New Course Request

Check Appropriate Boxes:  Undergraduate credit [X]  Graduate credit [ ]  Professional credit [ ]

1. School/Division  Public & Environmental Affairs  2. Academic Subject Code  SPEA

1. Course Number  V 212  (must be cleared with University Enrollment Services)  4. Instructor  Varies

5. Course Title  Statistics for Public and Environmental Affairs

Recommended Abbreviation (Optional)  Statistics for SPEA

(Limited to 32 Characters including spaces)

6. First time this course is to be offered (Semester/Year):  Fall 2007

7. Credit Hours: Fixed at 3, or Variable from _______ to _______

8. Is this course to be graded S-F (only)? Yes [ ] No [X]

9. Is variable title approval being requested? Yes [ ] No [X]

10. Course description (not to exceed 50 words) for Bulletin publication: The objectives of this course are to impart the concepts and tools of statistical analysis to students who may pursue additional coursework or careers in the public, private, or non-profit sectors in arenas as diverse as governmental affairs, environmental management, and health management. Course assumes students have limited familiarity of statistics.

11. Lecture Contact Hours: Fixed at 3, or Variable from _______ to _______

12. Non-Lecture Contact Hours: Fixed at _______ or Variable from _______ to _______

13. Estimated enrollment:  63 of which 0% percent are expected to be graduate students.

14. Frequency of scheduling: every semester

15. Will this course be required for majors?  Yes [ ] No [X]


17. Are the necessary reading materials currently available in the appropriate library?  Yes [X]

18. Please append a complete outline of the proposed course, and indicate instructor (if known), textbooks, and other materials.

19. If this course overlaps with existing courses, please explain with which courses it overlaps and whether this overlap is necessary, desirable, or unimportant. See attached statement.

A copy of every new course proposal must be submitted to departments, schools, or divisions in which there may be overlap of the new course with existing courses or areas of strong concern, with instructions that they send comments directly to the originating Curriculum Committee. Please append a list of departments, schools, or divisions thus consulted.

Submitted by:  
[Signature]  Date 3/1/07

Department Chairman/Division Director  

Dean of Graduate School (when required)  Date

Approved by:  
[Signature]  Date 3/1/07

Dean  

Chancellor/Vice-President  Date

University Enrollment Services  Date

After School/Division approval, forward the last copy (without attachments) to University Enrollment Services for initial processing, and the remaining four copies and attachments to the Campus Chancellor or Vice-President.
New Course Request
SPEA-V 212
Statistics for Public and Environmental Affairs

Justification for New Course: This course focuses on applications in public affairs, public health, and environmental science — SPEA’s core areas — whereas the current statistics course taken by most SPEA undergraduates, K300, does not prescribe particular applications from public affairs/public health/environmental science to illustrate statistical concepts. Unlike the current K300, this course contains inferential statistics as well as material on experimental protocols. Finally, all BSPA and BSPATH students are currently required to complete a statistics course in the Gen Ed and most complete K300. However, it is not clear that this course will be preserved in the new Gen Ed. SPEA wishes to ensure that its BSPA and BSPATH students complete a required statistics course, notwithstanding the status of K300 in the Gen Ed.
Statistics for Public and Environmental Affairs
SPEA-V 212

Class Time: TBD
Professor: TBD
E-mail: TBD
Phone: TBD
TA: TBD
TA Availability: TBD

Classroom: TBD
Office: TBD
Office Hrs: TBD
Mailbox: TBD
Secretary: TBD
TA's E-mail: TBD

Course Description
The objectives of this course are to impart the concepts and tools of statistical analysis to students who may pursue additional coursework or careers in the public, private, or non-profit sectors in arenas as diverse as governmental affairs, environmental management, and health management. The course assumes that students have limited familiarity with the subject of statistics. There are no prerequisites, though a basic course in quantitative reasoning that examines, for example, measurement and plotting and graphing data, reporting of data trends, et cetera would serve as useful preparation. V2XX Statistics in Public and Environmental Affairs probes more deeply into measurement issues, including tests of measurement validity and reliability, descriptive statistics, probability, inferential statistics, and the basics of multivariate regression. Experimental design issues are also considered. Expected learning outcomes include being able to interpret data quality and validity, recognizing interpretative strengths and weaknesses of different descriptive statistics, understanding how to construct and perform hypothesis tests and to design experimental protocols, and set up, test, and interpret relationships among dependent and independent variables.

Required Text
Devore, J. and Peck, R. Statistics: The Exploration and Analysis of Data fourth edition (Duxbury Press) with CD-Rom, Infotrac, and Internet Companion. For the course sections dealing with multiple regression and experimental design, we will use free software found at: http://www.geocities.com/SiliconValley/Network/1032/

OnCourse
Oncourse will be used throughout the course and should be checked on a regular basis for announcements and assignments. All homework assignments will be posted to Oncourse on the date assigned in the syllabus; they will not be distributed in class or by e-mail. If you are unable to access oncourse for any reason, please notify me immediately.

