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Frameworks for a Data Management Curriculum

Donna Kafel
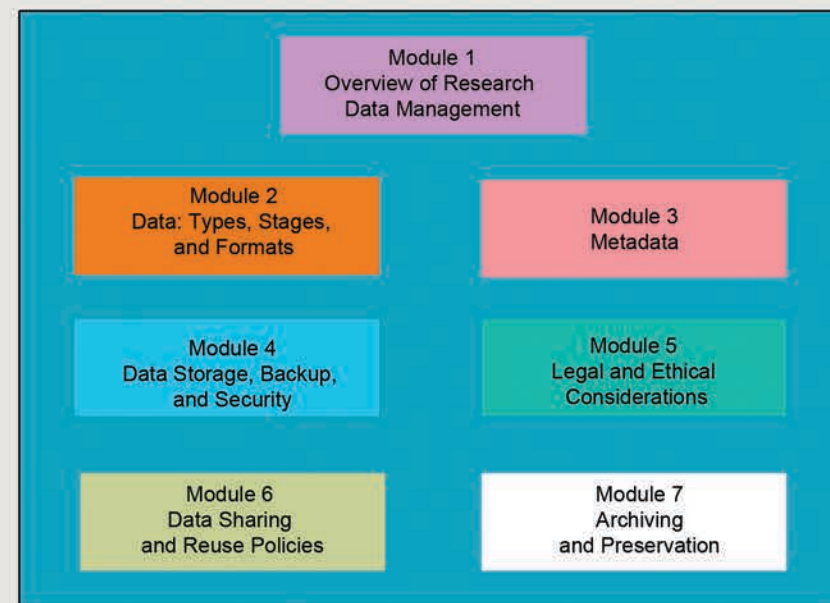*University of Massachusetts Medical School*

Frameworks for a Data Management Curriculm

Donna Kafel, MLIS, Project Coordinator, Lamar Soutter Library
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Introduction: University of Massachusetts and Worcester Polytechnic Institute Libraries partnered on an IMLS grant to address a need for formal data management instruction. This poster outlines frameworks for a modular data management curriculum that can be integrated into undergraduate and graduate science, health sciences, and engineering courses in multiple formats (e.g. online self-paced, face-to-face, and hybrid).

Methods: An Education Committee identified learning objectives from a literature search of online data management courses and interviews with UMMS and WPI students and faculty about students' data management practices. A simplified data management plan for student projects was developed. Topics covered in this plan were then mapped to an outline of seven course modules. From interviews with faculty, cases illustrating real-life data issues in science and medical research settings were written. Readings, lecture points, activities, assessments, and these cases were included in the lesson plan for each course module. Content for module 5 was developed and integrated into a prototype tutorial.

Seven Course Modules

- Module 1 Overview of Research Data Management
- Module 2 Data: Types, Stages, and Formats
- Module 3 Metadata
- Module 4 Data Storage, Backup, and Security
- Module 5 Legal and Ethical Considerations
- Module 6 Data Sharing and Reuse Policies
- Module 7 Archiving and Preservation

Lesson plans for each module include learning objectives, key lecture points, activities, case based assessment, and readings.

Learning Objectives: Learning objectives in each course module reflect components of National Science Foundation data management plan requirements.

Content: Key points that address the module's learning objectives are outlined in the Lecture Content section of the lesson plans.

Cases: Case scenarios portray data management issues in diverse research settings. Faculty have the option of having their students read full length cases or excerpts of cases for specific modules.

Readings: A selection of readings for each module may include links to online guides, professional literature, or videos.

Activities: Module activities include small group discussion, individual investigation, and writing assignments.

Assessment: Students read excerpts of research cases and answer questions that address the module's learning objectives.

Next Steps: The Lamar Soutter Library has proposed further funding to fully develop the course content, expand the selection of research cases, and pilot the course modules with the following partnering institutions: University of Massachusetts Amherst, Northeastern University, Tufts University, and the Marine Biological Laboratory at Woods Hole Oceanographic Institute.

Project Team

Steering Committee
UMMS: Elaine Martin, Mary Piorun and Donna Kafel (Project Manager)
WPI: Tracey Leger-Hornby and Siamak Najafi

Education Committee
UMMS: Lisa Palmer, Myrna Morales, David Lapointe and Patricia Franklin; WPI: Christine Drew, Laura Hanlan, Glenn Gaudette, John Sullivan and Erica Stults

External Consultants
Curriculum Design: Paul Colombo
Project Evaluator: Nancy LaPelle
Instructional Design : Heather McMorrow

Project Sponsors

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