

GEOG 158 - GIS in Science and Society
GEOG 357 - History and Philosophy of Geographic Information Science

Instructor: **Professor Jerome E. (Jerry) Dobson**

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Textbook: Wilford, John Noble. 2000. *The Mapmakers* (New York: Alfred A. Knopf).

Readings: See Schedule of Lectures and Assignments (next two pages)

Lecture Room: **Lindley Hall, Room 401**

Class Meeting Times: **Tuesdays and Thursdays, 2:30 to 3:45 pm**

Office Hours: **Tuesdays and Thursdays, 9:00 to 10:45 am and 1:00 to 2:00 pm**

Course Credit: **3 hours**

Course Number: **34727**

Pre-requisite: None

“**Curves**” (extra points based on overall grade curves) are by no means certain. They **may be given on individual tests or final grade**, if the instructor believes they are warranted by overall class performance.

Attendance: **Students who miss one or more lectures** during any given testing period **will not be eligible for curves** (extra points) that happen to be given on that respective test. (For example, students who miss lectures between Test 1 and Test 2 may not be eligible for extra points that happen to be given on Test 2.)

Course Objective: In this course we will discuss the development of geographic information science (GISci) from its roots in traditional geography, analog cartography, digital cartography, and remote sensing to modern geographic information systems (GIS). We will explore the place of geography, cartography, and GISci in science and society. Students will gain an appreciation for the breadth and technical strength of geographic techniques and methods. Ultimately, we will consider the implications of GIS as a new microscope for improving science and understanding earth processes both physical and cultural. Benefits and risks will be discussed.

Approach and Expectations: This will be an interactive lecture course. We'll start with a broad perspective on science and show how geography traditionally has fit within it. We'll explore how that has changed over time and how GIS now accelerates geography's current and potential impact. There will be three tests and a final exam.

Evaluation:

Test 1 20 %

Test 2 20 %

Test 3 20 %

Short Paper 5 %

Term Paper 15 %

Final Exam (covers entire course: all lectures, readings, and papers) **20 %**

Schedule of Lectures and Assignments

Week	Date	Topic and Assignment
1	8/16	Course Overview, Silent Revolution
2	8/21	Geography in America Assignment: Dobson, J. E. 2007. "Bring Back Geography!" <i>ArcNews</i> 29(1): pp. 1-5. Available on Blackboard under "Course Documents."
	8/23	British Survey of India; Isostasy; Plate Tectonics; Travails of Fieldwork Assignment: Wilford, pp. 189-204
3	8/28	Ancient through Magellan Assignment: Wilford, Preface -p. 86
	8/30	Mercator through Peru Assignment: Wilford, pp. 87-131
4	9/4	End of the Renaissance, von Humboldt; von Thünen Handout: <i>National Geographic</i> : Humboldt's Way, Sept. 1985; <i>GIS World</i> , "A Geographic Flaw Toppled Communism"
	9/6	Cassini to Beaufort Assignment: Wilford, pp. 132-188
5	9/11	Mason & Dixon to Radar Assignment: Wilford, pp. 205-295
	9/13	Mapping Geology Assignment: Wilford, pp. 296-311
6	9/18	Test 1
	9/20	Mapping Oceans, and Ice, NAD '83 Assignment: Wilford, pp. 312-366
7	9/25	Space Age, Satellite Remote Sensing Assignment: Wilford, pp. 367-408
	9/27	GIS since 1970 Assignment: Wilford, pp. 409-425
8	10/2	Discuss and select topics for student papers (1 short, 1 long)
	10/4	Modern Fieldwork, <i>GR</i> Essays on Fieldwork Assignment: Dobson, J. E. 2001. "Fieldwork in a Digital World," <i>Geographical Review</i> 91(1-2): 430-440.
9	10/9	Digital Earth, Global Population Handouts: Dobson, J. E., E. A. Bright, P. R. Coleman, R.C. Durfee, B. A. Worley. 2000. "LandScan: A Global Population Database for Estimating Populations at Risk," <i>Photogrammetric Engineering & Remote Sensing</i> 66(7):849-857; Dobson, J. E., E. A. Bright, P. R. Coleman, and B. L. Bhaduri. Forthcoming. 2003. "LandScan2000: A New Global Population Geography," Chapter 15 in V. Mesev (ed.) <i>Remotely-Sensed Cities</i> . London: Taylor & Francis, Ltd
	10/11	Fall Break, No Class

10	10/16	Spatial vs. Process Logic; Debate over Continental Drift (1596 to 2002) Handout: Dobson, J. E. 1992. "Spatial Logic in Paleogeography and the Explanation of Continental Drift," <i>Annals of the Association of American Geographers</i> 82(2):187-206; Dobson, J. E.. 1996. "A Paleogeographic Link Between Australia and Eastern North America: A New England Connection?" <i>Journal of Biogeography</i> 23:609-617.
	10/18	Aquaterra Handout: Dobson, J. E. 1998. "The Iodine Factor in Health and Evolution," <i>Geographical Review</i> 88 (1):1-28.
11	10/23	Ethical Limits of GIS, Geoslavery Handouts: Dobson, J. E. 1998. "Is GIS a Privacy Threat?" <i>GIS World</i> , Vol. 11, No. 7; Dobson, J. E. 2000. "What Are the Ethical Limits of GIS?" <i>GeoWorld</i> , Vol. 13, No. 5. ; Dobson, J. E. and P. F. Fisher. Forthcoming. "The Panopticon's Changing Geography." <i>Geographical Review</i> 97(3): 14 pp.
	10/25	Test 2
12	10/30	Student Reports: Short Papers
	11/1	Continued
13	11/6	GIS Fundamentals
	11/8	Participatory GIS; Bowman Expedition to Mexico
14	11/13	Landmines
	11/15	Critical GIS
15	11/20	Test 3
	11/22	Thanksgiving Holiday (No class)
16	11/27	Student Reports: Term Papers
	11/29	Continued
17	12/4	Continued
	12/6	Final Discussion
18	12/10	Final Exam: Lindley Hall, Room 228, 1:30 to 4:00 pm, Wednesday