

INLS 520 – Information Organization

Course Schedule – Fall 2008, UNC-CH

Erik Mitchell mitcheet@email.unc.edu

INLS 520 – Information Organization.....	1
Syllabus.....	2
Course Schedule and Contents	8
Class 1. Introductions and core concepts	10
Class 2. Definitions: What/who.....	12
Class 3. Organization mechanisms and standards	15
Class 4. Metadata Models and Encoding Systems	17
Class 5. Metadata models, organization and creators/users	20
Class 6. Classification & More XSL	23
Class 7. Knowledge management and categorization	25
Class 8. Controlled vocabularies	27
Class 9. Creating thesauri, taxonomies, and ontologies	29
Class 10. Working with data - Automation	31
Class 11. Creating Services from metadata.....	33
Class 12. Guest Lecturer –.....	35
Class 13. Semantic Web & Miscellaneous description	36
Class 14. Course review	38
Assignment 1: Resource Description.....	39
Assignment 2: Document transformation	42
Assignment 3: Ontology	44
Assignment 4: Class Research Project.....	46
Class Readings	48

Syllabus

Course Information

General

Course Prefix and Number: INLS 520

Course Title: Information Organization

Credits: 3

Class Meetings:

Time - Tuesday, 9:30am – 12:00 pm

Place – Manning 307

Class Website – <http://blackboard.unc.edu>

Intended Participants:

Students in Information and Library Science programs

Electronic support

Blackboard

This class will make use of the UNC Blackboard system for course information distribution and assignment submission. The course is located at <http://blackboard.unc.edu>

Course Listserv

You have been subscribed to the course listserv INLS520_Fall2008@listserv.unc.edu. This list will be used for course information and may be used to post questions, observations, and discuss issues.

To send messages to the class list, address e-mails as follows: INLS520_Fall2008@listserv.unc.edu

Instructor Information:

Erik Mitchell

Contact Information:

Email: mitcheet@email.unc.edu - email preferred

Office Hours:

By appointment over email, phone, or IM as necessary

Before and after class in person by appointment

Course Description:

Organizing Information (INLS 520) "introduction to the problems and methods of organizing information, including information structures, knowledge schemas, data structures, terminological control, index language functions, and implications for searching".

Course Objectives and Outcomes:

To understand the role of organizing information in information control, transfer, and access.

To learn about and become familiar with the basic principles and practices of organization.

To develop skills for analyzing and processing structured data

To understand how the role of representation and classification.

To learn how to evaluate information organization in existing and planned information systems.

To consider theoretical issues underlying the organization of information.

Teaching Strategies:

Class lecture, readings, exploration, and discussion

Individual and group assignments

Student presentations, reflection, writing, class participation

Course Requirements

Evaluation and Assignments:

Class participation and reflection

- Weight: 20%
- Description
 - Class participation is an important part of this course. There will be opportunities in every class to discuss readings, current events, and issues. Please ask questions and participate in the discussions – by doing so you will make the class much more interesting.
- Due Date
 - Ongoing throughout the semester

Representation assignment

- Weight: 15%
- Objective
 - To practice representation and description using metadata
 - To work with metadata standards
 - To investigate representation / metadata issues
- Description
 - This three part assignment includes:
 - The creation of two metadata records describing a web based resource (website, electronic book, audio/visual material, etc). The two metadata records will follow the Dublin Core and MARC standards
 - The encoding of metadata using XML and MARC standards
 - The investigation and discussion of representation/metadata issues
- Date Assigned/due
 - See course calendar (below) for assignment and due dates

Transformation Assignment

- Weight: 20%
- Objective
 - To work with the XML, XSL, and HTML Document Object Models to migrate data from one organization structure to another. To understand the relationships between data, structure, and services
- Description
 - Students will select an RSS feed and write an XSL stylesheet to transform that feed into an XHTML compliant document. You may also create a CSS style sheet to format that document
- Date Assigned/due
 - See course calendar (below) for assignment and due dates

Ontology Assignment

- Weight: 20%

- Objective
 - To investigate ontology construction
 - To explore ontology management software
- Description
 - In this assignment, you will form into small groups and develop an ontology on a topic of your choice. You will use an ontology management application (Protégé) to develop your ontology. On the day your ontology is due, your group will give a short (5 minute) presentation on your ontology.
- Date Assigned/due
 - See course calendar (below) for assignment and due dates

Class research project / Poster session

- Weight: 25%
- Objective
 - To allow you to select a topic of interest related to Information Organization and pursue in-depth. This project will include both group work and individual work.
- Description
 - During the middle of the semester you will be asked to form groups (~4 people) and select a topic of interest which your group will pursue during the remaining part of the semester. This project may include research, literature review, technical work/programming, etc. On the final day of class we will share our research findings using a poster, website, video, or other shareable document. The project producibles should include a project proposal due mid-way through the semester, a poster, application, or website ; a short (5-7 minute) oral presentation of your group's work, and a individual reflective statement (~2 pages).
- Date Assigned/due
 - See course calendar (below) for assignment and due dates. Note this assignment includes a proposal due date as well as final project due date. Note also that a portion of your grade in this project is based on individual work and your group's assessment of your work.

Grading scale

Graduate: H 100-95%, P+ 94-90%, P 89-85%, P- 84-80%, L 79-70%, F < 69%

Undergraduate: A+ 100-95%, A 94-90%, B 89-85%, B- 84-80%, C 79-70%, D 69% - 60%, F < 60%

Attendance Policy:

Attendance, preparation for and participation in this class are expected and highly valued by the instructor and your peers. Students need to arrive on time, attend each class and participate actively. While attendance in class is required, I realize that an absence may be necessary. Please contact me by email or leave a message when you know you are going to be absent. If you must miss class, coordinate with a class colleague to review the session and collect handouts and get with me if needed.

Academic Integrity Policy

Students are expected to follow the obligations of academic integrity described in the UNC honor code. Students should make themselves familiar with this document and realize that they will be held accountable for understanding and following these guidelines for all activities and assignments. However, collaboration, discussion, and seeking assistance from students is encouraged and is not inconsistent with the Honor Code.

Syllabus Status

This syllabus will contain up-to-date information throughout the semester. When modified I will try to notify you. It is your responsibility however to make sure that your preparation each week is based on the current syllabus and Blackboard information.

Course Materials and Access

Course Location

The class meets in Manning 307, 9:30am – 12:00pm Tuesdays

Course materials can be accessed via the Blackboard site at <http://blackboard.unc.edu>

Required Text:

This class does not have a required text but does have a number of readings. These readings will be listed in the syllabus and in Blackboard and will be available through either Blackboard, Journal Finder (<http://eresources.lib.unc.edu/ejournal/>), or via the PAM box reserves in the SILS library.

Assignment guidelines:

Assignments must be typed and turned in through Blackboard. If you have difficulty using blackboard see the tutorial at <http://help.unc.edu/4781>

Assignments must be turned in on time.

Late work will not be accepted without the instructor's approval. If you are unable to turn the assignment in by the due date, contact me to arrange an alternative due date to ensure full credit.

Please see me individually and email me if you have an emergency and feel that your emergency warrants an exception to this rule.

Blackboard and the UNC email system will be used to provide up-to-date class information. Please check your email weekly for class information. Blackboard has links to course information and documents that may be useful.

