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 GENERAL EDUCATION INITIATIVE www.udel.edu/ugs/gened/
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2007-2008 Instructional Grants

Projects which advance the General Education Goals by means of Instructionally-Enhanced and/or Technology-Enhanced Course Redesign

TEMPLATE FOR FINAL PROPOSALS

Final Proposal Deadline: Sunday, February 18, 2007

All final proposals should be electronically submitted as a Microsoft Word attachment by email: <mailto:instructional-grant@udel.edu>. Notice of receipt of final proposals will follow via email. Proposals will be reviewed by Center for Teaching Effectiveness and Information Technologies.

Title of Project	Applied Quantitative Reasoning through Public Opinion Research: Analyzing Students' Political Attitudes		
Principal Investigator	David C. Wilson		
Rank	Assistant Professor	E-mail	dcwilson@udel.edu
Department	Political Science and International Relations		
Co-investigator(s)	None		
Rank		E-mail	
Department			
<input checked="" type="checkbox"/>	<i>This project has been discussed with all department chairs of the Principal Investigator and Co-Investigator(s).</i>		

Nature of Project. Project will advance the following General Education Goal. (select only one)	
	Capstone – Goal # 7 is given priority in review of grant projects.
X	Quantitative Reasoning – Goal # 1 is given priority in review of grant projects.
	Student Multimedia Design Center – Goal # 1 is given priority in review of grant projects.
	Academic and Student Affairs – Goal # 7 is given priority in review of grant projects.
	Other (please specify) – Meritorious grant projects strongly supporting one General Education Goal will be considered.
To advance the above General Education Goal , this project will use. (select as appropriate)	
X	Problem-based Learning
X	Active Learning Approaches, e.g., case studies, collaborative learning
X	Technology, e.g., WebCT, multimedia, emerging technology
	Other (please specify)

Course Number	Course Title	Semester(s) Offered in 2007-08	Est. Students Per Semester	Percent Major
POSC 413	Problems in American Politics (Public Opinion)	SPRING 2008	25	100%

Course fulfills the following University/College/Department requirements.

In the pre-proposal, this project was to take place in a new 300 level department course (temporarily listed as an experimental course POSC 367 because it had not been approved at the time of the pre-proposal). Since then, my department chair, James Magee, has informed me that we will be developing a number of capstone courses in the near future. Therefore, the proposed project will now take plan through an existing course (i.e., POSC 413) which will be restructured to serve as a model for a future capstone course offering.

1. Description of Project (2 page limit)

Please describe nature of your project, stating the instructional problem(s) to be solved.

- a. *How will the project impact student learning in the course?***
Address each question separately in preparing your project description.
- b. *How will the project complement your current teaching activities (e.g. instructional approach, methods, pedagogy)?***
Address each question separately in preparing your project description.
- c. *How will the project impact department / college / university objectives***
Address each question separately in preparing your project description.
- d. *How will the project best utilize existing departmental resources (e.g. equipment, software, facilities, expertise, personnel)?***
Address each question separately in preparing your project description.

There are currently no courses offered at the University of Delaware (UDel) that provides undergraduate students with an opportunity to learn quantitative reasoning through an applied research project. Moreover, the Department of Political Science and International Relations (POSCIR) has long sought to advance the quantitative methodological skills of their undergraduate majors. The proposed activities are aimed at developing undergraduate quantitative reasoning by having students conduct a full-scale research project that requires not only the analysis of data, but also, communicating results to a range of audiences.

