Course Title:
Quantitative Methods in Geographical Research

Course Number:
GEOG 5113-223

Course Description:
Statistics is pervasive in our everyday lives whether we recognize it as such or not. Market reports, opinion polls, political analysis, environmental and economic reports all use (and misuse) statistics and statistical data. Professionally, statistics is very widely used in research and is almost indispensable for summarizing, characterizing, revealing, and understanding hidden patterns and relationships in data. Therefore, understanding basic statistical concepts is important, even necessary, in helping you make sense of your world. This course will help you develop or improve your statistical literacy by emphasizing concepts and critical thinking over computation. Emphasis will be placed on the logic of the scientific method and how to analyze data to identify patterns and draw valid conclusions.

Class Dates, Location and Hours:

Dates: November 27 - December 2, 2012
Hours: Tue-Fri 6:00-9:30 p.m.; Sat-Sun 8:30 a.m.-4:30 p.m.
Last day to enroll or drop without penalty: October 29, 2012

Site Director:
Taylor Chavis. Assistant: Sarah O’Rourke. Patton Barracks, Bldg. 106, Room 109, Heidelberg, Germany. Phone: 373-7919 or CIV 06221-17-7919; Fax: 06221-16-9382; E-mail: apheidelberg@ou.edu.

Professor Contact Information:
Course Professor: Kirsten de Beurs, Ph.D.
Mailing Address: 100 East Boyd Street, Sarkeys Energy Center, room 566
Telephone Number: (405) 325-9129
Fax Number: (405) 325-6090
E-mail Address: kdebeurs@ou.edu
Professor availability: The professor will be available via e-mail to students before and after the class sessions. On-site office hours are half an hour before and after each class session, by appointment.

Textbook(s) and Instructional Materials:
Student materials are available at the Follett/AP Bookstore located in the Oklahoma Memorial Union, 900 Asp Ave., Norman, OK. Orders can be placed online at www.oklahomaunion.bkstr.com or by telephone at 866-369-9713 (toll free in the U.S.) or 405-325-5960 (outside the U.S.). E-mail orders may be sent to oklahomaunion@bkstr.com. Representatives are available from 8 a.m. to 6 p.m. CST Monday through Thursday and 8 a.m. to 5 p.m. CST on Friday. Summer hours: 8 a.m. to 4 p.m. CST. Faxed orders may be placed 24 hours a day to 866-223-5607 (toll free in the U.S.) or 405-325-7140 (outside the U.S.).

2. Materials posted on the OU Desire to Learn (D2L) system: Access D2L at http://learn.ou.edu; enter your OU NetID (4+4) and password, and select course to access material. Please contact your local Site Director if you require assistance.

Note: The Follett/AP Bookstore is the Advanced Programs contractual textbook provider. Should text changes become necessary after publication of the course syllabus, Advanced Programs will facilitate text returns/refunds only for texts purchased through the Follett/AP Bookstore.

**Course Objectives:**

The objective of this course is to gain an understanding of statistical principles and their uses. We will learn how to collect data, summarize data, examine data for patterns and relationships, and analyze data so we can draw conclusions. We will also learn to interpret and judge statistical information, including information embedded in computer output.

**Course Outline:**

I. Understanding Data and the Research Process (1-2)
   - a. Types of Statistical Studies
   - b. Sampling
   - c. Data Types and Measurements
   - d. Dealing with errors

II. Describing Data (3-5)
   - a. Frequency Tables
   - b. Picturing Distributions
   - c. Shapes of Distributions
   - d. Measures of Variation
   - e. Normality and the Central Limit Theorem

III. Understanding Probability and Relationships (6-7)
   - a. Probability
   - b. Variables, Relationships, Measurement, Reliability and Validity
   - c. Correlation and Causation

IV. Statistical Inference (8-9)
   - a. Sampling Distributions
   - b. Estimating population means and proportions
   - c. Hypothesis Testing

V. Practical Use of Statistics
   - a. t-tests, Two way Tables and ANOVA
   - b. Hypothesis testing with two-way Tables

**Assignments, Grading and Due Dates:**

The course format is lecture and group discussion.

1. The first pre-class assignment is to read the article on the course D2L website titled “Armed Conflict, 1946 - 2010” which was published in the Journal of Peace Research. Visit the web links that are mentioned at the end of the manuscript. I will provide a reworked copy of this dataset on D2L. We will investigate this dataset in class. Make a one-page summary of this article focusing on a description of the dataset and be prepared to hand it in the first night of class. This will be worth 15% of your course grade.

2. The second pre-class assignment is to download and install the free statistical program R: http://www.r-project.org/. There are many free resources available to learn how to work with R. I suggest you look around for a manual that works for you. For example, Amazon sells a tutorial called: “R Tutorial and Exercise Solution”, written by Chi Yau. It costs less than 5 dollars. There is
also an R instructor available on iTunes for $2.99. For this assignment you need to input the data from table 1 of the “Armed Conflict” article into R. Bring a printscreen of your input to class on the first night. This will be worth 10% of your course grade.

