MO-LIBR10035 – Introduction to Metadata and Metadata Applications

Course Outline

Instructor: F. Tim Knight

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MODULE 1 – WHAT IS METADATA?

Objective: Upon successful completion of this module, you will understand the essential definitions and concepts associated with metadata and the different roles and functions that metadata plays in the current information environment.

DETAILED OBJECTIVES

WEEK 1

1.1 Defining metadata; what is metadata?
1.2 The roles of metadata
1.2.1 How do search engines work?
1.2.2 Resource discovery
1.2.3 Identification of digital documents/objects
1.2.4 Interoperability/Metadata crosswalks

WEEK 2

1.3 Identifying types of metadata
1.3.1 The "information object"
1.3.2 Descriptive metadata
1.3.3 Administrative metadata
1.3.3.1 Technical metadata
1.3.3.2 Preservation metadata
1.3.3.3 Rights management metadata
1.3.4 Structural metadata
1.3.5 User created metadata; folksonomies

LEARNING RESOURCES

Readings:

- 'Metadata Basics,' in Metadata Fundamentals for All Librarians, p. 1-10
- Gilliland, Anne J. "Setting the Stage," in Introduction to Metadata, online ed. ver. 3.0 <http://www.getty.edu/research/publications/electronic_publications/intrometadata/setting.html>
- Chapter 5, 'Metadata and the Web,' in Metadata Fundamentals for All Librarians, p. 45-52

Resources:

- Riley, Jenn. "Seeing Standards: A Visualization of the Metadata Universe" [poster] <http://www.dlib.indiana.edu/~jenlrile/metadatamap/seeingstandards.pdf>

Supplemental Readings:

- NISO. "Understanding Metadata", p. 1-2 <http://www.niso.org/publications/press/UnderstandingMetadata.pdf>
- Chapter 4, 'Approaches to Interoperability,' in Metadata Fundamentals for All Librarians, p. 33-42
- Chapter 16, 'Administrative Metadata,' in Metadata Fundamentals for All Librarians, p. 151-157
- Chapter 17, 'Structural Metadata,' in Metadata Fundamentals for All Librarians, p. 158-166
- Chapter 18, 'Rights Metadata,' in Metadata Fundamentals for All Librarians, p. 167-170

MODULE 2 – SYNTAX: RECORDING AND EXPRESSING METADATA

Objective: Upon successful completion of this module, the student will understand data elements and the components of a metadata record including how metadata schemes can be expressed in HTML, SGML/XML and RDF.

DETAILED OBJECTIVES

WEEK 3

2.1 Where does metadata live?
2.2 A quick review of HTML coding
2.2.1 The `<meta>` tag
2.3 Introduction to XML
2.3.1 The 'well-formed' document
2.3.2 The DTD and XML schemas
2.3.3 The XML namespace
2.4 RDF: An introduction to the Resource Description Framework
2.4.1 The RDF triple (subject-predicate-object)
2.4.2 RDFa: RDF Meets HTML
2.4.3 Linked data and the semantic web

LEARNING RESOURCES

Readings:

- Chapter 2, 'Syntax, Creation and Storage,' in Metadata Fundamentals for All Librarians, p. 12-24
- Yott, Patrick. "Introduction to XML", *CCQ* 40(3), p. 213-235 [*especially these sections: XML, HTML What's the Difference?; Rules for Well-formedness; Testing for Well-formedness; Document Modelling and Document Validity; Creating an XML Document*]
- Johnston, Peter. Good Practice Guide for Developers of Cultural Heritage Web Services: Metadata Sharing and XML <http://www.ukoln.ac.uk/interop-focus/gpg/Metadata/>
- Miller, Eric. 1998. "An Introduction to the Resource Description Framework," *D-Lib Magazine* <http://www.dlib.org/dlib/may98/miller/05miller.html>

Video Resources:

