INLS 720: Metadata Architectures
Fall 2018

Basic information

This class is online; most information will be available through Sakai.

Instructor information

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Introduction

An enduring goal of the information professions is to enable precise, reliable, comprehensive retrieval of data and documents. A key means to achieving this goal has been the design and application of systems for structured description—metadata. Consistent, correct, and well-formed metadata, the thinking goes, facilitates access to diverse information resources, making them more discoverable to potential users.

To facilitate retrieval across collections and enable federated information aggregations, such as WorldCat, Europeana, and the Digital Library of America (DPLA), metadata needs to be *interoperable* across systems. Interoperability means that metadata created for one system can work in another system. For example, if one system describes authors and titles of resources in a coordinated statement ("Hamlet by William Shakespeare") and another separates authors and titles into distinct metadata elements, then author and title information is not easily interoperable between the systems. One system's records would need to be mapped to the other system's structure before they could be aggregated.

There are a number of different levels of interoperability. *Syntactic interoperability* has to do with data encodings and formats. For example, are dates written like this: *August 12, 2018* or like this *08/12/2018* or like this *12/08/2018?* Is the metadata record encoded as an XML file or in the MARC format? *Semantic interoperability* has to do with meaning. What kind of content should be in a metadata element titled Subject? (How specific and exhaustive should a subject term be? Should terms be chosen from a controlled vocabulary? Are metadata creators applying subject terms in the same way, so that they carry the same meaning from record to record?)

Standards to specify parameters for what is described, how it is described, and the format and syntax of description are meant to facilitate interoperability. Interoperable metadata via standardization is viewed as an important component of cyberinfrastructure and data integration. Interoperable metadata facilitates the aggregation of research data in all fields, from the sciences to the humanities. Such data integration and availability is often described as an engine of scientific progress, social innovation, and the general advancement of knowledge.

In this course, we will review the fundamental concepts central to structured metadata implementations and survey the many types of standards that attempt to harmonize description and enable interoperable systems. We will engage these concepts in action by examining the metadata-related efforts of two communities with different interests in similar sorts of resources: museums and archeology. While museum professionals and archeologists may focus their attention on similar artifacts (such as ancient pottery or bone shards), their purposes, methods, and uses for resource description are very different. Looking at the conceptual foundations, existing practices, and envisioned opportunities for descriptive systems in these two communities will enable us to understand potential commonalities across metadata

environments as well as domain-specific differences. Concurrently, we will put these concepts into practice through a semester-long project. In the project, we will adapt standards to create locally appropriate metadata for a particularly complex type of cultural heritage artifact: video games. We will then combine local metadata records to create a larger aggregated dataset of video game metadata, and we will examine the dataset to understand the interoperability of its records.

Throughout these explorations, we will also seek to understand the limits of metadata standards and to critically examine the inevitable role of interpretive diversity for information systems. All metadata, even the most "objectively" determined measurement, has a subjective component, in that a particular property has been identified as significant for a human purpose. Strategies to understand and work with interpretive diversity across time, across communities, and across cultures are accordingly necessary for effective design, application, and use of metadata. Our semester-long project will engage the challenge of designing and implementing standards and guidelines for interoperable metadata while acknowledging the messy reality of interpretive diversity.

Learning Objectives

At the end of this course, you will be able to:
- Identify, define, and disambiguate fundamental concepts of metadata architectures, such as entities, attributes, and relations.
- Compare and relate different types of standards (for example, content standards, structure standards, and encoding standards) and describe the role of intersecting standards in facilitating metadata interoperability.
- Describe the relationship between metadata standards in a domain (such as museums or archeological research) and the information needs of users as articulated by that domain.
- Adapt general standards for particular local uses and articulate the effect of local guidelines on aggregated datasets.
- Identify, characterize, and assess the interpretive diversity in a dataset created to align with metadata standards.
- Describe and defend a principled position to inform the design, implementation, and use of metadata standards that accounts for inevitable interpretive diversity in metadata environments.

Course Structure

Course content is organized into three primary sections:
- Metadata basics.
- Metadata standards.
- Domain-specific metadata.

In the *Metadata Basics* section, we will review fundamental concepts of resource description, including entities, attributes of entities, and relations between entities. Although our focus here will be to understand the general concepts that make up metadata architectures, we will make use of several common standards (such as Dublin Core and Functional Requirements for Bibliographic Records, or FRBR) to do so. We will also begin our acquaintance with the video game metadata standard, proposed by Jin Ha Lee and her GAMER group colleagues, that we will use in our continuing semester project.