PLEASE NOTE: Students who have any disability, which might affect their academic performance in this class, are encouraged to seek assistance from the instructor at the beginning of the semester or as soon as possible after an initial diagnosis. If you have a disability that qualifies under the American with Disabilities Act and requires special accommodations, you should contact the office of Disability Services (<http://disabilityservices.unc.edu/help/academic.html>). Documentation of the disability must be on file. Specific accommodations will be determined on an individual basis.

Course Schedule and Contents

Week	Class Topic	Prior to class	Class Activity	Assignment dates
8/19/2008	Class 1: Introductions and core concepts	Introductory Reading		
8/26/2008	Class 2: Definitions: What/who		XHTML DOM	Class research project (4) introduced
9/2/2008	Class 3: Organization mechanisms and standards		Description of resources	
9/9/2008	Class 4: Metadata Models	Install XML Editor	XML exercise	Representation Assignment (1) introduced
9/16/2008	Class 5: Metadata models continued	Install MarcEdit	MARC exercise	
9/23/2008	Class 6: Classification & XSL		XSL exercise	Transformation Assignment (2) introduced
9/30/2008	Class 7: Knowledge management and categorization continued		Guest Speaker Jacob Kramer-Duffield (UNC)	Assignment 1 due Form groups for final assignment
10/7/2008	Class 8: Controlled vocabularies		Guest Speaker Will Sexton (Duke University)	
10/14/2008	Class 9: Thesauri, taxonomies, and ontologies	Install Protégé	Ontology Development	Ontology Assignment (3) introduced

10/21/2008	Class 10: Automation		Guest Speaker Barrie Hayes Ontology Development	Assignment 2 due Assignment 4 proposal due
10/28/2008	No Class (ASIST)			
11/4/2008	Class 11: Creating Services from metadata		Service design exercise Guest Speaker John Little	
11/11/2008	No Class			
11/18/2008	Class 12: Guest lecturer			
11/25/2008	Class 13: Semantic Web & Miscellaneous description		Ontology presentations Yahoo Pipes & Google Gadgets	Assignment 3 due
12/2/2008	Class 14: Course review, Final project presentations due		Project presentations	Assignment 4 due by 5pm

Class 1. Introductions and core concepts

Overview

Class Summary

In this class we will introduce ourselves, examine the course structure, and introduce basic principles of information organization

Goals & Objectives

Introduce instructor and students

Introduce course structure and content

Discuss nature of information organization

Tasks

Introductions

Fill out information card

Course overview

Course discussion

Readings

Weinberger. 2007. Everything is miscellaneous: The power of the new digital disorder - chapter 1.

<http://www.everythingismiscellaneous.com/wp-content/samples/eim-sample-chapter1.html>

Class Lecture

- Examples of organization
 - <http://www.unc.edu>
 - Inconsistent Information Architecture, Variable Document models
 - <http://www.amazon.com>
 - (powerful categories, user-feedback data, powerful search, result counts, good description – example Cell phones)
 - <http://nbcolympics.com>
 - Complex document, consistent navigation

- <http://bananarepublic.com>
 - (clean site, focused on a single task)
- <http://www.lib.ncsu.edu/catalog/>
 - The library example of faceted search
- http://en.wikipedia.org/wiki/Main_Page
 - (Socially created site, Encyclopedic style access – search, disambiguation pages, http://en.wikipedia.org/wiki/Jordan_%28disambiguation%29)
- Why do we need organization?
 - Affects our understanding – Data to wisdom tree
 - <http://www.systems-thinking.org/dikw/dikw.htm>
 - Storage and retrieval, Learning and communication
- What are some examples of organization in information and library science?
 - Cataloging, Special Collections/Archives, Circulation, indexing
- How does Information Organization relate to other disciplines / areas?
 - Discipline facet
 - Library Science – Information Science – Computer Science
 - Conceptual facet
 - Representation, surrogation, logic, process analysis
 - Social, political, technical interests
 - Technical facet
 - Processes, DOM, encoding, programming
- Class structure and expectations
 - Schedule, assignments, expectations, office hours

Class Discussion

Break into groups and discuss what you expect to learn from this class and what it will contribute to your career goals.

Class 2. Definitions: What/who

Overview

Class Summary

In this class, we will look at definitions of information and ask about the uses of information organization

Goals & Objectives

Discuss definitions of information and documents

Become acquainted with the uses of information organization

Become familiar with different aspects of description and organization

Tasks

Class discussion

Group exercise

Assignment 4 introduced

Readings

M. Buckland. 1991. Information. 3-13. <http://www.ischool.berkeley.edu/~buckland/thing.html>

M. K. Buckland. 1997. What is a document?48, 804-809.

<http://www3.interscience.wiley.com.libproxy.lib.unc.edu/cgi-bin/abstract/39756/ABSTRACT>

Garrett. 2000. The elements of user experience. <http://jjg.net/elements> --Browse Chart

Barreau & Nardi. 1995. Finding and reminding: File organization from the desktop.27, 39-42. --Browse

Class Lecture

- What is information?
 - Definitions:
 - Bateson – Any difference that makes a difference
 - Buckland – Physical, Action/Process, Cognitive state
 - Dervin – Internal, External, Sensemaking
- What is a document?

- Format perspective (book, report, website, multimedia)
- Event/time perspective (performance, happening)
- Paul Otlet – a document is an object with information attached to it
- How do current examples of electronic documents impact this view?
- History of the document
- Frames – Information can be looked at in different ways. What are the perspectives of each frame?
 - Technical – What technologies are in play with the information/document? How does the technology drive information use? What services can be built on this information architecture?
 - Structural - What are the elements of the document/information. How does the structure of the document inform the information? What elements of the document structure are internal/external?
 - Personal – How do personal preferences/needs impact the information/document. What elements of the information are highly personal in nature & what underpinnings/biases are embedded in the information architecture?
 - Social – How does the information/document adhere to or reflect society? What elements of the document are reflections of social norms/information structures? What underpinnings/biases are embedded in the information architecture?
 - Political – What elements of political dynamics exist in the information architecture. How do dynamics of political power, nationalism, and social norms impact the document/information
- Dimensions of information and its description
 - Utility – how is it used? One document can be used in many ways – maps. What is the document used for?
 - Structure and process – How do you get organization done? What methods, components? How does the physical state of information effect your organization of it (print, electronic, web/local)?
 - Facets of organization – Description, surrogation, technical, preservation, event/time
- Information Architecture – a new look at organization?
 - Definition of Information Architecture
 - What areas does IA impact?
 - What is more important - the data or the interface?
- Technical exercise instruction
 - What is HTML, XHTML, Semantic HTML?

- What are Cascading Style Sheets (CSS)?
- What is the Document Object Model?
- Tour of HTML elements
- Tour of CSS elements

Class Discussion

Break into 5 groups. Pick a specific document (a website, a newspaper, a book, a CD) and look at it from the 5 frames discussed in class (Technical, Structural, Personal, Social, Political). How is both your document and organization of that document influenced by those frames?

Class Exercise

In this exercise we will examine the HTML Document Object Model (DOM). Work through the CSS exercise & be prepared to discuss the following questions:

What kind of relationship exists between the HTML DOM and its presentation?

