3 September 2013

Department of Geography and Program in Planning
University of Toronto

COURSE OUTLINE - GGR473 H1F – Cartographic Design
Fall Session, 2013

Lecture: Friday 10-11 am, Room SSH 2125 (Sidney Smith Hall, 100 St. George St.)
Labs: Friday, 11 am- 1 pm, Room SSH 620 (Geography Undergrad GIS lab on Ground Floor)
Instructor: Mr. Byron Moldofsky
Office SSH 617a (basement); Ph 416-978-3378; email: byron@geog.utoronto.ca
Wednesdays only: SSH 5026c (5th floor)
Office hours: Wednesdays, 3-5 pm, SSH 5026c, or by appointment arranged by email.
Prerequisites: both GGR272 and GGR273, or permission of instructor. Exclusion: GGR380 (UTM)

Course Description: The course examines the principles and methods for the design and production of maps using GIS source data. The lecture portion of the course focuses on the context of cartographic design: map perception and map use, principles of cartographic design, different methods of data representation and the graphic choices controlling their effectiveness, and the production and reproduction of maps for various media, including print and online maps. Weekly readings and lab exercises are designed to cover and enlarge on lecture content. The lab exercises use GIS/cartographic software supplemented by graphics software, in a series of practical assignments giving students hands-on experience in importing and generating digital geographic data and designing and creating maps. These are to be undertaken during the 2-hour lab periods.

As a 4th-year course, the course focuses on an 'integrative inquiry-based learning' experience. A major term project will be undertaken, based on independent research and design. The results of your research will be presented in two forms: first as a printed “thematic atlas page,” secondly as a web-based atlas unit. The majority of students’ evaluation will be based on these products.

Course objectives: To give students an opportunity to learn about and explore various aspects of cartographic design and their effect on the understanding and communication of geographic information. The term project allows students to investigate a geographic question, build knowledge around it, and creatively develop and express that knowledge using thematic map design, in two different media.

Evaluation: Term project proposal 10%; Term test 10%; Term project print version 30%; Term project web version: 30%. Participation 20%. (Lab work submissions and contribution in class.) No final exam.

Important: Most of the course work may be done on personal computers, but all printed submissions, and the web version of the term project, must be completed in the Geography Undergrad GIS lab.

Lab work should be submitted during the week’s lab period in Room 620, or Room 617a (my office, the GIS and Cartography Office) next door. Submissions are due on the day and time indicated in the planned schedule below, unless otherwise indicated. “End of day” is 5:00 pm. Late submissions may have an effect on the “Participation” mark, and will not be accepted if more than 1 week late.

Late term project submissions will be penalized 5% of total value per weekday, and may not be accepted if more than 1 week late.
Accommodation for medical or other unavoidable absences will follow the policy of the Faculty of Arts and Science. [http://www.artsandscience.utoronto.ca/ofr/calendar/Rules_&_Regulations.html](http://www.artsandscience.utoronto.ca/ofr/calendar/Rules_&_Regulations.html)

For illness, documentation is required, within 1 week of absence unless otherwise arranged. The U of T medical certificate is available online here: [http://www.healthservice.utoronto.ca/pdfs/medcert.htm](http://www.healthservice.utoronto.ca/pdfs/medcert.htm)

**Required textbook:**

**Recommended online course:**
*ESRI Virtual Campus: Cartographic Design using ArcGIS 9*

**Software Used in Course:** ArcGIS 10.1 and Coreldraw 14.

Note: Students can obtain a **free one-year student license for ArcGIS 10.1** from the Map and Data Library on the 5th floor of Robarts Library. For more information: [http://mdl.library.utoronto.ca/](http://mdl.library.utoronto.ca/)

**Useful supplementary texts:**


The texts above, as well as a number of other readings, are set aside in the GIS and Cartography Office, SSH Room 617a, and may be borrowed for a few hours by leaving a library card. Most are also available at the **Map and Data Library at Robarts Library, 5th Floor**, for use in the library.

