

Resources

Ethics in Science and Engineering National Clearinghouse *Year 2009*

Geography 734: GIS and Society

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Geography 734: GIS and Society
Bolton 487
T: 2-4.40

COURSE OBJECTIVE: Geographic Information Systems (GIS) is widely used in a range of disciplines, and in public and private sector. Due to its popularity, it is a multi-billion dollar global business. In order to be proficient in it, one not only needs to understand the technology, but also the science behind the technology. This course explores a primary research agenda in GIScience, that of GIS and Society. This research agenda explores the interconnected relationship between the society and GIS, and explores the implications and impacts of such a relationship.

Within the GIS and Society body of literature (as highlighted by the University Consortium of Geographic Information Science), the following questions have been raised:

In what ways will GIS actually affect and alter the society it is intended to represent and serve? How can various conceptions and representations of space, not based on traditional map formats or geometric views, be embedded within a GIS? Is GIS more appropriate for some cultures than others? Can GIS be developed to reflect complex and ambiguous perceptions of social and physical space? How will GIS affect the relationships among and within government agencies, and between them and the various citizen groups concerned with the environment, property rights, and advocating the needs of local communities? What are the interpersonal implications of GIS? Can GIS provide citizens with an increased ability to monitor and hold government accountable for proposals and actions? Will GIS provide citizens with an understanding of their rights and interests in land? How accessible will spatial data and related GIS analysis tools be to all parts of society? Can GIS be used to increase participation in public decision making? (<http://www.ucgis.org>).

This course aims to answer some of these questions and intends to create a critical awareness of the hidden implications within GIS technology. This course is organized as a seminar, with weekly readings and reflection papers.

ASSIGNMENTS & COURSE EVALUATION:

- **Regular participation and in class discussion: 20 points total. 1point will be deducted with every absence**

Meaningful participation is expected every week from students. To do this, students must come to class having critically read that week's scheduled reading and undertake informed discussions. I will keep weekly logs of each student's

participation. I will also qualitatively evaluate the participation quality of each student and keep weekly records accordingly.

- **Four reflective papers: 20 points each , 80 points.** The paper should be five pages long, double spaced (point 12 font size), with an inch margin all around. Each paper should aim to discuss readings allocated for one week. The paper should be reflective in nature. What are the key points of each article that you have read? What are its merits and demerits? It is not necessary for you to summarize each article, but rather critically reflect on each article. You should try to equitably address all the papers that are you are discussing in your paper – i.e. do not over emphasize one article, and provide a brief discussion of another article. Your writing style is important, papers should be written in an academic style, and you can cite a paper by using the author, date, text method (Ghose 2003, p.14). Provide a bibliography at the end of each paper so that I can see which papers you are discussing.

Points will be deducted for late submission (**2 point deduction per late day**).

Grade: The percentage necessary to receive certain grades will be no higher than the following: 88% (A-), 78% (B-), 68% (C-), 58% (D-)

WEEKLY SCHEDULE & READINGS

Weekly readings are assigned below. To facilitate discussion, readings must be completed prior to the appropriate session. The outline may be subject to change (with advance warning) so please assume responsibility for keeping up with classroom announcements.

Week 1, 1/29

Evolution of GIS and Society Research Agenda

Pickles, J. 1995. Representations in an Electronic age: Geography, GIS and Democracy.

In: J. Pickles (ed.), *Ground truth: The social implications of geographic information systems*. New York, New York: Guilford Press. pp. 1-30.

Schuurman, N. 2000. Trouble in the heartland: GIS and its critics in the 1990s. *Progress in Human Geography* 24 (4): 569-590.

Sheppard, E. 1995. GIS and Society: Towards a Research Agenda. *Cartography and Geographic Information Systems*, vol. 22 (1): 5-16.

Week 2, 2/5

The Technocratic Nature of GIS

Lake, R.W. 1993. Planning and Applied Geography: Positivism, Ethics, and Geographic Information Systems. *Progress in Human Geography* 17 (3): 401-13.

