GEOG 5201 – SP 2016 Computer Cartography and Geographical Visualization

Meeting Time & Place
Class meetings: Tu/Th 12:45PM – 2:05PM

Room: Derby Hall 0140

Lab room computer access: **G5201** (user name), **Geog-5201SP16** (password)

Instructor
Yongha Park, Ph.D. ABD

Contact: park.1439@osu.edu | 0135 Derby Hall, 154 N Oval Mall

Office hours: Wednesdays 1-3 PM or by appointment

Course Description
This course explores issues surrounding computer based mapping and geovisualization with an emphasis on the theoretical concepts of cartography. Students will learn general guidelines for thematic mapping with respect to geographic data representation, symbolization, and map design, with lab exercises implementing the practices in a computer-based environment. Furthermore, the knowledge and techniques will be manipulated for data exploration to capture meaningful patterns in data given by the course. A background of basic ArcGIS skill is required. The pedagogical goal of this class is to provide hands-on experiences on: 1) applying a variety of skills in computer-based thematic mapping and data exploration with practical data, and 2) assessing (your own and others') maps with respect to the cartography principles provided throughout this class.

Textbook
Required:
Slocum, T. A., McMaster, R. B., Kessler, F. C., and Howard, H. H. (2009) *Thematic Cartography and Geovisualization,* 3rd edition, Pearson Prentice Hall, Upper Saddle River, NJ.

Optional:
Gorr, W. L., and Kurland, K. S. (2013) *GIS Tutorial Basic Workbook 1*, 13th edition, ESRI Press.

O'Sullivan, D., and Unwin, D. (2010) *Geographic Information Analysis*, 2nd edition, John Wiley & Sons, NJ.

Lectures (Tuesdays 12:45PM – 2:05PM) / Labs (Thursdays 12:45PM – 2:05PM)

The most up to date schedule will always be posted on Carmen. Any significant changes to the schedule will be announced well in advance.

Class materials including lecture notes and lab instructions will be posted on Carmen with the heading Lectures and Labs respectively.

Students are expected to do lab assignments in the lab room (Derby 0140) during lab session or whenever the room is available. In the case of using personal computers for lab exercises, students themselves are responsible for obtaining the license of ArcGIS and solving any occurring technical issues.

Evaluation

The following layers will be used to determine the final grade of each student.

> 40% Lab assignments
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> 40% Group & individual projects
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> 20% Final exam

Lab Assignments (40%)

By default, weekly lab assignments will be given corresponding to topics covered in class, except for the weeks of exams and presentations. Unless otherwise specified, generally labs are due at the beginning of the next lab session.

Projects (40%)

Students will be required to conduct group and individual projects respectively.

1. **Group project: Evaluation of a published map (5-minute presentation in class, 20%)**

Each group consists of 2 people and search in any material such as books, articles, and online sites, in order to find a (creative or interesting or problematic) map which your group will discuss in class. Any form of the map you choose will be acceptable but must be transformed into an electronic form (JPEG, PDF…) for a presentation in class. The 5-minute presentation can include 1) **the motivation on your choice** and 2) **evaluation about the map** including used data, map design, and spatial patterns you found, in addition to the basic introduction for the map**. A day earlier than your presentation day, a PPT file must be uploaded on Carmen**.

2. **Individual project: Mapping for data exploration (20%)**

Each student will submit an individual project to collect/analyze spatial data for your research topic. A short final report is required within maximum 10 pages, which includes introduction, data specification, and your findings. In the report, it is necessary to **include 1) map(s) that present your results, and 2) an evaluation section that assesses your map(s)' overall design, under the careful consideration for the cartographic principles you have learned through this class**.

Final Exam (20%)

We will have a final exam. The exam will require short answers (about 5 - 10 sentences per a question) for maximum 10 questions during the class time. **You must write answers by your own words. Do not copy-and-paste any existing resources including Lecture notes.**

Submission

You must upload on Carmen all of the materials including Lab assignments and group/individual project in the form of **WORD or PDF** only acceptable. PPT file will be additionally accepted for the group project.

Schedules (Tentative)

Week	Date	Lecture	Reading	Lab
1	1/12-14	Course introduction	Ch 1	Introduction to thematic mapping
2	1/19-21	Guest lecture	Ch 5	Map symbolization
3	1/26-28	Basic principles of data analysis & Data classification	Ch 3,4	Lab 1
4	2/2-4	Map projections	Ch 7, 8	Lab 2
5	2/9-11	Map elements and cartographic designs	Ch 11, 12	Lab 3
6	2/16-18	Choropleth mapping	Ch 5, 10, 14	Lab 4
7	2/23-25	Dasymetric and Isarithmic mapping	Ch 14, 15	Lab 5
8	3/1-3	Proportional symbol and dot mapping	Ch 17	Group project preparation
9	3/8-10	**Group project presentations (Tu / Th)**		
10	3/15-17	**Spring break (No class)**		
11	3/22-24	Multivariate mapping	Ch 18	Lab 6
12	3/29-31	**AAG conference (No class)**		
13	4/5-7	Cartograms and flow maps	Ch 19	Lab 7
15	4/12-14	Geographic data exploration	Ch 3, 22	Lab 8
16	4/19-21	**Preparation for final exam and individual project**		
17	4/26-28	**Final exam (4/26, Tuesday, 12:45PM – 2:05PM)** **Final report of individual project (4/28, Thursday, 1:00PM)**		

Important Policies/Issues

Late papers

We will not accept any make-ups for in-class exercises or quizzes. For lab assignments, group, and individual projects, NO late submissions will be accepted after. Exceptions may be granted in cases such as serious illness or family emergency, if requests were made prior to the beginning of class.

Collaboration

It is necessary (and healthy) for students to seek help from others when they get stuck. However, each student must write the papers (lab and final reports) without assistance. The best way to help a fellow student is to explain the approach, but not to simply hand out the answer. If you complete your work using search tools such as google.com, you should acknowledge the source and write up the answer in your own words.

Policy on Plagiarism and Academic Misconduct

In the Code of Student Conduct, academic misconduct is defined as "any activity that tends to compromise the academic integrity of the university, or subvert the educational process"; plagiarism is defined as "the representation of another's work or ideas as one's own; it includes the unacknowledged word-for-word use and/or paraphrasing of another person's work, and/or the inappropriate unacknowledged use of another person's ideas." Plagiarism is wrong and should be prohibited. The University has a policy on academic misconduct and plagiarism, as provided in the Code of Student Conduct. To further understand this, it is worthwhile to read the Eight Cardinal Rules of Academic Integrity at http://www.northwestern.edu/uacc/8cards.html and guidelines to avoid plagiarism at http://www.northwestern.edu/uacc/plagiar.html.

Students with Disabilities

Students with disabilities that have been certified by the Office for Disability Services will be appropriately accommodated, and should inform the instructor as soon as possible of their needs. The Office for Disability Services is located in 150 Pomerene Hall, 1760 Neil Avenue; telephone 292-3307, TDD 292-0901; http://www.ods.ohio-state.edu/.