**Important journals:**
*Cartographica* - Journal of the Canadian Cartographic Association (CCA)

*Cartography and Geographic Information Science* - Journal of Cartography and Geographic Information Society (CaGIS), a member of the American Congress on Surveying and Mapping (ACSM).

*Cartographic Perspectives* - Journal of the North American Cartographic Information Society (NACIS)

**Course communication:**
The **official means of course communication** will be announcements and handouts in lectures and labs. Course documents and data sets will be available in the Geography course directory to which you will be automatically connected on the computers in the GIS lab SSH620: H:\GGR473

All course documents will also be on the **Blackboard** course website on the University of Toronto Portal ([https://portal.utoronto.ca/](https://portal.utoronto.ca/)).

Log in using your UTORid and password. The course will be listed under the **My Courses** module. Course documents and announcements (but not data sets) will also be posted here. Any other information you need between classes will be sent via Blackboard using **ONLY your utormail** accounts: **student.name@mail.utoronto.ca**. Please check this email regularly to avoid missing important information.

**Direct email to byron@geog.utoronto.ca** may be used as a supplementary means of communication to ask specific questions or arrange appointments. Again, **only your utormail account** may be used.
Time commitment for course:
In addition to 2-3 class hours per week, students should expect an average weekly work load of up to three hours for readings and/or individual lab work (depending on previous experience with GIS, and current lab work/project schedule). As the major component of evaluation, the term project will require a very significant amount of time beyond class hours as well. Please time-manage accordingly.

Topics covered and planned schedule for lectures and labs, by week number:

1. **Sept 13.** Overview of course; Cartographic Design: What, why and how?
   
   **Readings:**
   - Slocum et al: *Chapter 1 Thematic Cartography and Geovisualization*
   - *Chapter 2 A historical perspective on thematic cartography (part)*
   
   
   **Lab Week 1:** Assign Term project proposal, Download base data for lab term work.
   
   **Online course:** Introduction to ESRI Virtual Campus: Cartographic Design using ArcGIS 9

2. **Sept 20.** The substructure of thematic mapping: Base mapping - projection, scale and generalization
   
   **Readings:**
   - Slocum et al: *Chapter 4 Data Classification*  
   - *Chapter 6 Scale and Generalization*
   
   Supplementary: Roth, Brewer, Stryker. "A typology of operators for maintaining legible map designs at multiple scales"

   **Lab Week 2:** Base map data acquisition and utilization; **Lab work:** Generalization - Hand in at end of lab

3. **Sept 27.** Principles of Symbolizing thematic spatial data; The default: Choropleth map design
   
   **Readings:**
   - Slocum et al: *Chapter 5 Principles of Symbolization*  
   - *Chapter 14 Choropleth mapping*
   

   **Lab Week 3:** Classification and colour schemes; Principles and practicalities of using colour in thematic mapping
   
   **Lab work:** Choropleth map of demographic characteristic of selected Census area in Canada – Hand in lab work week 4 at beginning of lecture.
   
   Hand in by end of day - Proposal for term project

4. **Oct 4.** Alternatives to the default I: Dasymetric map design
   
   **Readings:**
   - Slocum et al: *Chapter 15 Dasymetric mapping*  
   - *Chapter 16 Isarithmic mapping*
   
   Supplementary: Crampton “GIS and Geographic Governance: Reconstructing the Choropleth Map”

   **Lab Week 4:** Dasymetric mapping
   
   **Lab work:** Dasymetric map of demographic characteristics Hand in week 5 begin. of lecture.
5. **Oct 11.** Design and creation of a thematic atlas page: Principles and pragmatics, including Effective Type and Labelling in Map Design