3. Participation: thoughtful participation throughout the course will help solidify your learning, as well as adding to the educational environment. This will be worth 20% of your course grade.

4. A final examination will be given in class on the last day. This will be based on material covered during the class discussions and may also require elaboration or extension of these materials and ideas. This will be worth 40% of your course grade.

5. Completion of the post-class assignment will be worth 15% of your course grade.

Post-seminar assignment

Find a second article that studies the UCDP/PRIO conflict database. Summarize the second article and compare the use of the conflict database in both articles. This description should be about 1-2 pages long. Attach a PDF copy of the second study, or provide an appropriate link. You should also verify at least one statistical statement made in each paper. For example, the “Armed Conflict” paper on D2L starts as follows: “In 2010, 30 armed conflicts were active in 25 locations. This constitutes a significant drop from the 36 conflicts recoded in 2009”. Determine if this drop is indeed significant. Due Date: December 23, 2012

Grading:

This is a letter-graded course: A, B, C, D, or F.

NOTICE: Failure to meet assignment due dates could result in a grade of I (Incomplete) and may adversely impact Tuition Assistance and/or Financial Aid.
POLICIES AND NOTICES
Attendance/Grade Policy

Attendance and participation in interaction, individual assignments, group exercises, simulations, role playing, etc. are valuable aspects of any course because much of the learning comes from discussions in class with other students. It is expected that you attend all classes and be on time except for excused emergencies.

Excused absences are given for professor mandated activities or legally required activities such as emergencies or military assignments. Unavoidable personal emergencies, including (but not limited to) serious illness; delays in getting to class because of accidents, etc.; deaths and funerals, and hazardous road conditions will be excused.

If you are obtaining financial assistance (TA, STAP, FA, VA, Scholarship, etc.) to pay all or part of your tuition cost, you must follow your funding agency/institution’s policy regarding “I” (Incomplete) grades unless the timeline is longer than what the University policy allows then you must adhere to the University policy.

Students who receive Financial Aid must resolve/complete any “I” (Incomplete) grades by the end of the term or he/she may be placed on “financial aid probation.” If the “I” grade is not resolved/completed by the end of the following term, the student’s Financial Aid may be suspended make the student ineligible for further Financial Aid.

Students are responsible for meeting the guidelines of Tuition Assistance and Veterans Assistance. See the education counselor at your local education center for a complete description of your TA or VA requirements.

Academic Honesty

Honesty is a fundamental precept in all academic activities and … [you] have a special obligation to observe the highest standards of honesty. Academic misconduct in any form is inimical to the purposes and functions of the University and is therefore unacceptable and is rigorously proscribed. Academic misconduct includes:

- cheating (using unauthorized materials, information, or study aids in any academic exercise), plagiarism, falsification of records, unauthorized possession of examinations, intimidation, and any and all other actions that may improperly affect the evaluation of a student’s academic performance or achievement;
- assisting others in any such act; or attempting to engage in such acts.

All acts of academic misconduct will be reported and adjudicated as prescribed by the student code of the University of Oklahoma. All students should review the “Student’s Guide to Academic Integrity” found at http://www.ou.edu/provost/integrity

Accommodation Statement

The College of Continuing Education [Advanced Programs] is committed to making its activities as accessible as possible. For accommodations on the basis of disability, please contact your OU Site Director.

Course Policies

Advanced Programs policy is to order books in paperback if available. Courses, dates, and professors are subject to change. Please check with your OU Site Director. Students should retain a copy of any assignments that are mailed to the professor for the course. Advanced Programs does not provide duplicating services or office supplies.

Copyright

Any and all course materials, syllabus, lessons, lectures, etc. are the property of professor teaching the course and the Board of Regents of the University of Oklahoma and are protected under applicable copyright.

For more information about Advanced Programs, visit our website at: http://www.goou.ou.edu/
INSTRUCTOR VITA

Kirsten de Beurs, PhD

Education

- 1996 Wageningen Agricultural Univ. (the Netherlands), Agricultural System Science, B.Sc.
- 2000 Wageningen Agricultural Univ. (the Netherlands), Agricultural System Science, MSc.
- 2005 University of Nebraska – Lincoln, Natural Resources, PhD.
- 2006 South Dakota State University, Remote Sensing.
- 2006-07 University of Wisconsin – Madison, Forest Ecology and Management

Current Positions

- 2010 – present: Assistant Professor, Department of Geography and Environmental Sustainability, University of Oklahoma

Major Areas of Teaching and Research Interest

- Remote Sensing
- Phenology
- Land Cover and Land Use Change.

Representative Publications and Presentations (out of 30)


Major Professional Affiliations

- American Geophysical Union
- US Regional Association of the International Association for Landscape Ecology