In the *Metadata Standards* section, we will survey the many types of standards employed in research description and understand how these standards relate to each other. In this section, we will have a brief introduction to linked data, a technical architecture that enables automated aggregation of metadata statements. We will also examine the creation and implementation of standards in practice, across different communities, and across time.

In the *Domain-Specific Metadata* section, we will look at two domains with different interests in (potentially) similar resources: museums and archeology. First, we will seek to understand the conceptual foundations of museum informatics: how have the goals and objectives of resource description been articulated in museums? Then we will survey some of the metadata standards developed for museums, focusing on the conceptual challenges that these standards are attempting to systematize. We will look at museum collections databases online to see if we can trace the descriptive practices we've read about in the user experience created for general public access. We'll also look at aggregated cultural heritage datasets, such as Europeana and ArtStor, to see how those integrated infrastructures receive and disseminate their data. In the final weeks of the course, we'll look at resource description and standardization efforts in archeological data, a domain that has some crossover with museums in terms of the entities of interest, but that takes a different perspective on those entities.

Each week of the course will be a distinct module in Sakai. Modules will include:
- Readings.
- Lectures.
- Activities.
- Discussion forums.
- Tasks associated with the course project (the course project is described in the next section).

A complete module calendar appears at the end of this syllabus.

Course Grading

Course grading is split between the semester project and participation for each module.

Participation: *150 points* (split into three 50-point grades for modules 2-5, 6-10, and 11-14)
Project: *250 points*
                   (100 points for the local guidelines, 50 points for the metadata generation, and 100 points for the final essay)

For a total of 400 points.

Course grades will be determined according to the following schedule:

380 or above	H
300 to 379	P
240 to 299	L
below 240	F

Extensive project details are provided in the following section. *It is your responsibility to read and understand all the instructions.* **If you have questions, ask.** *There will be a Sakai discussion board for this purpose.*

For all graded course components, grading is based entirely upon the criteria in this syllabus. Points are divided as specified in the syllabus amongst the listed criteria. *There will be no surprises.*

No busy work principle
No one wants to do boring things for no reason, including me! If something is required for the course, it has a purpose that requires thought. If something seems like busy work, I probably haven't articulated the

purpose well. First reread the instructions, and then be sure to ask me about it, so I can better explain why I am asking you to perform that task.

Participation

Because this class is delivered online, consistent and energetic participation is vital for the success of the course. The goal of participation requirements is to ensure productive dialogue that helps us all to learn.

Participation assessment involves three components:
- Frequency.
- Content.
- Quality.

Frequency
Module 1 participation is not graded.

For all other modules, you must contribute *at least three substantive* posts to discussion forums (about 200 words) *per module.* These are the *minimum* posting requirements.

For each module's postings:
- One posting must be submitted before Friday at 8 a.m.
- The remaining two postings must be submitted before Monday at 8 a.m.

Although all three required postings can certainly be submitted before Friday at 8 a.m., I strongly encourage posting on at least two different days, so that you can contribute more effectively to our continued conversation.

Posting is formative, not summative. You do *not* need to complete the readings or activities in a module before contributing to discussion forums. For example, you can post about a lecture on Tuesday, a reading on Thursday, and an activity on Friday; you don't need to have finished all the lectures, readings, and activities before making any posts. Additionally, you may continue discussions from a previous module; for instance, you may post about entities (a topic from Module 2) at 10 a.m. on Monday during Module 3; this posting "counts" toward your minimum requirements for Module 3.

Our goal is to maintain an ongoing conversation; think of contributing to our discussions as something that you do *during* a module to help you learn, and *not* after a module, to demonstrate that you have done the work. Accordingly, try not to focus on your forum posts as being "due" on Friday and Monday morning; this is limiting (and may produce unnecessary anxiety). Instead, think of having an entire week to contribute to class discussions based on *your* schedule. For instance, *if you post once every Monday, Wednesday, and Friday afternoon, you will get through all of your posting requirements during the week, without any worry or stress.* This is the kind of approach I recommend. (It is unfortunate when much of the posting occurs after 10 p.m. on Sunday night; this is not conducive to group interaction, nor to a healthy sleep schedule. There is no reason to stay up late on the weekend to fulfill your posting requirements.)

