The University of Oklahoma
College of Continuing Education
Advanced Programs – Course Syllabus

Course Title:
Quantitative Methods in Geographical Research

Course Number:
GEOG 5113-221

Course Description:
Statistics is pervasive in our everyday lives whether we recognize it as such or not. Market reports, opinion polls, political analysis, and 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: December 1–6, 2015
Location: Geilenkirchen NATO Base, Germany. Education Center.
Hours: Tuesday - Friday 6:00-9:30 pm; Saturday and Sunday 8:30 a.m.-4:30 p.m.
Last day to enroll or drop without penalty: November 2, 2015

Site Director:
Valerie Peterson Borro. Phone 02451-63-2208; DSN 458-6098; email apgeilenkirchen@ou.edu

Professor Contact Information:
Course Professor: Bruce Hoagland, Ph.D.
Mailing Address: Department of Geography
University of Oklahoma
Norman, OK 73019
Telephone Number: (405) 325-1985
Fax Number: (405) 325-7702
E-mail Address: bhoagland@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 OU Follett Bookstore located at 1185 Asp Avenue; Norman, OK, and can be ordered online, by phone, by email, or by fax. Ordering online at http://www.bksir.com/oklahomastore/home is strongly recommended – students can track the status of their order within 48 hours. If an order has not been shipped within three days, students can contact the Follett textbook manager by phone (405) 325-3511, (800) 522-0772 (toll-free) or email 0831mgr@fheg.follett.com. Phone orders (ask for the textbook manager and identify yourself as an Advanced Programs student) can be placed 8 a.m. to 6 p.m. Monday through Thursday; 8 a.m. to 5 p.m. on Friday; 10 a.m. to 4 p.m. on Saturday (CST). Summer hours: 9 a.m. to 5 p.m. Monday through Friday (CST). Fax orders can be placed 24 hours a day at (405) 325-7770. Text prices are available online.


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 application. We will learn how to collect data, summarize data, examine data for patterns and relationships, and analyze data so we can draw meaningful conclusions. We will also learn how to interpret and judge statistical information, including information embedded in computer output, information reported in the popular press or information contained in published research. As much as possible, we will use Microsoft Excel for the statistical analyses, as it is a common tool used in business, government, and other organizations. Hopefully, students will have laptops with Excel (via MS Office), but if not, we will either use a computer lab (if available) or work in teams. This course will be taught assuming no prior experience in statistics or use of Excel’s statistical tools. Given the fast pace of this one-week course, it will be to your benefit to learn the basics of Excel and read the first two chapters in the textbook before the first class.

**Course Outline:**

I. Understanding Data and the Research Process
   a. Types of Statistical Studies
   b. Sampling
   c. Data Types and Measurements

II. Describing Data
   a. Picturing Distributions
   b. Shapes of Distributions
   c. Measures of Variation
   d. Normality and the Central Limit Theorem

III. Understanding Relationships
   a. Variables, Relationships, Measurement, Reliability, and Validity
   b. Correlation and Causation

IV. Statistical Inference
   a. From Samples to Populations
   b. Hypothesis Testing

V. Other topics, including practical uses of statistics, may be covered if time permits.

**Assignments, Grading, and Due Dates:**

The course format consists of traditional lectures and group discussion. Grading will consist of the following components.

1. Short assignments will earn 25% of your grade. This includes the pre-seminar due the first day of class assignments (see below), as well as additional in-class assignments. These assignments usually will be extensions or modifications of discussion questions dealt with in class or raised by the readings. Students will form hypotheses and develop and analyze appropriate statistical methodology.

2. Participation: thoughtful participation throughout the course will help solidify your learning, as well as adding to the educational environment: 10% of your course grade.

3. 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 grade.
4. Completion of the post-seminar assignments (see below) will be worth 25% of your total grade.

