Geography 167: Cartography   (Summer 2014, Session A)
Instructor: Nick Burkhart
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Course Description: This course introduces the methods, techniques and considerations behind geographic data visualization and Web-based mapping. The first part of the course covers the basic concepts and techniques involved in Web content creation and development. The second part of the course focuses on data science and the cartographic process, and in particular, considerations surrounding data literacy and interpretation, data visualization strategies, and Web based mapping technologies. The third part of the course concentrates on visualization design and Web mapping frameworks. Practical applications are provided throughout the course.

This course was developed by your instructor, Nick Burkhart, and Professor Michael Shin. Throughout the course, you will see content presented by both Nick and Professor Shin.

Learning Objectives: Upon completion of this course, students should be able to accomplish the following:
• Understand the structure, requirements and logic behind interactive geographic data visualizations and Web-based maps;
• Apply best practices with regard to cartographic and data visualization design;
• Write and debug code for Web-based mapping and data visualization applications;
• Create Web pages and Web-based data visualizations with HTML, JavaScript, the Google Visualizations API, and the Google Maps API;
• Actively participate and engage in an online learning environment.

Course Delivery Method: This is an online course, wherein all course content is delivered online and all interaction among the instructors and the participants will take place online. However, because collaboration among course participants adds richness and value to the course, the course is not self-paced. We will follow the tentative schedule provided at the end of this document.

The course is divided in to ten content units, each of which contains (1) video lectures and screencasts, (2) external resources related to the unit, (3) at least one assignment, (4) a thematic forum, and (5) a unit quiz. At the beginning of every unit, you will review the posted content and submit the assignment(s) in advance of the posted deadlines. After completing the assignment(s), you will take a unit quiz. You must pass each unit quiz with a score of 70% or higher to proceed in the course. You may take unit quizzes as many times as you would like to earn the score you desire. Completion of a unit quiz unlocks access to the next unit’s content.

There is no formal text for this course; rather, course content will take a variety of forms and formats such as PDF readings, online content, screencasts and online videos. You are encouraged to take advantage of these and other resources that you have access to in order
to get the most out of this course. This may mean watching a video more than once or finding an alternative resource. Please share any and all resources that you find valuable with others on the course forum to enrich the learning of others as well.

The online course format requires a significant amount of independent work and time management by the student. You will be given the structure, resources, and guidance for learning the course content, but it is ultimately your responsibility to complete assignments on time, to learn new methods when necessary, and to seek out and share information as needed to complete the course successfully.

Owing to the compressed timeframe of summer courses, students are encouraged to stay informed about the course by checking e-mails and announcements on the course Web site several times per day while the class is in session, and daily engagement with the course forum is encouraged and in some cases expected. While the course is in session, the instructor will regularly post short check-in messages outlining course activities and addressing common student concerns. Additional readings, forum discussions, and assignments will be posted online. Deadlines and due dates will be clearly posted with all assignments. All assignments must be turned in by their posted deadlines. Exceptions will be granted only under the most pressing of circumstances and must be discussed with the instructor in advance of the deadline.

All work and discussions are asynchronous, meaning that students are not required to be online at a specific time with the instructor or other students. Instead, students may post comments and questions on the course forums. Students may interact in real-time with other students via the course’s persistent chat session, or with the instructor during office hours or by appointment.

The instructor's office hours are conducted both in-person and online. During posted office hours, and in additional sessions arranged by appointment, the instructor will be available in person and online via Skype. Skype allows for text-based chatting, audio and video communication, screen sharing, and file transfer.

**Technical Requirements:** Because this online course will largely require that students use their own computer to complete coursework, the course is largely platform neutral. In other words, you are free to use your own computer/laptop with the operating system of your choice (e.g. Apple, Windows, Linux). The only technical requirements for this course are:

- A simple text editor (different from word processing software) like Notepad++ for Windows, TextWrangler for Macs, emacs for *nix users, or vi for super-nerds;
- At least two standards-compliant Web browsers to test and compare your work. Google Chrome, Firefox, and Safari are excellent, and Internet Explorer versions 8 and below should be avoided;
- Desktop GIS software like the free and open source QGIS (formerly Quantum GIS) package or ArcGIS if you have a valid license;
- A fast and reliable connection to the Internet.

Though there are many tools available to create Web sites, we will take a coding-based
approach that will require you to write the source code for your Web pages. This will enable you to create Web pages for and on any platform, and will increase your understanding of the mechanics of online maps and mapping, and the Internet at large.

**E-mail and communication protocol:** To ensure that questions are answered in a timely manner and to the benefit of all students, the following e-mail and communication protocols for the course have been established:

- Post questions related to the syllabus, course requirements, course organization, weekly assignments, and course content to the 'Discussion Forum' on the course homepage so everyone can benefit;
- Direct technical questions about access to the course Web site and Blackboard Collaborate to the Social Sciences Computing help desk;
- The subject line of all e-mails directed to Nick must begin as follows: [GEOG 167]
- All other questions, including questions about grading, should be directed via e-mail to Nick.