What role could information organization play?

Class 3. Organization mechanisms and standards

Overview

Class Summary

In this class we discuss general methods of organization and review common organization standards

Goals & Objectives

Become familiar with organizational methods

Become familiar with common standards

Discuss the impact on format of description

Tasks

Class discussion

Representation Exercise

Readings

B. H. Kwasnik. 1989. How a personal document's intended use or purpose affects its classification in an office., 207-210. <http://portal.acm.org/citation.cfm?id=75334.75356>

Gilliland. Setting the stage.

http://www.getty.edu/research/conducting_research/standards/intrometadata/setting.html

Weibel. 1995. Metadata: The foundations of resource description.

<http://www.dlib.org/dlib/July95/07weibel.html>

Hillmann. 2005. Using dublin core. <http://dublincore.org/documents/usageguide/>

Gill. Metadata and the world wide web.

http://www.getty.edu/research/conducting_research/standards/intrometadata/metadata.html

Class Lecture

- What is metadata?
 - Article discussion (types, purpose, creation)
- How do standards guide organization?

- Term/content selection – LCSH/UDC
- Layout/formatting of content – ISBD, MARC, XML, AACR2
- Document surrogation – MARC/DC/
- Retrieval – Z39.50, XML, SRU/SRW, SOAP/REST
- What impact does format/use have on description?
 - Permanence / Impermanence
 - Location
 - Accessibility
- Overview of Dublin Core
 - What kind of standard is DC?
 - How does it encode/represent information
 - How is it different from MARC/LC?

Class Discussion

What do you think some of the challenges of metadata? How do you address these challenges?

What impact do standards have on organization and retrieval? Are standards always important?

Class Exercise

In this exercise we will work in groups to create a Dublin Core record from a document.

Class 4. Metadata Models and Encoding Systems

Overview

Class Summary

In this class we will discuss metadata models for document representation and information organization

Goals & Objectives

Become acquainted with the concept of metadata models

Become familiar with various metadata models

Become familiar with metadata encoding mechanisms

Tasks

Class discussion

Group exercise

Install XML editor prior to class (see exercise section)

Assignment 1 introduced

Readings

Metadata models

Attig *et al.* 2007. Understanding marc bibliographic machine readable cataloging.

<http://www.loc.gov/marc/umb/> --Read sections I-VI

"Dublin core metadata registry." 2007. <http://dublincore.org/dcregistry/navigateServlet> --Browse

Powell *et al.* 2007. Dcmi abstract model. <http://dublincore.org/documents/abstract-model/> --Skim - focus on broad ideas

Encoding models

W3c Tutorials. 2007. Xml tutorial. <http://www.w3schools.com/xml/default.asp> --In XML basic section read up to "Validation"

Powell & Johnston. 2007. Guidelines for implementing dublin core in xml. <http://dublincore.org/documents/dc-xml-guidelines/>

Optional

Choo *et al.* 1999. Information seeking on the web - an integrated model of browsing and searching. 3-16.

<http://choo.fis.utoronto.ca/fis/respub/asis99/>

Download & Install

- Exchanger XML Editor from <http://www.freexmleditor.com/>
- This application is a simple XML editing tool.

Example Tutorials

W3c Tutorials. 2007. Xml tutorial. <http://www.w3schools.com/xml/default.asp> --In XML basic section read up to "Validation"

Class Lecture

- Examples of Metadata systems
- Metadata overview
 - Dublin Core
 - What is Dublin Core, elements, element refinements, qualifiers
 - How do you create/manage Dublin Core
 - Other metadata systems – MARC, Microformats (RSS/Atom),
 - Uses of metadata models in popular social software systems
 - Reddit, Flickr, del.icio.us, bloglines,
 - Del.icio.us - <http://del.icio.us/ouroboros/borges>
- Encoding Systems
 - HTTP (Querystring, Get/Post, SOAP/REST)
 - HTML (Predefined Tags, Page encoding standards, orientation of standard for specific application)
 - XML
 - Extensible Markup Language definition, Core concepts, integration with schema declarations, implications for use

- XML overview
- XSL overview
- Metadata Concepts
 - Standards
 - DTDs
 - XML Schemas & namespaces
 - Application profiles
 - Schemas
 - Encoding Schemes
 - Syntax encoding scheme
 - Vocabulary encoding scheme
 - Issues
 - Interoperability
 - Extensibility
- Metadata Models
 - The Dublin Core Abstract Model
 - METS

Class Discussion

How do metadata models influence organization? How independent are metadata models from their resource/organizational context (for example do standards like MARC have relevance in non-library/non-bibliographic environments?)

What service roles does metadata serve (storage, retrieval, management)? What is the relationship between metadata model and encoding system?

Class 5. Metadata models, organization and creators/users

Overview

Class Summary

In this class we will continue with metadata models by looking at the MARC and RDF encoding standards and metadata interoperability models. We will then look at the user created organization systems and introduce XSL.

Goals & Objectives

Continue investigation of metadata models

Discuss uses and users of information systems

Discuss user-generated organization systems

Tasks

Class discussion

Group exercise

Install MarcEdit prior to class (see exercise)

Readings

More Metadata models

O'Neill. 2002. Frbr: Application of the entity-relationship model to humphry clinker.46.

http://www.oclc.org/research/publications/archive/2002/oneill_frbr22.pdf

Miller. 1998. An introduction to the resource descriptive framework.

<http://www.dlib.org/dlib/may98/miller/05miller.html> --Skim - focus on broad topics. We will revisit RDF later in the semester

Lagoze & Van de Somple. 2003. The making of the open archives initiative protocol for metadata harvesting 21, 128 -

<http://www.emeraldinsight.com/Insight/viewContentItem.do?contentType=Article&contentId=861361>

User Generated Models

Greenberg. 2003. Metadata generation, people, processes, and tools.29. <http://www.asis.org/Bulletin/Dec-02/greenberg.html>

More on encoding models - Optional

Cronin. 2004. Bowling alone together: Academic writing as distributed cognition.55, 557-560.

<http://dx.doi.org/10.1002/asi.10406>

Powell. 2004. Encoding dc in (x)html, xml and rdf. <http://www.ukoln.ac.uk/metadata/presentations/ecdl-2004/dc-tutorial/>

Saur. 1998. Functional requirements for bibliographic records. <http://www.ifla.org/VII/s13/frbr/frbr.pdf> --Skim / Browse as interest warrants

Class Lecture

- Metadata model review. What did we cover last week?
- Metadata model examples/overviews
 - MARC
 - FRBR
 - Review of Work, Expression, Manifestation, Item
 - Demonstration of OCLC <http://fictionfinder.oclc.org/WebZ/Authorize?sessionid=0>
 - Demonstration of OCLC Worldcat
 - Discussion of FRBR – Meta-model (regrouping on MARC), issues with string processing, importance of user-needs evaluation
 - RDF
 - Friend of a Friend (FOAF) example - <http://www.foaf-project.org/>
 - <http://cuboidal.org/demos/foafcorp/>
 - Communication/Interoperability models
 - Z39.50 – communication model that includes support for multiple meta document models
 - OAI-PMH/ORE – Harvesting model <http://www.openarchives.org/>
- Expert vs. user generated metadata
 - Summary of Greenberg article
 - Examples:
 - Amazon: <http://www.amazon.com>

- Worldcat: <http://www.worldcat.org>
- What are the implications of expert, author, and user-generated metadata?