- Sporny, Manu. RDFa Basics <9:30> [*includes general RDF review as well*] <http://www.youtube.com/watch?v=ldl0m-5zLz4&feature=youtube_gdata_player>
- Europeana. Linked Open Data <3:42> [*good, short, entertaining video on linked data*]

MODULE 2 – SYNTAX: RECORDING AND EXPRESSING METADATA ... [continued]

LEARNING RESOURCES

Supplemental Readings:

- Text Encoding Initiative. A Gentle Introduction to XML, <http://www.tei-c.org/release/doc/tei-p5-doc/en/html/SG.html> [*Section 2.3 XML structures and 2.4 Validating a document's structure*]
- Birbeck, Mark. "Introduction to RDFa," *A List Apart*, no. 286 <http://www.alistapart.com/articles/introduction-to-rdfa/>
- Knight, F. Tim. 2011. "Break On Through to the Other Side: The Library and Linked Data," *TALL Quarterly*, v. 30, no. 1 (Spring) <http://pi.library.yorku.ca/dspace/handle/10315/6760>

MODULE 3 – MARC, MARCXML AND DUBLIN CORE

Objective: Upon successful completion of this module, the student will appreciate that metadata creation is an extension of traditional library cataloguing. The student will understand how the application of XML to MARC formats provides an opportunity to represent bibliographic data on the Web. And the student will be introduced to Dublin Core and compare it the traditional approach to resource description.

DETAILED OBJECTIVES

WEEK 4

3.1 MARC and AACR as metadata
3.2 MARC transformed: MARCXML
3.3 Introducing the Dublin Core
3.3.1 Qualifying the Dublin Core
3.4 Comparing MARC/AACR to the Dublin Core: advantages and disadvantages

LEARNING RESOURCES

Readings:

- Chapter 8, "The Dublin Core," in Metadata Fundamentals for All Librarians, p. 76-87
- Hillmann, Diane. "Using Dublin Core" <http://dublincore.org/documents/usageguide/>

Resources:

- MARCXML <http://www.loc.gov/standards/marcxml/>
- MARC Standards <http://www.loc.gov/marc/>
- Dublin Core Metadata Element Set <http://www.dublincore.org/documents/dces/>
- Dublin Core Qualifiers <http://dublincore.org/documents/usageguide/qualifiers.shtml>
- DCMI Metadata Terms <http://dublincore.org/documents/2012/06/14/dcmi-terms/?v=dcam>

Supplemental Readings:

- Library of Congress. "MARC to Dublin Core Crosswalk" <http://www.loc.gov/marc/marc2dc.html>
- Powell, Andy. "Guidelines for Implementing Dublin Core in XML" <http://www.dublincore.org/documents/dc-xml-guidelines/>
- Nilsson, Mikael. "Expressing Dublin Core metadata using the Resource Description Framework (RDF)" <http://dublincore.org/documents/2008/01/14/dc-rdf/>

MODULE 4 – INTRODUCTION TO MODS, MADS AND METS

Objective: Upon successful completion of this module, the student will understand and be able to apply the Metadata Object Description Schema (MODS), the Metadata Authority Description Schema (MADS) and the Metadata Encoding and Transmission Standard (METS).

DETAILED OBJECTIVES

WEEK 5

4.1 Introduction to the Metadata Object Description Schema (MODS)
4.1.1 MODS, MARC 21 and XML
4.1.2 MODS and simplification of electronic resource cataloguing
4.1.3 MODS elements, sub-elements, and attributes
4.2 Introduction to the Metadata Authority Description Schema (MADS)

WEEK 6

4.3 Characteristics of a digital library
4.3.1 Digital objects in a digital library
4.3.2 Simple and complex digital objects
4.3.3 Structural metadata revisited

WEEK 7

4.4 Introduction to the Metadata Encoding and Transmission Standard (METS)
4.4.1 The metadata wrapper framework and METS metadata "buckets"
4.4.1.1 The METS header
4.4.1.2 Descriptive metadata
4.4.1.3 Administrative metadata
4.4.1.4 File section
4.4.1.5 Structural map
4.4.2 Putting it all together

