Background Notes for Instructors

Instructors using the book for LIS courses or continuing education workshops might find these notes useful. See especially the notes on Chapter 6.

Audience

The book is intended to be usable by students and practitioners with *absolutely no background, experience, or study in information organization, cataloging, metadata, resource description, or database design*, as well as by those who do have such background to varying degrees. It is not intended for those who have advanced metadata experience. The book does not make the assumption that LIS students have taken a prior course in cataloging or general information organization, although the latter would be extremely useful. Many practitioners in libraries, museums, archives, and the like get assigned to digitization projects and have no background in cataloging, metadata, or resource description. This book is written for them as much as for any of several other intended audiences.

Library and Information Science/Studies Courses

Instructors of courses in LIS master's degree programs may wish to use this book as a stand-alone text or as a companion text along with a more comprehensive topical text, or to supplement it with additional content units not covered in the text, and/or additional readings.

Please note that the Companion Website includes a Supplement for each chapter containing:

1. Questions for Review, Study, or Discussion.
2. Recommended Readings and Resources for Further Reference or Study.
3. Exercises in the form of general ideas, along with some more specific suggestions for instructors who may want to create their own materials for students.

These additional chapter supplements could have been included in the text of the printed book, but for various reasons they are included in the Companion Website instead.

For an LIS course, this book can provide a good foundation for adding units on topics such as:

- Encoded Archival Description (EAD).
- MARC, RDA, and AACR2, particularly from a larger metadata viewpoint.
- Additional specific metadata schemes such as TEI, CSDGM, CDWA, and so on.
- Administrative, rights, preservation, technical, and/or structural metadata. Coverage of METS can also work well with these topics.
- XML Schemas and/or XSLT.
- The DCMI Abstract Model.
- More depth on Linked Data, Semantic Web, and RDF, as well as RDFS, OWL, etc.

The Order and Content of Chapters

The order of chapters is designed to introduce students to metadata topics, concepts, and practices that progressively build on each other, especially if accompanied by practical learning exercises. Following the first chapter, the book begins with general resource description issues and provides a basis for students to work right away on creating Dublin Core records. The book deals with Dublin Core in a textual, tabular format apart from any particular software or encoding scheme. These Dublin Core records can subsequently be used for putting into an XML format in conjunction with

Chapter 6, mapping to MODS in conjunction with Chapter 7, putting into RDF format in conjunction with Chapter 11, and so on. Any real or invented digital resources (images, texts, etc.) supplied to students and used as the basis for description with Dublin Core may subsequently be used for description with MODS, perhaps also with VRA, for interoperability and quality assessment, and as the basis for developing an original application profile or for assessing an existing application profile.

Chapters 2-4: Resource Description and Dublin Core
- Logically, general resource description issues are separate from Dublin Core or any other specific scheme. But the primary areas common to digital resource description in general correspond to a high degree with the fifteen original DC elements. In order to introduce students to resource description in practice in a concrete form, the decision was made to include coverage of the Dublin Core elements along with the general resource description topics in Chapters 3 and 4.
    - In the original draft of the book, the first half of current Chapter 2 and each of the general resource description topics in current Chapters 3 and 4 were in a single chapter on Resource Description, apart from Dublin Core or any other specific scheme. The second half of current Chapter 2 and the sections on Dublin Core in current Chapters 3 and 4 were in a single chapter on Dublin Core. While this is a more logical and topically unified approach, it delays introducing students to hands-on resource description using a specific scheme, and it runs a high risk of being overly abstract for people new to resource description, without showing the concrete application of the general concepts using a specific metadata scheme. For many fairly obvious reasons, Dublin Core was selected as the best element set to start with.
- As stated above, Dublin Core is presented in a simple textual format rather than in XML. This is because DC itself is not inherently XML-based, the DCMI has put forth various changing recommendations for DC in XML over the last few years and is now favoring RDF, and it relieves students of having to learn about XML structures while learning resource description and Dublin Core. It can be quite advantageous to have students learn Dublin Core elements and application apart from any software or encoding scheme in order to focus on them without distraction and to understand that they are independent of any one software system or encoding scheme. Some instructors might nonetheless choose to have students work with Dublin Core in XML format, or use software such as CONTENTdm, from the start.

