UG 12115 12F

CBM003 ADD/CHANGE FORM

APPROVED DEC 05 2012

☒ Undergraduate Council ☐ New Course ☒ Course Change **Core Category: Math/Reason Effective Fall 2014**	or	**Graduate/Professional Studies Council** ☐ New Course ☐ Course Change **Effective Fall 2013**

1. Department: POLS College: CLASS
2. Faculty Contact Person: JW Jackson Telephone: 3-3919 Email: jjackson5@uh.edu
3. Course Information on New/Revised course:
   - Instructional Area / Course Number / Long Course Title:
     POLS / 3316 / Statistics for Political Scientists

     RECEIVED OCT 12 2012
   - Instructional Area / Course Number / Short Course Title (30 characters max.)
     POLS / 3316 / STATS FOR POLITICAL SCIENTISTS
   - SCH: 3.00 Level: JR CIP Code: 45.100.10 01 Lect Hrs: 3 Lab Hrs: 0
4. Justification for adding/changing course: **To meet core curriculum requirements**
5. Was the proposed/revised course previously offered as a special topics course? ☐ Yes ☒ No
   If Yes, please complete:
   - Instructional Area / Course Number / Long Course Title:
     ____ / ____ / _____
   - Course ID: _____ Effective Date (currently active row): _____
6. Authorized Degree Program(s): _____
   - Does this course affect major/minor requirements in the College/Department? ☐ Yes ☒ No
   - Does this course affect major/minor requirements in other Colleges/Departments? ☐ Yes ☒ No
   - Can the course be repeated for credit? ☐ Yes ☒ No (if yes, include in course description)
7. Grade Option: Letter (A, B, C ...) Instruction Type: lecture ONLY (Note: Lect/Lab info. must match item 3, above.)
8. If this form involves a change to an existing course, please obtain the following information from the course inventory: Instructional Area / Course Number / Long Course Title
   POLS / 3316 / Statistics for Political Scientists
   - Course ID: 18745 Effective Date (currently active row): 2012827
9. Proposed Catalog Description: (If there are no prerequisites, type in "none".)
   Cr: 3. (3-0). Prerequisites: MATH 1310, POLS 1336 and 1337 or equivalent, or consent of instructor. Description (30 words max.): Statistical analysis of quantitative data in political science. Applied to elections, public policy, business, industry, and economics, facilitating student usage of relevant software for evaluating quantitative data.
10. Dean's Signature: _____ Date: 10/8/12

    Print/Type Name: Dr. Sarah Fishman

REQUEST FOR COURSES IN THE CORE CURRICULUM

Originating Department or College: Political Science

Person Making Request: Scott J. Basinger Telephone: 713-743-3911
Email: sjbasing@Central.UH.EDU

Dean's Signature: _____ _____ Date: 09-06-2012

Course Number and Title: POLS 3316. Statistics for Political Scientists

Please attach in separate documents:

☒ Completed CBM003 Add/Change Form with Catalog Description

☒ Syllabus

List the student learning outcomes for the course (Statements of what students will know and be able to do as a result of taking this course. See appended hints for constructing these statements):

Students will be alble to state causal arguments about real-world situations in terms of falsifiable research hypotheses.

Students will be able to identify and utilize appropriate technology to solve problems.

Students will judge the reasonableness of empirical claims.

Students will be able to recognize the limitations of statistical models.

Students will expand skills at reasoning and evaluating evidence to develop convincing, logical arguments.

Students will be able to interpret formulas, graphs, charts, and/or tables , and draw inferences from them.

Students will be able to apply arithmetic and/or statistical methods to organize data.

Students will be able to represent statistical and/or mathematical information verbally, graphically, and numerically.

Component Area for which the course is being proposed (check one):

***Note:** If you check the Component Area Option, you would need to also check a Foundational Component Area.

☐ Communication

☒ Mathematics

☐ Language, Philosophy, & Culture

☐ Creative Arts

☐ Life & Physical Sciences

☐ American History

☐ Government/Political Science

☐ Social & Behavioral Science

☒ Component Area Option

Competency areas addressed by the course (refer to appended chart for competencies that are required and optional in each component area):

☒ Critical Thinking
☒ Communication Skills
☒ Empirical & Quantitative Skills
☐ Teamwork
☐ Social Responsibility
☐ Personal Responsibility

Because we will be assessing student learning outcomes across multiple core courses, assessments assigned in your course must include assessments of the core competencies. For each competency checked above, indicated the specific course assignment(s) which, when completed by students, will provide evidence of the competency. Provide detailed information, such as copies of the paper or project assignment, copies of individual test items, etc. A single assignment may be used to provide data for multiple competencies.

