Grade
This semester, the deadline to withdraw from a course with an automatic grade of "N" is Friday, October 20th. Students may not withdraw from the course after this date without documented extenuating circumstances.

Grade Dispute. If you wish to dispute a grade on a particular assignment for any reason other than an obvious arithmetic error on my part, you will need to type a one-page explanation of your position and turn it in, along with the original graded assignment, at least one week after the assignment is returned to you. I will then consider your appeal and make a determination. Appeals must be submitted in hard copy format; no appeals submitted via email will be considered. For appeals regarding your final grade in the course, please consult the Student Handbook and Catalog for procedures.

COURSE SCHEDULE

Note. The need may arise to make changes to this schedule depending upon the development of the class. All changes will be communicated to the class. It is the responsibility of each student to be aware of such changes.

Date	Topic	Assignments Due
August 22	Discussion of Course Description and Requirements	
August 27	**Topic 1. Controlled Experiments and Observational Studies** **Classroom Experiment** Required Reading: FPP Chapters 1 and 2	Send me an email to confirm that you have completed downloading and installing

		the R and RStudio before August 27
August 29	**Topic 2. The Histogram** Required Reading: FPP Chapter 3	
September 3	**Labor Day: No Class**	
September 5	**Topic 3. The Average and the Standard Deviation** Required Reading: FPP Chapter 4	*PS 1 Due*
September 10	**Topic 4. The Normal Approximation for Data** Required Reading: FPP Chapter 5	
September 12	**Topic 5. Measurement Error** Required Reading: FPP Chapter 6	*Data Essay Proposal Due*
September 17	**Topic 6. Plotting Points and Lines** Required Reading: FPP Chapter 7	
September 19	**Topic 7. Correlation** Required Reading: FPP Chapter **8**	*PS 2 Due*
September 24	**Topic 8. Correlation (continued)** Required Reading: FPP Chapter **9**	
September 26	**Topic 9. Regression** Required Reading: FPP Chapter **10**	*A Complete Dataset Due*
October 1	**Topic 10. The R.M.S. Error for Regression**	

	Required Reading: FPP Chapter 11	
October 3	**Topic 11. The Regression Line** Required Reading: FPP Chapter **12**	*PS 3 Due* *Interim Grade Due on October 4th*
October 8	**Topic 12. Review Session**	*Descriptive Summary Statistics due*
October 10	**Exam 1**	*Topics 1 through 11*
October 15	**Fall Break-No Class**	
October 17	**Topic 13. What Are the Chances?** Required Reading: FPP Chapter 13	*PS 4 Due* *Course Withdrawal Deadline: October 19*
October 22	**Topic 14. More about Chance** Required Reading: FPP Chapter 14	Chapters 1 through 4
October 24	**Topic 15. The Law of Averages** Required Reading: FPP Chapter 16	*Simple Regression Analysis Due*
October 29	**Topic 16. The Expected Value and Standard Error** Required Reading: FPP Chapter 17	*PS 5 Due*
October 31	**Topic 17. The Normal Approximation for Probability Histograms** Required Reading: FPP Chapter 18	
November 5	**Topic 18. Sample Surveys** Required Reading: FPP Chapter 19	*Multiple Regression Analysis without Interaction Due*

November 7	**Topic 19. Chance Errors in Sampling** Required Reading: FPP Chapter 29	*PS 6 Due*
November 12	**Topic 20. The Accuracy of Percentages** Required Reading: FPP Chapter	
November 14	**Topic 21. The Accuracy of Averages** Required Reading: FPP Chapter 23	*Multiple Regression Analysis with Interaction Due*
November 19	**Topic 22. Test of Significance** Required Reading: FPP Chapter 26	*PS 7 Due*
November 21	**Thanksgiving Break – No Class**	
November 26	**Topic 23. More Test for Averages** Required Reading: FPP Chapter 501	*Abstract Due*
November 28	**Topic 24. Review Session**	*PS 8 Due*
December 3	**Topic 25. Group Poster Presentation**	GADGET DAY Poster Due
December 5	**EXAM 2**	

UNIVERSITY LEVEL CLASS POLICIES AND RESOURCES

Attendance, Class Participation, and Taking Notes: Regular class attendance is required. Excessive absences will lower your grade in two ways: (1) loss of note-taking from class lecture and discussion; (2) loss of class participation credit. Class participation will raise or lower your grade. If prolonged illness or other problems cause you to be absent for an extended period of time, please let me know. In addition, every student is expected to arrive on time. Arriving late or leaving early disrupts the class and is not acceptable.

