Teaching Materials

This page acts as a folder to contain all of the teaching materials developed by the CyberGIS Fellows.

Bev Wilson and Shakil Bin Kashem

- Module 1 - Wilson and Kashem
  - Introduction to Big Data and CyberGIS for urban planning
- Module 2 - Wilson and Kashem
  - Cloud computing and cyberGIS for planning

Britta Ricker and Jim Thatcher

- Module 1 - Ricker and Thatcher
  - Introduction to Geospatial Technologies
  - Lab 1: Create a website
  - Lab 2: Google Fusion Tables
  - Lab 3: ESRI Online and Usability Evaluation
  - Lab 4: TileMill
  - Final paper
- Module 2 - Ricker and Thatcher
  - Lab 1: Learning JavaScript with Leaflet

Chuanrong Zhang

- Course Information
  - Web GIS course syllabus

CyberGIS Center

Eric Shook

- Assignments - Shook
  - Lab: Command Line
  - Lab: Python 1
  - Lab: Python 2
  - Lab: Cartographic Modeling
  - Lab: Parallel and Big Data
- Module 0 - What is CyberGIS
  - What is CyberGIS - Big Picture
  - What is CyberGIS - System View
  - What is CyberGIS - User View
- Module 1 - Intro to Command Line and CyperInfrastructure
  - Basic Commands
  - Black and White Introduction to CyberInfrastructure
  - Linux Command Line
- Module 1 - Python Fundamentals
  - Python Fundamentals: Hello World!
  - Python Fundamentals: If Statements and Functions
  - Python Fundamentals: Complex Data Structures
- Module 2 - Parallel Cartographic Modeling Language
  - Cartographic Modeling
  - Parallel Cartographic Modeling Language
- Module 2 - Parallel Programming and Big Spatial Data
  - Parallelism and Amdahl's Law
  - Parallel Programming Fundamentals
  - Spatial Big Data
- Practices

Jie Tian

- Module 1
  - CyberGIS Reading List
  - Big Geospatial Data
  - Geospatial CyberInfrastructure
  - Introduction to Cloud Computing
  - CyberGIS for Scientific Discoveries
- Module 2
  - Introduction to XSEDE
  - Introduction to HPC
  - Introduction to Amazon AWS

    - Introduction to Hadoop
    - Lab: Getting Started with CyberGIS Gateway
    - Lab: Getting Started with AWS
- Module 3
    - Fundamentals of Python Programming
    - Python for HPC
    - Multiprocessing Module of Python
    - AWS with Python
    - Lab: Getting Started with Boto
    - Lab: HP Geocomputing in Amazon Virtual Machine
    - Lab: Multiprocessing and ArcPy

Mark McKenney

Qunying Huang

- Module 1 - Huang
    - Geospatial Web and Mobile Programming
    - Lab 1: Spatiotemporal visualization challenge
    - Lab 2: Interaction challenge
    - Lab 3: Coordinated visualization challenge
- Module 2 - Huang
    - Geospatial Database Design and Development
    - Lab 1: PostgreSQL Tutorial I: GUI (pgAdmin III)
    - Lab 2: PostgreSQL Tutorial II: Command Line
    - Lab 3: Structured Query Language (SQL)
    - Lab 4: Spatial Database: PostGIS
- Module 3 - Huang
    - Distributed computing for GIScience

Terry Slocum and Xingong Li

- Module 1 - General Course Information
    - Lecture Notes, Module 1
    - Syllabus - Slocum and Li
- Module 2 - Intro to Maps and the Internet
    - Lab: Introduction to Image file types and HTML
    - Lecture 2 - Slocum and Li
    - Lecture Notes, Module 2
- Module 3 - Peterson, Chapters 3 and 4
    - Lecture 3 - Slocum and Li
    - Lecture Notes, Module 3
- Module 4 - Peterson, Chapters 5 and 6, Online Street Map
    - Lab: Comparison of Map Service Providers
    - Lecture 4 - Slocum and Li
    - Lecture Notes, Module 4
- Module 5 - Cartographic Foundation
    - Lab: Map Scale, Map Projections, Data Classification, and Linear Simplification
    - Lecture 5 - Slocum and Li
    - Lecture Notes, Module 5
- Module 6 - Intro to Javascript Programming
    - Demo Programs
    - Guide: Using Firebug
    - Lab: Basic JavaScript Programming
    - Lab: Creating a Basis for Visualization
    - Lecture 6 - Slocum and Li
- Module 7 - Introducing Map Mashups
    - Lab: Introducing Map Mashups
    - Lecture 7 - Slocum and Li
- Module 8 - Point Data and Methods for Symbolizing Point Data
    - Illustrative Programs
    - Lab: Handling Web-based File Formats and Displaying Markers and Graduated Symbols
    - Lecture 8 - Slocum and Li
- Module 9 - Line and Area Mashups
    - Illustrative Programs - Module 9
    - Lab: Creating Area Mashups
    - Lab: Creating Line Mashups
    - Lecture 9 - Slocum and Li
- Module 10 - Animated Mapping
    - Lab: Creating an Animation of Historical U.S. City Population Data
    - Lecture 10 - Slocum and Li
    - Lecture Notes, Module 10
- Module 11 - Leaflet, MySQL, and PHP
    - Lecture 11 - Web Maps with Leaflet
    - Lecture Notes, Module 11
    - Sample Programs - Module 11

- Module 12 - Final Project
  - Final Project - Slocum and Li
  - Lecture Notes, Module 12
- Module 13 - Course Reflections
  - Final Syllabus
  - Original Syllabus
  - Reflections

Wenwen Li

- Lectures - Introduction to Service-Oriented CyberGIScience
  - Course Introduction - Wenwen Li
  - CyberGIS - Wenwen Li
  - Geospatial Metadata
  - Geospatial Interoperability
  - Big Data Access
  - Distributed Geospatial Information Processing
  - Client-server Communication
  - Partitioning & Divide and Conquer Strategies
  - Progressive Transmission of Spatial Data
  - Service Oriented Architecture
  - Geoserver
  - Javascript
  - OpenLayers

Yi Qiang and Nina Lam

- Module 1 - Qiang and Lam
  - Spatial Modeling of Environmental Data
- Module 2 - Qiang and Lam
  - High-Performance Computing with Python for Geosimulation
  - Lab: High-performance computing with Python 1
  - Lab: High-performance computing with Python 2