Critical Thinking:
Students are provided with a written discussion about a political phenomenon and a small dataset and asked to evaluate the argument in writing.
Sample Assignment: Students will define a null hypothesis and a research hypothesis. After using Excel to perform a difference-of-means test, students will state whether the null hypothesis has been rejected or retained and defend their conclusion.

Communication Skills:
In the aforementioned assignment, students will be required to state whether the null hypothesis has been rejected, and at what level of statistical significance. Students will be required to provide a verbal explanation and interpretation of the p-value. When computing the standard error of the difference-of-means, students will be required to justify their choice between the large-sample and small-sample estimator.

Empirical & Quantitative Skills:
In the aforementioned assignment, students will compute the two-sample t-statistic (also known as the difference-of-means test). Students will use the t-table to find the critical value for rejection of a null hypothesis for the correct degrees of freedom at the 5% level of statistical significance. Students will compare the t-statistic to the t-critical value. Finally, students will compute the 95% confidence interval for the difference-of-means.

Teamwork:
-

Social Responsibility:
-

Personal Responsibility:

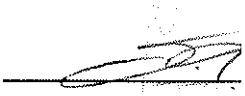
-

Will the syllabus vary across multiple section of the course? ☒ Yes ☐ No
If yes, list the assignments that will be constant across sections:

The assignments listed above will be constant.

Inclusion in the core is contingent upon the course being offered and taught at least once every other academic year. Courses will be reviewed for renewal every 5 years.

The department understands that instructors will be expected to provide student work and to participate in university-wide assessments of student work. This could include, but may not be limited to, designing instruments such as rubrics, and scoring work by students in this or other courses. In addition, instructors of core courses may be asked to include brief assessment activities in their course.

Dept. Signature: 

POLS 3316: Statistics for Political Science
Fall 2012
Tues. & Thurs., $8^{30} - 10^{00}$ AM, AH 201

Instructor: Dr. Scott Basinger
Office: Philip Guthrie Hoffman (PGH) Hall, Room 447E
Office Hours: Tuesday, $11^{30} - 1^{00}$ (and by appointment)
Telephone: (713) 743-3911
Email: *sjbasinger@uh.edu*

Course Overview:

This course provides an introduction to statistical analysis. Lectures will be devoted to acquiring skills by working through concrete examples using real-world data, although some lectures will address abstract concepts, such as sampling distributions and probability. This course complements POLS 3312 (Research Methods in Political Science) which focuses more on data collection than analysis. This course also satisfies a Core Curriculum requirement in Math/Reasoning and a departmental requirement for the Bachelor of Science degree.

Learning Outcomes:

Students will be able to state causal arguments about real-world situations in terms of falsifiable research hypotheses.
Students will be able to identify and utilize appropriate technology to solve problems. Students will judge the reasonableness of empirical claims.
Students will be able to recognize the limitations of statistical models.
Students will expand skills at reasoning and evaluating evidence to develop convincing, logical arguments.
Students will be able to interpret formulas, graphs, charts, and/or tables, and draw inferences from them.
Students will be able to apply arithmetic and/or statistical methods to organize data.
Students will be able to represent statistical and/or mathematical information verbally, graphically, and numerically.

Course Materials:

I am assigning one book: Wendy J. Steinberg, *Statistics Alive! 2nd ed.* (Sage Publications, 2011)
The bookstore will have the most recent edition of this book, although the first edition is an adequate substitute.

Course Grading:

Grading will be based on the following four components:

1. ELEVEN HOMEWORK ASSIGNMENTS (50%). Beginning in the first week of the semester, assignments will be posted on Blackboard. You will always have at least one weekend and one set of office hours between the date an assignment is posted and the date when it is due. Homework will be collected at the start of class, and late homework will be penalized.
2. A MIDTERM EXAM (20%) on Tuesday, October 23.
3. A FINAL EXAM (25%) on Thursday, December 13.
4. ATTENDANCE (5%), which will be taken at the *beginning* of class.