Public opinion surveys provide a means for quantitative literacy and reasoning. As a quantitative methodology, surveys require students to understand and apply measurement, statistical sampling, and descriptive and inferential statistical analysis to maximize the value of the survey results. In the proposed course (POSC 413), students will develop and execute a comprehensive survey of UDel undergraduates. As an upper-level undergraduate course, students in the course will have already completed at least one quantitative analysis course (e.g., POSC 300), or must gain instructor approval to enroll in the class. Activities will include student preparation of a viable questionnaire, taking a simple random sample (SRS) of the undergraduates, a comprehensive statistical analysis (e.g., crosstabs, statistical testing, and regression) on the data, the preparation of topical reports, and presentations aimed at demonstrating their ability to make statistical inferences from the data and research they've designed. Through these activities, and complementary course lectures, students will learn both the applied and operational aspects of quantitative literacy and reasoning.

The students will be responsible for selecting the method (e.g., web, paper and pencil, mixed method) of data collection for the survey. Students will learn the strengths and limitations of each approach, developing an understanding of how different data collection methods can influence both the costs (e.g., time and data quality) of data collection, as well as the statistical issues associated with the method.

This project, as well as the associated consent statement and invitation for participation, have already been reviewed and received conditional approval from the Office of the Vice Provost for Research (OVPR). Final approval is "conditional upon a review of the questionnaire." Mary Jane Wilkins in OVPR is the point of contact for this agreement. Since the students will be charged with identifying the topics (e.g., politics, local, social, and/or campus issues) and questions for the survey, there is no

questionnaire to approve at this time; however the intention is for students to use pre-existing survey questions from major studies (e.g., the American National Election Survey (ANES) and the General Social Survey (GSS)) to help minimize any problems with human subjects. To summarize, students in the course are fully responsible for the development of the topic and the questionnaire, the data collection design, and analyses of the data.

a. The American Mathematical Association denotes quantitative literacy as the ability to interpret mathematical formulas, graphics, and tables, and to draw inferences from them. The primary challenge for student learning of quantitative reasoning is not mathematics per se, rather it is the application of numbers to relevant settings. Thus, this project will impact student learning by providing them with an opportunity to integrate the aforementioned quantitative literacy standards through a problem based and experiential learning activity, and through various statistical analysis assignments and technical writings.

I will act as the “principal overseer” for the project and will ensure the validity of the results and assist the class in understanding the role of sampling, survey error, and statistical inference. This will take place through lectures, homework exercises, lab time, and practical application with the collected data.

b. This project will complement my current teaching activities by providing an applied means by which I can share a fundamental component of social science research. My pedagogical philosophy is focused on engaging students through topics and activities that are relevant to their everyday lives. I attempt to draw on student interests, and incorporate technology to help students develop practical skills, and make use of tools (e.g., PRS “clickers”, statistical software) currently at their disposal. These proposed activities will also enhance the intellectual diversity of the POSCIR department by providing a means through which other faculty can collaborate on student research activities.

c. The project will impact the department, college, and university by providing students with a practical field research experience, thereby possibly attracting more interest and majors in academic fields that utilize surveys, such as Institutional Research, Business/Marketing, Communications, Sociology, and Psychology. The course itself provides an alternate means of acquiring quantitative literacy by providing an applied methodological course that is currently not offered on campus. Additionally, the project will help fulfill educational goals related to problem based learning, developing critical thinking, integrating technology, and quantitative reasoning.

d. Depending on students’ interests, the project will utilize the expertise of different faculty and staff across campus by having them appear as guest “consultants” to the project. To house the data and equipment meant exclusively for the project, departmental space currently filled by graduate students could be utilized. Due to limited technology resources in our department, I have requested additional equipment for the project so that undergraduates in the course will not have to compete with other students for use of departmental computers and printers. I will utilize existing licenses for statistical applications and other necessary software. I also have received full departmental support for survey incentives, as well as any postage, printing, and copying costs. Thus, the POSCIR department has made a firm commitment to providing resources that will help make this course and project successful.

2. Implementation (2 page limit)

- a. *What is your timeline for development of the project (between July 1, 2007 and June 30, 2008)?*

Address each question separately in preparing your project description.

- b. *What stumbling blocks do you anticipate which may hinder the success of the project?*

Address each question separately in preparing your project description.