LEARNING RESOURCES

Readings:

- McCallum, Sally H. 2004. "An Introduction to the Metadata Object Description Schema (MODS)," *Library Hi Tech* 22, no. 1: 82-88
- MOA2 and METS section, 'Structural Metadata,' in Metadata Fundamentals for All Librarians, p. 161-165
- Cundiff, Morgan V. 2004. "An Introduction to the Metadata Encoding and Transmission Standard (METS)," *Library Hi Tech* 22, no. 1: 52-64 <http://www.loc.gov/standards/mets/presentations/intro_mets.pdf>

MODULE 4 – INTRODUCTION TO METS, MODS AND MADS ... [continued]

LEARNING RESOURCES

Resources:

- Metadata Object Description Schema (MODS) <http://www.loc.gov/standards/mods/>
- MODS Elements and Attributes <http://www.loc.gov/standards/mods/userguide/generalapp.html>
- Metadata Authority Description Schema (MADS) <http://www.loc.gov/standards/mads/>
- Metadata Encoding and Transmission Standard (METS) <http://www.loc.gov/standards/mets/>
- METS Schema Documentation <http://www.loc.gov/standards/mets/docs/mets.v1-9.html>
- METS Example Documents <http://www.loc.gov/standards/mets/mets-examples.html>

Supplemental Readings:

- "Metadata" in NISO. A Framework of Guidance for Building Good Digital Collections, p. 58-85 <http://framework.niso.org/node/5>
- METS Editorial Board. 2010. 'METS: Metadata Encoding and Transmission Standard: Primer and Reference Manual,' Digital Library Federation <http://www.loc.gov/standards/mets/METSPrimerRevised.pdf>
- Beaubien, Rick. 2001. 'METS: An Introduction: Structuring Digital Content,' <http://www.loc.gov/standards/mets/presentations/METSIntro1.ppt>
- Beaubien, Rick. 2001. 'METS: An Introduction Part II: METS Mechanisms,' <http://www.loc.gov/standards/mets/presentations/METSIntro2.ppt>

MODULE 5 – METADATA AND MARKUP: TEI AND EAD

Objective: Upon successful completion of this module, the student will understand and be able to apply the Text Encoding Initiative (TEI) and the Encoded Archival Description metadata schemes.

DETAILED OBJECTIVES

WEEK 8

5.1 Introducing the Text Encoding Initiative (TEI)
5.1.1 The TEI header
5.2 Introducing the Encoded Archival Description (EAD)

LEARNING RESOURCES

Readings:

- 'The TEI Header,' in Metadata Fundamentals for All Librarians, p. 66-75
- 'Archival Description and the EAD,' in Metadata Fundamentals for All Librarians, p. 88-98

Resources:

- Text Encoding Initiative. 2012. '2 The TEI Header,' in TEI P5: Guidelines for Electronic Text Encoding and Interchange <http://www.tei-c.org/release/doc/tei-p5-doc/en/html/HD.html>
- Encoded Archival Description Tag Library, Version 2002 <http://www.loc.gov/ead/tglib/element_index.html>

Supplemental Readings:

- Sperberg-McQueen, C. M. 1994. Textual Criticism and the Text Encoding Initiative <http://www.tei-c.org/Vault/XX/mla94.html>
- Pitti, Daniel V. 1999. 'Encoded Archival Description: An Introduction and Overview,' *D-Lib Magazine*, 5 (11) (November) <http://www.dlib.org/dlib/november99/11pitti.html>

MODULE 6 – ONIX AND <in*d*ecs>

Objective: Upon successful completion of this module, the student will understand the <in*d*ecs> (Interoperability of Data in E-Commerce Systems) metadata framework and how it has informed the development of the ONIX (Online Information Exchange). The student will also understand and be able to apply the ONIX metadata scheme.

