School of Library and Information Science
University of Tennessee
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Syllabus

IS 543-001/002 Geographic Information in Information Sciences
Spring 2017
Tuesdays, 6:30 – 9:10 PM EST
Dates of Semester: January 11 – April 28, 2017

Instructor: Dr. Wade Bishop
Office: 442 Communications Building
Availability: Tuesdays 8:00 AM -12:00 PM EST
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Graduate Teaching Assistant: Kelly White

Course Description:

Introduces the concepts related to geographic information librarianship. To understand geographic/cartographic competencies. To master the basic concepts of geospatial data discovery and collection development of cartographic resources. To practice the metadata creation of geospatial data. To explore issues related to geographic information policy of GIS related services.

Prerequisites

None.

Background

IS543 is an elective developed for the '*Geographic Information Librarianship*' project (GIL) with funding by the Laura Bush 21st Century Librarian Program Grant via the Institute of Museum and Library Services (IMLS) in their "programs to build institutional capacity" category. The IMLS GIL project surveyed practicing GIS and map librarians, archivists, and other information professionals to validate the core competencies established by the Map and Geographic Information Round Table (MAGIRT) (http://www.ala.org/magirt/publications). Professionals with real-world experience weighed the importance of knowledge, skills, and abilities and informed the topics covered in this course. The following student learning outcomes derive from MAGIRT Core Competencies deemed very important.

Student learning outcomes

1. Geography and Cartography

1.1   Students will demonstrate geographic and cartographic principles, including geographic and cartographic scale, projection, grids, and geographic coordinate systems

2. Collection development/Records appraisal/Collection maintenance

2.1   Students will demonstrate knowledge of local, state/provincial, federal and international mapping agencies and private map publishers, map series and similar publication patterns, and gazetteers, data portals, volunteered geographic information, and aspects of the Federal Depository Library Program

2.2   Students will select strategies to obtain different types of maps, imagery, and other geospatial data

2.3   Students will describe copyright considerations and the ability to negotiate licensing agreements for databases and collections of geographic information

2.4   Students will explain how to assess the strengths and specialties in a collection and the needs of users to inform collection development

2.5   Students will describe proper materials handling, especially for rare and fragile materials

3. Access and Use

3.1   Students will demonstrate the ability to locate geospatial data and software support

3.2   Students will gain awareness of GIS tutorials & training

3.3   Students will develop and deliver geographic information consultations

4. Organization – Spatial data infrastructures/Content standards/Metadata/Cataloging

4.1   Students will explain metadata standards, schemas, and issues

4.2   Students will understand and interpret existing metadata in geospatial records

4.3   Students will define projections, coordinate systems, and other physical characteristics of cartographic items to create metadata records

4.4   Students will interpret and calculate cartographic scale

Course Materials
Readings are available in Bb and each week's readings appear in the course schedule.

Assignments and Evaluation Criteria

Format: All assignments should be typed and handed-in via Canvas.

- **Geospatial Data Discovery Assignment**   20 points (20%)
- **Cartographic Metadata Record**   20 points (20%)
- **Final Paper/Presentation**   50 points (40%)
- **Participation**   10 points (10%)

More detailed directions for each assignment will appear in Bb. Assignment due-dates are in the following course schedule.

Participation   10 points (10%)

It is important to note that class participation is ten percent of your grade because participation is an important component of facilitating learning in this class. Participation points come from attending class. It is assumed that each student will miss no more than one session and will speak in class -- the equivalent of a "B" grade for "participation." Missing more classes or failing to participate will lower your grade; frequent participation will raise the grade. Regular attendance is required and necessary.

Unexplained absences will affect your grade. Contact me as soon as possible if you cannot attend class. If you must be absent from class, you must:

- Inform me in advance or as soon as possible after class
- Submit any work due from the missed class period
- Watch/listen to the archive of the class you missed

Acceptable reasons for absence from class include:

- Illness
- Serious family emergencies
- Special curricular or job requirements (e.g., field trips, professional conferences) or participation in official university activities such as music performances, athletic competition or debate
- Military obligation
- Severe weather conditions
- Religious holidays
- Obligations for court imposed legal obligations (i.e., jury duty, subpoena)

Other reasons may also be approved.

