Lecture 1: Scope of the class--GIMP and Inkscape fundamentals
### Class Website:
http://www.geog.ucsb.edu/~kclarke/Geography183/Geog183.html

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### Class Schedule

<table>
<thead>
<tr>
<th>When</th>
<th>What</th>
<th>Listen</th>
<th>Read</th>
</tr>
</thead>
<tbody>
<tr>
<td>April 3rd</td>
<td>Lecture 1: Scope of the class—GIMP and Inkscape fundamentals</td>
<td>Video here</td>
<td>Read Manual Entries</td>
</tr>
<tr>
<td>April 5th</td>
<td>Lecture 2: The human visual system: vision, perception, cognition and behavior</td>
<td>Lecture Video here</td>
<td>Lecture Notes</td>
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<tr>
<td>April 10th</td>
<td>Lecture 3: Thematic cartography, geovisualization and visual analytics</td>
<td>Lecture Video here</td>
<td>Lecture Notes</td>
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<tr>
<td>April 12th</td>
<td>Lecture 4: A brief history of information graphics</td>
<td>Lecture Video here</td>
<td>Lecture Notes</td>
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<tr>
<td>April 17th</td>
<td>Lecture 5: Choropleth and bivariate maps and classification</td>
<td>Lecture Video here</td>
<td>Lecture Notes</td>
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<tr>
<td>April 19th</td>
<td>Lecture 6: Map types and Data types</td>
<td>Lecture Video here</td>
<td>Lecture Notes</td>
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<tr>
<td>April 24th</td>
<td>Lecture 7: Color and its use</td>
<td>Lecture Video here</td>
<td>Lecture Notes</td>
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<tr>
<td>April 26th</td>
<td>No Lecture</td>
<td>Catch up</td>
<td></td>
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<tr>
<td>May 1st</td>
<td>Lecture 8: Toponomy, typography and map text</td>
<td>Lecture Audio here</td>
<td>Slocum Chapter 11</td>
</tr>
<tr>
<td>May 3rd</td>
<td>Lecture 9: Principles of map design and layout</td>
<td>Lecture Video here</td>
<td>Slocum Chapter 12</td>
</tr>
<tr>
<td>May 8th</td>
<td>Lecture 10: Production, Reproduction and Dissemination</td>
<td>Lecture Video here</td>
<td>Slocum Chapter 13</td>
</tr>
<tr>
<td>May 10th</td>
<td>Lecture 11: Dasymetric and Sarnthetic mapping</td>
<td>Lecture Video here</td>
<td>Slocum Chapters 15, 16</td>
</tr>
<tr>
<td>May 15th</td>
<td>Lecture 12: Point symbol and flow maps</td>
<td>Lecture Video here</td>
<td>Slocum Chapters 17, 19</td>
</tr>
</tbody>
</table>
Lectures

• Twice a week MW 3:30-4:45 in Ellison 3621
• Lab will meet once a week-Fridays
• No mid-term, but keep up with text because there will be a final, there is one catch-up day
• Assignments will be critiqued and discussed as they come in during lecture
• First part of course is introduction, then will follow Slocum et al.’s course structure
• Interaction during lecture is encouraged, please break up my powerpoints!
• Use Gauchospace for discussion forum and messaging
• I will create and post video of the lectures as we go on the class website
Lab Website: Gauchospace
Labs

• Will meet in the Descartes Lab Ellison 3620
• TA is Mike Johnson
• Office Hours: Fri 1:00-3:00 pm at Ellison Hall 1715 email: mike.johnson@geog.ucsb.edu
• Lab 0 is required but not graded in week one
• That leaves 8 weeks, so we will do 3 assignments plus a project
• Labs 1-3 will count for 15% of grade, project for 35%
• Final Exam will count for 20% of the grade, short answer questions
• Examples are posted on the class website
Slocum et al. 3ed. 2008, but a classic Web content via MyGeoSciencePlace at Pearson
Lectures and Topics Weeks 1-5

• Lecture 1: Scope of the class-- GIMP and Inkscape fundamentals
• Lecture 2: The human vision system: vision, perception, cognition and behavior
• Lecture 3: Thematic cartography, geovisualization and visual analytics
• Lecture 4: A brief history of information graphics
• Lecture 5: Choropleth and bivariate maps and classification
• Lecture 6: Map types and Data types
• Lecture 7: Color and its use
• Lecture 8: Toponymy, typography and map text
• Lecture 9: Principles of map design and layout
• Lecture 10: Production, Reproduction and Dissemination
Lectures and Topics Weeks 6-10

• Lecture 11: Dasymetric and isarithmic mapping
• Lecture 12: Point symbol and flow maps
• Lecture 13: Map animation
• Lecture 14: Visual analytics and data exploration
• Lecture 15: Dealing with uncertainty
• No Lecture (Memorial Day)
• Lecture 16: Web-based cartography
• Lecture 17: Cartography in virtual environments
• Lecture 18: Research in cartography and visualization and class summary
• Final exam
Learning Goals for Geog 183