Content
If there are no module-specific instructions, you can write postings that address any of our course materials: readings, lectures, and so on. (Occasionally, you will be explicitly directed to write one of your required postings about a module activity, or about the course project tasks that will take place during that module.)

Postings that relate multiple materials and refer back to previous weeks or to other students' postings are especially encouraged. While I will provide discussion prompts to help you think about a module's readings, *you do not need to respond to one of my prompts.* You are encouraged to create your own conversations within each module's forum area.

Your postings can respond to someone else's post or initiate a new topic.

Postings must be germane to the course, but they can be related to content from either the current module *or to a previous one.* In other words, it is perfectly acceptable to contribute a post about a Module 2 topic during Module 3.

Quality

Postings are meant to encourage conversation and help us all to learn. You do not need to have an answer when you post something. Indeed, postings that describe your difficulties in understanding are especially appreciated. If you're mystified, odds are that someone else is also mystified, and sharing your experience will help everyone.

However, postings should not merely ask endless series of questions but should constitute an initial attempt to work through something you don't understand, or to relate observations, insights, and comments that might extend the learning of others. For example, if a concept is confusing, your posting can explain in detail what you find confusing and describe how you've tried to resolve that confusion, even if those attempts did not succeed and you are more confused than ever.

Postings that reflect on or make use of your professional experiences in light of the course topics are also encouraged.

Reciprocity

We embark on learning as a group because we learn from interacting with each other, as peers, in dialogue. To that end, it's important to read the posts that others make, and to set your own contributions in response to others when appropriate.

As you develop your own ideas, put them into conversation with the posts that are already there. If someone else has written about something that you wanted to comment upon, continue the discussion rather than creating a new thread. You can respond to others' contributions in a variety of ways, such as:

- Agree with the initial post by providing confirmatory evidence from other sources (readings, activities, experiences).
- Extend the initial post with complementary observations, reflections, or examples.
- Question the initial post by relating contradictory evidence (from readings, activities, experiences).
- Take the initial post in a new direction by providing a different emphasis or perspective.

Presenting alternative or opposing viewpoints is an important aspect of scholarly discourse, and everyone should feel empowered to disagree with the perspectives presented in our readings, in my lectures, and in other discussion posts. Take care to be respectful and well-reasoned in disagreement; show that you understand the argument being put forth even as you suggest a new approach.

Grading criteria

You will receive three participation grades, each worth 50 points:

- Participation grade #1: for modules 2-5.
- Participation grade #2: for modules 6-10.
- Participation grade #3: for modules 11-14.

Points will be distributed amongst the four participation components as follows:
- Frequency (10 points)
- Content (15 points)
- Quality (15 points)
- Reciprocity (10 points)

These component scores will be determined based on the following criteria:

Frequency
- Three postings are contributed for each module.
- For each module, one posting is contributed before Friday at 8 a.m., and the remaining two are contributed before Monday at 8 a.m.

Content
- Postings directly refer to material (concepts, themes, examples) from course readings, lectures, module activities, or course project activities.
- Postings engage with significant ideas and primary concepts, rather than minor questions or issues (e.g., postings avoid musing about the meaning of a single word or sentence, or complaining about writing style).

Quality
- Postings represent an honest attempt to understand, interpret, extend, question, or comment upon that material.
- Postings work through a question or issue—even as they do not need to answer or resolve anything for certain. If you're confused, you explain why you're confused; if you're overwhelmed, you think about what might begin to help.

Reciprocity
- You've read the contributions of others to the discussion forums.
- When appropriate, postings respond to observations that others have made or questions that others have asked.
- Where appropriate, postings acknowledge the contributions of others and demonstrate that you have read what others have posted regarding the topic at hand.
- Postings maintain a respectful attitude toward others, even in disagreement.

Project: Local Implementation and Global Aggregation

In this semester project, you will work with others to create local guidelines for implementing a proposed standard schema for video game metadata. Each project group will create their guidelines based on the perceived needs of a different user community. You will then create metadata records using the standard schema, controlled vocabularies associated with the schema, and your own local guidelines.

Next, you will examine and interpret the dataset created by the class to identify, characterize, and assess its areas of interpretive diversity, and to form your own position on interpretive diversity in metadata and on the role of standards in forming the character of a dataset. Is interpretive diversity bad—or can it be useful? How can we more perceptively understand interpretive diversity in metadata, as we attempt to create standards and implement large-scale aggregated datasets?