- c. *How will the project be sustained by your department / college upon completion?*

Address each question separately in preparing your project description.

a. All operational aspects of the research project will be designed in 07J, and follow up planning will take place in 07F and 08W. Operational planning will include both communicating with the many points of contact at the university (e.g., the Research Data Management Services (RDMS) and the Center for Applied Demography and Survey Research (CADSR)) and purchasing the necessary equipment and supplies. After 07J, all that will remain is follow-up communication with project related contacts, and the research activity itself. I have already notified the RDMS and the Office of Institutional Research (OIR) of the project, and they have informed me of what would make for the most efficient implementation during the 08S semester.

While my goal is to have the course and project fully developed during the summer, I anticipate that the demands of such a project are greater than usual. Normal course development involves identifying texts and reading materials, developing a syllabus, assignments, evaluation criteria, and preparing lecture notes. However, this course will also entail developing the operational and practical requirements for a full blown research project, as well as developing learning materials to supplement the project activities. Development will involve planning: identifying and purchasing appropriate technology (including software), preparing the outlines for questionnaire development, sample project materials to provide guidelines for students, questionnaire, developing promotional materials for students to use to increase response (e.g., prenotification letters, emails, and post-cards), preparing skeleton documents and collaborating with other entities at the University who will play a role in the course (e.g., CADSR and RDMS). I will also collect different cost estimates from outside sources that may be used in the development and dissemination of the surveys. This would be necessary if students decide to conduct mail surveys. I also believe that the best incentive for students' achievement on the project is to have them present their findings to important audiences. Therefore, I will also coordinate in advance times and schedules with University leadership (e.g., the Offices of the Deans, Provosts, and President), as well as private sector organization (e.g., Gallup) to set up presentations and if possible, receptions. These developmental activities are all in addition to the normal lecture course.

b. I anticipate that the main stumbling blocks that may hinder the project will be low response rates and participation due to short timelines and student [respondent] apathy. Lower response rates are expected; however, there is learning that goes along with such aspects of surveys that will be useful in students understanding the limitations of their statistical results. Similarly,

apathy will affect survey response. Yet, even when response rates are low, we are able to assess the differences between respondents and non-respondents in order to capture the extent of bias. What's more, we (the class) intend to implement any number of strategies – determined by the class – that have been shown to increase participation (e.g., incentives, pre-notification, student, advertising).

Student engagement will also greatly affect the success of the project. I expect that as students take ownership of the project, and the experience itself will outweigh their “amount of work” perceptions.

If stumbling blocks occur along the way, I will help to facilitate the completion of the project through group discussions. Students will be required to log “what went well”, “what went wrong”, and “how it could be improved” in daily journals. These journals will allow students to reflect on their experiences both during the project, and at its completion.

c. It is my intention as a member of the POSCIR department to make this project a key component of our program. Several faculty in the department are committed to acting as co-principal investigators if they teach the course in the future, or alternatively, simply desire to work with students to assess different political topics on the minds of UDel undergraduates. In addition, as the survey project matures, we hope that other departments and University organizations (e.g., Office of Institutional research, Student Services, etc.) will support the project by proposing topics and attending final presentations.

In the future, the course will be offered on a regular basis, and class-members will complete a different project each year with the hope that the results become an annual “expectation” (i.e., they expect to see them) on campus. The course and its proposed activities are designed to 1) build applied quantitative research skills; making undergraduates more attractive to graduate schools and employers, 2) provide a forum for students to demonstrate their quantitative literacy, writing, and presentation skills, and 3) enhance the marketability of the POSCIR program and the UDel in general. Based on conversations with the Chair of POSCIR, we are in agreement that this course will serve as a natural capstone offering in the immediate future. Thus, there is a strong foundation for the course's future sustainability.

3. Assessment (2 page limit)

An assessment guide is available at www.udel.edu/cte/eval.htm.