Homework assignments and tests can be completed with pencil and paper and a calculator. No special statistical software is required, but you may find a spreadsheet program such as Microsoft Excel useful for your homework assignments. I use Excel for examples in lectures, and I occasionally will post Excel files on Blackboard.

You are allowed to work with other students in a small group setting, so long as everyone participates equally and everyone submits their own work. You may seek tutoring help at your own initiative.

Statements on Academic Honesty, Accessibility and Disabilities:

Students should familiarize themselves with the university's policies on honesty, the academic calendar, religious holy days, and so on, at http://www.uh.edu/provost/stu/stu_syllabsuppl.html.

Students are expected to adopt the highest ethical standards in completing class assignments. Plagiarism is defined as the representation of another's works or ideas as one's own; this includes copying classmates' solutions to problems and handing them in as your own. Students found cheating will receive a score of zero on that assignment. Students are expected to adhere to the University's Policy on Academic Honesty: *www.uh.edu/academics/catalog/general/acade2.html#honesty*.

The Americans with Disabilities Act (ADA) is a federal law providing comprehensive protections for persons with disabilities. In accordance with ADA guidelines, I will attempt to provide all reasonable academic accommodations to students with disabilities that have been certified by the Center for Students with Disabilities, whose telephone number is (713) 743-5400; CSD can be found at *www.uh.edu/csd/index.htm*. Note that it is the student's responsibility to inform the instructor of the need for an accommodation.

Class Schedule

Week	Dates	# Topics	*Statistics Alive!*
Wk. 1	Aug. 28	1. Introduction	———
	Aug. 30	2. Measurement	ch. 1; 2
Wk. 2	Sep. 4	3. Tables and Graphs	ch. 3; 4
	Sep. 6	4. Measures of Central Tendency	ch. 5
Wk. 3	Sep. 11	5. Measures of Dispersion	ch. 6
	Sep. 13	6. The Normal Distribution	ch. 7; 9
Wk. 4	Sep. 18	7. The Standard Normal Distribution, z-scores	ch. 8; Appendix A
	Sep. 20	8. Correlation and Pearson's *r*	ch. 34–35
Wk. 5	Sep. 25	9. Sampling Distributions and Standard Error	ch. 15
	Sep. 27	10. Inferential Statistics: *The Meaning of "Significant"*	ch. 12; 13
Wk. 6	Oct. 2	11. The "Normal Deviate z-test"	ch. 14; 16
	Oct. 4	12. The One-Sample t-test for Means	ch. 17; 18; Appendix C
Wk. 7	Oct. 9	13. The "Difference of Means"	ch. 19; 23
	Oct. 11	14. The Two-Sample t-test for Means	ch. 20; 21
Wk. 8	Oct. 16	15. One-Tailed vs. Two-Tailed t-tests	———
	Oct. 18	Review for Midterm Exam	———
Wk. 9	Oct. 23	MIDTERM EXAM	———
	Oct. 25	16. To Pool or Not to Pool? An F-test	——— Appendix D
Wk. 10	Oct. 30	17. The "Mean of Differences"	———
	Nov. 1	18. Related-Samples t-test for Means	ch. 22; 35
Wk. 11	Nov. 6	19. Choosing the "right" test statistic; Effect Size vs. *t*	ch. 32 (p. 394-397)
	Nov. 8	20. Probability Theory, Counts and Proportions	ch. 10
Wk. 12	Nov. 13	21. The Binomial Distribution	ch. 11; Appendix B
	Nov. 15	22. One-Sample z-test for Counts and Proportions	———
Wk. 13	Nov. 20	23. Two-Sample z-test for Counts and Proportions	———

	Nov. 22	THANKSGIVING HOLIDAY	------
Wk. 14	Nov. 27	24. Two-Way Chi-Square (χ^2)	ch. 31; Appendix F
	Nov. 29	25. One-Way Chi-Square (χ^2); Effect Size vs. χ^2	ch. 30; 32 (p. 398-401)
Wk. 15	Dec. 4	26. Correlation and Pearson's *r*	ch. 35–36; Appendix G
	Dec. 6	27. Linear Prediction	ch. 37–38
Final	Dec. 13	FINAL EXAM: 8^{00} - 11^{00} AM (*http://www.uh.edu/academics/courses-enrollment/final-exam-schedules/*)	