Our domain for this project will be video game metadata. Video games are complex information resources that have been insufficiently described with standard schemas for cultural heritage. Moreover, there are multiple communities with various interests in video game description: some focused on access, others on preservation, and and others on scholarship. Jin Ha Lee and colleagues at the University of

Washington (the GAme MEtadata Research, or GAMER group) have been developing a schema for video game description that they propose as a potential content and structure standard for this domain. We will read several articles over the course of the semester that describe the design, evaluation, and revision of the GAMER video game metadata schema. (Although the GAMER schema is currently on version 4.0, we will use the 2.1 version of the schema for our project, which was released in February 2015.)

Project components
- Local guidelines for implementing a content standard (in assigned project groups, with an individual essay component).
- Twelve metadata records: five generated with your group's guidelines and five generated with another group's guidelines, and one record generated twice, once with each set of guidelines (individual).
- Essay that analyzes the aggregated dataset of metadata records created by the class as a means to formulating your own position on interpretive diversity in resource description (individual).

Project due dates
- Select 8 video games to describe (can be any 8 games of your choice): due Monday, September 10, 9 a.m.
- Component #1, local guidelines: due Monday, October 8, at 9 a.m.
- Component #2, metadata generation: due Monday, October 29, at 9 a.m.
- Component #3, a position and plan for interpretive diversity: due Wednesday, December 5, at 9 a.m.

The following sections describe each project component in more detail.

Project Component 1: Local Guidelines for Implementing a Content Standard

In this project component, you will create local guidelines that help metadata creators to apply the GAMER video game metadata schema in particular situations.

If the purpose of a metadata standard is to define how everyone should understand the fundamental building blocks of resource description in a domain—what entities are, their properties, the values associated with those properties, and so on—then it's vitally important to carefully explain how those definitions should be applied to actual resources. Often, though, standards are written in a limited and general way, so that different communities can specify how to use them for their particular situations and purposes. In this manner, many groups can both follow standards adequately, enabling some level of semantic interoperability between datasets, and still create metadata that effectively serves their own local needs. In Module 3, for example, we will look at both the Dublin Core standard, as published by NISO, and at a set of more elaborate local guidelines created by the Collaborative Digitization Project (CDP) at the University of Denver for implementing Dublin Core in a specific environment. *In this project, you will perform a task similar to that of the CDP.*

You will be assigned to groups of about 4 students each. Just as in many professional environments, you will need to work with your fellow group members to form an understanding of the schema's goals in the context of your particular domain, and determine how best to implement the schema to achieve that understanding in your data. Moreover, you will need to sufficiently and effectively document your interpretation of the schema, enabling metadata creators to be confident in their work.

Project groups will be assigned to one of the following communities:
- Public librarians providing access to video games via a new game collection in a public library in a large city.

- Digital archivists preserving a collection of historical and rare games for the special collection of a research library in a university.
- Museum curators creating a new video game collection of artistically significant games in a contemporary art museum with a significant program in digital arts.
- Digital humanities librarians setting up a video game collection with representative and singular examples of game design and interactive structure for game studies scholarship and criticism in a university digital media department.

Suggestions for working together in your project group will be provided in Sakai.

Each group will be provided with a project brief that summarizes the target audience for your community, and the information needs and activities most important to that audience. You will use your community's brief to write local guidelines that help to further your community's particular descriptive goals. But you will need to balance local concerns with the understanding that the metadata generated with your local implementation will eventually be aggregated with other local implementations to create a combined dataset.

You should test your in-progress guidelines by creating some records and discussing your results with your team. (The second component of this project involves creating records as well; while you should *complete* that component of the project *after* you finish your guidelines, you can *begin* that component as a part of the guideline creation process and facilitate both streams of work.)

Caution: The basic idea of this project is incredibly simple. You're just writing additional guidelines for a schema that already exists! You will think: this seems silly! The original guidelines aren't terrible. Yes. But try creating some records with the original guidelines and see how you interpret them differently than other people in your group. You will see that this project is not so silly.

