UNIVERSITY OF WISCONSIN-MILWAUKEE
School of Information Studies

L&I SCI 691 – Special Topics in Information Science: Linked Data, Mashups, the Semantic Web, and Web 2.0 (3 Credits)

Section 201, Online
Spring 2013

SYLLABUS

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CATALOG DESCRIPTION

Introduces students to the principles of information organisation and the interconnections with information technology in the semantic web, web 2.0 and mashups. 3 credits.

DESCRIPTION

This course examines the interconnections between information organisation and information technology. Students will explore aspects of information organisation through experimenting with library and non-library metadata and metadata creation tools, semantic web and web 2.0 tools, metadata databases and information retrieval tools and the creation of active and passive web pages and scripts for mashups. Students will discuss the theoretical underpinnings of the semantic web and web 2.0 and its impact on libraries and other organisations.

PREREQUISITES

- 511, Junior standing, or consent of instructor.
- Basic computer facility and technology literacy as listed in the SOIS policy are required: http://www4.uwm.edu/sois/programs/graduate/mlis/complitreq.cfm
- Some familiarity with metadata, markup languages like XML or HTML, databases, or scripting would be an asset, but is not required.

OBJECTIVES/OUTCOMES

Upon completion of the course, students will:

- be aware of current issues in the organisation of information in electronic environments and on the web; **(Metadata and Markup, Metadata Retrieval and Harvesting, Discussions)**
- be able to explain the conceptual models behind systems for organising, managing and displaying electronic metadata records; **(Discussions, In-Class Exercises, Schema Display, Metadata Retrieval and Harvesting, Web Querying)**

- be able to design and critically analyse various systems for storing, manipulating and displaying metadata records; **(Metadata Retrieval and Harvesting, In-Class Exercises, Web Querying, Short Paper)**
- be able to assess the design of information organisation systems with respect to accessibility and usability by various groups; **(In-Class Exercises, Discussions)**
- be able to plan and implement simple mashups. **(Web Querying, Mashup Project)**

ALA COMPETENCIES

This course addresses the following MLIS competencies:

- The systems of cataloguing, metadata, indexing, and classification standards and methods used to organize recorded knowledge and information.
- Information, communication, assistive, and related technologies as they affect the resources, service delivery, and uses of libraries and other information agencies.
- The application of information, communication, assistive, and related technology and tools consistent with professional ethics and prevailing service norms and applications.
- The principles and techniques necessary to identify and analyse emerging technologies and innovations in order to recognize and implement relevant technological improvements.

METHOD

Lecture/Discussion/Readings/Examples/In-Class Exercises/Practical Assignments – to achieve a satisfactory understanding of the course material and to fulfil requirements of the assignments, students are expected to attend the lectures, read the readings, participate in discussion, explore examples, and complete practical assignments.

If you need accommodations due to illness, disabilities, scheduling conflicts with religious observances or other life events (e.g. military service) contact the instructor as soon as possible.

TEXTBOOK

Engard, Nicole C. (ed.). 2009. Library Mashups: Exploring New Ways to Deliver Library Data. Information Today. ISBN: 978-1573873727

The following books may be used for suggested readings but they are not required. Alternate readings will also be available:

- Goldberg, Kevin H. 2008. XML: Visual QuickStart Guide (2nd Edition). Peachpit Press. ISBN: 978-0321559678
- Nixon, Robin. 2009. Learning PHP, MySQL, and JavaScript: A Step-By-Step Guide to Creating Dynamic Websites. O'Reilly Media. ISBN: 978-0596157135 (or the new 2012 edition which includes CSS)
- You might also consider an HTML manual if you have limited or no experience.

