

Introduction to GIS Course Schedule

Note: this schedule may change based on how fast the class is moving, and readings may be updated, so please check back each week

Day	Date	Class Topic	Readings / Ungraded Exercises	Assignments Due
Thurs	1/16	GIS overview, course overview, lab and software logistics	none	
Tues	1/21	In-class tutorial: ArcGIS Basics-Somerville - see links on ArcGIS Tutorials and Tip Sheets	Please read: <ul style="list-style-type: none"> • <i>ESRI Guide to GIS Analysis</i>, ch. 1 (copy in GIS lab, for sale at Tufts Bookstore, on reserve in library) • Assignment 1 - bring questions to class 	
Thurs	1/23	Discuss GIS application examples / Learn about basic GIS data formats	Read the Literature Search Tips presentation and then do a literature search and read at least one of the articles you find and be prepared to discuss it in class. Think specifically about what types of questions the researchers are asking, spatial and otherwise. Our own GIS Application Areas can also be a useful place to start.	
Tues	1/28	Data Sources - finding, assessing and using existing spatial data Data Download Practice (in class)	Please review the Tufts GIS Data Guide . For city/region specific data, check the subcategory - <i>US States, Cities, and Metros</i> . Also look at the MassGIS web site (drill down to the the data layers link and look through this) Also try out the Tufts Geodata Portal - geodata.tufts.edu Read Assignment 2 and come to class with questions	Assignment 1 - Project Area Interests and Spatial Questions (10 points) due Tuesday, 1/28, by 11:59pm
Thurs	1/30	Basic cartographic principles - reference mapping and thematic mapping	Read <i>ESRI Guide to GIS Analysis, Ch. 2</i> . Also read our Cartography Tips and Creating and Editing Scale bars and Legends tip sheets. Optional: ESRI Map Book Gallery	
Tues	2/4	Mapping continued; Basic GIS queries using the Select tools	Be working on Assignment 2 Read ArcGIS 10.1 Help: <ul style="list-style-type: none"> • Using Select by Location • Using Select by Attribute • Working with Selected Features 	
Thurs	2/6	Working with US Census data in GIS	Look over our Census Workshop materials , and also look at the Census Web Site (http://www.census.gov/)	Assignment 2- (10 points) due Friday, 2/7
Tues	2/11	Census discussion continued - mapping quantities	<i>ESRI Guide to GIS Analysis, Ch. 3</i> Do the following exercise as homework for today's class and have your results ready to use in class: Using American Factfinder and ArcGIS to Map Census Data Reference: ArcGIS 10 Help references: <ul style="list-style-type: none"> • About symbolizing layers to represent quantity • Classifying numerical fields for graduated symbology 	
Thurs	2/13	American Community Survey data In class exercise: American Community Survey Margin of Error Tutorial	Spielman, S. E., Folch, D., & Nagle, N. (2014). Patterns and causes of uncertainty in the American Community Survey . <i>Applied Geography</i> , 46, 147-157. Be working on Assignment 3	
Tues	2/18	Understanding data quality	Read Assignment 4 <i>Optional:</i> Maantay, J. 2007. Asthma and air pollution in the Bronx: Methodological and data considerations in using GIS for environmental justice and health research . <i>Health and Place</i> , 13 (1), pp. 32-56 (focus on issues of data quality and methodological decisions)	
Thurs	2/20	No Class	Substitute Monday's schedule on Thursday	Assignment 3 - Working with Census Data (10 points) - due Monday 2/24
Tues	2/25	Mapping Addresses through Geocoding	Homework: Go through the Geocoding Reference USA Tutorial at least through page 8. We'll cover the rest in class. Skim through the ESRI Guide to Geocoding	
Thurs	2/27	Finish up geocoding discussion - parcel geocoding, working with unmatched records	From ArcGIS 10.1 Help, read: <ul style="list-style-type: none"> • About Rematching a Geocoded Feature • Rematching with the interactive rematch box 	
Tues	3/4	Map Projection and Coordinate System Basics	Watch this clip from <i>The West Wing</i> - "Why are we changing maps?" The readings below are for your reference - they will make more sense if you read them after class! <ul style="list-style-type: none"> • From GeoSTAC - the following two links are good reference for our discussion and your mapping! <ul style="list-style-type: none"> • State Plane Coordinate System overview (most widely used system for municipal and county level mapping) • UTM Coordinate System overview (widely used for regional and environmental mapping) • From Hunter College - How to Choose a Map Projection 	
Thurs	3/6	Understanding how to use and trouble-shoot map projections	Do the Trouble Shooting Coordinate Systems exercise on your own (takes about 1 hour) Review ArcGIS 10.1 Help - Guidebook for Map Projections	Assignment 4 - GIS data quality assessment (10 points) - due Monday, 3/10