Pre-Seminar Assignments:

The first pre-seminar assignment is to complete the introduction and first unit of the ActivStats CD-ROM. When loading the ActivStats CD for the first time, make sure you create a new student file. I will ask for a copy of this file later as proof you completed the assignments, so make sure you know where it is stored, back it up (e.g., copy it to a thumb drive regularly or email it to yourself), and open this same file for subsequent uses of Activstats. When creating your student file, make sure to select “Excel” for Step 1 and “Bennett, Briggs, Triola; 3rd ed” for Step 2. Once the student file is created, do the tutorial to learn all the features of ActivStats and how to use them. There is also an Excel tutorial and add-ins that you should install. As you complete each activity, a checkmark will appear. A printout showing the answers from the end-of-unit test will suffice as proof that this was accomplished. This assignment is due on the first day of class. Beyond this assignment, I recommend that you complete as much of the CD-ROM as you can before class. Due date: December 1, 2015

The second pre-seminar assignment is to bring to class an article from the popular literature (e.g., newspaper, magazine, Internet) that uses statistics. Write up a brief description (two pages) of the use of statistics in the article. Explain what the article means, and evaluate their results. This includes thinking about the following questions: Do the authors do a good job of explaining what is involved? Do the conclusions follow from the information given? Do you consider this a good use or a bad use of statistics? What additional information would you like to have? Be prepared to discuss the article and its use of statistics on the first night of class. Due date: December 1, 2015

Post-Seminar Assignments:

The first post-class assignment is to complete all of the assigned activities from the ActivStats CD. Email me your student file showing checkmarks for all the assigned activities. In addition, there will be selected questions from the homework section of the CD that you will have to answer. You will be assigned these during class. Due date: December 20, 2015

The second post-seminar assignment will be assigned during class. Due Date: December 28, 2015

Grading:

This is a letter-graded course: A, B, C, D, or F, where A ≥90%, B is 80-89%, C is 70-79%, D is 60-69%, and F <60%.

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. It is the policy of the University to excuse absences of students that result from religious observances and to provide without penalty for the rescheduling of examinations and additional required class work that may fall on religious holidays. 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 Integrity and Student Conduct

Academic integrity means honesty and responsibility in scholarship. Academic assignments exist to help students learn; grades exist to show how fully this goal is attained. Therefore all work and all grades should result from the student's own understanding and effort.

Academic misconduct is any act which improperly affects the evaluation of a student’s academic performance or achievement. Misconduct occurs when the student either knows or reasonably should know that the act constitutes misconduct. Academic misconduct includes: cheating and using unauthorized materials on examinations and other assignments; improper collaboration, submitting the same assignment for different classes (self-plagiarism); fabrication, forgery, alteration of documents, lying, etc...in order to obtain an academic advantage; assisting others in academic misconduct; attempting to commit academic misconduct; destruction of property, hacking, etc...; intimidation and interference with integrity process; and plagiarism. All students should review the Student’s Guide to Academic Integrity at [http://integrity.ou.edu/students_guide.html](http://integrity.ou.edu/students_guide.html)

Students and faculty each have responsibility for maintaining an appropriate learning environment. All students should review policies regarding student conduct at [http://studentconduct.ou.edu/](http://studentconduct.ou.edu/)

Accommodation Statement

The University of Oklahoma is committed to making its activities as accessible as possible. For accommodations on the basis of disability, please contact your local 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.

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/](http://www.goou.ou.edu/)
INSTRUCTOR VITA
Bruce W. Hoagland, Ph.D.

Education
- 1995 Ph.D., Botany; University of Oklahoma; Norman
- 1990 M.S., Ecology; Eastern Kentucky University; Richmond
- 1986 B.A., Biology; University of Louisville; Louisville, Kentucky.

Current Positions
- Professor of Geography
- Coordinator, Oklahoma Natural Heritage Inventory
- Adjunct Professor of Botany

Frequently Taught Advanced Programs Courses
- GEOG 5113-220 Quantitative Methods in Geographical Research
- GEOG 6240-221 Seminar in Resource and Environmental Geography: Biogeography and Conservation

Major Areas of Teaching and Research Interest
- Research: geography and conservation of vascular plants. Current research projects include use of 19th century land surveys to analyze land cover change, inventories of Oklahoma vascular plants, and phenology of trees in the Talamanca Mountains, Costa Rica.
- Teaching: Courses include Biogeography, Vegetation Ecology, and Geography of Oklahoma, and graduate seminars in vegetation analysis.

Representative Sample Publications and Presentations

Major Professional Affiliations
- Association of American Geographers
- Botanical Society of America