Class Discussion

What are the core skills that an information organization professional should have? How do you think that an information organization professional differs from others (authors, readers, information consumers)? How do different groups approach information organization? Librarians, information architects, general users, subject matter experts, students?

Class Exercises

Exercise 1 – Become familiar with MarcEdit and create a MARC record

Exercise 2 – Work with existing MARC files

Exercise 3 – Introduction to XSL

Class 6. Classification & More XSL

Overview

Class Summary

In this class we will introduce the concepts of classification and categorization and look at relevant systems and standards

Goals & Objectives

Become familiar with the concepts of classification and categorization

Become familiar with the elements of a classification system

Discuss the uses of classification systems

Tasks

Class discussion

Group exercise

Working with XSL

Introduce assignment 2

Readings

"Introduction to xslt." 2007. http://www.w3schools.com/xsl/xsl_intro.asp Complete tutorial

Weinberger. 2007. Everything is miscellaneous: The power of the new digital disorder - linnaeus excerpt.
http://www.wired.com/science/planetearth/news/2007/05/miscellaneous_excerpt

Note: For the following readings please see Blackboard for digital copies

Lantridge. 1992. Classification: Its kinds, elements, systems, and applications. 2-23. --Read 2-23

Hunter. 2002. What is classification.

Hunter. 2002. Classification made simple.

Ranganathan. 1962. Facet analysis: Fundamental categories.

Browne. 2003. Faceted classification.18. <http://www.webindexing.biz/Articles/FacetedClassification.htm>

Class Lecture

- Intermediate XSL concepts

- Flow control, XPath
- History of classification and categorization
 - Classification and knowledge (Aristotle, Callimachus, Linnaeus, Dewey, Bush, Wittgenstien , Rosch)
 - Rosch - <http://video.google.com/videoplay?docid=2159021324062223592>,, around minute 40
 - Classification in Libraries
 - UDC, Dewey, Colon Classification, LCSH, NLM Classification system
 - Dewey overview by Weinberger - <http://video.google.com/videoplay?docid=2159021324062223592>, starting around minute 20.
 - Based on primary topicality, location of materials
 - Categorization in the information society
 - ACM, UMLS, AAT,
 - Enumerative, Hierarchical, and Faceted description, Separation of document location (URI) from description
- Fundamental concepts
 - Langridge, Hunter, Ranganathan
 - Primary topicality, pre/post coordinate, prototypes

Class Discussion

Think about common internet information systems (Google, Amazon, Flickr, Facebook). What types of categorization/classification systems are used in these systems? What are some of the pros and cons of these different systems?

Class Exercise

Exercise 1 – Document Classification

Exercise 2 – XSL transformation

Class 7. Knowledge management and categorization

Overview

Class Summary

In this class we will look at categorization systems in more depth and investigate their relationship to knowledge and understanding

Goals & Objectives

Become familiar with different types of categorization systems

Become with fundamental concepts (aboutness, warrant, specificity/exhaustivity, equivalence)

Become familiar with the process of building and maintaining categorization and classification systems

Guest Speaker Jacob Kramer-Duffield

Tasks

Class lecture & discussion

Guest Speaker

Assignment 1 due

Form groups for final assignment

Readings

Carr. 2008. Is google making us stupid? (cover story).302, 56-63.

<http://www.theatlantic.com/doc/200807/google>

Barbara H. Kwasnik. 1999. The role of classification in knowledge representation and discovery.48, 22.

<http://search.epnet.com/login.aspx?direct=true&db=aph&an=2412873>

Olson. 2001. Sameness and difference: A cultural foundation of classification.45, 115-122.

<http://www.ala.org/ala/alcts/alctspubs/librestechsvc/libraryresources.htm>

Shirky. 2006. Ontology is overrated: Categories, links, and tags 2006.

http://shirky.com/writings/ontology_overrated.html

Class Lecture

- What are categories?
 - Instances of equivalence, definition of similarities/hierarchies,
 - Objectivity vs Subjectivity, aboutness, warrant, specificity/exhaustivity
- Knowledge Representation
 - Network of concepts, semantic relationships
 - Artificial intelligence
- The user-created categorization system
 - Personal, social aspects of categorization and classification
 - Folksonomies and tagging
 - Site demonstrations
 - Flickr – <http://flickr.com>
 - Del.icio.us – <http://del.icio.us>
- Guest speaker

Class Discussion

Carr argues that the information revolution is fundamentally changing the way we think, learn, and act. How does this perspective inform our comparison of classification systems? What would Carr think about a shift from Traditional, authority centric systems (LCSH, UDC) to open populous/automated systems (folksonomies)?

Class 8. Controlled vocabularies

Overview

Class Summary

In this class we will introduce the concept of controlled vocabularies and begin looking at different types of controlled vocabulary systems. We will have guest speaker Will Sexton visit us to talk about organization and digital libraries

Goals & Objectives

Define the concept of controlled vocabularies

Discuss different types of controlled vocabulary systems

Discuss the relationships between controlled vocabularies and classification/categorization systems

Tasks

Guest Lecturer

Readings

Willpower Information Consultants. 1998. Thesaurus principles and practice.

<http://www.willpower.demon.co.uk/thesprin.htm>

Leise *et al.* All about facets & controlled vocabularies.

http://www.boxesandarrows.com/view/all_about_facets_controlled_vocabularies

Leise *et al.* 2003. Creating a controlled vocabulary.

http://www.boxesandarrows.com/view/creating_a_controlled_vocabulary

Leise *et al.* Synonym rings and authority files.

http://www.boxesandarrows.com/view/synonym_rings_and_authority_files

Mathes. 2004. Folksonomies - cooperative classification and communication through shared metadata.

<http://www.adammathes.com/academic/computer-mediated-communication/folksonomies.html>

Noy & McGuinness. Ontology development 101.2006.

http://protege.stanford.edu/publications/ontology_development/ontology101-noy-mcguinness.html

Optional

Guy & Tonkin. 2006. Folksonomies: Tidying up tags? <http://www.dlib.org/dlib/january06/guy/01guy.html>

Browse / use as reference

Leise *et al.* Controlled vocabularies: A glosso-thesaurus.

http://www.boxesandarrows.com/view/controlled_vocabularies_a_glosso_thesaurus

Class Lecture

- Controlled Vocabulary definitions
 - Thesauri, taxonomies, Ontologies
 - Authority control, warrant, homonyms, aboutness
- Examples
 - <http://authorities.loc.gov>
 - Dublin core suggestions for controlled vocabularies - <http://dublincore.org/documents/dces/>
 - Getty – Thesaurus for Geographic Names
 - MESH - <http://www.nlm.nih.gov/mesh/MBrowser.html> (myocardial infarction)
 - NCBI (MESH database) - <http://www.ncbi.nlm.nih.gov/sites/entrez> as an alternate view (heart attack)
- Thesaurus overview
 - Lexical semantic relationships (Hierarchy, equivalence, association)
 - Difference between thesauri and classification systems
- Folksonomies Definitions / Examples
 - Definitions - <http://en.wikipedia.org/wiki/Folksonomy>
 - Flickr – <http://flickr.com>, Del.icio.us – <http://del.icio.us>
 - Wikipedia – <http://wikipedia.en.us> – Is this a folksonomy?
- Folksonomies Issues
 - Sustainability, interoperability,

