GEOG 103: Our Digital Planet: 
Geospatial Technologies and Society

M/W 1:00 – 1:50
Fall 2012 – Butte 327
Dr. LaDonna Knigge

Course description:

Location-based services including personal navigation, GPS, web-based mapping services, and social networks with real-time location information are commonly part of our everyday lives. These technologies are not only ubiquitous in our personal lives, but they are essential to the functioning of government, industry and non-profit sectors. This course will explore the technologies and societal implications of our digital planet with particular attention to geospatial technologies that provide locational services, imagery, mapping and other capabilities. These technologies, ideally suited to analyze geographic patterns of sociological and environmental data, are rapidly evolving, with introductions of new applications every day.

This course provides an overview of evolving geospatial technologies, explores the impact of developments in geospatial technology on the individual and society, and questions how economics, politics, culture and values affect technological development. Through an examination of issues such as privacy, representation, geo-politics, surveillance, equity and social justice, students will obtain a better understanding of the benefits, challenges, ethics and risks of these technologies and will increase their awareness of their personal and societal implications.

Course format:

This course was designed using NCAT Replacement Model (http://thencat.org/PlanRes/R2R_ModCrsRed.htm). Rather than the typical M/W/F fifty minute class format, we will only physically meet in Butte 327 on Mondays and Wednesdays. The Friday class will be replaced with out-of-class activities such as videos, podcasts, readings with online discussion and other exercises. Mondays may include in-class discussion of replacement activities.

Through readings of both academic and popular literature, videos, internet research, discussions and activities using a variety of readily available technologies, students will investigate what it means to be a citizen of our digital planet. The course will highlight critical thinking skills, active inquiry, personal and social responsibility and creativity. Students will be expected to use a variety of media and methods of inquiry, research and presentation throughout the semester to understand, internalize and synthesize the course materials.

This course is designed to fulfill a requirement in Area D of General Education.

General Education:

Geography 103 is one of the nine courses that students can take to fulfill their General Education Breadth requirements. This course is part of Area D1: Behavioral and Social Sciences: Individual and Society. Underlying all the University’s programs is the conviction that an educated person is one who knows that which is important for all people to know. Courses required for your major may prepare you for your vocation; the General Education program provides you the integrative intellectual experience common to all Chico graduates.
Underlying all the University’s programs is the conviction that an educated person is one who knows that which is important for all people to know. General Education (GE) will help you to see your major’s place in your total education by showing you that knowledge is not isolated, that what you know of one subject is related to what you know of another, that there is always more to know, and that what you know affects the way you live. By suggesting the essential unity and wholeness of knowledge, GE counters the sense of fragmentation you may feel while studying bits and pieces of issues and information through the various colleges, schools, and departments of the University.

You, like many new students, may be uncertain about your choice of a major or career field. Thus, in addition to the primary goal of broadening your awareness and understanding, an early focus on GE may help you become better acquainted with yourself and discover and deepen your interests and abilities in various academic disciplines and programs. If you are undeclared or uncertain about your major, carefully review programs you are considering, taking note of required GE courses and modifications. The Evaluations or Advising and Orientation Offices can help you plan your GE program in such a way that you take full advantage of GE as a powerful career exploration tool. (Source: 2011-2012 University Catalog http://catalog.csuchico.edu/11/GENED.html)

If you are interested in a major in Geography and Planning, please explore our department website at http://www.csuchico.edu/geop/ and come see me or other members of the department faculty for advising.

**Learning objectives and course content:**

#1 Students will articulate how geospatial technologies allow for new ways to study, evaluate, describe and interact with geographic representations and perception of places at multiple scales. [GE SLO 3 Critical Thinking; GE SLO 5 Active Inquiry]

#2 Students will communicate trends in society and the environment that have influenced the development of geospatial technologies by critically evaluating and describing the technology of social networking and globalization. [GE SLO 6 Personal & Social Responsibility; GE SLO 10 Global Engagement]

#3 Students will demonstrate critical thinking in evaluating geospatial technologies as they relate to issues of ethics (including privacy and legal issues, surveillance, cultural difference and appropriateness) and social and environmental justice for under-represented and at-risk populations across the planet. [GE SLO 8 Diversity]

#4 Students will critically evaluate the individual and societal impacts of geospatial technologies on themselves, their communities and the wider society in relation to policies and both re-enforcement or challenges to power structures within society. [GE SLO 6 Personal & Social Responsibility; GE SLO 3 Critical Thinking]

**Course content:**

*Part I: Introduction to Our Digital Planet: Foundations of Geospatial Technologies*

