Contents

OILS 515 - Introductions and Course Outline

Introductions

- Who am I?

- Who are you?

  - Department
  - Background
  - Research Interest
  - Experience with spatial data

- What brought you here?

We will be working on answering these questions during the first class collaboratory

Syllabus

Outline

- Instructor

- Description & Objectives

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- Class Readings

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- Communication

Instructor

Karl Benedict

- Associate Professor, College of University Libraries and Learning Sciences
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Office Hours: Online or in-person, by appointment. Appointment Calendar: https://libcal.unm.edu /appointments/karlbenedict If a needed appointment time isn't available through the calendar send me an email to arrange for alternative times.

Office Location: Centennial Science and Engineering Library - CSEL L173

Description & Objectives

An understanding of core spatial data concepts and principles is increasingly important in the current world of collaborative, spatially enabled research and applications. We are no longer working in a vacuum as individual researchers that only need to understand and use the data that we create and use in our separate research projects. Successful research depends upon being able to integrate data generated by others with our own and by extension being able to share our data with others, both during our research projects and also for posterity (and to meet the requirements of funding agencies). This class will focus on the following aspects of spatial data management that relate to this need for effective integration, use, collaboration and sharing:

Description & Objectives

- The *Research* and *Data Lifecycles*
- Types of spatial data
- Spatial database design and management
- Working with and managing gridded data
- Spatial data documentation standards and practices
- Data management planning
- Ethical, legal and privacy issues as they relate to spatial data
- Emerging topics

Description & Objectives

- Locating and evaluating spatial data based upon knowledge of formats, content models and documentation standards
- Structuring data (both in terms of format selection and content) from a variety of sources to enable integrated research

- Evaluate data products to determine which elements of a dataset might raise ethical, legal or privacy issues if released or shared with others
- Documenting data as an ongoing process throughout the research cycle
- Producing machine- and human-readable documentation for data to support discovery, understanding, and use of data that they produce

Class Format

- Online Lecture & online collaboratory in each class week
- *Required Collaboratory* Sessions: Weeks 1, 4, 8, 12, 16
- Focus on hands-on experience with standards, technologies, and capabilities
- Exploratory and problem-based
- Cumulative

Class Readings

All of the course readings are available through online resources available through UNM Library subscriptions and databases or directly through open access materials. A number of the readings for the course are collected in a shared *Safari Books Online* playlist. You will need to create an account with Safari Books Online the first time you access the collection. From then on you will login with the account information you used when you created the account. The specific readings for each week are provided in the separate Goals and Objectives document. (Web page) | (PDF)

Evaluation and Grading

Course grades will be based on a combination of participation in live and online discussions and peer-review, the smaller assignments (listed under the "Assignment" column in the class calendar), and the semester-long class project. The grade for the class will be weighted according to the following breakdown:

- Class Participation: 20% (50 pts)
  - Attending required collaboratory sessions in weeks 1, 4, 8, 12, and 16 (10 pts)
  - Data Management Plan peer review (20 pts)
  - Final Project peer review (20 pts)
- Small Assignments: 40% (100 pts)
  - Literature Review (33 pts)
  - Data Review (33 pts)
  - Data Management Plan (34 pts)

Evaluation and Grading (continued)

- Class Project: 40% (100 pts)
  - Step 1 - Project plan (10 pts)
  - Step 2 - Dataset descriptions (10 pts)
  - Step 3 - Submission of project materials for peer review (5 pts)

    – Step 4 - Submission of final datasets and documentation (50 pts) and presentation (25 pts)

Class Topics

Over the course of the semester we will address the following topics:

- The interaction between the *research* and *data* lifecycles
- Types of spatial data - *vector*, *raster* and *geodatabase* data models
- Database design concepts, including aspects of database design specifically related to geospatially enabled databases
- Data format considerations for long-term archival access and use
- Documenting your data products - metadata content and standards
- Data management planning, both in support of your research and also to meet funding agency requirements
- Ethical, legal and privacy issues as they relate to the data you both generate and use

Tools

- Recent Windows, Mac or Linux Operating System
- GIS - Quantum GIS (QGIS) - http://www.qgis.org/
- Spatial Database - SpatiaLite (with Rasterlite support) - installed as part of QGIS
- Python (possible, based upon interest)
- Microsoft Office products are available free for all UNM students (more information on the UNM IT Software Distribution and Downloads page: http://it.unm.edu/software/index.html)

Communication

While the most productive communication model will evolve over the semester, I commit to the following:

- I will respond to email questions within ~24 hours

- I will share responses to common questions with the rest of the class through the online discussion board

I also *strongly* encourage that questions be submitted through the discussion board so that other students can both *learn from* and *contribute to* the answers provided.