Class Exercise

Guest Lecturer

Class 9. Creating thesauri, taxonomies, and ontologies

Overview

Class Summary

In this class we will continue working with controlled vocabularies. We will introduce other vocabulary types and systems and discuss the impact that these have on information organization

Goals & Objectives

Become familiar with Thesauri, taxonomies, and ontologies

Discuss the features and utility of each of these systems

Discuss the relationship between controlled vocabulary and un-controlled vocabulary systems

Tasks

Class discussion

Class exercise

Install Protégé prior to class (see exercise)

Form groups for Assignment 3

Assignment 2 due

Readings

Types of CV

Pidcock. 2003. What are the differences between a vocabulary, a taxonomy, a thesaurus, an ontology, and a meta-model? <http://www.metamodel.com/article.php?story=20030115211223271>

Gruber. What is an ontology? <http://www-ksl.stanford.edu/kst/what-is-an-ontology.html>

Protégé Training

Noy & McGuinness. Ontology development 101.2006.

http://protege.stanford.edu/publications/ontology_development/ontology101-noy-mcguinness.html

Sachs. 2006. Getting started with protégé-frames http://protege.stanford.edu/doc/tutorial/get_started/get-started.pdf

Hedman. 1999. Creating digital libraries together—collaboration, multimodality, and plurality.

Class Lecture

- Review
- Define taxonomies and ontologies
- Examples
 - Taxonomies
 - Ontologies
- Protégé Training / Exercise

Class Discussion

So far we have looked at thesauri, taxonomies, ontologies, and folksonomies. What are some of the basic differences between these systems? When is one system preferable over another?

Class Exercise

In this class, we will use the protégé ontology management software to create an ontology. Prior to class, please install Protégé, available at <http://protege.stanford.edu>. Also, please complete the tutorial that is listed in the class readings.

Class 10. Working with data - Automation

Overview

Class Summary

In this class we will discuss automation of information organization processes and introduce the semantic web. We will continue our work with Protégé & work with more automated techniques surrounding data transformation

Goals & Objectives

Become familiar with automation in information organization

Become acquainted with the concept of the semantic web

Discuss the benefits/drawbacks of automated use of information

Tasks

Turn in final project proposals

Hear guest lecturer Barrie Hayes from the UNC Medical library talk about NCBI from NLM

Readings

Automation Readings

Hlava. 2002. Automatic indexing: A matter of degree.29, 12-15. <http://dx.doi.org/10.1002/bult.261>

Hearst. 2003. What is text mining? <http://www.sims.berkeley.edu/~hearst/text-mining.html>

Stearns. 2004. Automate classification and improve information discovery. S18.

<http://vnweb.hwwilsonweb.com/hww/jumpstart.jhtml?recid=0bc05f7a67b1790e06bc114cd79d5996c99fb6cf4a0a43e93106a5f13f5a1443a1f5b8c6494b5f5a&fmt=C>

Borland. 2007. See who's editing wikipedia - diebold, the cia, a campaign.

http://www.wired.com/politics/onlinerights/news/2007/08/wiki_tracker?currentPage=2

Optional

Paynter. 2005. Developing practical automatic metadata assignment and evaluation tools for internet resource.

<http://ivia.ucr.edu/projects/publications/Paynter-2005-JCDL-Metadata-Assignment.pdf>

Class Lecture

- Types of automation

- Data Mining, automatic classification, natural language processing, automatic use
- Semantic web
- Automation issues
 - Harvesting, transformation, Interoperability, recall vs. precision, TF/IDF, clustering
 - Automation pros/cons
 - Automation & Web 2.0 technologies

Class Exercise

Guest Speaker

Class 11. Creating Services from metadata

Overview

Class Summary

In this class we will investigate the relationship between information and services by learning more about XSL and its relationship to other programming languages. We will investigate elements of Web 2.0 applications focusing on Application Programming Interfaces (APIs).

Goals & Objectives

Become familiar with role of metadata and information structure in programming

Learn more about APIs

Tasks

Class exercise

Assignment 2 due

Readings

Bush. 1945. As we may think. <http://www.theatlantic.com/doc/194507/bush>

Bell. 2007. Is this web 3.0?

<http://www.entrepreneur.com/technology/managingtechnology/web20columnistfrankbell/article184966.html>

Browse:

<http://www.flickr.com/services/api/>

Class Lecture

- System Design & Service Oriented Architecture
 - What role does data/organization play in system architecture?
 - Roles of metadata in programming
- Advanced XSL
 - Templates
 - Variables
 - Xpath

Class Exercise

In this exercise we will break into groups and conceptualize an information service.

- Information problem
- Metadata model required
- Suggested service
- API actions

Class 12. Guest Lecturer –

Overview

Class Summary

TBD

Goals & Objectives

TBD

Tasks

TBD

Readings

TBD

Class Lecture

- TBD

Class Discussion

TBD

Class 13. Semantic Web & Miscellaneous description

Overview

Class Summary

We will begin class by presenting our Ontologies. We will spend this class period discussing Weinberger's theory on the 'miscellaneous' organization of information and investigating the idea of the semantic web.

Goals & Objectives

Discuss Weinberger's concept of 'miscellaneous'

Discuss contrasting views

Review these concepts within the concept of the course material

Tasks

Group Ontology Presentations

Discussion of Semantic Web

Work with Yahoo Pipes & Google Gadgets

Readings

Semantic Web

Berners-Lee *et al.* 2001. The semantic web: A new form of web content that is meaningful to computers will unleash a revolution of new possibilities <http://www.sciam.com/article.cfm?articleID=00048144-10D2-1C70-84A9809EC588EF21>

Jacob. 2003. Ontologies and the semantic web. <http://www.asis.org/Bulletin/Apr-03/BulletinAprMay03.pdf>

Note: See *Blackboard for this reading*

Weinberger. 2007. Everything is miscellaneous: The power of the new digital disorder. --Read Chapter 4 and 9

Class Lecture

- Semantic Web
 - Definition
 - Web 2.0 technologies

- Semantic Web
- “Miscellaneous” description
 - Review of Weinberger’s perspective
 - Relationship to user perspectives, content creation, information organization, etc.
 - Examples of “Miscellaneous” systems
 - Discussion – what is the impact on information organization?
- Democratization of software development
 - Remix Culture
 - RSS feeds & the semantic web
 - Development for Everyman
 - IDE platforms
 - Two exercises
 - Yahoo Pipes
 - Google Gadgets

Class Discussion

Break into groups. Discuss the semantic web readings. Brainstorm some current examples of the semantic web and discuss the extent to which these examples fill the description of semantic web technologies from the readings. What is included/left out? Select one or two examples and be prepared to summarize for the class.