WEBSITES

Syllabus: https://pantherfile.uwm.edu/kipp/public/courses/linkeddata/
D2L: http://d2l.uwm.edu/
Blog: http://soislinkeddata.blogspot.ca/
Social Bookmarking: http://www.citeulike.org/user/soislinkeddata/
Examples: TBA
Textbook website: http://mashups.web2learning.net/

COURSE OUTLINE

Class	Date	Topic	Readings [optional readings in square brackets]
1	'Jan 22	Exploring the Semantic Web, Linked Data, and Web 2.0	• Engard, Nicole C. (ed.). 2009. Library Mashups: Exploring New Ways to Deliver Library Data. Information Today. Chapter 1; • Maness. 2006. Library 2.0 Theory: Web 2.0 and Its Implications for Libraries. http://www.webology.ir/2006/v3n2/a25.html; • Yang, Lee, and Xu. 2009. The Semantic Web and Libraries in the United States: Experimentation and Achievements. http://www.slideshare.net/elephantsmith/the-semantic-web-and-libraries-in-the-united-states-experimentation-and-achievements; • Tennant. 2009. 21st Century Description and Access. BID 22. http://www.ub.edu/bid/22/tennant2.htm;
2	'Jan 29	Metadata	• Elings and Waibel. 2007. Metadata for All: Descriptive Standards and Metadata Sharing across Libraries, Archives and Museums. First Monday 12(3). http://firstmonday.org/htbin/cgiwrap/bin/ojs/index.php/fm/article/view/1628/1543; • Tillet. 2003. What is FRBR?: A Conceptual Model for the Bibliographic Universe. http://www.loc.gov/catdir/cpso/whatfrbr.html; • Wacker et al. 2011. Testing Resource Description and Access (RDA) with Non-MARC Metadata Standards. Cataloging & Classification Quarterly 49(7/8): 655-675. (UWM Library Full Text);
3	'Feb 5	Authority Control in Web 2.0 and the Semantic Web	• Engard, Nicole C. (ed.). 2009. Library Mashups: Exploring New Ways to Deliver Library Data. Information Today. Chapter 4; • Hodge. 2000. Section 4: Planning and Implementing Knowledge Organization Systems in Digital Libraries . In Systems of Knowledge Organization for Digital Libraries: Beyond Traditional Authority Files. http://www.clir.org/pubs/reports/pub91/contents.html; • Robu et al. 2006. An introduction to the Semantic Web for health sciences librarians. JMLA 94(2): 198-205. http://www.ncbi.nlm.nih.gov/pmc/articles/PMC1435839/; • Harper. 2006. Encoding Library of Congress Subject Headings in SKOS: Authority control for the Semantic Web. DC-2006: (5 pages). http://dcpapers.dublincore.org/pubs/article/view/842; • Summers et al. 2008. LCSH, SKOS and Linked Data. DC-2008: 25-33.

			http://dcpapers.dublincore.org/index.php/pubs/article/view/916; • OCLC adds Linked Data to WorldCat.org http://www.oclc.org/us/en/news/releases/2012/201238.htm; • Linked data at OCLC http://www.oclc.org/data.html;
4	'Feb 12	Metadata Encoding	• Engard, Nicole C. (ed.). 2009. Library Mashups: Exploring New Ways to Deliver Library Data. Information Today. Chapter 3; • XML Basic (first 10 pages) http://www.w3schools.com/xml/default.asp; • Introduction to RDF (first 3 pages) http://www.w3schools.com/rdf/rdf_intro.asp; • Washington et al. 2011. Taking Music Metadata from MARC to FRBR to RDF. DC-2011: 171-175. http://dcpapers.dublincore.org/index.php/pubs/article/view/3639; • [Goldberg, Kevin H. 2008. XML: Visual QuickStart Guide (2nd Edition). Peachpit Press. Chapter 1, 3 (XML)];
5	'Feb 19	Markup and Display of Metadata	• Corey. 2004. Using XSLT to manipulate MARC metadata. Library Hi Tech 22(2): 122-130. (UWM Library Full Text); • Flynn, Oyler, and Miles. 2013. Using XSLT and Google Scripts to Streamline Populating an Institutional Repository. code4lib Journal 19(2013-01-15). http://journal.code4lib.org/articles/7825 • Introduction to XML Schema (Intro, Why Use and How To) http://www.w3schools.com/schema/schema_intro.asp; • Displaying XML with CSS http://www.w3schools.com/xml/xml_display.asp; • CSS Basic (all 4 sections) http://www.w3schools.com/css/default.asp; • XSLT Basic (all 12 sections) http://www.w3schools.com/xsl/default.asp; • [Goldberg, Kevin H. 2008. XML: Visual QuickStart Guide (2nd Edition). Peachpit Press. Chapter 2-3 (XSLT), 6 (DTD), 9 (XSD)];
6	'Feb 26	Metadata Databases and Models	• Engard, Nicole C. (ed.). 2009. Library Mashups: Exploring New Ways to Deliver Library Data. Information Today. Chapter 20; • Introduction to SQL (first 4 pages) http://www.w3schools.com/sql/sql_intro.asp; • Data model (up to Data model topics) http://en.wikipedia.org/wiki/Data_model; • DCMI Abstract Model.