Obermeyer, N. J. 1995. The Hidden GIS Technocracy. *Cartography and Geographic Information Systems* 22 (1): 78-83

Aitken, S. and Michel, S.M. 1995. Who Contrives the "Real" in GIS? Geographic Information, Planning and Critical Theory. *Cartography and Geographic Information Systems* 22 (1): 17-29.

Week 3, 2/12

GIS and Ethics

Crampton, J. 1995. The Ethics of GIS. *Cartography and Geographic Information Systems* 22 (1): 84-89.

Onsrud, H. J. 1995. Identifying Unethical Conduct in the Use of GIS. *Cartography and Geographic Information Systems* 22 (1): 90-97.

Curry, M.R. 1996. Data Protection and Intellectual Property: Information, Systems and the Americanization of the New Europe. *Environment and Planning A* 28: 891-908

Stewart, K., G. Cho and E. Clark 1997. Geographical Information Systems and Legal Liability. *Journal of Law and Information Science*. 8/1:84-113.

Week 4, 2/19

GIS and Privacy

Crampton, J. 2003. Cartographic Rationality and the Politics of Geosurveillance and Security. *Cartography and Geographic Information Science* 30 (2): 135-148.

Armstrong, M. and Ruggles, A. 2005. Geographic Information Technologies and Personal Privacy. *Cartographica* 40 (4): 63-73.

Crampton, J. 2007. The Biopolitical Justification for Geosurveillance. *Geographical Review* 97 (3):389-403.

First paper is due on 2/26/08

Week 5, 2/26

GIS and Democracy

Hutchinson, C. F., and Toledano, J. 1993. Guidelines for Demonstrating Geographical Information Systems Based on Participatory Development. *International Journal of Geographical Information Systems* 7 (5): 453-61.

Clark, M. J. 1998. GIS- Democracy or Delusion? *Environment and Planning A* 30(2): 303-316.

Rundstrom, R.A. 1995. GIS, Indigenous Peoples, and Epistemological Diversity. *Cartography and Geographic Information Systems* 22 (1): 45-57.

Sawicki, D. and Craig, W. 1996. Democratization of Data: Bridging the Gap for Community Groups. *Journal of the American Planning Association* 62 (4): 512-523.

Week 6, 3/4

GIS Implementation, Use in Urban Planning

Innes, J. and Simpson, D. 1993. Implementing GIS for Planning: Lessons from the History of Technological Innovation. *Journal of the American Planning Association* 59 (2): 230-236.

Campbell, H. 1996. A Social Interactionist Perspective on Computer Implementation. *Journal of American Planning Association*, 62(1): 99-107.

Nedovic-Budic, Z. 1998. The impact of GIS technology. *Environment and Planning B: Planning and Design* 25/5: 681-692.

Sieber, R.E. 2000 GIS Implementation in the Grassroots. *URISA Journal*, Vol. 12, No. 1, 15-29

Week 7, 3/11

Digital Divide and Public Participation GIS

Obermeyer, N.J. 1998. The Evolution of Public Participation GIS. *Cartography and Geographic Information Systems* 25(2): 65-66.

Ghose, R. 2001. "Use of Information Technology for Community Empowerment: Transforming Geographic Information System into Community Information Systems", *Transactions in GIS*, 5(2), 141-163.

Sieber, R. 2006. Public Participation Geographic Information Systems: A Literature Review and Framework. *Annals of the Association of American Geographers*, 96 (3): 491-507.

Ghose, R. 2003. Investigating Community Participation, Spatial Knowledge Production and GIS Use in Inner City Revitalization. *Journal of Urban Technology*, vol. 10, no. 1, 39-60.

Elwood, S. and Leitner, H. 1998. GIS and Community-based Planning: Exploring the Diversity of Neighborhood Perspectives and Needs. *Cartography and Geographic Information Systems* 25(2): 77-88.

Week 8 – Spring Break

Week 9, 3/25

Public Participation GIS in Urban Context

Barndt, M. 1998. Public participation GIS—Barriers to Implementation. *Cartography and Geographic Information Systems* 25 (2): 105-112.

Lin, W. and Ghose, R. 2008. Complexities in Sustainable Provision of GIS for Urban Grassroots Organizations. *Cartographica*.43 (1).

