IST 676 Foundations of Digital Data
Fall 2013

Instructor: Jian Qin
Office: 235 Hinds
Phone: (315)443-5642

Time: on your own schedule
Place: 676 Virtual classroom in Blackboard
Email: jqin@syr.edu

Course Description

This course focuses on the concept of the digital data and digital library (DL) along a number of dimensions: (1) definitional dimension (the nature and purposes of digital data and digital library), (2) technical dimension (designing and building digital libraries that store, organize, and manage digital data), (3) service dimension (infrastructure and services supporting the use of digital data and digital libraries for various purposes), and (4) social/political/legal dimension (what external forces will shape the production and use of digital libraries). The course will examine matters including representation of digital data in digital libraries, existing and emerging mechanisms for retrieval, and the political and legal forces that may shape the digital data environment. Students will incorporate these lessons into a term-long project – the planning and design of their own digital libraries.

This course will give students a thorough grounding for understanding, evaluating and working with a wide variety of digital libraries. This is a distance course with individual and/or group assignments that give students opportunities to investigate some of the specific issues surrounding digital data. Lectures, hands-on exercises, discussions, short papers and a term-long project will provide experiences and learning opportunities for pursuing topics in greater depth and gaining proficiency in understanding and communicating technical and pragmatic issues surrounding digital data and digital libraries. Students will be provided with a format for designing their own digital libraries, using lessons learned in class readings, lectures and discussions. Students completing this course will possess their own project plan for a digital library that will be suitable for implementation either in other IST courses, or in their professional settings.

Course Objectives

Students in IST 676 will:

1. gain an understanding of what digital data and DLs are and their emerging roles in our learning and research environment
2. become versant in the vocabulary of digital data and DLs
3. assess the social, economic, and technological environment in which DLs succeed or fail
4. acquire knowledge and understanding of major issues that constitute the basis of digital data and DLs
5. develop an understanding of current technologies through hands-on experience
6. study and evaluate major national and international DL projects
7. prepare students to work productively and creatively in the digital environment, and
8. give students the opportunity to plan a digital library.

Recommended Textbooks and Readings (* denotes a primary textbook)


**Coursework**

- Exercises (3 x 7 points = 21%)
- Pre-project assignments (3 x 10 points = 30%)
- Final project (34%)
- Participation in and contribution to class discussions (15%)

**Academic Integrity**

The academic community of Syracuse University and of the School of Information Studies requires the highest standards of professional ethics and personal integrity from all members of the community. Violations of these standards are violations of a mutual obligation characterized by trust, honesty, and personal honor. As a community, we commit ourselves to standards of academic conduct, impose sanctions against those who violate these standards, and keep appropriate records of violations. The academic integrity statement can be found at: http://www.ist.syr.edu/courses/advising/integrity.asp

**Student with Disabilities**

In compliance with section 504 of the Americans with Disabilities Act (ADA), Syracuse University is committed to ensure that “no otherwise qualified individual with a disability…shall, solely by reason of disability, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity…” If you feel that you are a student who may need academic accommodations due to a disability, you should immediately register with the Office of Disability Services (ODS) at 804 University Avenue, Room 308 3rd Floor, 315.443.4498 or 315.443.1371 (TTD only). ODS is the Syracuse University office that authorizes special accommodations for students with disabilities.

**Conduct of discussions**

Participation in class discussions is expected, exactly as it would be on the job. If an emergency or illness occurs, have someone notify your team and the course instructor as soon as possible—even if you are out of town. Too many absences are sufficient cause to lower the final course grade. Exceptions will be made for emergencies and other extenuating circumstances provided they are verified by appropriate documentation that is received no later than 1 week after the absence(s).

It is expected that students will behave professionally both in language and attitude when posting or responding to discussions. Public disparagement of your fellow students in this course is unacceptable and may result in disciplinary action. Additionally, discussions should model your ability to think critically about course topics and articulate ideas clearly. Responses should be detailed and explanatory. Simple unconstructive replies such as “I agree (or disagree) with the previous post” will not be considered valid
unless elaborated upon. If you have any concerns regarding the suitability of a post, please contact the instructor.