Chapter 6: XML-Encoded Metadata
- As just stated above, some instructors might wish to cover XML earlier and have students work with Dublin Core in XML from the start. The reasons why this was not done in the text are also stated above. Covering XML before MODS makes sense because MODS is an intrinsically XML-based scheme, and Chapter 6 provides a basis for understanding and working with MODS in Chapter 7.
- The XML format used in Section 6.2.1 on p. 157 and repeated again in Table 7.2 on p. 205-207 in the text for expressing vocabulary and syntax encoding schemes in Qualified Dublin Core is not the same as that used in past iterations of DCMI recommendations for the implementation of Dublin Core in XML. For example:

- o The book uses the following syntax for expressing the LCSH vocabulary encoding scheme with the DC Subject element:
  `<dc:subject scheme="LCSH">`
  - o The 2003-04-02 *DCMI Guidelines for implementing Dublin Core in XML* document at http://dublincore.org/documents/2003/04/02/dc-xml-guidelines/ uses the following syntax for expressing the LCSH vocabulary encoding scheme with the DC Subject element:
  `<dc:subject xsi:type="dcterms:LCSH">`
  This is also the output format of the Advanced Dublin Core Generator at http://www.dublincoregenerator.com/generator.html.
  - o A simplified format was chosen for use in the text so as not to get sidetracked by dealing with the *xsi:type* attribute and also because the current DCMI Specifications page at http://dublincore.org/specifications/ (as of June 1, 2011) does not include reference to these earlier XML guidelines.
  - o Instructors might want to address this difference in approach, especially if students notice and ask about it.
- Some instructors might want to do a good deal more with XML Schemas and XSLT, perhaps having students create an original XML Schema and/or an original XSLT stylesheet. These are not covered in the text other than mentioning what they are.

Chapter 7: MODS

- The introduction to Chapter 7 on MODS includes several reasons why a study of MODS is useful for students of cultural heritage metadata, as well for as practitioners even if they do not use it in practice.
- There are advantages and disadvantages to having students type out their MODS records by hand, including line breaks and indentations, versus having them use XML software to create MODS records. Most teachers of HTML and XML have beginning students type out the code without using HTML software such as Dreamweaver or FrontPage or XML software such as oXygen or XMLSpy. This forces students to learn the elements and attributes and correct HTML or XML formatting and hierarchical nesting in a way more deeply ingrained in the mind than starting with an editor. Still, working with software is the more common way to create MODS records in actual practice, and it also demonstrates the use of machine validation against the MODS XML Schema, and such software often include other XML related tools as well. It can be useful to include both aspects in a course; for example, have students type out a MODS record by hand and then copy and paste it into an editor to validate it.

Chapter 8: VRA 3.0 and 4.0

- The coverage of these two schemes is obviously quite superficial in contrast to the coverage of Dublin Core and MODS in the text. This chapter is included in part to provide exposure to two additional metadata schemes and to learn something about them in and of themselves, but also to provide further bases for comparison and contrast of scheme features with Dublin Core and MODS. Some instructors might wish to add more information and have students learn either VRA 3.0 or 4.0 or both in greater detail rather than leave it at a more general overview level.

Chapter 10: Metadata Scheme Design and Documentation
- In terms of chronological steps in actual practice, Chapter 10 would come as the second chapter in the book, preceding resource description. Some instructors might wish to take it in that order.
- Its current placement is largely to help students more thoroughly understanding the components of metadata scheme design based on the content of the preceding chapters and to provide the option of having the major semester course project or final assignment be original metadata scheme design and documentation, coming at or near the end of the course.
- This chapter is intended to be a kind of culmination of everything that came before it, with the addition of only the chapter on linked data following it as a kind of extra addition to the main focus of the text.

