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

Course Title:
Introduction to Spatial Thinking and Computer Mapping

Course Number:
GIS 5013-220

Course Description:
Main goal of this course is to provide the students with the knowledge and techniques that allows them to be conscious map makers and map readers. By learning how maps are constructed, they will be able to understand and critically analyze the context of and intentions behind thematic maps. This course, comprising lectures, group discussions, hands-on exercises, and a group project, will provide the students with the required theoretical and application background to visualize spatial data and understand how maps work. A large part of the course will consist of exercises during which the students will work on the development of spatial reference and thematic maps. This will deepen their understanding of principles of map design and will provide them with basic computer mapping skills, making use of ESRI’s ArcMap for Desktop (a tool to view, edit, create and analyze spatial data). Application examples, exercises, and case studies will focus on current topics in international relations. The course will close with a group project during which the students will identify a current topic in international relations and, making use of the mapping skills they developed, create a map that demonstrates their knowledge of map design, spatial visualization techniques, and critical thinking.

Class Dates, Location and Hours:

Dates: December 1-6, 2015
Location: Wiesbaden, Germany. See Site Director for classroom site.
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:
Megan McReynolds. Assistant: Wade Jackson. Phone: 0611-143-548-1309; DSN 548-1309; E-mail: apwiesbaden@ou.edu

Professor Contact Information:

Course Professor: Dr. Jennifer Koch
Mailing Address: 100 E. Boyd St
Sarkeys Energy Center, Suite 510
Norman, OK 73019
Telephone Number: (405) -325-0928
Fax Number: (405) -325-6090
E-mail Address: jakoch@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
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.


2. Course lectures and materials for assignments and exercises will be posted on the OU Desire to Learn (D2L) system: Access D2L at [http://learn.ou.edu](http://learn.ou.edu); enter your OU NetID and password, and select course to access material. Please contact your local Site Director if you require assistance.

Note: Follett 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 Follett.

**Course Objectives:**
The goals of this course are for the students to:

- understand the power of maps,
- learn how to create and interpret different types of maps,
- learn how meaning is derived from maps and how maps are imbued with meaning,
- adopt a critical/conscious approach to map reading and interpretation;
- apply the basic principles of map design and visualization of spatial data,
- demonstrate knowledge of spatial data management,
- practice the development of different map types with ArcMap,
- analyze how meaning is derived from maps,
- use maps as tools to evaluate spatial information in the field of international relations,
- communicate their newly developed skills in form of a project report.

**Course Outline (subject to modifications):**

<table>
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<tr>
<th>Topic</th>
<th>Learning Outcome</th>
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<th>C</th>
<th>Ap</th>
<th>An</th>
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<tbody>
<tr>
<td>The Idea of the Map</td>
<td>1.1 Learn about the history of maps</td>
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<td>1.2 Recognize the importance of map elements for conveying information</td>
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<td>1.3 Understand the different map types</td>
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<td>Statistical Foundation</td>
<td>2.1 Learn about different statistical techniques</td>
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<td></td>
<td>2.2 Understand and practice how statistical techniques can be used to create thematic maps</td>
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<td>Data Classification</td>
<td>3.1 Learn about classed and unclassed maps</td>
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<td>3.2 Understand how different data classification methods work</td>
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<td>3.3 Apply data classification methods to create thematic maps</td>
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<td>Scale and Generalization</td>
<td>4.1 Understand the exact meaning of geographic scale, cartographic scale, and data resolution</td>
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<td>4.2 Learn about and apply fundamental generalization methods</td>
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<td>Topic</td>
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<td>Coordinate Systems &amp; Map Projections</td>
<td>5.1 Learn about the shape and size of the Earth</td>
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<td>and about its coordinate system</td>
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<td>5.2 Understand the fundamental elements of map projections</td>
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<td>5.3 Learn about and apply guidelines for the selection of a map projection</td>
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<td>Principles of Map Design</td>
<td>6.1 Learn about the map components and design principles</td>
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<td></td>
<td>6.2 Apply map design principles to effectively communicate spatial information</td>
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<td>Mapping Techniques</td>
<td>7.1 Learn about choropleth, dasymetric, isarithmic, proportional symbol, and dot mapping</td>
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<td></td>
<td>7.2 Use spatial data to create choropleth, dasymetric, isarithmic, proportional symbol, and dot maps</td>
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<td>Map Interpretation</td>
<td>8.1 Train your map interpretation skills for different provided case studies</td>
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<td>Group Project</td>
<td>9.1 Identify an interesting case study from the field of international relations</td>
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<td>9.2 Communicate effectively in a group setting</td>
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### Assignments, Grading, and Due Dates:

**Exam:**

An exam will be given on the last day of class, December 6, 2015

A paper copy of the graded final exam will be sent by mail to the students (self-addressed, stamped envelope).

**Group Project Report due December 15, 2015**

During the last day of class, students will be assigned groups for the group project and work on the development of the idea and topic for their group project by communicating with the instructor. The students will have a period of 9 days after the course to complete and submit the group project and the corresponding report. Submission and grading of the group project report as well as the instructors feedback on the report will be facilitated via Desire 2 Learn, https://learn.ou.edu/index.asp. Detailed instructions on word length, format, and criteria used to evaluate the group project report, will be made available on D2L in the week before class starts.

**Grading:**

This is a letter-graded course: A, B, C, D, or F. The final grade will be calculated based on the following weights:

<table>
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<th>Assignment</th>
<th>Due Date</th>
<th>Percent of Grade</th>
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<tbody>
<tr>
<td>Participation</td>
<td>During class sessions</td>
<td>10%</td>
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<tr>
<td>Exam</td>
<td>December 6, 2015</td>
<td>60%</td>
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<tr>
<td>Group Project</td>
<td><strong>December 15, 2015</strong></td>
<td>30%</td>
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</table>
The final letter grading for the course will be as follows: A: >= 90%, B: 89% - 80%, C: 79% - 70%, D: 69% -60%, F: <= 59%. The instructor will round all averages to two significant figures (69.5 will round to 70 and 69.4 will round to 69) to determine the student’s letter grade in the course (70 = C, 69 = D).

There is no curve in this course. The instructor reserves the right to make linear adjustments to exam grades in cases were an exam question was found to be in error or unreasonably difficult.

Each exam and project is graded on a scale of 50 points. Late submissions are not accepted; no credits will be given for late submissions, unless granted prior permissions.

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

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.

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
Jennifer Anna Maria Koch, Ph.D.

Education

- 2010  Ph.D., Ing., Environmental Systems Engineering, Kassel University
- 2005  Diploma, Geocology, University of Bayreuth, Majors: Ecological Modeling, Agricultural Ecology, Minors: Hydrogeology, Object Oriented Programming

Current Positions

Assistant Professor, Department of Geography and Environmental Sustainability, The University of Oklahoma

Frequently Taught Advanced Programs Courses

GIS 5013  Introduction to Spatial Thinking and Computer Mapping

Major Areas of Teaching and Research Interest

Areas of Teaching:
- Spatial Thinking
- Computer Mapping
- Geographic Information Systems
- Spatial Programming
- Python Programming

Research Interest:
- Land Systems Science
- Modeling and Simulation
- Alternative Futures
- Scenario Development
- Spatio-Temporal Analysis
- Land-Use Change
- Coupled Human-Natural Systems

Representative Publications and Presentations


Major Professional Affiliations

- AAG – Association of American Geographers
- AGU – American Geophysical Union
- iEMSs – The International Environmental Modelling and Software Society
- US-IALE – US Regional Association of the International Association for Landscape Ecology