1. Understand and implement principles of good design in cartography
2. Understand human vision and how it influences perception and cognition
3. Become familiar with using open source tools to improve the visual quality of web-based and other maps
4. Cover the scope of contemporary thematic cartography and web mapping
5. Gain hands-on experience in designing and improving web based maps
6. Master skills that will transfer to a host of other classes and to life beyond UCSB
I expect you to:

• Read the text
• Come to lecture (or watch the videos)
• Attend the labs (esp. important when labs are introduced)
• Submit assignments of time
• Use Gauchospace
• Follow the UCSB Code of Student Conduct
  http://www.sa.ucsb.edu/regulations/students/student-conduct
• Ask questions
• Have fun learning new material
Consider....

- Using web and other software mapping tools, almost any idiot (or bot) can create a map
- It takes knowledge and skill to create a *good* map
- It takes experience, skill, creativity and hard work to create a *great* map
- Fortunately, maps can be sequentially improved
- Good design follows known principles, and uses cartographic methods correctly
- Usually employs user centered design
- Same goes for much of graphic design, information graphics etc.
For example, Census Data Mapper

http://tigerweb.geo.census.gov/datamapper/map.html
Why open source tools?

• Powerful set of tools for mapping
• Price is right!
• Continuous improvements
• Available across platforms and OSs
• Get lots of cool additions and refinements
• Can use them on almost any computer
• Break down into raster and vector for mapping
• Raster – Photoshop – GIMP
• Vector – Illustrator – Inkscape
We will use many other tools as well...

- Will start with ArcGIS (JOIN maps with Census data)
- Adobe Acrobat and PDF as display tools
- Will cover some basics of Leaflet and Java scripting
- For project, you can use any tool you wish
- Files will be bigger, resolutions higher than you may have used in the past
- Goal is to simulate the web and print publishing requirements
- Last assignment before project uses Tableau for interactive web design
GIMP

• GIMP (GNU Image Manipulation Program) is a free and open-source raster graphics editor used for image retouching and editing, free-form drawing, resizing, cropping, photo-montages, converting between different image formats, and more specialized tasks.

• GIMP is released under LGPLv3 and GPLv3+ licenses and is available for Linux, OS X, and Windows.

• Original author(s)  Spencer Kimball, Peter Mattis and the GIMP Development Team, originally a one-semester project at UCB.

• Initial release  January 1996, now 20 years old!

• Most recent Stable release  2.8.20 (2017-02-01)

• Development status: Active, API is a set of callable libraries.

• Written in C, GTK+

• Web site: www.gimp.org
Capabilities

• image retouching and editing
• free-form drawing
• resizing and image density change
• cropping
• photo-montages
• converting between different image formats
• support for layers and transparency
• “magic” lasso and other neat tools
• full interactive online manual
Website
GUI: Canvas and View control
Cartography with Gimp
Toolbars, toolsets and functions
Pullright selection
Inkscape

- free and open source software vector graphics editor
- goal is to implement full support for the Scalable Vector Graphics (SVG) 1.1 standard.
- also supports various other formats for Import/Export
- The word Inkscape is a compound of the words ink and scape
- Inkscape is cross-platform and runs on OS X, Unix-like operating systems, and Microsoft Windows
- Inkscape began in 2003 as a code fork of the Sodipodi project. Sodipodi, developed since 1999, was itself based on Raph Levien's Gill (Gnome Illustration Application)
- The fork was led by a team of four former Sodipodi who focused on implementing the complete SVG standard, whereas Sodipodi development emphasized creating a general-purpose vector graphics editor, possibly at the expense of SVG
- Inkscape's new developers changed it greatly: They rewrote it from C into C++; adopted the GTK+ toolkit C++ bindings (gtkmm); redesigned its user interface, and added a number of new features
- implementation of the SVG standard, although incomplete, has shown gradual improvement
Capabilities

• Native SVG support, raw2 data files can be opened with a web browser
• Import and conversion for many vector formats, e.g. ESRI shape files
• Object creation
• Object manipulation
• Fill and stroke
• Operations on paths
• Text support
• Rendering
• Misc, including export to many formats and conversion to raster
www.inkscape.org
Inkscape cartography
Pullrights, import, group and ungroup objects
Reads SVG and PDF files as native
Da Vinci Octant: Ungrouped
Bottom line

• Use GIS or other mapping software to create map form, layout and to handle data
• Pass result to editing tools to use the design loop
• Use Inkscape and GIMP
• Better maps through:
  • knowledge
  • skill
  • experience
  • creativity
  • esthetics
  • understanding human vision (first lecture)