Chapter 11: Metadata, Linked Data, and the Semantic Web
- This is the current hot topic in the metadata and cataloging worlds, and it appears to be the direction in which we're headed. For the majority of implementers of metadata for digital collections, however, this is still an abstract possibility for the future and not something they are working with at present or are likely to work with in the near future. That having been said, however, sometimes change does happen quickly, and new technologies and applications are created and widely adopted in short order rather than over the long term. But to date this is only a possibility, and the text is written from this perspective.
- Some instructors might want to do a great deal more with RDF, Linked Data, the DCMI Abstract Model, and/or current Dublin Core Application Profile guidelines than the superficial level of coverage of these topics in the text.
- This chapter provides a basic introduction, primarily to the behind-the-scenes methods of taking the kinds of metadata covered previously in the book and expressing them in RDF. It takes a very methodical, step-by-step approach to walk the novice through the steps of making connections between (a) metadata formats with which they are by now familiar and (b) metadata expressed as RDF triples. Starting with Chapter 1, the book emphasized metadata as consisting of statements made up of properties and values about resources. In this chapter mechanics of RDF are expressed.
- The chapter perhaps does not do enough to express what the larger Semantic Web vision is about, but some of the Recommended Readings and Resources in the Companion Website can help with that. The two short videos listed there are especially recommended.
- The greatest problem with attempting to demonstrate the purpose and functionality of Linked Data and Semantic Web applications, in this author's experience to date, is the lack of any crystal clear examples and real-world applications that show how RDF triples (along with RDFS or OWL classes, domains and ranges, not covered in the text) actually function both behind the scenes and for public users and how these are directly connected to each other.

Chapter Coverage During a Course or Workshop
Chapters and portions of chapters can be combined in various ways for coverage over specified periods of time. One way, of course, is to cover one chapter per week, perhaps even taking some chapters over more than a single week. The following options are offered here as examples in case anyone might find them useful.

Below is the order of coverage that the author is using for a seven-week online continuing education workshop during Summer 2011:

- Week 1:
  - o Introduction to Metadata for Digital Collections: Chapter 1.
  - o Introduction to Resource Description: Chapter 2, Section 2.1.
  - o *Exercises:* Identify resources, properties, values, statements, records, functionality, original versus digital statements, and content versus carrier in one or more selected existing metadata records.
- Week 2:
  - o Introduction to Dublin Core: Chapter 2, Section 2.2.
  - o Resource Identification and Responsibility Metadata: Chapter 3.
  - o *Exercises:* Map local elements to Dublin Core. Begin creation of one or more original Qualified Dublin Core records following one or more provided application profiles, using the eight DC elements covered in Chapter 3.
- Week 3:
  - o Resource Content and Relationship Metadata: Chapter 4.
  - o Controlled Vocabularies for Improved Resource Discovery: Chapter 5.
  - o *Exercises:* Complete creation of one or more original Qualified Dublin Core records following one or more provided application profiles, using the remaining seven DC elements covered in Chapter 4.
- Week 4:
  - o XML-Encoded Metadata: Chapter 6.
  - o MODS: Metadata Object Description Schema: Chapter 7.
  - o *Exercises:* Turn one previously-created Qualified Dublin Core record into simple Dublin Core in OAI DC XML format. Map a Simple Dublin Core record to a MODS Lite record by following the official MODS mapping table.
- Week 5:
  - o MODS: The Metadata Object Description Schema, continued.
  - o VRA Core: The Visual Resources Association Core Categories: Chapter 8.
  - o Metadata Interoperability, Shareability, and Harvesting: Chapter 9, Sections 9.1-9.7.
  - o *Exercises:* Create a full original MODS record for one of the resources used for the previous QDC exercises. Optionally also create or fill in the blanks on a VRA 4.0 record for a museum sculpture and digital image of that sculpture, based on image and information provided.
- Week 6:
  - o Metadata Interoperability and Quality: Chapter 9, Sections 9.8-9.10.
  - o Designing and Documenting a Metadata Scheme or Application Profile: Chapter 10.
  - o *Exercises:* Create an original metadata application profile for a real or invented digital collection. Optionally also create one or two records for real or invented digital resources conforming to this MAP.
- Week 7:
  - o Metadata Application Profiles, continued.
  - o Metadata, Linked Data, and the Semantic Web: Chapter 11.
  - o *Exercises:* Share the MAP from last week and discuss. Optionally also: create sets of RDF triples for three different resources, such that at least one value URI from each set links to a resource or value URI from at least one other set, and such that all three sets are linked to each other either directly or indirectly.

This illustrates only one of many options for covering multiple chapters, or sections of chapters, in a shorter time span than one chapter per week.
Instructors might also consider some of these kinds of combinations for an LIS course, leaving additional time for other topics during a 14-16-week semester course.