

**Course Title:**

Quantitative Methods in Geographical Research

**Course Number:**

GEOG 5113-220

**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: September 12-17, 2017

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: August 14, 2017

**Site Director:**

Email: [apeilenkirchen@ou.edu](mailto:apeilenkirchen@ou.edu). Phone: 02451-63-2208; DSN 458-6098.

**Professor Contact Information:**

Course Professor: Kirsten de Beurs, Ph.D.

Mailing Address: 100 East Boyd Street  
Sarkeys Energy Center  
Norman, OK 73019

Telephone Number: (405) 325-9129

E-mail Address: [kdebeurs@ou.edu](mailto: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 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.bkstr.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@fhcg.follett.com](mailto:0831mgr@fhcg.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.

1. Bennett, J.O., Briggs, W., & Triola, M.F. (2017). *Statistical reasoning for everyday life* (5<sup>th</sup> ed.). Boston: Addison-Wesley. ISBN 9780134494043 (Text prices are available online.)
2. Materials posted on the OU Canvas learning management system: Access Canvas at <https://canvas.ou.edu>, enter your OU NetID and password, and select course to access material. If you require assistance with Canvas, please click on the Help icon. You can search the Canvas guides, chat with Canvas support, or contact OU IT.

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 (10)
  - 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 canvas 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 canvas. 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 opensource edition of RStudio, which is the package we will use to work with the free statistical program R: <https://www.rstudio.com/>. 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: “Introductory R: A Beginner’s Guide to Data Visualisation, Statistical Analysis and Programming in R”, written by Robert Knell. 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-seminar 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 canvas 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: October 8, 2017**

### **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. 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 making 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/>

### **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.

### **Adjustment for Pregnancy/Childbirth-Related Issues**

Should you need modifications or adjustments to your course requirements because of documented pregnancy-related or childbirth-related issues, please contact me as soon as possible to discuss. Generally, modifications will be made where medically necessary and similar in scope to accommodations based on temporary disability. Please see <http://www.ou.edu/content/eoo/faqs/pregnancy-faqs.html>.

## **Title IX Resources**

For any concerns regarding gender-based discrimination, sexual harassment, sexual misconduct, stalking, or intimate partner violence, the University offers a variety of resources, including advocates on-call 24/7, counseling services, mutual no-contact orders, scheduling adjustments, and disciplinary sanctions against the perpetrator. Please contact the Sexual Misconduct Office at [smo@ou.edu](mailto:smo@ou.edu) or (405) 325-2215 (8-5), or the Sexual Assault Response Team at (405) 615 -0013 (24/7) to report an incident. To learn more about Title IX, please visit the Institutional Equity Office's website at <http://www.ou.edu/content/eoo.html>

## **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/>

## **INSTRUCTOR VITA**

### **Kirsten de Beurs, PhD**

#### **Education**

- BSc, 1996 Wageningen Agricultural University, Agricultural System Science
- MSc, 2000 Wageningen Agricultural University, Agricultural System Science
- PhD, 2005 University of Nebraska – Lincoln, Natural Resources
- PDF, 2006 South Dakota State University, GIScCE
- PDF, 2006-07 University of Wisconsin-Madison, Forest Ecology and Management

#### **Current Positions**

- Department of Geography and Environmental Sustainability, OU
  - Assistant Professor, 2010 – 2013
  - Associate Professor, 2013 – current
  - Chair, 2015 – current

#### **Major Areas of Teaching and Research Interest**

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

#### **Google Scholar Page:**

[https://scholar.google.com/citations?user=gOx\\_69YAAAAJ&hl=en&oi=ao](https://scholar.google.com/citations?user=gOx_69YAAAAJ&hl=en&oi=ao)