Missing more than one class meeting for reasons other than those listed above will have a negative impact on your course participation grade.

Final Paper/Presentation   50 points   (50%)

1. Select and describe a topic, with a clear purpose and some literature review for consideration. Please select a topic that will benefit your future and that you will enjoy.
    – Due 9:00 AM EST Thursday, February 7.
2. Find **research articles** (peer-reviewed) on the topic, and use your interpretation and evaluation of the research to inform important aspects of the future of geographic information related to your topic; DO NOT simply summarize what has been researched, but relate the research articles to each other and synthesize a theme out of the articles you find. Each topic will have a different number of key articles, but for a final paper this length I expect *~20-30 citations*.
3. Discuss future implications for the field related to your topic and specifically for your career.
4. Finally, you will prepare a 15 minute presentation of your paper to inform the class.
5. As a semester long assignment, I have high expectations for the quality of this work. You should produce a paper that is of publishable quality. I am indifferent about structure or citation style; however, be consistent and do not hesitate to ask for clarification. In fact, you may want to take this opportunity to produce work that would lead to an actual presentation, paper, or poster.

To give full attention to the paper, please produce at least 4,000 words of content.

IS 543: Final Paper Rubric	6	4	2	0
Purpose (Due Feb 7)	The author presents the topic, with a working title, a brief description of an investigation plan, with how investigation will occur and how the data will be found/collected, and a hypothesis of what you expect to find, and also a literature review for consideration (at least 5 sources).	The author presents the topic, with a working title, a brief description of an investigation plan, but fails to include all other required details.	The author presents the topic, with a working title, a brief description of an investigation plan, but fails to at least half of the other required details.	Topic of the paper is unclear and does not address all required details.
Literature Review	Sufficient background information and a clear review of the topic and why it is important to the field is evident.	Adequate background information and a clear review of the topic and why it is important to the field is provided.	The author provides limited background information.	Insufficient or no background information is provided.
Critical Analysis of the Research	Exceptional integration and synthesis of research. Very effectively identifies and discusses implications and common themes relevant to the topic.	Research is integrated and well synthesized. Identifies and discusses some implications and/or themes relevant to the topic.	Very little integration and/or synthesis. Mainly reflects previous research findings, with very little critical analysis of the literature.	Discussion of the research is integrated poorly, with little to no critical analysis of past studies and/or articles.
Future Implications for Field	Effectively applies research findings and discusses implications for the future practice of the field and/or careers related to the topic.	Adequately discusses implications for the future practice of the field and/or careers related to the topic.	Discussion of application to future practice and/or careers is limited.	Does not discuss implications for future practice of the field or careers related to the topic.
References	Author includes at least 20 peer-reviewed articles and correctly cites them according to a consistent citation style of their choosing.	Author includes between 15-19 peer-reviewed articles and cites them according to a consistent citation style of their choosing.	Author includes fewer than 15 peer-reviewed articles and cites them according to their chosen citation style.	The author includes no peer-reviewed articles and does not cite any sufficient outside research.
Grammar and Formatting	No grammatical, spelling, or punctuation errors, and paper follows a consistent format.	Few grammatical, spelling, or punctuation errors, and format is generally consistent.	More than 10 grammatical, spelling, or punctuation errors, and/or formatting is inconsistent.	More than 15 grammatical, spelling, or punctuation errors, and/or inconsistent formatting detracts from paper's readability.
Length of Research Paper	Length of final paper meets the assigned 4,000-word minimum	Length of final paper falls slightly below 4,000-word minimum	Length of final paper falls sufficiently below the assigned 4,000-word minimum	Length of final paper is unacceptable.
Presentation	Class presentation is around 15 minutes long and clearly presents the main issues of the topic.	Class presentation is around 15 minutes long and fails to cover clearly the issues of the topic.	The presentation goes substantially over or under 15 minutes in length, but covers main issues of the topic	The presentation goes substantially over or under 15 minutes in length and is unclear in covering the main issues of the topic

The other assignment instructions will be made available in Bb.

