Course Syllabus: *Demographics in Web GIS*

Spring Quarter, 2020

MPA Program at The Evergreen State College

(Pre-Class Syllabus Version, Feb 5, 2020)

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Intensive Weekend Schedule:
- Friday 5-9 pm
- Saturday 9 am – 5 pm
- Sunday 9 am – 5 pm

Location: CAL East (LAB II Building Ground Floor)

Credits: 2

Textbook: There is no book for this class. Exercise documents will be provided through Canvas.

Eligibility and Prerequisites

This class is open to MPA graduate students. There are no prerequisites for this course. Working familiarity with the use of Excel spreadsheets is useful for some modules of this course.

Program Description

The purpose of this class is to teach students practical skills for management and exploitation of demographic data for the production of insightful and informative maps. Upon successful completion of this course, students should have acquired the skills for integrating publicly available demographic data in order to create their own demographic maps and infographic exhibits concerning places of interest in their research and work. In addition, students will be introduced to the basic skiils for creation and publication of web maps and apps using ArcGIS Online, and for making maps within an Excel worksheet using Maps for Office (both softwares produced by Esri, Inc).

The course is structured around intensive hands-on exercises that teach map-making skills and tools, while exploiting commonly used types of spatial and demographic data with commonly-used methods of spatial analysis and map creation.

Access to GIS Software

All required software is available in campus computing systems, including in the CAL and Library Computing Center and Tacoma Computing Center. Students can access most functions taught in this class through a modern web browser such as Firefox or Chrome.

Students may be familiar with the technology of Geographic Information Systems (GIS). In this class Students will use the Esri ArcGIS platform to access vast compilations of spatial data including demographic and business content. Esri software is used for mapping by professionals and decision

makers in almost every agency of state, local, and federal governments, in almost every nation, and by thousands of companies and NGO's worldwide.

ArcGIS Online is a system of software-as-a-service (SaaS) which allows users to create maps through a web browser. Students will be invited to join the Evergreen organizational subscription to ArcGIS Online which is available to any current student (at no cost) for the duration of their studies at TESC.

No software installation is required, since the web interface enables the capabilities for map creation, data access spatial analysis, and publication which are taught during this course. Students may elect (optionally) to install Maps for Office on their personal computers. This software is an add-in from Esri to enable map creation in Excel.

Final Project Submission

Following the conclusion of the intensive weekend of instruction, students will be required to complete a modest independent mapping project around a topic of their own interest. Projects will be submitted as digital exhibits through ArcGIS Online within two weeks of the conclusion of the intensive weekend class meetings.

Available Computing Resources and GIS Software Licensing

Evergreen maintains an excellent computer applications lab ("CAL") with large double-monitors, Windows computers, the required Esri (and other) software, and ample network file storage space for each student.

Students will be granted a software license to use the latest *ArcGIS Online* software, produced by Esri, Inc (https://www.esri.com/en-us/home). Since ArcGIS Online is a Software-as-a-Service platform, most capabilities are available through any computer with internet access of sufficient bandwidth, and a network browser client such as Firefox or Chrome. Excel mapping licenses are available for download by any students interested in replication of CAL computer functionality on their own (Windows) computers.

Readings

There is no assigned textbook for this class. Readings may be assigned from short PDF's as provided by the faculty through the Canvas content management system. This class is heavy on hands-on skills building and light on reading and theory. A light orientation to mapping theory will be provided in the context of skills-development exercises.

Canvas for Content Management

Class content is managed through Evergreen's implementation of the Canvas online system, for distributing class modules and required data and reading files, uploading assignment results, taking quizzes, participating in discussion boards, and performing evaluations.

Discussion and Questions and Office Hours

Students are encouraged to work collaboratively. Please ask questions through the Canvas Discussion threads. Faculty will monitor the Discussion threads and provide answers and guidance. Experience shows that if one student has a question or problem, so do other students.

Office hours will be offered after the intensive weekend class is completed. Instructor will provide technical guidance for students who need support during their final project creation. The precise times and locations for office hours will be determined based on an assessment of the needs of participating students.

Awarding of Credit

Class credit will be awarded based on attendance, punctuality, in-class participation, and completion of the assigned exercises and presentation of the final term project. Students are required to write a self-evaluation and a faculty evaluation upon completion of the course and submission of the final project. Partial credit will not be awarded.

Course Modules – Intensive Weekend Classes Jan 25-27, 2019)

Module 1 (Friday 4/3 – Evening Session 5 pm to 9 pm)
Basics of Web Mapping
Presentation: ArcGIS Mapping Essentials

Practicum: Login to ArcGIS Online and Create First Map

Layers, Symbology, Filters, Extents, Labels, Bookmarks, and other Properties of a WebMap

Stretch Exercise: Charts and Graphs in the Pop-Up

Module 2 (Saturday 4/4 – Morning Session 8:30 am to Noon)
Making Maps Inside Excel Spreadsheets
Lecture/Practicum: Intro to Coordinate Systems

Excel Spreadsheeting: Tips and Tricks for Mapping Tabular Data

Creating and Sharing Maps Through Esri *Maps for Office*

Stretch Exercise: Geocoding - Locations from Address Lists

Module 3 (Saturday 4/4 – Afternoon Session 1 pm to 5:30 pm)
Accessing Demographic Data and Other Big-Data Compilations
Presentation/Demonstration: Data Enrichment of the Web Map

Creating Web Apps from Web Maps

Sharing Maps and Apps; Security Considerations

Stretch Exercise: A Taste of Advanced Web Apps

Module 4 (Sunday4/5 – Morning Session 8:30 am to Noon)

Community Analysis Techniques

Presentation/Demonstration: Spatial Analysis, Infographics, and Excel Reports

Hands-On Exercises: Creation of Demographic Maps and Outputs

Stretch Exercise: Create Customized Infographics Based on Demographic Variables

Module 5 (Sunday 4/5 – Afternoon Session 1 pm to 5:30 pm)

Scoping for Student Projects

Working with Student Teams to Define Project Themes and Data Resources

Project Submission (By Sunday 19 Feb 6:00 pm)

Students are required to submit their final project in Canvas.

Evaluations (To Be Scheduled)

Students must write Self-Eval and Faculty-Evaluation documents. Meetings will be scheduled with the instructor, of ~20 minutes duration, at Campus or at locations in downtown Olympia, or by telephone, or by Skype, according to individual student preferences and availability.