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Teaching Research Data Management: An Undergraduate/ Graduate Curriculum

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Presenter Information

Paul Colombo, Mary E. Piorun, Donna Kafel, Tracey Leger-Hornby, Siamak Najafi, and Elaine Martin

Teaching Research Data Management: An Undergraduate/Graduate Curriculum

Learning Objectives

- Identify the types of data
- Identify the various ownership levels of research data
- Describe the typical data life cycle
- Categorize data storage requirements in terms of size/amounts
- Evaluate and appraise data publishing and storage options
- Indicate the various descriptors of raw data
- Record project identifiers for specific research data
- Define various naming conventions
- Recognize data format importance for long-term access needs
- List and select various ways to assure the security of their data
- Recognize data privacy requirements
- Identify data sharing and reporting requirements

Project Overview

With funding from the Institute of Museum and Library Services, the University of Massachusetts Medical School Library and Worcester Polytechnic Institute Library collaborated on a plan to expand the scope of science library practices and promote, among medical and graduate and undergraduate science students, the preservation of scientific data in relevant repositories and archives. This poster outlines curriculum frameworks and learning needs for research data management instruction that can be delivered through a variety of methods. Individual modules are based on faculty and student interviews, as well as a comprehensive literature review

Mix and Match Modules to Meet Researcher Needs

Undergrad Working on First Research Project



New Graduate Student in a Lab



Librarian Leads Workshop For New Faculty



Medical Student Collects Personal Data



LEARNING MODULES

Introduction

The data management module focuses on various forms of data and the plan of the researcher to collect, store, retrieve and disseminate their data to collaborators according to policies and standards.

Security

This module employs various measures to establish adequate data integrity and protection. Including: keeping data safe from corruption and insuring that access to it is suitably controlled.

Sharing

Gaining timely access to data for scholarly research from any computer using a simple, universal set of protocols and formats -- while respecting policies of funding agencies, institutions and publication venues.

Describing & Accessing

This module covers the creation of descriptive, structural or administrative metadata for researchers' data with an emphasis on deciding how or who will create the metadata for a given set of research data.

Life Cycle

Appropriate life cycles of specific research data are discussed in this module, along with the different time-dependent values of data and its management in different phases of its life cycle.

Naming Conventions

This module covers the importance of rules which when applied to data, could result in a set of data elements which are described in a standardized and logical fashion.

Storage

Coding of words, descriptions, figures, still or moving images, and sounds into digital format and onto an array of repositories that can be accessed by authorized users with standard search protocols.

Privacy & Restrictions

Information privacy and the relationship between the collection and dissemination of personally identifiable data are covered in this module.

Project Team

Steering Committee

UMMS: Elaine Martin, D.A., Mary Piorun and Donna Kafel (Project Manager)
WPI: Tracy 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
Evaluation Expert: Nancy LaPelle
Instructional Design : Heather McMorro

Project Sponsors



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