**Readings:**
Slocum et al: *Chapter 11 Map Elements and Typography*
*Chapter 12 Cartographic Design*

**Supplementary:** ESRI Virtual Campus: Module 3: Effective Type in Map Design

**Lab Week 6:** Planning Final Project Design; Using Graphics software to customize map design

**Lab work:** Effective Type in Map Design. **Hand in at end of lab.**

6. **Oct 18.** Alternatives to the default II: Proportional symbol and **dot distribution** map design

**Readings:**
Slocum et al: *Chapter 17 Proportional Symbol and Dot Mapping*

**Lab Week 5:** Proportional symbol and chart mapping, dot mapping

**Lab Work:** Proportional symbol and dot maps of selected Census area in Canada

**Hand in week 7 at beginning of lecture.**

7. **Oct 25.** Relating multiple data sets: Multivariate mapping, Cartograms and Flow maps

**Readings:**
Slocum et al: *Chapter 18 Multivariate Mapping*
*Chapter 19 Cartograms and Flow maps*

**Lab Week 7:** Cartogram mapping methods. Working on print version of term project.

Consultation on term project. **Hand in first draft of term project, print version by end of day,** for feedback by email (not marked.)

8. **Nov 1.** Guest lecture: The ESRI Community Maps Program and using ArcGIS.com for webmapping.

**Lab Week 8:** **Term test (1 hour.)** Second hour for working on Term project print version.


**Lab week 9:** Consult on Term Project.

**Hand in Term project print version by WED NOV 13.** (after 2 day Reading Break)

10. **Nov 15.** Web mapping I – Static, interactive and animated maps: Alternative approaches

**Readings:**
Slocum et al: *Chapter 21 Map Animation*
*Chapter 24 Web Mapping*

**Lab week 10:** Web mapping options: Open source, proprietory and hybrid approaches. Working on completion of project. **Conversion of project maps to ArcGIS.com.**

11. **Nov 22.** Web mapping II: Applying cartographic design to a new medium: Challenges and opportunities

**Readings:** ArcGIS.com online documentation.

**Supplementary:** Tsou, “Revisiting web cartography in the United States: the Rise of User-centered design.”

**Lab Week 11:** Using ArcGIS.com for web map publishing - potential and limits. Working on Term project web version.

**Lab Week 12:** Using ArcGIS.com for web “atlas” design. Working on completion of term project web version.

**Term project web version is due the last day available for classes of the Fall session: Wednesday Dec 4.**

The instructor reserves the right to modify the topics and schedule during the term.

**Late Submission of Lab Work**
When Lab work calls for a printed submission, these should be submitted to the instructor or staff in the class or in Room 617a. **Only if this is not possible** for some reason such as staff absence, prints may be turned into the drop box located outside of the Geography main office (Sidney Smith Hall, Room 5047). You can only turn in a late assignment during business hours, between 9am and 5pm, Monday – Friday. The main office closes at 5pm sharp, so plan to arrive no later than 4:45pm.

**Academic Integrity**
Plagiarism is an academic offense at the University of Toronto. Plagiarism is quoting (or paraphrasing) the work of an author (including the work of fellow students) without a proper citation. Students also should not be submitting any academic work for which credit has previously been obtained or is being sought, without first discussing with the instructor. Please consult the “Rules and Regulations” section of the Arts and Science Calendar ([http://www.artsandscience.utoronto.ca/ofr/calendar/Rules_&_Regulations.html](http://www.artsandscience.utoronto.ca/ofr/calendar/Rules_&_Regulations.html))

For further information and check the ‘How not to plagiarize’ website at [http://www.writing.utoronto.ca/advice/using-sources/how-not-to-plagiarize](http://www.writing.utoronto.ca/advice/using-sources/how-not-to-plagiarize)

**Accessibility Needs**
The University of Toronto is committed to accessibility. If you require accommodations for a disability, or have any accessibility concerns about the course, the classroom or course materials, please contact Accessibility Services as soon as possible:
[disability.services@utoronto.ca](mailto:disability.services@utoronto.ca) or [http://studentlife.utoronto.ca/accessibility](http://studentlife.utoronto.ca/accessibility)