DETAILED OBJECTIVES

WEEK 9

6.1 Introducing <in*d*ecs> (Interoperability of Data in E-Commerce Systems)
6.2 Introducing ONIX (Online Information Exchange)
6.2.1 ONIX to MARC

LEARNING RESOURCES

Readings:

- Rust, Godfrey. 2001. 'The <in*d*ecs> Analysis' [PowerPoint], Workshop presented at the W3C on Digital Rights Management for the Web, January 22, Sophia Antipolis, France. <http://www.w3.org/2000/12/drm-ws/pp/indecs-rust.ppt>
- 'ONIX International,' in Metadata Fundamentals for All Librarians, p. 129-135

Video:

- Register, Renee. 2009. "From ONIX to MARC and Back Again: New Frontiers in Metadata Creation" at OCLC' <35:00> <http://vidego.multicastmedia.com/player.php?p=dvp9ci76>

Resources:

- Rust, Godfrey. 2000. "The <in*d*ecs> Metadata Framework: Principles, Model and Data Dictionary" <http://www.doi.org/topics/indecs/indecs_framework_2000.pdf>
- ONIX for Books: Product Information Format: Introduction to ONIX 3.0 <http://www.editeur.org/files/ONIX%203/Introduction_to_ONIX_for_Books_3.0.pdf>

Supplemental Readings:

- Godby, Carol Jean. 2012. "A Crosswalk from ONIX Version 3.0 for Books to MARC 21," OCLC Research <http://www.oclc.org/resources/research/publications/library/2012/2012-04.pdf>
- Dunsire, Gordon. 2007. 'Distinguishing Content from Carrier: The RDA/ONIX Framework for Resource Categorization,' *D-Lib Magazine*, 13 (1/2) (January) <http://www.dlib.org/dlib/january07/dunsire/01dunsire.html>

MODULE 7 – METADATA FOR VISUAL RESOURCES

Objective: Upon successful completion of this module, the student will understand and be able to identify and apply the MIX (Metadata for Images in XML), CDWA (Categories for the Description of Works of Art), CDWA Lite and VRA Core metadata schemes.

DETAILED OBJECTIVES

WEEK 10

7.1 Introduction to CDWA and CDWA Lite
7.2 Introduction to VRA Core
7.3 Introduction to MIX (Metadata for Images in XML)
7.3.1 MIX as an extension schema in METS

LEARNING RESOURCES

Readings:

- 'Metadata for Art and Architecture,' in Metadata Fundamentals for All Librarians, p. 99-109
- 'Introduction,' in Categories for the Descriptions of Works of Art <http://www.getty.edu/research/publications/electronic_publications/cdwa/introduction.html>
- VRA Core 4.0: Introduction <http://www.loc.gov/standards/vracore/VRA_Core4_Intro.pdf>
- Zardary, Solmaz, and Fatima Fahimnia. 'Our Visual Cultural Heritage Storage: Introduction to MIX Metadata Standard for Visual Materials' <http://by2010.bilgiyonetimi.net/bildiriler/zardary.pdf>

Resources:

- CDWA Lite: XML Schema Content for Contributing Records via the OAI Harvesting Protocol <http://www.getty.edu/research/publications/electronic_publications/cdwa/cdwalite.pdf>
- VRA Core 4.0 Element Description <http://www.loc.gov/standards/vracore/VRA_Core4_Element_Description.pdf>
- Metadata for Images in XML Standards <http://www.loc.gov/standards/mix/>
- Art & Architecture Thesaurus® Online <http://www.getty.edu/research/tools/vocabularies/aat/>
- Union List of Artist Names® Online <http://www.getty.edu/research/tools/vocabularies/ulan/>
- Cataloging Cultural Objects: A Guide to Describing Cultural Works and Their Images, Online Edition <http://cco.vrafoundation.org/index.php/toolkit/cco_pdf_version/>

MODULE 8 – PRESERVATION METADATA - PREMIS

Objective: Upon successful completion of this module, the student will understand the metadata issues relevant to the preservation of digital resources. The student will understand the role of the Preservation Metadata Implementation Strategies (PREMIS) in the long-term preservation of digital resources.

