IDEA
Developing Research Data Services at U-M Library

Climate & Space Department faculty input

Experimental course AOSS 605-002:
Data Management and Stewardship in Climate and Space Sciences
(2 credits, Winter 2016)

Course Learning Objectives
After completing this course, students will:
• Be able to write a comprehensive action plan for managing data.
• Be able to apply data management and stewardship concepts to their research.
• Know the community standards and best practices for data management in their specific field.

Future Work
• Evaluate feasibility of continuing to offer the course for the Climate & Space Department.
• Explore working with other librarian liaisons to offer the course to other departments.
• Potentially transfer parts of the content to adaptable online learning modules.

Assessment
• Pre- and post-course surveys:
  • Evaluate importance of and skill level for each topic
  • Post-course survey will ask additional questions about the course effectiveness
• Mid-semester discussion
• Weekly online reflections
• Formal teaching evaluations
• Potentially reconnect with students 6 months after the course

Developing Course Content
1. Data Literacy Competencies1
2. Interview CLASP faculty & graduate students
   Visualizations are critical
   • netCDF is the most common format
   • Researchers generate & consume data
   • Data sharing is prevalent, especially in space science (NASA requirements)
3. Synthesize best practices, needs discovered from interviews, and subject-specific resources

Teaching the Course
• Safe space for students to process topics that aren’t often explicitly taught
• Sessions = Presentation + Discussion + Activity (emphasis on discussion)
• Begin with “What is data?” and address other data topics like Storage, Metadata, Sharing, Preservation & Curation
• Final Project is a comprehensive action plan for managing their data set
• Final presentations delve deep into a data-related topic

NetCDF and NASA Data Centers and DMPs - Oh my! Developing a 2-credit Data Literacy Course for Graduate Students in Climate and Space Sciences
Sara M. Samuel, Jake Carlson, and Joanna Thielens
University of Michigan Library

ABET Criteria for Engineering
Our course helps students meet the following ABET criteria:
(b) an ability to design and conduct experiments, as well as to analyze and interpret data
(d) an ability to function on multidisciplinary teams
(f) an understanding of professional and ethical responsibility
(g) an ability to communicate effectively
(h) the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
(j) a knowledge of contemporary issues