			http://dublincore.org/documents/abstract-model/; • Dublin Core: User Guide http://wiki.dublincore.org/index.php/User_Guide; • LC BIBFRAME Data model (first 28 pages) http://www.loc.gov/marc/transition/pdf/marcld-report-11-21-2012.pdf; • British Library Data Model http://talis-systems.com/2011/07/significant-bibliographic-linked-data-release-from-the-british-library/ (model: http://talis-systems.com/wp-content/uploads/2011/07/British-Library-Data-Model-v1.01.pdf); • [Nixon, Robin. 2009. Learning PHP, MySQL, and JavaScript: A Step-By-Step Guide to Creating Dynamic Websites. O'Reilly Media. Chapter 8-9 (MySQL and SQL)];
7	'Mar 5	Metadata Harvesting and Retrieval	• Engard, Nicole C. (ed.). 2009. Library Mashups: Exploring New Ways to Deliver Library Data. Information Today. Chapter 2; • OAI for Beginners - the Open Archives Forum online tutorial (Sections 1,3) http://www.oaforum.org/tutorial/; • Jackson et al. Dublin Core Metadata Harvested Through OAI-PMH. Journal of Library Metadata 8:1 (2008) 5-21. http://hdl.handle.net/2142/9091; • [Nixon, Robin. 2009. Learning PHP, MySQL, and JavaScript: A Step-By-Step Guide to Creating Dynamic Websites. O'Reilly Media. Chapter 8-9 (MySQL and SQL)];
8	'Mar 12	Web 2.0 and Mashups	• Engard, Nicole C. (ed.). 2009. Library Mashups: Exploring New Ways to Deliver Library Data. Information Today. Chapter 5; • Morville. 2005. Ambient Findability. Chapter 6: The Sociosemantic Web (p. 119-154).; • Daviduck. n.d. Algorithms, Flowcharts and Pseudocode http://www.allclearonline.com/applications/DocumentLibraryManager/upload/program_intro.pdf; • HTML Forms and Input (this page) http://www.w3schools.com/html/html_forms.asp;
9	'Mar 19	Spring Break	
10	'Mar 26	Active Websites and Web 2.0	• Engard, Nicole C. (ed.). 2009. Library Mashups: Exploring New Ways to Deliver Library Data. Information Today. Chapter 6-8; • Krug, Steve. 2005. Don't Make Me Think! http://www.webreference.com/programming/usability/ (Chapter 11);