- a. *Describe how you will evaluate the students' learning. What assessment means will you use to evaluate student achievement of project goals (e.g. assignments, student work, portfolios, types of exams)?*

Address each question separately in preparing your project description.

- b. *How you will determine the effectiveness of the project?*

Address each question separately in preparing your project description.

John Dewey wrote in 1916 that “only by wrestling with the conditions of the problem first hand, seeking, and finding his own way out, does [the student] think” (p. 188). Accordingly, the objective of the proposed activity is to develop and enhance student engagement with numbers by providing a means through which they can make quantitative information relevant and interesting, and then communicate their knowledge with others. Thus, students must understand the foundations of the scientific method as well as the benefits and limitations of statistical analysis, while simultaneously putting them into practice. As the course instructor and a methodologist, I understand that this is no easy task. My personal goal for their learning is practical and can be framed as a question: “can students take a challenging subject, become intimately connected to it, and make it enjoyable and engaging?” This question is the framework for my rubric.

a. Student learning will be assessed through multiple approaches. First, students will be required to do self-assessments by way of a daily log. They will keep a daily journal/log where they enter their time spent on the project, take a brief individual survey, and answer a series of questions (quantitative literacy questions) that will be presented to them each week. Keeping track of time spent will help students gauge their own level of commitment, and even if they “fudge” the number[s], they will still think about how much time they are putting into the project. They will also answer five questions – interest, self-confidence, comfort, commitment, and overall satisfaction (each on a 5-point scale) – designed to assess their engagement in the project. The quantitative literacy questions will focus on the how the week’s topics are related to overall goal of the project (i.e., making appropriate inferences from data). For example, during the week of statistical sampling students will have to discuss the validity (i.e., trustworthiness) of their sample (for the project), as well as the possible issues during the analysis phase that could result from their sampling approach. I will collect the log each week and use it to assess individual student engagement and learning. This will allow for formative assessment of each individual student.

An additional approach to assessing learning is through pre-post test design. Here, students will take a pre-test that assesses their knowledge of data collection, survey methodology, and statistical analysis. Then at the end of the semester, students will take the same test as a “post-test.” The goal will be to observe increased knowledge of the survey process as well as an awareness of the different challenges to conducting a research project in public opinion. This will allow for a summative assessment of individual learning.

To assess the entire class's learning I will utilize formal observations of class' performance and class discussions (learning probes). Students are expected to participate in class discussions, complete their journals and assignments, and participate in the course project, working collectively to ensure the project's success. Thus, I will judge the class' performance based on these core expectations using a "did not meet", "met", or "exceeded" expectations metric.

b. Whether or not the students successfully complete the project will be the chief indicator of the project's effectiveness. Student presentations will allow for feedback from the audience. The audiences will include campus experts (e.g., OIR, and Office of Education Assessment) as well as topical experts (e.g., faculty from POSCIR, and Gallup). I intend to use audience feedback to help assess the extent to which the class is able to communicate their quantitative findings. PRS clickers will be used in presentation settings to provide feedback on different survey questions evaluating the project and student performance. Students will also self-evaluate the project's effectiveness using the PRS clickers. I will develop the exact questions used for audience assessment during the course planning period.

Reference

Dewey, John (1916) *Democracy and Education*. NY: Macmillan.

Funds Requested - typically awards have not exceeded \$20,000 (2 page limit)

Address each aspect separately in preparing your project budget.

Address the following aspects in preparing your project budget.

- a.** *Indicate total amount requested for this project, breakdown of the total cost, basis for the cost(s) estimate, and how costs (i.e., sustaining the course, maintaining new equipment) will be covered once project funds are expended. A detailed budget plan will be required for the final proposal stage.*
- b.** *Indicate department / college contributions in actual funds and in-kind funds.*

a and b. I am requesting a total of \$12,725 from the instructional grant, and will use \$4,010 of funding from the POSCIR department, for a total project budget of \$16,735. The equipment cost estimates in the budget are based on prices quoted from suppliers (e.g., STAPLES).