Class 14. Course review

Overview

Class Summary

In this class we will present short overviews of our course projects, review the material covered to date, fill in the blanks, and wrap-up

Goals & Objectives

Share final projects

Review the concepts covered in the course

Compare differing perspectives on information organization

Tasks

Class discussion

Final project presentations

Readings

No readings this week

Class Lecture

- Class wrap-up and review
- How do the concepts of authority vs popularity, of objective vs subjective, and fixed vs fluid impact our understanding of organization?
- Where do we see organization in place? How are formal/informal systems helping to create and manage these organizational structures?
- What did we learn? What did we leave out?

Course evaluation

We will complete course evaluations during this class period.

Assignment 1: Resource Description

Overview

In this assignment you will create metadata records for an academic website of your choice. You will create a Dublin Core record (in XML) and a MARC record.

Purpose

The purpose of this assignment is to work through document surrogation, metadata mapping, and record encoding. We will look at two metadata standards and mark them up using two encoding standards.

Guidelines

- Select a website with academic content for cataloging. Here are some example websites you could catalog:
 - <http://docsouth.unc.edu/unc/>
 - <http://www.hsl.unc.edu/phpapers/durham00/Durham.htm>
- Create a Dublin Core record
 - Using the Dublin Core guide (see suggested resources), create a Dublin Core metadata record, representing at the very least: the title, creator, created, description, and identifier fields. Feel free to reuse fields, etc. to create a full record. The most basic record should have Title, Creator, Created, Description, Subject, and Identifier fields populated.
 - Using the Dublin Core website, identify valid content guidelines for your fields. If an appropriate standard is not suggested (Subjects for example), you can make up your own or choose an appropriate standard.
 - Encode this record into XML using the software application of your choice (e.g., Exchanger, Wordpad, etc.)
 - Make sure your document is well formed. You can validate if you wish using the schemas at <http://dublincore.org/schemas/xmls/>. Validate the structure of your metadata record
 - Save the record as an xml file
- Create a MARC record
 - Using the MARCEdit tool that we investigated in class, create a MARC record for your website. At the minimum you should create:
 - Fixed fields (007, 008)
 - Title(245)
 - Author(1XX)

- Publication information (260)
 - Subject headings (6xx)
 - URL (856) and
 - description (5xx) fields.
- You should pick the most representative field for each area (i.e. use 650 for topic based subject headings or 651 for geographic name subject headings). You do not need to use every field in the 6xx range, just pick the one(s) that are relevant. For the time being, you may use your own subject headings. You can also look them up in the LCSH authorities database (see suggested resources).
 - You should consult the OCLC Marc Record cataloging guide (see recommended resources) for guidelines on field definitions and concepts.
 - Save the MARC record as a MARC text file (File >> Save As >> MARC text file)
- Reflect on the record creation process. Write up a paragraph or two about your experience creating the records in both formats. Think about challenges, benefits, areas for improvement, and any other issues.

Evaluation

This assignment will be evaluated by the following criteria.

- Record contents
 - Do the created records conform to their metadata and encoding standards?
 - Do the created records accurately and sufficiently describe the selected document?
- Reflective statement
 - Is there substantial reflection?

Assignment submission

See course calendar for due dates

Submit your 3 documents in the assignments section of Blackboard (see syllabus for instructions).

Resources to consider

"Dublin core metadata registry." 2007. <http://dublincore.org/dcregistry/navigateServlet> --Browse

"Dublin core elements." 2007. <http://dublincore.org/documents/usageguide/elements.shtml> --Browse

OCLC. 2007. Bibliographic formats and standards. <http://www.oclc.org/bibformats/> --Browse

Library of Congress. 2007. Lcsh authority headings. <http://authorities.loc.gov/cgi-bin/Pwebrecon.cgi?DB=local&PAGE=First>

Assignment 2: Document transformation

Overview

In this assignment, you will be creating an XSL style sheet that will transform an RSS feed into an XHTML compliant document.

Guidelines

- Select an RSS feed or create your own
 - Some good places to find RSS feeds are
 - <http://www.nytimes.com/services/xml/rss/index.html>
 - <http://dir.yahoo.com/rss/dir/index.php>
- Look at the XHTML specification/tutorials and create a document structure
 - Tutorials are located at:
 - <http://www.w3schools.com/xhtml/>
 - <http://www.w3.org/MarkUp/>
 - Your document structure should include at the least
 - A HTML, HEAD, and BODY elements
 - Content from your RSS feed represented in an XHTML compliant structures (such as <a>, <h1>, , elements). Include at least Channel title, item titles, links, and descriptions.
- Using the XSL tools we learned about, write an XSL stylesheet that transforms your selected RSS feed into the XHTML document.
 - XSL tutorials
 - <http://www.w3schools.com/xsl/>
 - <http://www.w3.org/Style/XSL/>
 - <http://www.w3schools.com/Xpath/>
 - Your XSL stylesheet should include at least:
 - A main processing template (<xsl:template...>) for the feed
 - A loop to handle each item in the feed

- A sorting instruction to sort the feed by one of the data elements in the RSS feed
 - You may also want to include
 - Conditional statements, element formatting instructions, etc
- Validate the XHTML file
 - <http://validator.w3.org/>
- Optional – Create a basic CSS style sheet to format your XHTML page
- Reflect on the record creation process. Write up a paragraph or two about your experience creating the records in both formats. Think about challenges, benefits, areas for improvement, and any other issues.

Evaluation

This assignment will be evaluated by the following criteria.

- XSL File
 - Does the XSL file successfully transform the RSS feed?
 - Does the XSL file include a sorting instruction and a loop instruction?
- XHTML file
 - Does the XHTML file validate?
 - Does the XHTML file contain sufficient document structure to represent the transformed RSS data?
- Reflective statement
 - Is there substantial reflection?

Assignment submission

See course calendar for due dates

Submit your 3 documents (RSS feed, XSL file, XHTML file – also CSS file if created) in the assignments section of Blackboard (see syllabus for instructions).

Assignment 3: Ontology

Overview

In this assignment you will work in groups to create an ontology on a topic of your choice. Your ontology should contain multiple classes and instances and be focused on a specific purpose. This assignment includes an implementation of the ontology in Protégé and a brief paper explaining your ontology.

Guidelines

- During class we will form into small groups (~4 people). Your group should work together to select a topic of interest and determine the structure and scope of your ontology
- Define the scope (depth/breadth) and purpose of the ontology. Define specific classes and facets (known as slots in Protégé) that describe those classes. Your ontology should have at least 10-15 classes with multiple (2-5) slots for each class. Think about the use of hierarchy and multiple inheritance in your ontology. Your Ontology does not necessarily need to be hierarchical but should include relationships between classes.
- Divide the work fairly between your group. Each person should both work on the conceptualization process and encoding process. Summarize your ontology in a short paper (no more than two pages). Outline your ontology and discuss your rationale and key decisions (e.g. scope, purpose, classes and slots, defining relationships)
- Implement the ontology in Protégé. Define your classes and instances. Create two queries that illustrate ways in which the data could be retrieved.
- Be prepared to present your ontology to the class (no more than 10 minutes). Your presentation should include an overview of your Ontology subject matter, a tour of your data structure, and a discussion of some of the issues you encountered.

Evaluation

This assignment will be evaluated by the following criteria:

- Ontology design
 - Does the ontology have a defined scope and purpose?
 - Does the ontology accurately describe the topic selected?
 - Do the relationships between classes and instances make sense?
- Ontology implementation
 - Is the ontology implemented according to design?
 - Are relationships between classes and instances clear?