			• W3C. 2006. Evaluating Web Sites for Accessibility: Overview (First two sections) http://www.w3.org/WAI/eval/Overview.html; • Hutchinson, et al. 2004. The International Children's Digital Library: A Case Study in Designing for a Multi-Lingual, Multi-Cultural, Multi-Generational Audience Information Technology and Libraries, American Library Association, March 2005, 24(1): 4-12. http://hcil.cs.umd.edu/trs/2004-24/2004-24.html; • Javascript Tutorial (up to JS Functions, skip JS Objects) http://www.w3schools.com/js/default.asp; • Learn How to Build a Pipe in Just a Few Minutes on Yahoo! (5 minutes) http://www.youtube.com/watch?v=J3tS_DkmbVA;
11	'Apr 2	Active Websites and Microformats	• Engard, Nicole C. (ed.). 2009. Library Mashups: Exploring New Ways to Deliver Library Data. Information Today. Chapter 14-16; • Ronallo. 2012. HTML5 Microdata and Schema.org. code4lib Journal 16(2012-02-03). http://journal.code4lib.org/articles/6400; • Javascript Tutorial (from JS Functions to JS Validation) http://www.w3schools.com/js/default.asp; • Pipes Module Reference (as required) http://pipes.yahoo.com/pipes/docs?doc=modules;
12	'Apr 9	Mashups and the Catalogue	• Engard, Nicole C. (ed.). 2009. Library Mashups: Exploring New Ways to Deliver Library Data. Information Today. Chapter 9-11; • Yang and Hofmann. 2010. The Next Generation Library Catalog: A Comparative Study of the OPACs of Koha, Evergreen, and Voyager. Information Technology and Libraries (Sept. 2010). (10 pages) http://www.ala.org/lita/ital/sites/ala.org.lita.ital/files/content/29/3/yang.pdf; • Byrne and Goddard. 2010. The Strongest Link: Libraries and Linked Data. D-Lib 16 (11/12). http://www.dlib.org/dlib/november10/byrne/11byrne.html;
13	'Apr 16	Mashups and the Catalogue 2	• Dunsire, Gordon, and Mirna Willer. 2011. UNIMARC and Linked Data. IFLA Journal. 37, no. 4: 314-326. (UWM Library Full Text) (Note: UNIMARC is a European MARC standard.); • Haslhofer and Isaac. 2011. data.europeana.eu: The Europeana Linked Open Data Pilot. DC-2011: 94-104. http://dcpapers.dublincore.org/index.php/pubs/article/view/3625; • Holgerson et al. 2012. Using Semantic Web Technologies to Collaboratively Collect and Share

			User-Generated Content in Order to Enrich the Presentation of Bibliographic Records–Development of a Prototype Based on RDF, D2RQ, Jena, SPARQL and WorldCat's FRBRization Web Service. code4lib Journal 17(2012-06-01). http://journal.code4lib.org/articles/6695; • Report of the Stanford Linked Data Workshop. 2011. Linked Data for Libraries, Museums, and Archives: Survey and Workshop Report. (p. 1-22) http://www.clir.org/pubs/abstract/reports/pub152; • Using YQL Statements (read up to Filtering Query Results) http://developer.yahoo.com/yql/guide/select_statement.html;
14	'Apr 23	Mashups with AJAX and jQuery	• Nelson and Cleary. 2010. FRBRizing an E-Library: Migrating from Dublin Core to FRBR and MODS. code4lib Journal 12(2010-12-21). http://journal.code4lib.org/articles/4357; • Nagaya et al. 2011. Controlled Terms or Free Terms? A JavaScript Library to Utilize Subject Headings and Thesauri on the Web. code4lib Journal 15(2011-10-31). http://journal.code4lib.org/articles/5994; • Johnson. 2013. Indexing Linked Bibliographic Data with JSON-LD, BibJSON and Elasticsearch. code4lib Journal 19(2013-01-15). http://journal.code4lib.org/articles/7949; • jQuery Tutorial (up to jQuery AJAX) http://www.w3schools.com/jquery/default.asp; • AJAX Tutorial (AJAX Basic) http://www.w3schools.com/ajax/default.asp;
15	'Apr 30	Work on Mashups	• No Readings • A week to work on mashup projects
16 (Last)	'May 7	Emerging Technologies and Wrapup	• Park, J. , Tosaka, Y. , Maszaros, S. , & Lu, C. 2010. From metadata creation to metadata quality control: Continuing education needs among cataloging and metadata professionals. Journal of Education for Library & Information Science, 51(3), 158-176. (UWM Library Full Text); • Mullins. 2012. Are MLS Graduates Being Prepared for the Changing and Emerging Roles that Librarians Must Now Assume Within Research Libraries? Journal of Library Administration 52(1): 124-132. (UWM Library Full Text); • Filipczak. n.d. Emerging technologies: A research guide for librarians. https://sites.google.com/site/emergingtechnologyinlibra

			ries/; • Sample job ads http://jobs.code4lib.org/;