Grades
At the end of the course, I will convert the points earned into a percentage:

93% and above	=	A
85% to 92%	=	B+
79% to 84%	=	B
75% to 78%	=	C+
70% to 74%	=	C
60% to 69%	=	D
below 60%	=	F

I -- A temporary grade indicating that the student has performed satisfactorily in the course, but, due to unforeseen circumstances, has been unable to finish all requirements. An "I" will not be give to enable a student to do additional work to raise a deficient grade. All incompletes must be removed within one semester, excluding the summer term.

Reading Materials
Reading materials will be available online, either on the Internet or UT library. Readings for each week will be given in advance and it will be the responsibility of the student to complete the readings and contribute to the class discussions based on the readings.

Course schedule (subject to change due to unforeseen circumstances)

* Unless otherwise indicated, all readings can be found on Canvas and should be completed prior to the lecture.

Week 1 (Jan. 17)	**Read:** Geographic Information: Organization, Access, and Use (Ch. 1) **Watch:** Geospatial Revolution videos: http://geospatialrevolution.psu.edu/
I. General Geographic and Cartographic Competencies	
Week 2 (Jan. 24)	**A Brief History of Geography** **Read:** Geographic Information, Maps, and GIS (Ch. 2) **Other Recommended Readings:** Chrisman, N. R. (1999). What does 'GIS' mean? *Transactions in GIS*, *3*(2), 175-186. Schuurman, N. (2009). Geographic Information Science (GISc). In D. Gregory, R. Johnston, G. Pratt, M. J. Watts, & S. Whatmore (Eds.), *The Dictionary of Human Geography* (5th ed.) (pp. 277-279). Malden, MA: Wiley-Blackwell. Stevens, J., Smith, J.M., & Bianchetti, R.A. (2012). Geography 160: Mapping our changing world. A. M. MacEachren & D. J. Peuquet (Eds.). University Park, PA: Pennsylvania State University. Retrieved from https://www.e-education.psu.edu/geog160/node/1901 (Chapter 1 + Chapter 4 Introduction)
Week 3 (Jan. 31)	**0°: A Primer on Geographic Representation** **Read:** 0°: A Primer on Geographic Representation (Ch. 3) **Other Recommended Reading:** Krygier, J., & Wood, D. (2011). *Making maps: A visual guide to map design for GIS* (2nd ed.). New York: Guilford Press.

Week 4 (Feb. 7)	**The Power of Maps**
	
	Read:
	
	Crampton, J. W. (2010). Governing with Maps: Cartographic Political Economy. In
	
	    Mapping: A Critical Introduction to Cartography and GIS (pp. 62-80). Malden, MA:
	
	    Wiley-Blackwell.
	
	Harley, J. B. (2001). *The new nature of maps: Essays in the history of cartography*. P.
	
	    Laxton (Ed.). Baltimore, MD: John Hopkins University Press.
	
	    (Chapter 5 + Chapter 6)
	
	Assignments: +*Final Paper/Presentation Topic due **9:00 AM EST** Tuesday, February 7.*

II. Organization

Week 5 (Feb. 14)	**Geographic Information Policy** **Read:** Policy (Ch. 4)
Week 6 (Feb. 21)	**Metadata** **Read:** Metadata (Ch. 5) **Other Recommended Reading:** Larsgaard, M. L. (2005). Metaloging of digital geospatial data. *Cartographic Journal, The*, *42*(3), 231-237.
Week 7 (Feb. 28)	**Map Cataloging** **Read:** Andrew, P. G., Moore, S. M., & Larsgaard, M. L. (2015). RDA, Resource description & access and cartographic resources. Ch 2. ***Guest Speakers—Paige G. Andrew, Penn State University & Susan M. Moore, University of Northern Iowa** **Other Recommended Reading:** Western Association of Map Libraries. (2013). Map librarians' toolbox. Retrieved from http://www.waml.org/maptools.html **Visit:** Bounding Box Creation Tool, found at http://boundingbox.klokantech.com/