Deliverables
1. A complete set of local guidelines for all elements in the video game metadata schema. These guidelines must include:
   - An introduction (of a few paragraphs) that clarifies how your guidelines facilitate information needs and activities of your community's target audience.
   - Explicit instructions for each element in the video game schema, with examples that are appropriate for your community and illustrate how each element should be interpreted and implemented.
2. An essay of about 1500 words (about 4-5 pages) that reflects upon the process of creating these guidelines and how the design process affected your understanding of the function, purpose, and utility of metadata standards, either by confirming or undermining your previous notions.

   The goal of this essay is to explore how the practical experience of designing local guidelines provokes insight onto metadata concepts, descriptive practices, and standardization. The essay is *not* merely a report what you did. Instead, it is an opportunity to meditate upon the process of doing and to use that experience to extend your understanding of metadata and its associated practices. You might consider, for example, what was difficult (or easy) about this project, or how your ideas changed (or didn't change) over the course of the project, or how your sense of the original video game schema changed over the course of the project.

   You should *not* use this essay to justify why your guidelines are excellent. Of course your guidelines are excellent! You don't need to persuade me of this. Your guidelines will do that all by themselves.

The set of guidelines will be the same for all members of your group; the reflective essay is individual work.

Grading criteria
A successful project will exhibit these characteristics:
- The reader understands how the guidelines facilitate the goals of your assigned community.
- The guidelines can be applied by hypothetical indexers to describe actual entities consistently, reliably, accurately, and usefully within the context of the identified audience needs (to facilitate the goals of public libraries, or digital archives, etc.).
- The instructions for each element clarify what the element means and how the indexer should implement that element for both typical and exceptional entities.
- The guidelines appropriately balance the two goals of creating useful data for a particular community and aggregating data across multiple communities.
- All deliverables follow a logical document structure, are clearly written, and use correct grammar and punctuation.
- The reflective essay thoughtfully considers the experience of creating the guidelines to productively engage larger issues of theory and practice (that is, the reflection does not merely summarize or justify the design process or product; it interrogates it).

The reflective essay is worth 20 points; all other criteria are worth 16 points each..

Project Component 2: Generating Metadata Records from Local Guidelines

In this phase of the project, you will create 12 metadata records for 11 video games using local guidelines.

With your own group's guidelines, you will create six records:
- One record for the following game: Final Fantasy 7
- Four records for any games of your choice.
- One record for the following game: Skyrim

With another group's guidelines (assigned by the instructor), you will create six records:
- One record for the following game: Journey
- Four records for any games of your choice (different games than the ones you described for your own group's guidelines).
- One record for the following game: Skyrim (yes, you will create two records for Skyrim, by following the two different sets of local guidelines)

Just like our hypothetical indexer, you are not assumed to have any knowledge at all of video games to complete this task. The creators of metadata often do not have particular subject-matter expertise. You are also not required to own, or have played, or intend to play, any of the games that you describe. The creators of metadata often have little time to become familiar with the resources that they describe. (It may be that certain of your own local guidelines *suggest* particular sources of information [such as gameplay or scholarly journals] for creating metadata; however, as with all metadata creation processes, it will be *up to your individual discretion, as a metadata creator, how you follow such suggestions,* given your own personal expertise, available time, and so on. If you don't play any games and use the Internet to determine how to assign appropriate values to your selected resources, that is perfectly fine. There are no metatdata police, here or in the real world.)

While you might create some initial records in the process of creating your local metadata guidelines, you should systematically re-create those records when you get to this stage of the project. That is, even if you

created three interim records for Final Fantasy 7 while developing your guidelines, put those aside and create another one for this project component. Your understanding of the game, of the guidelines, or both may have changed, and while there is no need to forget what you may have previously done, you should systematically generate each record anew. You should also adopt this approach when you create the two records (one for each set of guidelines) for Skyrim. A good process might be to create all the records with your own guidelines first, then create all the records with the second set of guidelines. That way, you will get into the mindset of each set of guidelines more completely and systematically.

You will create each record in an online collections management system, Collective Access. Instructions for using Collective Access will be provided in Sakai.

Creating these records is quite time-consuming; you will have to do some research. Do not underestimate the time that this task will take to complete.

Deliverables
- 12 metadata records:
  - Six (Final Fantasy 7, Skyrim, and four of your choice) created with your own local guidelines.
  - Six (Skyrim, Journey, and four of your choice) created with the guidelines developed by another group.
  - All 12 metadata records must be implemented in Collective Access.
- A reflective essay of about 1200 words (3-4 pages) that critically interrogates how the experience of creating metadata with two sets of different guidelines informs upon your understanding of metadata concepts, descriptive practices, and standardization.