ASSIGNMENTS

	Assignment	Points (Grad)	Points (Undrgrd)	Associated Classes	Recommended Due Date	Final Deadline
1	Metadata and Markup [1]	10	10	Class 1-4	Class 5	Class 5
2	Metadata Display	5	5	Class 4-5	Class 6	Class 7
3	Retrieval and Harvesting of Metadata	10	10	Class 6-7	Class 8	Class 9
4	Web Querying	5	5	Class 6-11	Class 12	Class 13
5	Active Web Design	5	5	Class 10-15	Class 15	Class 15
6	Short Paper	15	n/a	All Classes	Proposal: Class 3 Paper: Designated Week (3-12)	Class 12
P	Mashup Project	30	45	All Classes	Plan: Class 10 Mashup: Last Class	Last Class
	Participation	20	20	All Classes		Last Class

[1] Class numbers are listed in the Course Outline Table. Each class has an associated Class Number (#), Date, Topic and Readings. The assignment table is keyed to the course outline's class numbers. To determine the exact date an assignment is due, check the appropriate class number in the course outline table.

In each assignment (except the short paper), graduate students are expected to do 20-30% more work. Different requirements for graduate and undergraduate levels will be specified in the directions for each assignment where appropriate.

There is no final exam in this course.

Due Dates
All assignments and projects should be submitted through D2L before midnight (Central Time) on the recommended due date. Students should strive to submit assignments by the recommended due date, but may have until the assignment's Final Deadline to submit. Points for late assignments will be reduced 5% per day late. Emailed submissions will only be accepted as a backup to a D2L submission.

Paper submissions will not be accepted. All assignments must be typed on a computer. Handwritten submissions will not be accepted, even if scanned and submitted electronically.

At least one assignment must be submitted by Class 5. Everything must be submitted by the Last Class (this includes all assignments, papers, projects, and participation).

Students may work in pairs to complete all assignments except the short paper and individual participation items, but must indicate this on the assignment when submitting. You should both submit a copy of the assignment and include your partner's name.

Items submitted early will not be evaluated until the Recommended Due Date (or Final Deadline). Students are encouraged to complete all Associated Classes before submitting the assignments since the material in these classes constitutes preparation for the assignments.

*** Students must contact the instructor before each Final Deadline for any extensions. ***

Course Flow
This course is not completely asynchronous. There are no synchronous class sessions, but it is important to follow the dates listed on the syllabus as much as possible to avoid falling behind. Each class has associated readings, notes or slides, and may also have associated in-class exercises, discussions, or tutorials. There are five short assignments (1-5), a short paper (6), and a mashup project which are associated with sets of classes. Assignment due dates are listed in the assignment grid and are keyed to the dates listed in the course outline to ensure regular progression through the course.

Participation is an important component of the course and includes asking questions, contributing ideas, or joining in the in-class exercises and small group discussions.

Expectations for this Class
It is expected that class members will show consideration for all other members of the class and contribute in a constructive manner which is conducive to a good learning environment. Class members should consider the relevance and appropriateness of their contributions to the class before contributing to the class. Violations of these expectations will result in reduced participation points. Relevant and interesting contributions are always welcome and may be contributed at any time.

Plagiarism and Referencing
Plagiarism is the unacknowledged borrowing of ideas or material from someone else's work. It is considered an academic offence and can be considered grounds for failure in a course or expulsion from the programme. Cite all references and provide credit for all other materials. This applies to all material including images, sounds or videos. A citation (in the format of your choice) with a functioning URL (if relevant) is the minimum required for a reference. (http://guides.library.uwm.edu/content.php?pid=235714&sid=1949820#6509804)

You may not resubmit assignments already submitted in other courses, nor may you submit other people's work as your own. Working in pairs is permitted for most assignments, if this is indicated on the submitted assignment.

It is expected that you will consult and cite the research and professional literature where merited and not rely solely on encyclopaedias, newspapers or unpublished, online sources. Papers where the majority of sources are blogs and Wikipedia (or similar sites) will not be accepted.

Use a common style manual for citations (e.g. APA, MLA, Chicago).

Formatting Guidelines
Assignments should be written using Arial or another Sans-Serif style font. **Do not use red for emphasis or to highlight your answers to questions.** Remove all extraneous information before submission (e.g. assignment instructions or tips).