- Do the queries fill an appropriate retrieval purpose?
- Brief paper / presentation
 - Does your paper provide a comprehensive and succinct explanation of your ontology?
 - Did your group present your ontology?

Assignment submission

See course calendar for due dates

Submit your assignment (Protégé document and paper) in the assignments section of Blackboard (see syllabus for instructions). The submitted protégé files need to include the .pins, .pont, .pprj, and .xml file

Resources to consider

Noy & McGuinness. *Ontology development 101.2006*.

http://protege.stanford.edu/publications/ontology_development/ontology101-noy-mcguinness.html

Assignment 4: Class Research Project / Poster Session

Overview

For our final project in this class, we will work in groups to research a topic of interest in information organization. Groups should be no more than four people. This topic may include a technical investigation based on class content, investigation of an area of interest (such as a metadata standard or organization structure), or a research project. These projects will be presented during a poster session at the final class. The content of the project and format of your poster is up to you. In the final class each group will get approximately 5-10 minutes to discuss their poster after which we will have the opportunity to review in more detail.

Guidelines

- Midway through the semester you will be asked to form groups and put together a project proposal (see course calendar for due date).
- Your project may include research, topical investigation, technical work, or any other project of interest to you but should be focused in some way on Information Organization issues. Some possible examples could include investigation of the uses of a model or classification system, research on an area of interest, reports of a survey, or development of an application or website that investigates or solves a specific information organization problem.
- Project producibles should include:
 - A project proposal due mid-way through the semester (no more than a page or two) that outlines the research question of your group and your research plan.
 - A poster or other displayable report/application/presentation – this could also be a movie, website, or other electronic document. The main use of this document will be to share your findings with your fellow students.
 - If you decide to have your poster professionally printed, you can visit UNC printing services (http://www.printing.unc.edu/Copy_Centers/unccc.html). 3x2 B&W posters are \$15 and 3x2 Color posters are \$30
 - Sample template presentations for 24X36 and 36X48 layout posters are located in blackboard
 - Some good overviews of how to create posters are:
 - <http://www1.wfubmc.edu/creative/Creative+University/Tip+Sheets/PowerPoint+Posters.htm>
 - <http://www.aspb.org/EDUCATION/poster.cfm>
 - <http://www.pop.psu.edu/info-core/library/handout-ppt.pdf>
 - <http://office.microsoft.com/en-us/powerpoint/HA100308481033.aspx>

- Note that while quality of content and presentation count for this project, expense of printing does not. Posters printed on 8x11 paper (see first link for instructions) are perfectly fine
- A brief (5-8 minute) oral report during the last class of your project goal and findings.
- Each person should produce a short project overview and reflective statement (no more than 2 pages). In your reflective statement, you should review the work of your group and your role in it and reflect back on the project.

Evaluation

This assignment will be evaluated by the following criteria.

- Did your group select a project of appropriate scale & content?
- Did your group sufficiently define your goals & investigate the project?
- Did your group turn in a project proposal on time?
- Did your group present your project oral report?
- Did your project producible show sufficient work/investigation?
- Did your project producible include a reflective piece?
- Did you play an appropriate role in your group?

Assignment submission

See Course Calendar for due dates

Submit your reflective statement in the assignments section of Blackboard (see syllabus for instructions). Final project posters will be shared in class.

Resources to consider

Course Readings, exercises

Information science databases -

<http://eresources.lib.unc.edu/eid/subject.php?subjectName=Information+and+Library+Science>

Class Readings

- Attig, J., Klimczyk, L., & Mangin, J. (2007). Understanding marc bibliographic machine readable cataloging. <http://www.loc.gov/marc/umb/> Read sections I-VI
- Barreau, D., & Nardi, B. A. (1995). Finding and reminding: File organization from the desktop. *SIGCHI Bulletin*, 27(3), 39-42Browse
- Bell, F. (2007). Is this web 3.0?, *Entrepreneur.com*. <http://www.entrepreneur.com/technology/managingtechnology/web20columnistfrankbell/article184966.html>
- Berners-Lee, T., Hendler, J., & Lassila, O. (2001). The semantic web: A new form of web content that is meaningful to computers will unleash a revolution of new possibilities *Scientific American*. <http://www.sciam.com/article.cfm?articleID=00048144-10D2-1C70-84A9809EC588EF21>
- Borland, J. (2007). See who's editing wikipedia - diebold, the cia, a campaign. *Wired Online*. http://www.wired.com/politics/onlinerights/news/2007/08/wiki_tracker?currentPage=2
- Browne, G. (2003). Faceted classification. *Online Currents*, 18(9). <http://www.webindexing.biz/Articles/FacetedClassification.htm>
- Buckland, M. (1991). Information. In *Information and information systems* (pp. 3-13). New York: Greenwood. <http://www.ischool.berkeley.edu/~buckland/thing.html>
- Buckland, M. K. (1997). What is a document? *Journal of the American Society for Information Science*, 48(9), 804-809. <http://www3.interscience.wiley.com.libproxy.lib.unc.edu/cgi-bin/abstract/39756/ABSTRACT>
- Bush, V. (1945). As we may think, *The Atlantic Monthly*. <http://www.theatlantic.com/doc/194507/bush>
- Carr, N. (2008). Is google making us stupid? (cover story). *Atlantic Monthly* (10727825), 302(1), 56-63. <http://www.theatlantic.com/doc/200807/google>

- Choo, C. W., Deltor, B., & Turnbull, D. (1999). Information seeking on the web - an integrated model of browsing and searching. *Proceedings of the ASIST*, 3-16. <http://choo.fis.utoronto.ca/fis/respub/asis99/>
- Cronin, B. (2004). Bowling alone together: Academic writing as distributed cognition. *Journal of the American Society for Information Science and Technology*, 55(6), 557-560. <http://dx.doi.org/10.1002/asi.10406>
- Dublin core elements. (2007). <http://dublincore.org/documents/usageguide/elements.shtml>
Browse
- Dublin core metadata registry. (2007). <http://dublincore.org/dcregistry/navigateServlet> Browse
- Garrett, J. J. (2000). The elements of user experience. from <http://jig.net/elements> Browse Chart
- Gill, T. Metadata and the world wide web. In T. Gill & A. J. G. M. S. Woodley (Eds.), *Introduction to metadata: Pathways to digital information*. http://www.getty.edu/research/conducting_research/standards/intrometadata/metadata.html
- Gilliland, A. J. Setting the stage. In T. Gill & A. J. G. M. S. Woodley (Eds.), *Introduction to metadata: Pathways to digital information*. http://www.getty.edu/research/conducting_research/standards/intrometadata/setting.html
- Greenberg, J. (2003). Metadata generation, people, processes, and tools, *Bulletin of the American Association of Information Science and Technology* (Vol. 29). <http://www.asis.org/Bulletin/Dec-02/greenberg.html>
- Gruber, T. What is an ontology? Retrieved 19-OCT-2005, from <http://www-ksl.stanford.edu/kst/what-is-an-ontology.html>
- Guy, M., & Tonkin, E. (2006). Folksonomies: Tidying up tags?, *D-Lib Magazine*. <http://www.dlib.org/dlib/january06/guy/01guy.html>