III. Access and Use

Week 8 (Mar. 7)	**Geoweb** ***Guest Speaker Taylor Hixson, University of Chicago** **Read:** Geoweb (Ch. 6) **Other Recommended Reading:** Knutzen, M. A. (2013). Unbinding the atlas: Moving the NYPL map collection beyond digitization. *Journal of Map & Geography Libraries*, *9*(1-2), 8-24. **Assignments:** +*Cartographic Metadata Record is due **9:00 AM EST** Tuesday, March 7.*

Spring Break 3/13-3/17- **No Class 3/14**	
Week 9 (Mar. 21)	**Discovery and Fitness for Use – Basic Spatial Analyses** **Read:** Discovery and Fitness for Use (Ch. 7) **Other Recommended Reading:** Stevens, J., Smith, J.M., & Bianchetti, R.A. (2012). Geography 160: Mapping our changing world. A. M. MacEachren & D. J. Peuquet (Eds.). University Park, PA: Pennsylvania State University. Retrieved from https://www.e-education.psu.edu/geog160/node/1901 (**Chapter 6)** Zandbergen, P. A. (2009). Geocoding quality and implications for spatial analysis. *Geography Compass*, *3*(2), 647-680. Blatt, A. J. (2012). Ethics and privacy issues in the use of GIS. *Journal of Map & Geography Libraries*, *8*(1), 80-84.
IV. Collection Development and Maintenance	
Week 10 (Mar. 28)	**Meeting Information Needs** **Read:** Meeting Information Needs (Ch. 8) ***Guest Speaker Kathy Weimer, Rice University**
Week 11 (Apr. 4)	**Data lifecycle** **Read:** Data lifecycle (Ch. 9) ***Guest Speaker Matt Mayernik, UCAR**
Week 12 (Apr. 11)	**Collection Maintenance/Records Appraisal** **Read:** Erwin, T., & Sweetkind-Singer, J. (2009). The National Geospatial Digital Archive: A collaborative project to archive geospatial data. *Journal of Map & Geography Libraries*, *6*(1), 6-25. **Visit:** The GeoMapp project website at http://www.geomapp.net/default.htm, and read "BestPractices for Archival Processing for Geospatial Datasets" (found under the "Publications & Tools" link) and at least one other publication from the GeoMapp project site. **Assignments:** +*Geospatial Data Discovery Assignment is due* **9:00 AM EST** *Tuesday, April 11*.
Week 13 (Apr. 18)	**Final Presentations** **Read:** Education (Ch. 10)
Week 14 (Apr. 25)	**Final Presentations** **Assignments:** +*Final paper is due* **9:00 AM EST** *Thursday, April 25*.

Academic Integrity: "As a student of the University, I pledge that I will neither knowingly give nor receive any inappropriate assistance in academic work, thus affirming my own personal commitment to honor and integrity" (Hilltopics Student Handbook, The University of Tennessee, Knoxville, http://hilltopics.utk.edu/academics/). Cheating, plagiarism, providing unauthorized help and other acts of dishonesty violate the rule of academic honesty; the offender will be subject to penalties as set forth in Hilltopics.

Special Needs: If you need course adaptations or accommodations because of a documented disability or if you have an emergency, please contact the Office of Disability Services at 2227 Dunford Hall, Knoxville, or at (865) 974-6087. This will ensure that you receive adequate services to meet your needs. Policy on Inclement Weather & Unforeseen Circumstances: If the university is officially closed, classes will be canceled. I may revise the schedule after the missed session. Any type of arrangements will be discussed with you in advance and announced in class or via e-mail.

CCI Diversity Statement: (College of Communication and Information Bylaws, Section II-C): The College of Communication and Information recognizes that a college diverse in its people, curricula, scholarship, research, and creative activities expands opportunities for intellectual inquiry and engagement, helps students develop critical thinking skills, and prepares students for social and civic responsibilities. All members of the College benefit from diversity and the quality of learning, research, scholarship and creative activities is enhanced by a climate of inclusion, understanding and appreciation of differences and the full range of human experience. As a result, the College is committed to diversity and equal opportunity and it recognizes that it must represent the diversity inherent in American society. The College is acutely aware that diversity and fairness are foundations that unite the College's faculty, staff, students, and the larger communication and information community (see http://www.cci.utk.edu/diversity-statement for CCI's full Diversity Statement).