Assignments **may not** be submitted in Pages, Microsoft Works, or Microsoft Project format. You should save these as PDF or RTF instead. Other common file formats should be acceptable including Open Office formats. If you are using an unusual format you can always check first before submission.

All assignments must be typed on a computer. Handwritten submissions will not be accepted, even if scanned and submitted electronically.

Grading Scale

96-100	A	Superior work		74-76	C	Work is below standard
91-95	A-			70-73	C-	
87-90	B+			67-69	D+	
84-86	B	Satisfactory, but undistinguished work		64-66	D	Unsatisfactory work
80-83	B-			60-63	D-	
77-79	C+			Below 60	F	

UWM AND SOIS ACADEMIC POLICIES
The following links contain university policies affecting all SOIS students. Many policies may be accessed through a PDF-document maintained by the Secretary of the University: http://www.uwm.edu/Dept/SecU/SyllabusLinks.pdf. Undergraduates may also find the ***Panther Planner and Undergraduate Student Handbook*** useful (http://www4.uwm.edu/osl/students/). For graduate students, there are additional guidelines from the Graduate School (http://www.uwm.edu/Dept/Grad_Sch/StudentInfo/), including those found in the ***Graduate Student and Faculty Handbook***: http://www.graduateschool.uwm.edu/students/policies/expanded/.

Students with disabilities. If you will need accommodations in order to meet any of the requirements of a course, please contact the instructor as soon as possible. Students with disabilities are responsible to communicate directly with the instructor to ensure special accommodation in a timely manner. There is comprehensive coverage of issues related to disabilities at the Student Accessibility Center (http://www4.uwm.edu/sac/), important components of which are expressed here: http://www.uwm.edu/Dept/DSAD/SAC/SACltr.pdf.

Religious observances. Students' sincerely held religious beliefs must be reasonably accommodated with respect to all examinations and other academic requirements, according to the following policy: http://www4.uwm.edu/secu/docs/other/S1.5.htm. Please notify your instructor within the first three weeks of the Fall or Spring Term (first week of shorter-term or Summer courses) of any specific days or dates on which you request relief from an examination or academic requirement for religious observances.

Students called to active military duty. UWM has several policies that accommodate students who must temporarily lay aside their educational pursuits when called to active duty in the military (see http://www4.uwm.edu/academics/military.cfm), including provisions for refunds, readmission, grading, and other situations.

Incompletes. A notation of "incomplete" may be given in lieu of a final grade to a student who has carried a subject successfully until the end of a semester but who, because of illness or other unusual and substantial cause beyond the student's control, has been unable to take or complete the final examination or some limited amount of other term work. An incomplete is not given unless the student proves to the instructor that s/he was prevented from completing course requirements for just cause as indicated above (http://www4.uwm.edu/secu/docs/other/S31.pdf).

Discriminatory conduct (such as sexual harassment). UWM and SOIS are committed to building and maintaining a campus environment that recognizes the inherent worth and dignity of every person, fosters tolerance, sensitivity, understanding, and mutual respect, and encourages the members of its community to strive to reach their full potential. The UWM policy statement (http://www4.uwm.edu/secu/docs/other/S47.pdf) summarizes and defines situations that constitute discriminatory conduct. If you have questions, please contact an appropriate SOIS administrator.

Academic misconduct. Cheating on exams and plagiarism are violations of the academic honor code and carry severe sanctions, ranging from a failing grade for a course or assignment to expulsion from the University. See the following document (http://www4.uwm.edu/acad_aff/policy/academicmisconduct.cfm) or contact the SOIS Investigating Officer (currently the Associate Dean) for more information.

Complaints. Students may direct complaints to the SOIS Dean or Associate Dean. If the complaint allegedly violates a specific university policy, it may be directed to the appropriate university office responsible for enforcing the policy (http://www4.uwm.edu/secu/docs/other/S49.7.htm).

Grade appeal procedures. A student may appeal a grade on the grounds that it is based on a capricious or arbitrary decision of the course instructor. Such an appeal shall follow SOIS appeals procedures or, in the case of a graduate student, the Graduate School. These procedures are available in writing from the respective department chairperson or the Academic Dean of the College/School (http://www4.uwm.edu/secu/docs/other/S28.htm).