- Hearst, M. (2003, 17 Oct 2003). What is text mining? Retrieved 2 Mar 2006, from <http://www.sims.berkeley.edu/~hearst/text-mining.html>
- Hedman, A. (1999). Creating digital libraries together—collaboration, multimodality, and plurality, *Proceedings of the 4th annual SIGCSE/SIGCUE ITiCSE conference on Innovation and technology in computer science education*. Cracow, Poland: ACM Press
- Hillmann, D. (2005). *Using dublin core*. <http://dublincore.org/documents/usageguide/>
- Hlava, M. M. (2002). Automatic indexing: A matter of degree. *Bulletin of the American Society for Information Science and Technology*, 29(1), 12-15. <http://dx.doi.org/10.1002/bult.261>
- Hunter, E. J. (2002). Classification made simple. In *Classification in an information system*
- Hunter, E. J. (2002). What is classification. In *Classification in an information system*
- Introduction to xslt*. (2007). http://www.w3schools.com/xsl/xsl_intro.asp
- Jacob, E. K. (2003). Ontologies and the semantic web, *Bulletin of the American Society for Information Science and Technology*. <http://www.asis.org/Bulletin/Apr-03/BulletinAprMay03.pdf>
- Kwasnik, B. H. (1989). *How a personal document's intended use or purpose affects its classification in an office*. Paper presented at the 12th Annual International ACM SIGIR Conference on Research and Development in Information Retrieval, New York. <http://portal.acm.org/citation.cfm?id=75334.75356>
- Kwasnik, B. H. (1999). The role of classification in knowledge representation and discovery. *Library Trends*, 48(1), 22. <http://search.epnet.com/login.aspx?direct=true&db=aph&an=2412873>
- Lagoze, C., & Van de Somple, H. (2003). The making of the open archives initiative protocol for metadata harvesting *Library Hi Tech* (Vol. 21, pp. 128 -). <http://www.emeraldinsight.com/Insight/viewContentItem.do?contentType=Article&contentId=861361>
- Langridge. (1992). *Classification: Its kinds, elements, systems, and applications*. London: BowkerRead 2-23
- Leise, F., Fast, K., & Steckel, M. All about facets & controlled vocabularies. http://www.boxesandarrows.com/view/all_about_facets_controlled_vocabularies

- Leise, F., Fast, K., & Steckel, M. Controlled vocabularies: A glosso-thesaurus. from http://www.boxesandarrows.com/view/controlled_vocabularies_a_glosso_thesaurus
- Leise, F., Fast, K., & Steckel, M. Synonym rings and authority files. from http://www.boxesandarrows.com/view/synonym_rings_and_authority_files
- Leise, F., Fast, K., & Steckel, M. (2003). Creating a controlled vocabulary. from http://www.boxesandarrows.com/view/creating_a_controlled_vocabulary
- Library of Congress. (2007). *Lcsh authority headings*. <http://authorities.loc.gov/cgi-bin/Pwebrecon.cgi?DB=local&PAGE=First>
- Mathes, A. (2004). Folksonomies - cooperative classification and communication through shared metadata. <http://www.adammathes.com/academic/computer-mediated-communication/folksonomies.html>
- Miller, E. (1998). An introduction to the resource descriptive framework, *D-Lib Magazine*. <http://www.dlib.org/dlib/may98/miller/05miller.html> Skim - focus on broad topics. We will revisit RDF later in the semester
- Noy, N. F., & McGuinness, D. L. (4 Apr 2006). Ontology development 101. Retrieved 4 Apr, 2006, from http://protege.stanford.edu/publications/ontology_development/ontology101-noy-mcguinness.html
- O'Neill, E. T. (2002). *Frbr: Application of the entity-relationship model to humphry clinker*. (Vol. 46): Library resources and technical services. http://www.oclc.org/research/publications/archive/2002/oneill_frbr22.pdf
- OCLC. (2007). Bibliographic formats and standards. <http://www.oclc.org/bibformats/> Browse
- Olson, H. (2001). Sameness and difference: A cultural foundation of classification. *Library Resources & Technical Services*, 45(3), 115-122. <http://www.ala.org/ala/alcts/alctspubs/librestechsvc/libraryresources.htm>
- Paynter, G. W. (2005). Developing practical automatic metadata assignment and evaluation tools for internet resource, *Proceedings of the Joint Conference on Digital Libraries (JCDL), June 7-11, Denver*,

Colorado: <http://ivia.ucr.edu/projects/publications/Paynter-2005-JCDL-Metadata-Assignment.pdf>

Pidcock, W. (2003). What are the differences between a vocabulary, a taxonomy, a thesaurus, an ontology, and a meta-model? <http://www.metamodel.com/article.php?story=20030115211223271>

Powell, A. (2004). *Encoding dc in (x)html, xml and rdf*. Paper presented at the Tutorial at ECDL 2004, Bath, September 2004. <http://www.ukoln.ac.uk/metadata/presentations/ecdl-2004/dc-tutorial/>

Powell, A., & Johnston, P. (2007). Guidelines for implementing dublin core in xml. from <http://dublincore.org/documents/dc-xml-guidelines/>

Powell, A., Nilsson, M., Naeve, A., Johnston, P., & Baker, T. (2007). *Dcmi abstract model*. <http://dublincore.org/documents/abstract-model/> Skim - focus on broad ideas

Ranganathan, S. R. (1962). Facet analysis: Fundamental categories.

Sachs, E. (2006). Getting started with protégé-frames from http://protege.stanford.edu/doc/tutorial/get_started/get-started.pdf

Saur, K. G. (1998). Functional requirements for bibliographic records. <http://www.ifla.org/VII/s13/frbr/frbr.pdf> Skim / Browse as interest warrants

Shirkey, C. (2006). Ontology is overrated: Categories, links, and tags Retrieved 20 Mar, 2006, from http://shirky.com/writings/ontology_overrated.html

Stearns, S. (2004). Automate classification and improve information discovery. *EContent*, S18. <http://vnweb.hwwilsonweb.com/hww/jumpstart.jhtml?recid=0bc05f7a67b1790e06bc114cd79d5996c99fb6cf4a0a43e93106a5f13f5a1443a1f5b8c6494b5f5a&fmt=C>

W3c Tutorials. (2007). Xml tutorial. from <http://www.w3schools.com/xml/default.asp> In XML basic section read up to "Validation"

Weibel, S. (1995). Metadata: The foundations of resource description, *D-Lib Magazine*. <http://www.dlib.org/dlib/July95/07weibel.html>

Weinberger, D. (2007). *Everything is miscellaneous: The power of the new digital disorder*. New York: Times BooksRead Chapter 4 and 9

Weinberger, D. (2007). Everything is miscellaneous: The power of the new digital disorder - chapter 1.
<http://www.everythingismiscellaneous.com/wp-content/samples/eim-sample-chapter1.html>

Weinberger, D. (2007). Everything is miscellaneous: The power of the new digital disorder - linnaeus excerpt.
from
http://www.wired.com/science/planetearth/news/2007/05/miscellaneous_excerpt

Willpower Information Consultants. (1998). Thesaurus principles and practice.
<http://www.willpower.demon.co.uk/thesprin.htm>