The Discussion Forum will be monitored continually on weekdays during the session and instructor responses, when necessary, will be posted no later than the same evening for questions posted by 5:00pm PDT on weekdays.

**Evaluation Procedures:**

**Syllabus Quiz (5%)**: Under the Unit 0 section on the course Web site, there is a brief quiz to ensure that students understand course requirements and expectations. This quiz will count as 5% of your final grade. During the first week of class, you can take it as many times as needed to get the score you want.

**Forum Participation (10%)**: A total of 10% of your final grade will be based upon your participation in thematic fora. You will complete one thematic forum post per unit during the session, and every forum post will be due at 11:55pm on the same day that the unit’s last assignment is due.

The general discussion forum appears on the main course Web site and serves as a repository of knowledge and a general point of contact for the course. Use the general forum to arrange working groups, share ideas and resources, and start discussions. Participation on the general discussion forum is highly encouraged, but is not graded.

The ‘thematic’ fora will be linked directly to, for instance, a reading or resource, and will serve as an online discussion about that topic in particular. The thematic fora will appear under a unit section, will have a posting deadline, and a minimum posting of no less than 200 words. Forum postings are required to be written in complete sentences with correct spelling and grammar. Civil debates and discussion are encouraged and expected in all fora. Any inflammatory or derogatory postings will not be tolerated, and all postings will be moderated for proper “netiquette”. Any attacks, flaming, or inappropriate commentary or postings will be removed and result in no credit for this segment of the course.
Unit quizzes (10%): Each unit will conclude with a short quiz that will test your content knowledge and expertise. These unit quizzes may be taken as many times as you would like to earn the score that you would like to earn, in advance of the unit’s final assignment deadline. A score of 70% or higher on every unit quiz is required to unlock access to the next unit’s content.

Assignments (50%): Every unit will contain at least one exercise/assignment that reinforces the content from the unit. For every assignment, unless otherwise specified, you will create an HTML-based Web page, upload all necessary files to a Dropbox (or other similar) cloud storage account, and then submit a link to the file using the course Web site (i.e. Moodle) in advance of the specified deadline. Assignments will be evaluated on the basis of completeness, quality, demonstration of subject and/or technique mastery, creativity, and uniqueness.

Final project (25%): You will create a Web-based mapping project that exemplifies what you learned over the course of the summer session. You must provide a functioning URL and Web site, in addition to a 3 to 5 minute screencast that discusses your project. Your project will be evaluated on its overall presentation, style, purpose, complexity, creativity, design, quality, and legibility, among other things. All project topics must be approved by the end of Week 4. It is never too early to begin thinking about your final project.

Late Assignments: For each 6 hour period that an assignment is late, beginning immediately after the deadline passes, your score for the assignment will be adjusted downward by 10%. Work that is more than 48 hours late will NOT be graded and will receive a score of zero. Extensions are granted only under the most pressing of circumstances.

Collaboration, Originality, and Plagiarism: Students in GEOG 167 are encouraged to collaborate with one another in reviewing course material and working on assignments. However, every student must turn in an original, unique, and individual creation for every assignment; students working together may not submit the same work. If you collaborate with another student in working on an assignment, you must cite your collaborators by providing their names either within the assignment you submit or alongside the link that you submit to the course Web site.

Please keep in mind that representing the work of another person (whether a fellow student or an outside source) as your own constitutes plagiarism. Plagiarism constitutes academic dishonesty and all instances of plagiarism will result in serious consequences for the offending student. A first offense will result in a score of zero being awarded for the offending assignment, and a second offense will result in more serious consequences to be determined by the instructor, including failure of the course and/or referral to the Dean of Students.
Course Content Outline*

Before class begins - Week 1
  • Unit 0: Preliminaries and Introductions

Week 1
  • Unit 1: Web Fundamentals (HTML and CSS)

Week 2
  • Unit 2: Web Programming (JavaScript)

Week 3
  • Unit 3: Overview of Data Visualization and Cartography
  • Unit 4: Data Distributions

Week 4
  • Unit 5: Data Relations 1: Time
  • Unit 6: Data Relations 2: Scatter Plots, Correlation / Causation

Week 5
  • Unit 7: Spatial Relations: Linked Visualizations
  • Unit 8: Web Mapping Frameworks 1: Google Maps API

Week 6
  • Unit 9: Web Mapping Frameworks 2: Mapping Logic
  • Unit 10: Final Project

*Course content may vary or be adjusted in order to meet the needs of the class. The instructor reserves the right to adjust the schedule or amend the content of this syllabus at any time.