Personnel. I have budgeted summer salary for the principal investigator, and additional funds for graduate student assistance (through an S-contract). The graduate students will be hired on a part-time basis to assist in the development of the course and activities of the project (e.g., technical writing, analysis, survey methods, and the development of course materials).

Equipment and Supplies. The POSCIR department does not currently have any additional equipment to support this course's activities. The proposed project is unique in that it requires equipment for data collection (i.e., Clickers, receivers, and laptops), and for analyses and presentations. Based on student feedback, and my own experience using the existing labs on campus, I am skeptical that this project can be successfully operated and sustained without independent equipment, as well as, a common access point for data analysis and storage.

The equipment used for the project will primarily serve three functions. First, the laptops and printers (printer cartridges funded by the department) will provide a source of common access to the questionnaires, data, and other electronic materials, as well as backup hardware (e.g., the external hard drive) to help store the project related materials. Second, the PRS interwrite clickers (and receivers) will serve as a data collection means for student and audience evaluations, as well as survey data collection tools (the owner of GTCO Calcomp (Eric Timmons) has agreed to provide discounted receivers (\$75 each) and clickers can be purchased for \$35 each). The clickers will remain property of the "project" through the POSCIR department. Third, the LCD projector will allow students to schedule and present (including practicing) their research to audiences without having to go through other university channels, or being responsible for university equipment while off campus (I am also willing to purchase a "used" projector (or other equipment) so long as it comes with a warranty). The LCD project would also remain property of the project and would be housed by the department. Each project within the class will have a "project" manager who will be responsible for scheduling the projector and other equipment. Each of the line items in the equipment budget helps to make this an independent student project where those involved have the materials and equipment they need to do their work best. Again, all supplies, including replacement paper for printers, and software will remain with the department for future iterations of the project.

Supplies and Other Costs. I will utilize my own departmental funding to pay for any supplies and other project related costs not included under personnel and equipment.

Funds Requested - typically awards have not exceeded \$20,000 (2 page limit)

Address each aspect separately in preparing your project budget.

ITEM	AMOUNT REQUESTED	DEPT/COLLEGE actual and in-kind funds	EXPLANATION/JUSTIFICATION David Wilson July 11, 2007
TOTAL of Budget Items	\$12,725	\$4,010	
Faculty summer S-contract	\$4,000 David Wilson summer salary		<i>Summer Supplemental Faculty includes 8% fringe.</i> <i>½ Fall Supplemental Faculty, includes 8% fringe.</i>
Graduate stipend	0		
Graduate stipend fringe 4%	0		
Graduate student non-contract (no fringe), or undergraduate student misc wage (no fringe)	\$1,500	\$1,500	\$15/hour 25 hrs/week
Consultant non-UD S-contract	0		
Consultant non-UD S-contract fringe 8%	0		
Equipment (itemize/detail)	\$3,000 \$800 \$100 \$1,200 \$1,750 \$375	\$250	Laptop (2 @ \$1,500 each) Printers (2 @ \$400 each) External hard drive (1 @ \$100) LCD projector (1 @ \$1,200) Printer cartridges (2 @ \$125 each) Clickers (50 @ \$35 each) PRS receivers (5 @ \$75)
Software (itemize/detail)	0	\$500	Statistical software (2 licenses)
Supplies & Books (itemize/detail)	0	\$60	Printer paper (2 boxes @ \$30 each, 5K sheets per box)
Conferences & Travel (itemize/detail)			
Other (itemize/detail)	0	\$700 \$500	Printing and copies Postage charges (mailing letters / documents)

		\$500	Survey incentives (student determined)
Sustainability costs	0		Costs to be covered to sustain course and maintain equipment and software once grant funds are expended.
Pending support from other source(s)	0		
Prior grant(s) (2000-2006)	0		