Grading criteria
A successful project will exhibit these characteristics:
- The 12 metadata records are complete and represent an honest attempt to fulfill the goals expressed in each set of local guidelines. (25 points)
- The reflective essay thoughtfully considers the experience of applying the two sets of guidelines to productively engage larger issues of theory and practice (that is, the reflection does not merely summarize or justify the process you followed or the records you created; the essay interrogates those things). (15 points)
- The essay follows a logical document structure, is clearly written, and uses correct grammar and punctuation. (10 points)

   Points will be awarded as specified for each criterion.

Project Component 3: Position Paper on Interpretive Diversity, Standardization, and Metadata

In the final component of this project, you will analyze the aggregated dataset of video game metadata records to help you formulate a position on interpretive diversity in metadata generation and aggregation. You will examine, assess, and interpret our aggregate collection to determine both the extent of semantic diversity across the records and the function of this diversity. If different records apply attributes differently, what are the effects on the aggregated database?

In some of our course modules, we will look at some aspects of the aggregated dataset and discuss them in our course forums, as preparation for writing this essay. But you will also want to examine the dataset on your own. There are many approaches you can use to do this. For example, you can compare the metadata generated by individual people. Do certain creators have a particular "style"? How does that style manifest? (Through the amount of information described? The amount of detail for certain elements

as opposed to others? The aspects of each game that are described as opposed to other aspects? The choices of values?) Is there a value to style, and what is it?

You can also compare the metadata generated for particular attributes as well, for particular creators, for particular communities (project groups), and across the dataset. Does the meaning of "Mood" change or remain consistent across indexers, communities, and the entire collection, for example? How is the interpretation of "Mood" different?

And you can compare metadata for the common three games that everyone described (remember, Skyrim was described twice by everyone, with two different sets of guidelines). Where are areas of divergence and convergence? Where is it problematic to have differences, and why? Is it ever useful or interesting to have differences?

These are just a few strategies you might adopt in exploring the dataset. Be creative in locating and interpreting dimensions for comparison.

You will use your analysis of the dataset, in conjunction with your experiences in the other components of the project, as well as your understanding of course readings, lectures, and discussions, to write an essay that *constitutes an argument for how to approach interpretive diversity* in the context of creating and using metadata standards in local and global contexts. Is interpretive diversity a problem that can be eradicated? Is it a pestilence that can never be stopped, only contained (like cockroaches!)? Is it a pervasive necessity, like breathing? Is it sometimes worthwhile or useful?

After you establish and justify your position, you will use it to formulate a course of action or set of guiding principles for metadata creation, use, and aggregation. In other words, if interpretive diversity is a problem to be solved, how do you solve it? Or how do you contain it, minimize it, live with it, enhance it, draw attention to it, or whatever actions the position that you establish might entail? If, for example, your plan is to "write better documentation," what would make the documentation "better"? As you develop your plan, you might consider the activities of standards developers, standards implementers, metadata creators, data aggregators, and data users. Each of these stakeholders might have different needs.

Deliverables
You will write an essay of about 3,000 words. Your essay should make some reference to the following:
- Your experience of creating the local guidelines.
- Your experience using two sets of guidelines to create metadata records.
- Your analysis of the aggregated dataset.
- Concepts from course readings and other activities.

Grading criteria
A successful essay will exhibit the following characteristics:
- Develops a clear, defensible position on interpretive diversity in aggregated collections that clarifies the effects of such diversity, assesses the impact of those effects, and suggests how to either minimize any negative effects or maximize positive ones.
- Incorporates, as evidence for the argument, reflections on your activities: creating local guidelines, implementing local guidelines in metadata creation, and analysis of the aggregated dataset.
- Appropriately synthesizes material from course readings to support your argument.
- Uses the defined position on interpretive diversity to present a course of action or set of principles to guide the activities of standards creators, standards implementors, metadata creators, data aggregators, and data users.

- Follows a logical document structure, is clearly written, and uses correct grammar and punctuation.

Points will be divided equally amongst the grading criteria.

Module Calendar

Modules will become available on Mondays at 9 a.m.
Except for modules 13 and 14, each module lasts for one week.

