

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

Tues	3/11	Exploring geographic data with basic queries	Look over <a href="#">Assignment 5 - Project Data Preparation and Basic Spatial Analysis</a>	
Thurs	3/13	Example Raster Overlay Analysis - <a href="#">Siting a Wind Farm Maintenance Facility in China</a>	ArcGIS 10.1 Help - please read the following: <ul style="list-style-type: none"> <li>• <a href="#">Solving Spatial Problems with Representational Models</a></li> <li>• <a href="#">A Conceptual Model for Solving Spatial Problems</a></li> <li>• <a href="#">Using the Conceptual Model to Create a Suitability Map</a></li> <li>• Read through to the top of page 4 in our in class exercise: <a href="#">Siting a Wind Farm Maintenance Facility in China</a></li> </ul>	
No classes		<b>SPRING BREAK</b>		
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"> <li>• <a href="#">Feature Class Basics</a> (this is vector data)</li> <li>• <a href="#">What is Raster Data?</a></li> <li>• <a href="#">Table Basics</a></li> </ul>	Meet with Barbara - use Trunk Sign-up Tool
Thurs	3/27	Proximity analysis <a href="#">New England Nuclear Power Plant Exercise</a>	<i>ESRI Guide to GIS Analysis</i> , vol 1 -Ch. 6- Mapping What's Nearby Resource: ArcGIS 10.1 Help - <a href="#">Proximity Analysis</a>	
Tues	4/1	Proximity analysis - street-based examples using Network Analyst	<ul style="list-style-type: none"> <li>• 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. <a href="#">School site and the potential to walk to school: The impact of street connectivity and traffic exposure in school neighborhoods</a>, <i>Health &amp; Place</i>, 17(2):545-550</li> <li>• Read over ArcGIS 10.1 Help - <a href="#">ArcGIS 10.1 Help - What is the Network Analyst Extension?</a></li> </ul>	<a href="#">Assignment 5 - Project Data Preparation and Basic Spatial Analysis</a> (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 - <a href="#">Density Analysis</a>	
Tues	4/8	Site suitability example using vector tools  <a href="#">Vector overlay analysis exercise</a>	<ul style="list-style-type: none"> <li>• Read about the <a href="#">New Entry Farming Program</a>, including <a href="#">this article from the Boston Globe</a>(12/3/2012)</li> <li>• Read: <i>ESRI Guide to GIS Analysis</i> Ch. 5 - Finding What's Inside</li> </ul> Resources: fromr ArcGIS 10.1 Help - <a href="#">Overlay Analysis</a>	
Thurs	4/10	Analysis issues	Scholssberg, Marc. 2003. <a href="#">GIS, the US Census and Neighborhood Scale Analysis</a> . <i>Planning, Practice &amp; Research</i> 18.2-3 (2003): 213	<a href="#">Assignment 6 - Detailed Project Plan</a> (15 points) - due Monday, 4/14
Tues	4/15	Review - putting analysis steps together	An interesting example - <a href="#">Coalition for a Livable Future</a> (Portland, Oregon) - <a href="#">Regional Equity Atlas</a> (see especially <a href="#">How to Read the Atlas Maps</a> ) and the <a href="#">Metadata</a> section)  Also, the Original (2007) Regional Equity Atlas has a useful <a href="#">Methodology</a> explanation and a "primer" <a href="#">to how they calculated the neighborhood tabular variables and scores</a> .	
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 <a href="#">Color Brewer</a> - 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 <a href="#">GIS Poster Design Guide</a> site.	
Thur	4/24	Course wrap-up and how to continue developing GIS skills		<a href="#">Final posters/papers</a> (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!