Designing, Developing, and Evaluating an Interdisciplinary Digital Library Curriculum

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Tapping the vast reservoir of human knowledge --Louis Round Wilson, founder, 1931
Acknowledgements

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  VT: Ed Fox, Seungwon Yang

Project advisory board

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Introduction to the Project

Develop curriculum materials for teaching digital library topics

For use in both LIS and CS programs
Lesson plans, exercises, assignments, etc.
For the classroom, not online

Where is the line between DL curriculum and LIS curriculum?
Project URLs

Project site: curric.dlib.vt.edu
   Includes links to all publications

Project wiki: curric.dlib.vt.edu/wiki/
   Includes all modules ready to be used & being evaluated
Development and Evaluation Process

- From research team (VT & UNC)
- From current courses at VT & UNC
- From Advisory Board
- From CC 2001
- CC 2001 context
  - Curricular needs
  - Student background
- Specific strengths
  - Specific weaknesses
- Modules ready for use
  - Lessons ready for use
- At UNC & VT
  - At additional universities (in CS & LIS programs)
- Inspection by Advisory Board
- Inspection by external experts
- Inspection by Doctoral Consortium participants
- Modules
  - Lessons
- Teacher perceptions
  - Student perceptions
  - Student outcomes
- At UNC & VT
  - At additional universities (in CS & LIS programs)
11. IM. Information Management (10 core hours)
   IM1. Information models and systems (3)
   IM2. Database systems (3)
   IM3. Data modeling (4)
   IM4. Relational databases
   IM5. Database query languages
   IM6. Relational database design
   IM7. Transaction processing
   IM8. Distributed databases
   IM9. Physical database design
   IM10. Data mining
   IM11. Information storage and retrieval
   IM12. Hypertext and hypermedia
   IM13. Multimedia information and systems
   IM14. Digital libraries
Topics of Readings in DL Courses


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2006 Curriculum Framework

Semester 1: DL collections: development/creation

- Module 1: Digitization, Storage, Interchange
- Module 2: Digital objects, Composites, Packages
- Module 3: Metadata, Cataloging, Author submission
- Module 4: Architectures (agents, buses, wrappers/mediators), Interoperability
- Module 5: Spaces (conceptual, geographic, 2/3D, VR)
- Module 6: Architectures (agents, buses, wrappers/mediators), Interoperability

Semester 2: DL services and sustainability

- Module 7: Naming, Repositories, Archives
- Module 8: Intellectual property rights management, Privacy, Integrity
- Module 9: Archiving and preservation, Integrity
- Module 10: Multimedia streams/structures, Capture/representation, Compression/coding
- Module 11: Content-based analysis, Multimedia indexing and retrieval
- Module 12: Multimedia presentation and rendering
- Module 13: Documents, E-publishing, Markup
- Module 14: Info. needs, Relevance, Evaluation, Effectiveness
- Module 15: Thesauri, Ontologies, Classification, Categorization
- Module 16: Bibliographic information, Bibliometrics, Citations
- Module 17: Routing, Filtering, Community filtering
- Module 18: Search & search strategy, Info seeking behavior, User modeling, Feedback
- Module 19: Information summarization, Visualization
## 2007 Curriculum Framework

### Core DL Topics

<table>
<thead>
<tr>
<th>Module 1: Overview</th>
<th>Module 2-a: Digitization</th>
<th>Module 2-b: Document and E-publishing Markup</th>
</tr>
</thead>
<tbody>
<tr>
<td>Module 2: Collection Development</td>
<td>Module 3-a: Text Resources</td>
<td>Module 3-b: Multimedia</td>
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<tr>
<td>Module 3: Digital Objects</td>
<td>Module 3-c: File Formats, Transformation</td>
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<tr>
<td>Module 4: Info/Knowledge Organization</td>
<td>Module 4-a: Metadata, Harvesting, Cataloging</td>
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<tr>
<td>Module 4-b: Ontologies, Classification, Categorization</td>
<td>Module 4-c: Vocabulary Control (e.g., Thesaurus, Taxonomies, etc.)</td>
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<tr>
<td>Module 4-d: Bibliographies, Bibliometrics, Merchandizing</td>
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<tr>
<td>Module 5-a: Interoperability</td>
<td>Module 5-b: Sustainability</td>
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<tr>
<td>Module 5: Architecture (Agents, Mediators)</td>
<td>Module 5-c: Interface Design, Usability Assessment</td>
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<tr>
<td>Module 5-d: Search engines &amp; IR</td>
<td>Module 5-e: Identifiers, Handles, DOI, PURL</td>
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<tr>
<td>Module 5-f: Info Summarization, Visualizer</td>
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<td>Module 5-g: Recommender Systems</td>
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</tbody>
</table>