1. Introduction: It’s a Geospatial World Out There: Defining Geospatial Technologies
   a. Historic development
   b. Internet, distributed data and the cloud
   c. Geospatial technologies today (industries, careers, and jobs)
2. Geographic Representation
   a. Spatial perceptions, cartographic representation and conventions
   b. Virtual environments
   c. Critical thinking and critical assessment of map content
3. Basics of Geospatial Technologies
   a. Earth properties: location, coordinate systems, map projections
   b. Global Position System (GPS)
   c. Geographic Information Systems (GIS)
   d. Satellite imagery
   e. Spatial Data Infrastructure (SDI):
   f. Internet-based or web-mapping services and location-based services (LBS)
Part 2: Societal Implications of Geospatial Technologies

4. Environmental applications
   a. Weather, climate, natural disasters
   b. Remotely sensed agricultural data
   c. Hydrography
5. Geo-Political Concerns
   a. Digital planet and the exercise of the State power (hegemonic cartography)
   b. Representation of contested territory
   c. Geospatial intelligence
   d. The surveillent society
   e. Supreme Court GPS ruling
6. Social Implications: Under-represented populations
   a. Bridging the digital divide
   b. Contested spaces and counter-mapping
   c. Participatory GIS
   d. Legal application for land rights claim
   e. Social, environmental and spatial justice
   f. Appropriate technology
7. Societal Implications of Our Digital Planet
   a. The bleeding edge of technology: managing your digital profile – How to avoid getting cut!
   b. Internet (access to digital data) vs. Web (community, exchange, sharing)
   c. Spatial privacy
   d. Geo-social media: turning Facebook© into “Placebook”
   e. Wikis for updating photos, locations, descriptions
   f. Economy of geospatial technologies
8. The Geospatial Web and Web 2.0:
   a. User-Generated Content (UGC)
   b. Mashups
   c. Voluntary Geographic Information (VGI), citizen data collection and citizen sensors
   d. Crowdsourcing
9. Applications and Implications of Our Digital Planet
   a. Population and social welfare
   b. Political and electoral maps
   c. Environmental and public health
   d. Planning and infrastructure
   e. The future of Our Digital Planet

Course Materials

You must have internet access for this course. You will download Google Earth™ and other web-based mapping programs and sources of data throughout the course of the semester. We will be using Blackboard Learn (BbL) Learning Management System. Because of the reduced in-class meetings, it will be important to check BbL frequently.

- Required Text:


NOTE: There are several options for purchasing this book. You will only be required to read and complete activities from Chapters 1, 2, 4 and 13, so I have created a custom version that can be purchased instead of the entire book. If you choose the option to purchase the custom version (Chap 1, 2, 4 & 15), the fee is $35.00 and you must complete the forms as shown below.
Shellito, Bradley A. 2012. *GEOG 103: Our Digital Planet: Geospatial Technologies & Society Basic Concepts* - Custom Version of *Introduction to Geospatial Technologies* eBook. Custom Version #7383091 Student price: $35.00 (Chapters 1, 2, 4, and 15)

To purchase custom version, go to: [http://ebooks.bfwpub.com/shellito1e.php](http://ebooks.bfwpub.com/shellito1e.php)

Select **PURCHASE** this e-Book or register an activation code

On **Purchase Access** screen (below), select a custom version and enter Custom Version # **8621420** and enter zip code **95929-0425**.

You may choose to purchase the hard copy, a used copy (I did find some online when searching), or the full e-Book, but please note that you are only required to read and complete exercises in Chapters 1 –


– Other readings videos, exercises and activities will be made available throughout the semester, either online, in digital or pdf format or other formats, including:


**Course Evaluation and Grading:**

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<thead>
<tr>
<th>entitlement</th>
<th>grade</th>
<th>points</th>
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<tbody>
<tr>
<td>Hands-on Application Exercises, discussion board or activity:</td>
<td>8 at 10 points each</td>
<td>80 points</td>
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<tr>
<td>Lab Applications</td>
<td>5 at 40 points each</td>
<td>200 points</td>
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<td>Midterm Exam</td>
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<td>100 points</td>
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<td>Final Exam</td>
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<td>100 points</td>
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<td>Attendance and Participation</td>
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<td>20 points</td>
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<td>Total points</td>
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*Grading will be based upon the following scale:*

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<th>Percent</th>
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<tbody>
<tr>
<td>95-100</td>
<td>A</td>
<td>74-76</td>
<td>C</td>
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<tr>
<td>90-94</td>
<td>A-</td>
<td>70-73</td>
<td>C-</td>
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<tr>
<td>87-89</td>
<td>B+</td>
<td>67-69</td>
<td>D+</td>
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<tr>
<td>84-86</td>
<td>B</td>
<td>64-66</td>
<td>D</td>
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<tr>
<td>80-83</td>
<td>B-</td>
<td>60-63</td>
<td>D-</td>
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<tr>
<td>77-79</td>
<td>C+</td>
<td>&lt;60</td>
<td>F</td>
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*Classroom Collegiality and Expectations*