Elwood, S. and Ghose, R. 2004. PPGIS in Community Development Planning: Framing the Organizational Context. *Cartographica* 38 (3&4): 19-33.

Elwood, S. 2006. Beyond Cooptation or Resistance: Urban Spatial Politics, Community Organizations, and GIS-Based Spatial Narratives. *Annals of the Association of American Geographers*, 96 (2): 323-341.

Second Paper is due on 4/1/08

Week 10, 4/1

Complexities in GIS Usage

Harvey and Tulloch. 2006. Local government data sharing: Evaluating the Foundations of Spatial Data Infrastructures. *International Journal of Geographic Information Science*, 20 (7):743-768.

Shuurman. 2005. Social Perspectives on Semantic Interoperability: Constraints on Geographical Knowledge from a Data Perspective. *Cartographica* 40(4): 47-61.

Sieber, R.E. 2004. Rewiring for a GIS/2. *Cartographica* 39 (1):25-39.

Robbins, P. and Maddock T. 2000. Interrogating Land Cover Categories: Metaphor and Method in Remote Sensing. *Cartography and Geographic Information Science*, 27 (4): 295-309.

Week 11, 4/8

Social Construction of GIS, GIS and Ontology

Harvey, F. 2000. The Social Construction of Geographical Information Systems. *International Journal of Geographical Information Science* 14 (8): 711-713.

Sieber, R. 2000. Confronting the opposition: The social construction of Geographical information systems in social movements. *International Journal of Geographic Information Science* 14(8): 775-793.

Harvey, F. and Chrisman, N. 2003. The Imbrication of Geography and Technology: The Social Construction of Geographic Information Systems. In *Techno Earth*, ed. S. Brunn.

McHaffie, P. 2000. Surfaces: Tacit Knowledge, Formal Language and Metaphor at the Harvard Lab for Computer Graphics and Spatial Analysis. *International Journal of Geographical Information Science* 14 (8): 755-773.

Class will be held on Week 12 – study the readings allocated for week 13

Third paper is due on 4/22/08

Week 12, 4/15

Actors-Networks in GIS

Harvey, F. 2000. Constructing GIS: Actor Networks of Collaboration. *Journal of URISA* 13 (1): 29-38.

Martin, E. 2000. Actor-Networks and Implementation: Examples from Conservation GIS in Ecuador. *International Journal of Geographical Information Science* 14 (8): 715-738.

Ghose, R. 2007. Politics of Scale and Networks of Association in PPGIS, *Environment and Planning A* 39, 1961-1980.

Week 13, 4/22

GIS and Methods

Bell, S. and Reed, M. 2004. Adapting to the Machine: Integrating GIS into Qualitative Research. *Cartographica*, 39 (1): 55-65.

Mathews, S.A., Detwiler J.E., and L. Burton. 2005. Geo-ethnography: Coupling Geographic Information Analysis Techniques with Ethnographic methods in Urban Research, *Cartographica* 40 (4):75-90.

Schuurman, N. and Leszczynski, A. 2006. Ontology based Metadata. *Transactions in GIS*, 10(5):709-726.

Week 14, 4/29

GIS and Feminist Theory

Schuurman, N. and Pratt, G. 2002. Care of the Subject: Feminism and Critiques of GIS. *Gender, Place and Culture* 9 (3): 291-299.

Kwan, M.P. 2002. Feminist Visualization: Re-envisioning GIS as a Method in Feminist Geographic Research. *Annals of the Association of American Geographers* 92(4): 645-661.

McLafferty, S. 2005. Women and GIS: Geospatial Technologies and Feminist Geographies. *Cartographica*, 40 (4):37-45.

Week 15, 5/2

Chrisman, N. 2005. Full Circle: More than Just Social Implications of GIS. *Cartographica*, 40 (4):23-35.

Sheppard, E. 2005. Knowledge Production through Critical GIS: Genealogy and Prospects. *Cartographica* 40 (4): 5-21.

O'Sullivan, D. 2006. Geographical Information Science: Critical GIS. *Progress in Human Geography* 30 (6): 783-791.

Finals Week: What have we learnt?

Fourth paper is due on 5/13/08