Tues	3/11	Exploring geographic data with basic queries	Look over Assignment 5 - Project Data Preparation and Basic Spatial Analysis	
Thurs	3/13	Example Raster Overlay Analysis - Siting a Wind Farm Maintenance Facility in China	ArcGIS 10.1 Help - please read the following: <ul style="list-style-type: none"> • Solving Spatial Problems with Representational Models • A Conceptual Model for Solving Spatial Problems • Using the Conceptual Model to Create a Suitability Map • Read through to the top of page 4 in our in class exercise: Siting a Wind Farm Maintenance Facility in China 	
No classes		SPRING BREAK		
Tues	3/25	Using Spatial Join and Zonal Statistics tools / Understanding vector and raster data format and uses	From ArcGIS Help, read: <ul style="list-style-type: none"> • Feature Class Basics (this is vector data) • What is Raster Data? • Table Basics 	Meet with Barbara - use Trunk Sign-up Tool
Thurs	3/27	Proximity analysis New England Nuclear Power Plant Exercise	<i>ESRI Guide to GIS Analysis</i> , vol 1 -Ch. 6- Mapping What's Nearby Resource: ArcGIS 10.1 Help - Proximity Analysis	
Tues	4/1	Proximity analysis - street-based examples using Network Analyst	<ul style="list-style-type: none"> • Take a look at this article, in particular the GIS methods section (p. 546-547) - we'll talk about this example in class: B. Giles-Corti et al. 2011. School site and the potential to walk to school: The impact of street connectivity and traffic exposure in school neighborhoods, <i>Health & Place</i>, 17(2):545-550 • Read over ArcGIS 10.1 Help - ArcGIS 10.1 Help - What is the Network Analyst Extension? 	Assignment 5 - Project Data Preparation and Basic Spatial Analysis (15 points)- due Tuesday, 4/1
Thurs	4/3	Mapping density and hot spots	<i>ESRI Guide to GIS Analysis</i> , vol 1 -Ch. 4 - Mapping Density Read over ArcGIS 10.1 Help - Density Analysis	
Tues	4/8	Site suitability example using vector tools Vector overlay analysis exercise	<ul style="list-style-type: none"> • Read about the New Entry Farming Program, including this article from the Boston Globe(12/3/2012) • Read: <i>ESRI Guide to GIS Analysis</i> Ch. 5 - Finding What's Inside Resources: fromr ArcGIS 10.1 Help - Overlay Analysis	
Thurs	4/10	Analysis issues	Scholssberg, Marc. 2003. GIS, the US Census and Neighborhood Scale Analysis . <i>Planning, Practice & Research</i> 18.2-3 (2003): 213	Assignment 6 - Detailed Project Plan (15 points) - due Monday, 4/14
Tues	4/15	Review - putting analysis steps together	An interesting example - Coalition for a Livable Future (Portland, Oregon) - Regional Equity Atlas (see especially How to Read the Atlas Maps) and the Metadata section) Also, the Original (2007) Regional Equity Atlas has a useful Methodology explanation and a "primer" to how they calculated the neighborhood tabular variables and scores .	
Thurs	4/17	No formal class	Sign up for individual meetings with Barbara to review your project plan	
Tues	4/22	Poster Design Workshop	Please explore Color Brewer - this is a good site for helping you to determine a good color scheme. All materials for the poster design workshop online are on our GIS Poster Design Guide site.	
Thur	4/24	Course wrap-up and how to continue developing GIS skills		Final posters/papers (30 points) poster must be printed by 5pm Monday, May 5; paper due Wednesday, May 7 GIS Poster Expo, Tuesday, May 6, 3:30-5pm, Alumnae Lounge, Aideman Arts Center - food and festivities!