Assignments/ Grading
Course grades will be assigned based upon the following distribution:

<table>
<thead>
<tr>
<th>Assignment</th>
<th>Percent of Final Grade</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homework (weekly)</td>
<td>30%</td>
</tr>
<tr>
<td>Exam 1</td>
<td>20%</td>
</tr>
<tr>
<td>Exam 2</td>
<td>20%</td>
</tr>
<tr>
<td>Exam 3</td>
<td>20%</td>
</tr>
<tr>
<td>Participation/ Attendance</td>
<td>10%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>100%</td>
</tr>
</tbody>
</table>
Participation and Attendance
Because of the importance of active in-class discussion and participation, 10 percent of your final grade is based on your attendance and participation in class. More than 2 unexcused absences WILL result in a reduction of your participation grade.

Policy on Incompletes
There will be no incomplete grades except under extraordinary circumstances with the appropriate documentation, in accordance with the IU Academic Handbook.

Academic Dishonesty
Academic misconduct will be treated according to current IU regulations in the Code of Student Rights, Responsibilities and Conduct (See Academic Misconduct: http://www.dsa.indiana.edu/Code/Part_3all.html and Jurisdiction Concerning Misconduct, http://www.dsa.indiana.edu/Code/Part_4all.html. Each student should understand his or her rights and responsibilities under the Code.

For example, under the Code of Student Rights, Responsibilities and Conduct, a student must give credit to the work of another person when he/she does any of the following:
   a. Quotes another person’s actual words, either oral or written;
   b. Paraphrases another person’s words, either oral or written;
   c. Uses another person’s idea, opinion, or theory, or
   d. Borrows facts, statistics, or other illustrative material, unless the information is common knowledge.

This also entails that you MAY NOT copy homework from another student, either in whole or in part, for this course.
## Course Schedule

<table>
<thead>
<tr>
<th>Topic</th>
<th>Week</th>
<th>Section</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Introduction</td>
<td>1</td>
<td>Ch. 1</td>
<td>Types of data, sampling, simple random samples, surveys and observational studies, simple comparative experiments</td>
</tr>
<tr>
<td>Study Design</td>
<td>1-2</td>
<td>Ch. 2</td>
<td>Frequency distributions, bar charts, pie charts; Histograms, dot plots, stem plots</td>
</tr>
<tr>
<td>Graphical Descriptive Statistics</td>
<td>3-4</td>
<td>Ch. 3</td>
<td>Mean, median, standard deviation, variance, range, inter-quartile range, box plots, standardized scores</td>
</tr>
<tr>
<td>Numerical Descriptive Statistics</td>
<td>4-5</td>
<td>Ch. 4</td>
<td>Definition of probability as relative frequency, basic properties of probability, estimating probabilities empirically.</td>
</tr>
<tr>
<td>EXAM I</td>
<td></td>
<td>Ch. 1-4</td>
<td>Definition of random variable, using probability distributions of random variables as models, the normal distribution</td>
</tr>
<tr>
<td>Probability</td>
<td>6-7</td>
<td>Ch. 6</td>
<td>Sampling distribution of mean and population proportion, central limit theorem</td>
</tr>
<tr>
<td>Random Variables and Probability Distributions</td>
<td>8-9</td>
<td>Ch. 7</td>
<td>Point estimation, confidence intervals for the population mean and population proportion</td>
</tr>
<tr>
<td>EXAM II</td>
<td></td>
<td>Ch. 6-8</td>
<td>Test procedures, errors, and large sample test for population mean and population proportion</td>
</tr>
<tr>
<td>Confidence Intervals</td>
<td>11</td>
<td>Ch. 9</td>
<td>Scatter plots, Pearson correlation coefficient, linear regression</td>
</tr>
<tr>
<td>Hypothesis Testing</td>
<td>12</td>
<td>Ch. 10 (parts 10.1-10.4)</td>
<td>Use free software at: <a href="http://www.geocities.com/SiliconValley/Network/1032/">http://www.geocities.com/SiliconValley/Network/1032/</a></td>
</tr>
<tr>
<td>Bivariate Data Analysis</td>
<td>13</td>
<td>Ch. 5</td>
<td>Use free software at: <a href="http://www.geocities.com/SiliconValley/Network/1032/">http://www.geocities.com/SiliconValley/Network/1032/</a></td>
</tr>
<tr>
<td>Multivariate Regression</td>
<td>14</td>
<td>Ch. 5</td>
<td>Use free software at: <a href="http://www.geocities.com/SiliconValley/Network/1032/">http://www.geocities.com/SiliconValley/Network/1032/</a></td>
</tr>
<tr>
<td>Experimental Design</td>
<td>15</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EXAM III</td>
<td></td>
<td>Ch.5 &amp; 9-10 &amp; geocities software</td>
<td></td>
</tr>
</tbody>
</table>