Class Listserv Participation: Class cancellations, changes in schedule, relevant global cultural events, guest speakers, etc., will be announced via the class listserv to which you will be automatically subscribed through your winthrop.edu e-mail address if you are registered for the class by the time the listserv population is generated. The email address for this list is: PLSC350001@class.winthrop.edu. If you register later and need to subscribe to the class listserv, go to:

. The class number is **PLSC350001**. Check your WU e-mail frequently. You may use the listserv for discussion or to share information with classmates, review for exams, or ask questions about course material. *Note that athing you post to the listserv will be seen by everyone in the class.*

Technology: You are welcome to use a computer to take notes in class. However, using the computer to check Facebook or engage in other non-course related activities is prohibited. This class follows the College of Arts and Sciences policy on use of technology in the classroom. Please turn off all cell phones and other electronic devices during class meetings. If you need to leave your phone on during a particular class for emergency reasons, please place it on vibrate. *The use of any kind of electronic device, including a phone, iPod or Internet access, during an exam constitutes academic dishonesty.*

http://www.winthrop.edu/uploadedFiles/artscience/AppropriateUseOfHandHeldWirelessTechnologyApprovedPolicyMar2010.pdf

Office of Accessibility (OA): Winthrop University is dedicated to providing access to education. If you have a disability and require specific accommodations to complete this course, contact the Office of Accessibility (OA) at 323-3290 or accessibility@winthrop.edu. Once you have your official notice of accommodations from the Office of Accessibility, please inform me as early as possible in the semester.

Winthrop's Academic Success Center is a free resource for all undergraduate students seeking to perform their best academically. The ASC offers a variety of personalized and structured resources that help students achieve academic excellence, such as tutoring, academic skill development (test taking strategies, time management counseling, and study techniques), group and individual study spaces, and academic coaching. The ASC is located on the first floor of Dinkins, Suite 106. Please contact the ASC at 803-323-3929 or success@winthrop.edu or www.winthrop.edu/success.

Winthrop University's Office of Nationally Competitive Awards (ONCA) identifies and assists highly motivated and talented students to apply for nationally and internationally competitive awards, scholarships, fellowships, and unique opportunities both at home and abroad. ONCA gathers and disseminates award information and deadlines across the campus community, and serves as a resource for students, faculty, and staff throughout the nationally competitive award nomination and application process. ONCA is located in Dinkins 222B. Please fill out an online information form at the bottom of the ONCA webpage www.winthrop.edu/onca and email onca@winthrop.edu for more information.

Plagiarism Using the words or ideas of others as one's own is plagiarism. Quoting or paraphrasing material from books or articles without properly citing the source is also plagiarism. All sources used must be properly cited in your papers. Consult your Writing 101/HMXP Writing Manual for proper citation techniques.

POLITICAL SCIENCE DEPARTMENT STATEMENT ON PLAGIARISM AND ACADEMIC MISCONDUCT

The Winthrop University Political Science department abhors all forms of academic misconduct, and faculty members aggressively investigate all incidents of suspected cheating. This includes, but is not limited to, using turnitin.com. Plagiarism, whether intentional or unintentional, is by far the most common form of academic misconduct in the department. Plagiarism includes, but is not limited to:

- Using the words or ideas of others as one's own;
- Reproducing, in whole or in part, principal ideas from a fellow student's work;

- Granting a fellow student permission to copy one's paper, or to reproduce some or all of its principal ideas;

- Quoting or paraphrasing material from sources without any citation;

- Quoting or paraphrasing material without sufficient and/or proper citation;

- Omitting some or all sources used in a paper; and

- Submitting a paper written for one course -- whether in Political Science or another discipline -- to meet a course requirement in a second course, *without the express permission of all instructors involved.* This is the case even though many paper topics may be relevant to several different courses.

All incidents of suspected academic misconduct are investigated with equal vigor. When a faculty member suspects that a student engaged in academic misconduct, the faculty member will follow the appropriate procedures outlined in the *Student Handbook*. The faculty member will apply whatever sanctions s/he deems appropriate. Possible sanctions include, but are not limited to:

- Failing the assignment;

- Requiring a student to repeat an assignment for reduced credit;

- Requiring a student to repeat an assignment for no credit; or

- Failing the course.

Academic misconduct applies equally to required assignments and extra credit assignments.

All incidents of academic misconduct will be reported to the Department Chair, the Dean of Students, the Dean of Arts and Sciences and the student's academic advisor. The University may impose its own sanctions in addition to sanctions imposed by the faculty member or the department. The University may impose sanctions even after a student has graduated, and may include revoking a student's diploma.

In addition, students who engage in more than one incident of academic misconduct may be declared ineligible for departmental awards, ineligible for employment in the department or its affiliated programs, and ineligible to volunteer as a peer advisor.

Adopted August 14, 2007.