DETAILED OBJECTIVES

WEEK 11

8.1 Preservation metadata standards revisited
8.1.1 Introduction to the Open Archival Information System (OAIS)
8.1.2 Introduction to Preservation Metadata Implementation Strategies (PREMIS)
8.1.3 PREMIS as an extension schema in METS

LEARNING RESOURCES

Readings:

- Chapter 16, 'Preservation Metadata,' in Metadata Fundamentals for All Librarians, p. 154-157
- Dappert, Angela and Markus Enders. 2010. "Digital Preservation Metadata Standards," *Information Standards Quarterly*, 22 (2) (Spring) <http://www.loc.gov/standards/premis/FE_Dappert_Enders_MetadataStds_isqv22no2.pdf>
- PREMIS Editorial Committee. 2012. Introduction and Supporting Materials from PREMIS Data Dictionary for Preservation Metadata, ver. 2.2 <http://www.loc.gov/standards/premis/v2/premis-report-2-2.pdf>

Resources:

- Vermaaten, Sally. 2010. 'A Checklist for Documenting PREMIS-METS Decisions in a METS Profile,' Library of Congress <http://www.loc.gov/standards/premis/premis_mets_checklist.pdf>
- PREMIS Data Dictionary for Preservation Metadata, ver. 2.2 <http://www.loc.gov/standards/premis/v2/premis-dd-2-2.pdf>
- PREMIS: Preservation Metadata Maintenance Activity <http://www.loc.gov/standards/premis/>

Supplemental Readings:

- Lavoie, Brian F. 2004. The Open Archival Information System Reference Model: Introductory Guide, DPC Technology Watch Series <http://www.dpconline.org/component/docman/doc_download/91-introduction-to-oais>
- Guenther, Rebecca S. 2008. "Battle of the Buzzwords: Flexibility vs. Interoperability When Implementing PREMIS in METS," *D-Lib Magazine*, 14 (7) <http://www.dlib.org/dlib/july08/guenther/07guenther.html>
- Vermaaten, Sally. 2010. "A Checklist and a Case for Documenting PREMIS-METS Decisions in a METS Profile," *D-Lib Magazine*, 16 (9) <http://www.dlib.org/dlib/september10/vermaaten/09vermaaten.html>

MODULE 9 – RDA VOCABULARIES AND METADATA REGISTRIES

Objective: Upon successful completion of this module, the student will understand the potential role of RDA in the emerging metadata environment, the importance of metadata registries in the application of RDF and application profiles.

DETAILED OBJECTIVES

WEEK 12

9.1 Introduction to metadata registries
9.2 RDA element sets and value vocabularies
9.3 RDA vocabularies and RDF
9.4 Some concluding remarks

LEARNING RESOURCES

Readings:

- Hillmann, Diane and others, "RDA Vocabularies: Process, Outcome, Use," *D-Lib Magazine* 16 (1) (February 2010) <http://www.dlib.org/dlib/january10/hillmann/01hillmann.html>

Video:

- Harper, Corey A. 2011. 'Linked Library Data: Tuning Library Metadata for the Semantic Web' presented at the RDA Webinar Series, March 16 <50:00> <http://www.youtube.com/watch?v=ie8fY5WfXko>

Resources:

- The Dublin Core Metadata Registry <http://dcmi.kc.tsukuba.ac.jp/dcregistry/>
- The RDA Vocabularies <http://rdvocab.info/>
- DCMI/RDA Task Group Wiki <http://dublincore.org/dcmirdataskgroup/>

Supplemental Readings:

- Knight, F. Tim. 2011. "Resource Description and Access: From AACR to RDA," *Canadian Law Library Review*, 36 (1) <http://pi.library.yorku.ca/dspace/handle/10315/6717>
- Gartner, Richard. 2008. "Metadata for Digital Libraries: State of the Art and Future Directions," *JISC Technology and Standards Watch (TechWatch)* <http://www.jisc.ac.uk/media/documents/techwatch/tsw_0801pdf.pdf>