Warning: Although some material may be posted prior to Monday morning, please be aware that some items may be missing. Don't assume that everything is ready and available just because some items are early. (In other words, do not plan on doing modules in advance.)

Module	Week	Focus	Readings
1: *Metadata basics* Introduction	August 21-26	What is metadata and why should we care about it?	Class syllabus Gilliland, 2016 Greenberg, 2009 *Optional* Metadata Basics (Zeng)
2: *Metadata basics* Entities and identifiers	August 27-September 2	What is being described? How can entities be persistently identified?	Kent (ch. 1) Sanger-Katz, 2016 IFLA (selections about Group 1 entities: 13-14, 17-24, 31-49) Coyle, 2006 Thompson, 2010 *Optional* Bates, 1986 (selections)
3: *Metadata basics* Properties of entities (attributes and values)	September 3-9	What significant properties distinguish each entity? What kinds of values best express these properties?	ANSI/NISO Z39.85-2012 (Dublin Core metadata element specification) CDP Metadata Working Group, 2006 Lee, et al, 2013 Lee, et al (GAMER group), 2015, schema version 2.1 *Optional* Global Terrorism Database (GTD) codebook Armed Conflict Location Event Data Project (ACLED) codebook

Module	Week	Focus	Readings
4: *Metadata basics* Relations between entities (models)	September 10-16	How are entities and properties related?	Dublin core abstract model Johnston Urban IFLA (again) Jett, et al 2015 *Optional* Lee, et al (GAMER group) 2017, schema version 4.0
5: *Metadata standards* Types of standards and the work of creating them	September 17-23	What is interoperability and how might it be achieved?	Zeng and Chan, 2009 Elings and Weibel, 2007 Millerand and Bowker, 2009
6: *Metadata standards* Linked data: encoding, linking, and aggregating metadata statements	September 24-September 30	How does linked data provide a technical architecture for encoding, linking, and aggregating metadata?	Duval, et al 2002 Miller, 1998 Oomen and Baltussen, 2012 *Either* Baker, 2012 *Or* Baker, Coyle, and Petiya 2014 (pick one)

Module	Week	Focus	Readings
7: *Metadata standards* Semantic diversity and change over time	October 1-7	How does our understanding of attributes and their values change over time and across communities of practice?	Buckland, 2012 Tennis, 2012 *And, pick one of the following:* Ribes, 2017 (A sociologist of science and technology writing about the process of making AIDS-related data interoperable and maintaining and updating AIDS data over time) *Or* Long, Thompson, Potvin, and Rivero, 2017 (Metadata practitioners writing about a project to adapt an existing descriptive schema standard) *Optional* Bowker, 2000 (A sociologist of science and technology writing about biodiversity data.)
8. *Metadata standards* Implementation of standards in practice	October 8-14	How is a standard implemented in different situations, and what happens when data from different sources is aggregated?	Waigley, Gelches, Park, 2010 Lee, Clarke, and Perti, 2015 Jackson and Barbrow, 2015 Goodwin, 1994
9: *Domain-specific standards* Conceptual foundations and objectives of museum informatics	October 15-21 (includes fall break)	What are the goals of museum metadata? What are descriptive practices in museums?	Marty, Rayward, and Twidale Bearman Orna and Pettit

Module	Week	Focus	Readings
10: *Domain-specific standards* Standards and systems for museum information	October 22-28	What are (some) content and structure standards for museum metadata? How do these standards work together, and what are their goals?	Cataloging Cultural Objects (CCO) (a content standard): Introduction, Part 2, Elements; Part 2, Chapter 1. Coburn et al, 2010 Categories for Description of Works of Art (CDWA) (a structure standard): Introduction, Metadata crosswalks Art and Architecture Thesaurus (AAT) (a value standard): About the AAT
11: *Domain-specific standards* Models for museum resource description	October 29-November 4	What are some models for defining and relating entities and properties in museum metadata?	Gill, 2004 Doerr, 2004 Isaac, 2013 Oldman, 2013
12: *Domain-specific standards* Integrative infrastructures for cultural heritage data sharing	November 5-11	How does standardized metadata enable systems for aggregating cultural heritage data? How is this aggregated data used?	Europeana white paper #2: the problem of the yellow milkmaid Europeana strategy 2015-2020 (and strategy update 2018) ArtStor metadata policy statement Agenjo, Hernandez, and Viedma, 2012 *Aggregated museum data case studies* Europeana ArtStor Digital Public Library of America (DPLA)
13: *Domain-specific standards* Goals and conceptual foundations for resource description in archeology	November 12-25 (includes Thanksgiving)	What are goals for description of archeological datasets? What are some existing standards for archeological data?	Rabinowitz, Esteva, and Trelogan, 2013 Kintigh, 2006 Atici, Whitcher Kansa, Lev-Tov, and Kansa, 2012