Computer Literacy Skills

Graduate students are expected to meet the minimum and recommended information technology literacy skills required of students in all School of Information Studies master's programs. Please refer to: http://istweb.syr.edu/prospective/graduate/literacyreq.asp for the "Computer Literacy Requirements" document.

Schedule

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<tr>
<th>Week</th>
<th>Topics</th>
<th>Readings</th>
<th>Activities and Dues</th>
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| W1   | Evolution of digital data and services  
• History and context  
• Concepts  
• Attributes of digital data and collections | Witten & Bainbridge, chapter 1; or Lesk, chapter 1 | Exercise 1: Defining attributes of digital data (due 9/8 11 pm) |
| W2   | Digital data (1): types and formats  
• Text resources  
• Images  
• Multimedia  
• File formats, transformation, migration | Witten & Bainbridge, chapters 4 & 5; or Lesk, chapters 2 & 3 | |
| W3   | Digital data (2): domains  
• Research data in science  
• Research data in social sciences  
• Business data  
• Government data | | |
| W4   | Organizing digital data  
• Metadata: elements, schemas, and encoding  
• Ontologies, classification, categorization  
• Best practices | Witten & Bainbridge, chapter 6 | Exercise 2: Manipulating digital data (due 9/22 11 pm) |
| W5   | Interoperability protocols and services  
• Indexes and catalogs  
• Registries  
• Harvesting | Witten & Bainbridge, chapters 7 & 8 | |
| W6   | People and collections of digital data  
• Roles of users  
• User needs assessment  
• Collections of digital data: sources, sizes, and purposes | Witten & Bainbridge chapter 2; Lesk chapter 8 | Assignment 1: Planning a digital data project (due 10/6 11 pm) |
| W7   | Architecture: Tools for building digital libraries and repositories  
• DSpace (http://www.dspace.org)  
• Greenstone (http://www.greenstone.org/)  
• Fedora (http://fedora-commons.org/)  
• Dataverse (http://thedata.org/software)  
• CONTENTdm (http://www.contentdm.org/) | Documentation for individual software | |

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<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Activity</th>
<th>Notes</th>
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<tbody>
<tr>
<td>W8</td>
<td>10/14</td>
<td>Lab: digital library software installation and configuration</td>
<td>Exercise 3: Building a technical infrastructure for digital data (due 10/20, 11 pm)</td>
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<tr>
<td>W10</td>
<td>10/28</td>
<td>Preservation of digital data&lt;br&gt;• Overview: preservation, curation, archive—what are the differences?&lt;br&gt;• Modes of preservation and services&lt;br&gt;• Tools: how they serve different needs?</td>
<td>Assignment 2: Draft project plan (due 11/3)</td>
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<tr>
<td>W11</td>
<td>11/4</td>
<td>Sustainability of digital data services&lt;br&gt;• Project management&lt;br&gt;• DL management case studies&lt;br&gt;• Cost/economic issues&lt;br&gt;• Social issues</td>
<td>Robey, 2008; Blue Ribbon Task Force, 2010</td>
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<tr>
<td>W12</td>
<td>11/11</td>
<td>Evaluation of digital data services&lt;br&gt;• Methods&lt;br&gt;• Usability evaluation&lt;br&gt;• Retrieval evaluation&lt;br&gt;• Quality evaluation</td>
<td>Saracevic, 2005; Saracevic, 2004</td>
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<tr>
<td>W13</td>
<td>11/18</td>
<td>Research on digital data&lt;br&gt;• Future of digital data&lt;br&gt;• Education of digital data professionals</td>
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<tr>
<td>W14</td>
<td>11/25</td>
<td>Thanksgiving break. No class.</td>
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<td>W15</td>
<td>12/2</td>
<td>Project presentation</td>
<td>Final project (12/2 midnight)</td>
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