Inclement weather: If the university is closed, f2f classes will be canceled. For online classes, any changes will be announced via Canvas and email. If disasters occur in your location, please notify me when it is safe to do so and make arrangements to view class recordings.

Additional background readings

Abresch, J., Hanson, A., Heron, S. J. and Reehling, P. J. (2008). *Integrating Geographic Information Systems into Library Services: A Guide for Academic Libraries*. Hershey, PA: Information Science Pub.

Aufmuth, J. (2006). Centralized vs. distributed systems: Academic library models for GIS and remote sensing activities on campus. *Library Trends, 55*(2), 340-348.

Boxall, J. (2002). Geolibraries, the global spatial data infrastructure and digital Earth: A time for map librarians to reflect upon the moonshot. *INSPEL, 36*(1), 1-21.

Clinton, W. (1994, April 13). *Coordinating geographic data acquisition and access*: *The National Spatial Data Infrastructure*. Executive Order 12906. Retrieved April 28, 2008, from http://govinfo.library.unt.edu/npr/library/direct/orders/20fa.html.

Crampton, J.W. (2009). Cartography: maps 2.0. *Progress in Human Geography, 33*(1), 91-100.

DiBiase, D., University Consortium for Geographic Information Science., Model Curricula Task Force., & Body of Knowledge Advisory Board. (2006). *Geographic information science and technology body of knowledge*. Washington, D.C: Association of American Geographers.

Donnelly, F. P. (2010). Evaluating open source GIS for libraries. *Library Hi Tech, 28*(1), 131-151.

Erwin, T., and Sweetkind-Singer, J. (2009). The National Geospatial Digital Archive: A Collaborative Project to Archive Geospatial Data. *Journal of Map & Geography Libraries, 6*(1), 6-25. doi: 10.1080/15420350903432440

Federal Geographic Data Committee. (1997). *Framework introduction and guide*. Retrieved April 30, 2008, from http://www.fgdc.gov/framework/handbook/index_html .

Houser, B. (2006). Building a library GIS service from the ground up. *Library Trends, 55*(2), 315-326.

Larsgaard, M.L. (1998). *Map librarianship: An introduction,* Englewood, CA: Libraries Unlimited, Inc.

Larsgaard, Mary. L. (2005). Metaloging of digital geospatial data. *The Cartographic Journal, 42*(3), 231-237.

Longley, P.A., Goodchild, M.F., Maguire, D.J., & Rhind, D.W. (Eds.) (1999). *Geographical Information Systems – Principles and Technical Issues, vol.1*. New York: John Wiley & Sons.

Longley, P. A. (2007). *Geographical information systems and science*. Chichester [u.a.: Wiley.

Map and Geography Round Table Education Committee. (2008*). Map, GIS and Cataloging/Metadata Librarian Core Competencies*. Chicago, IL: American Library Association.

Martin, G.J. (2005). *All Possible Worlds: A History of Geographical Ideas*. New York, NY: Oxford University Press.

Morris, S. P. (2009). The North Carolina Geospatial Data Archiving Project: Challenges and Initial Outcomes. *Journal of Map & Geography Libraries, 6*(1), 26-44. doi: 10.1080/15420350903432507

Soete, G. J. (1997). *Transforming Libraries 2: Issues and Innovations in Geographic Information Systems*. Washington: Association of Research Libraries, SPEC Kit 219.

Strasser, T. C. (1998). Geographic information systems and the New York State Library: Mapping new pathways for library service. *Library Hi Tech,16*(3), 43-50.

Weimer, K. H. and Reehling, P. (2006). A new model of geographic information librarianship: Description, curriculum, and program proposal. *Journal of Education for Library and Information Science, 47*(4), 291-302.