Module	Week	Focus	Readings
14: *Domain-specific standards* Integrative infrastructures for data sharing in archeology	November 26- December 5	What are the goals of systems for publishing and aggregating archeological data? What metadata practices are necessary to achieve those goals?	Kansa, Kansa, and Arbuckle, 2014 *Aggregated archeological data case studies* Pelagios Open Context tDAR Ariadne *Optional* Arbuckle, et al 2014

Policies

Instructor communication
For specific and personal inquiries, e-mail is the most reliable means of contact for me. I do my best to answer e-mail within a day of receipt. If you do not receive a response after a few days, please follow up. It is always helpful if your e-mail includes a targeted subject line that begins with "INLS 720."

Although this is an online class, I encourage local participants to come to weekly office hours or to make an appointment to see me in person.

For general questions about the class, logistics, and requirements, please post your question to the Logistics and Requirements forum on Sakai. If you were confused about something, it's likely that others are as well, and posting your question enables others to get the information as well.

Academic integrity
The UNC Honor Code states that:

It shall be the responsibility of every student enrolled at the University of North Carolina to support the principles of academic integrity and to refrain from all forms of academic dishonesty...

This includes prohibitions against the following:
- Plagiarism.
- Falsification, fabrication, or misrepresentation of data or citations.
- Unauthorized assistance or collaboration.
- Cheating.

All scholarship builds on previous work, and all scholarship is a form of collaboration, even when working independently. Incorporating the work of others, and collaborating with colleagues, is welcomed in academic work. However, the honor code clarifies that you must always acknowledge when you make use of the ideas, words, or assistance of others in your work. This is typically accomplished through practices of reference, quotation, and citation.

If you are not certain what constitutes proper procedures for acknowledging the work of others, please ask the instructor for assistance. It is your responsibility to ensure that the honor code is appropriately followed.

Students with disabilities
Students with disabilities should request accommodations from the UNC office of Accessibility Resources and Service (https://accessibility.unc.edu/).

Late work
Late work is not acceptable.

For module participation, there is no submission of late work.

For project work, ten percent of the possible points will be deducted from the score for each day that the assignment is late. *Example:* if the metadata record component of the project, worth 50 points, is one day late, the maximum number of points for the late assignment is 45. If the assignment were 2 days late, the penalty would be 10 points. An assignment is one day late when the time it is due is passed, and it continues to be one day late until 24 hours later (that is, if an assignment is due at 9 a.m., it is late at 9:01 a.m., and it is one day late until 9 a.m. the next day).

Extensions and "make-up" work
Extensions for project work may be granted under reasonable circumstances, *when negotiated with the instructor in advance.* A request for an extension minutes before a due date will likely be denied. A request for an extension made a month before the due date will be much better received.

Because module participation cannot be late, students who encounter extreme circumstances may consult with the instructor regarding possible "make-up" work for missed module participation. Such accommodations will only be granted for significant and unforeseen life events, and alternate arrangements will likely be more onerous than the baseline module participation.

Students who anticipate difficulties with completing work on time, or who encounter unexpected and severe challenges, should consult with the instructor as soon as possible so that alternate solutions can be discussed.

Citation policy and paper presentation details
All written work needs to properly acknowledge the ideas of others via in-text references, even when not directly quoting from a source.

In making in-text references or preparing reference lists for outside sources, you may adopt any standard citation style you prefer (such as APA or the Chicago Manual of Style).

You may select whatever font, font size, margin, spacing, and other options that you like, as long as your paper is professionally presented. I will not actually count the words in your paper; directions about length are guidelines only.

Bibliography of readings

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Resources and references

These are not assigned, but you may find them helpful.

Metadata fundamentals
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Marcia Lei Zeng and Jian Qin. (2016) *Metadata.* 2nd ed. New York: Neal-Schuman.
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http://metadataetc.org/book-website2nd/

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List of (primarily structural) standards from Metadata book Web site by Zeng and Qin:
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