We will discuss classroom conduct at the beginning of class and revisit the topic periodically throughout the semester. Please see me if you have issues with classmates’ behavior (side conversations, laptop, cell phone or other technology usage). The classroom should be a safe place where all ideas can be expressed freely and openly, as long as they do not include bigotry, intolerance or hatred. Please listen to me and to other students, and frame your commentaries in the spirit of supportive and constructive criticism. Use non-sexist language when speaking and writing.

If you have a documented disability that may require reasonable accommodations, please contact Accessibility Resource Center formerly known as Disability Support Services (DSS) for coordination of your academic accommodations. The ARC phone number is 898-5959 V/TTY or FAX 898-4411. Visit the ARC website at http://www.csuchico.edu/arc/

**Add/Drop information:** Students are responsible for handling the paperwork for adding or dropping this class. After September 7th you will need special permission of instructor to add or drop classes. After September 21st (Census Date) you will need a compelling reason to add or drop any courses. If the class is full and you wish to add, please see me after class or during office hours.

**Academic Honesty Policy:** Please see policies regarding plagiarism, taking and providing information, misrepresentation and academic integrity contained in Student Judicial Affairs: http://catalog.csuchico.edu/viewer/12/STUDJUDAFFAIRS.html and as contained in the 2012 University Catalog: http://catalog.csuchico.edu/viewer/12/UNIVPOL.html
Links of interest:


Full eText: http://whfreeman.com/Catalog/product/introductiontogeospatialtechnologies-firstedition-shellito

CourseSmart signin: http://instructors.coursesmart.com/bookshelf

Shellito student companion site: http://bcs.whfreeman.com/shellito1e/


World Map: Harvard Site to explore, visualize and publish geographic information: http://worldmap.harvard.edu/

ESRI GIS Glossaries: http://www.esri.com/what-is-gis/overview.html#glossaries_panel


Geocommons: http://geocommons.com/

ArcGIS online: http://www.esri.com/software/arcgis/arcgisonline/


Free Geography Tools Website: http://freegeographytools.com


US Census Bureau: http://www.census.gov/
# Course Schedule

Schedule is subject to change at instructor’s discretion. This is the first time this class has been taught and adjustments may be made to enhance your learning experience.

<table>
<thead>
<tr>
<th>Week</th>
<th>First day of week</th>
<th>Topic and Readings</th>
<th>Assignments/Replacement model activities</th>
</tr>
</thead>
</table>
| 1     | Aug 27            | Geography: Introduction to course  
Geospatial Technologies (GST) defined  
Get access to Shellito textbook custom version # 8621420.  
http://ebooks.bfwpub.com/shellito1e.php  
Readings: Shellito Ch 1: pg. 1-10  
Friday replacement: Video: [http://geospatialrevolution.psu.edu/episode1](http://geospatialrevolution.psu.edu/episode1)  
After watching Episode 1 of the Geospatial Revolution, answer the following questions:  
1. Can you think of a time when you used a geospatial tool to make a decision?  
2. In the words of the video (at approximately 7.10 min), "We are becoming individual sensors". As an individual sensor, how might you contribute to the solution of location-based problems?  
Complete Shellito Hands-on Application 1.1, 1.2, 1.3 and 1.4.  
Hands-on Application 1.1 Explore the industries that are listed on the ESRI website (http://www.esri.com.industries.html) Locate at least three of the industries listed that are connected to a field of interest to you, record the url and write a brief description of your interest and how GIS is used in that industry. Be prepared to turn in a copy and discuss your findings in class on Wednesday.  
Hands-on Application 1.2 Jobs in Geospatial Field. Explore the websites listed on this application and find two or three jobs locally or in areas where you would like to relocate. Type up your findings from the exercise, bring to class and be prepared to discuss on Wed.  
Do Hands-on application 1.3 and 1.4 on your own. Be prepared to discuss in class on Monday. Do not need to write up response. |
| 2     | Sept 3+           | Historic development:  
Readings: GIS History Project  
http://www.ncgia.buffalo.edu/gishist/bar_harbor.html  
Shellito Ch 1: pg 11 – end  
+No class Mon Sept 3 – Labor Day Holiday  
W: Turn in video comments and Hands-on Application 1.1 – 1.2  
Friday replacement: Must have access to Google Earth  
Friday: Complete Shellito 1.1 Geospatial Lab Application - Introduction to Geospatial Concepts and Google Earth – due Mon Sept 10  
Short Video: [http://www.youtube.com/watch?v=fPgV6-gnQaE](http://www.youtube.com/watch?v=fPgV6-gnQaE) |
| 3     | Sept 10           | Role of geography in addressing concerns of changing planet:  
Readings: Craglia et al (2012)  
Excerpts from: Understanding the Changing Planet: Strategic Directions for the Geographical Sciences pg 7-18, 105-112, 115-123.  
Mon: turn in 1.1 Lab  
Complete Hands-on Application 2.1 & 2.2 – submit through BbL assignment portal AND complete Thinking Critically with GST 2.1 and post to Discussion Board on topic  
| 4     | Sept 17           | Basics of Geospatial Technologies: Geographic representation: cartographic representation  
Readings:Shellito Ch 2: 39 – end  
Friday replacement: Shellito Ch 2: Complete Hands-on application 2.3 and 2.4 on your own.  
Complete Lab 2.1 Geospatial Lab Application: Coordinates and Position Measurements; turn in on Monday  
| 5     | Sept 24           | Basics of Geospatial Technologies;  
crowdsourcing, environmental applications, GIS, GPS, Satellite imagery, spatial data infrastructure (SDI), environmental applications  
Readings: Discover: Science, Technology & the Future Visual Science: A Striking Visualization of Hurricane Katrina  
Wed.Guest Speaker: Dr. Dean Fairbanks  
Friday replacement: Read Shellito Chap 4: Finding your location with GPS. Complete lab 4.1: Geospatial Lab Application: GPS Applications. turn in on Monday  
6 Oct 1 Internet, distributed data and the cloud
Societal Implications of Our Digital Planet:
Health GIS
Readings: Klinkenberg (2007)
Lyman (2006)
Crowdsourced crisis mapping: how it works &
why it matters:

Mon: Turn in Lab 4.1
Listen to Podcast “Tubes”
Friday replacement: Study for exam

7 Oct 8 Monday – Midterm
Wed: Geopolitical concerns: Maps and
technologies for exercising power of state and
industry; political and electoral maps

Friday replacement: podcast Fresh Air Interview: John Villasenor -
Drones Over America: What Can They See?: NPR
Privacy issues of hundreds of drones taking aerial photos all over
US: http://www.npr.org/2012/03/12/148293470/drones-over-
america-what-can-they-see?ft=1&f=1001
Readings and discussion board

7 Oct 8 Friday replacement: Articles on spatial law and policy; Supreme
Court rulings and post to discussion board
Video: Geospatial Revolution Episode 3

8 Oct 15 Contested territories, hegemonic cartography and
Surveilant society
Readings: Dillow (2010)
Elwood & Leszczynski (2011)

Friday replacement: Articles on spatial law and policy; Supreme
Court rulings and post to discussion board
Video: Geospatial Revolution Episode 3

9 Oct 22 Under-represented population: bridging the digital
divide, participatory GIS, population and social
welfare
Readings: Elwood (2002)

Friday: Video: Participatory GIS
Post reaction to video on Discussion Board

10 Oct 29 Wed: spatially-enabled social networking, your
digital profile, geo-social media, spatial privacy
Readings: Goodchild: Citizens as sensors (2007)

Friday replacement: Video: Geospatial Revolution Episode 4

11 Nov 5 The Geospatial Web and Web 2.0: User-generated
content (UGC), VGI, Mashups
Readings TBD

Friday replacement: Rumsey Map Collection/Google Earth
mapping assignment

12 Nov 12+ The Geospatial Web and Web 2.0 (Continued)
No class on Nov 12 for Veterans Day Holiday

Friday replacement: Read Elwood, Goodchild & Sui
over break for
discussion on Mon Nov 26.

13 Nov 19 Thanksgiving Break
No Classes all week

14 Nov 26 The economy of geospatial technologies:
Geo-spatial business applications, location-based
services
Video: Geospatial Revolution Part 2

15 Dec 3 What’s next for Geospatial Technologies
Shellito Ch 15: pg 439-447

Exploring the The National Map Viewer exercise

16 Dec 10 Applications and implications of Our Digital
Planet: population social welfare, environment,
planning and infrastructure.
Shellito Ch 15: page 447-458

Friday replacement: Final review

Finals Week
Wed 19 Final exam: 2:00 – 3:50

Schedule is subject to change at instructor’s discretion. This is the first time this class has been taught and
adjustments may be made to enhance your learning experience.

*No class Mon Sept 5 – Labor Day Holiday
*No class Mon Nov 12 – Veteran’s Day observed