### Related Topics

| Module 5-a: Applications (e.g., Creosote, Fedora, DSpace) | Module 5-b: Web-publishing (e.g., Wiki, RSS, Moodle, etc.) |
| Module 5-c: Security |
| Module 6-a: Storage | Module 6-b: Repositories, Archives |
| Module 7-c: Reference Services | Module 7-d: Routing, Community Filtering |
| Module 7-e: Sharing, Networking, Interchange |

### Additional Modules

| Module 7: Services (Searching, Linking, Browsing, Annotating, etc) |
| Module 8: Archiving and Preservation Integrity |
| Module 9: Project Management |
| Module 9-a: DL Development for a Specific Domain |
| Module 9-b: DL Project Examples |
| Module 9-c: DL Evaluation (e.g., Copyrights) |
| Module 9-d: Legal Issues (e.g., Copyrights) |
| Module 9-e: Cost / Economic Issues |
| Module 9-f: Social Issues |
| Module 9-g: Future DLs |

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**UNC School of Informatics and Library Science**

**NSF**
Module Template

1. Module name
2. Scope
3. Learning objectives
4. Level of effort required
5. Relationships with other modules
6. Prerequisite knowledge required
7. Introductory remedial instruction
8. Body of knowledge
9. Resources
10. Exercises / Learning activities
11. Evaluation of learning outcomes
12. Glossary
13. Contributors

Completed modules
Module Development Process

1. First draft written by a single author.
2. Module is reviewed by the research team; feedback is provided to the author.
3. Author makes revisions to the module.
4. Module is posted on the project wiki for expert evaluation. (Evaluators have been previously recruited.)
5. Evaluators post comments to the wiki.
6. Author makes revisions to the module.
7. Modules are available to be implemented in the classroom.
Module Evaluation Process

7. Modules are available to be implemented in the classroom.

8. Instructor decides to use a module, modifies it to suit their teaching.

9. After the module is used in class:
   a. Students are emailed to fill out an online survey.
   b. Instructors are interviewed.
   c. Graded student work is collected, if any.
1. Clearly outlined objectives and outcomes were provided.
2. The module was well-organized.
3. The amount of work required for this module was appropriate.
4. The assigned readings helped me better understand the subject matter.
5. Given the module’s objectives, the learning activities and/or assignments were appropriate.
6. The learning activities and/or assignments required thinking and understanding.
7. The learning activities and/or assignments were stimulating.
8. Assignments for this module helped me understand what will be expected of me as a professional.
9. I learned useful professional skills from this module.
10. I know significantly more about this subject than before I took this module.
11. Class lectures added to my understanding of the subject.
12. I gained a good understanding of the basic concepts related to this subject.
13. I learned to interrelate important issues related to this subject.
14. This module stimulated me to think critically about the subject matter.
15. I feel that this learning module served my needs well.
16. I was very satisfied with this learning module.
17. Overall, considering its content, design, and structure, this module was effective.
Evaluation: Instructor Interview

1. Objectives
2. Body of knowledge
3. Readings
4. Learning Activities
5. Logistics
6. Overall structure of the module
Evaluation: Assigned Work

1. Analyzed with respect to the objectives of the module.
2. Triangulated with the student survey data as a check on both.
Administrative Issues

Biannual meetings of the advisory board & others, at ASIST & JCDL conferences

Recruiting module authors, expert evaluators, and instructors
Future Work

Continue to develop modules
Develop community of interest
   How to keep a community of interest interested?
Where to host modules in the long term?
   Wikibooks, Wikiversity, learning object repositories?
Future Work

NSF Workshop in November
EU-US ATLANTIS Programme
  Transatlantic Degree Consortia Project
IMLS and/or Mellon Foundation
  Problem-based learning curriculum, internships
Project URLs

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This presentation: www.ils.unc.edu/~jpom/conf/
  Pomerantz_LIDA2008.ppt
Thank You!

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