UNIVERSITY OF SASKATCHEWAN
Distance Education Unit
DISTANCEEDUCATION.USASK.CA

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Please Note: This *Class Syllabus* is an important step in updating the format of our distance classes. If for any reason the *Class Syllabus* does not match the online class information, the *Class Syllabus* shall be taken as correct.

CLASS SYLLABUS (NON CREDIT)

COURSE TITLE:	Geographic Information Systems	**TERM:**	Fall 2017
COURSE CODE:	RRM 201	**DELIVERY:**	Online
COURSE CREDITS:	1	**START DATE:**	October 23, 2017
COURSE SECTION:	W01-W99	**END DATE:**	December 4, 2017

Course Description

The official course description and prerequisites are in the U of S Course and Program Catalogue available at http://www.usask.ca/calendar/coursecat/

Course Learning Outcomes

By the end of this course, students should be able to:

1. Recognize geographic information system principles and articulate how GIS layers work.
2. Differentiate between GIS features and surfaces, and analyze preliminary knowledge of scale, attributes, and spatial relationships between features.
3. Recognize the components of the ArcGIS system.
4. Display map data, navigate a map, use basic ArcMap tools, and examine feature attributes.
5. Examine map data, apply data to a map, and use map layers.
6. Use coordinate systems and projections.
7. Develop symbols for features and rasters.
8. Classify features using standard methods, and apply graduated and chart symbols.
9. Create labels for features, and produce maps for presentation using standard map elements.

Course Overview

This is a course focused on learning the basic skills related to ESRI ArcGIS 10.X software. Students will learn basic GIS principles; how to navigate the ArcMap interface; interact with maps and data; work with coordinate systems and projections; symbolize, classify and label features; and present data. The course requires students to have a basic understanding of computers and familiarity with the Microsoft Windows operating system.

Each module in the course focuses on getting to know ArcGIS – using and making maps. The main topics covered are an introduction to GIS, navigating a map document, examining layers

and attributes, understanding geographic coordinate and projection systems, creating symbols and labels, and creating map layouts. The assignments are designed to help the students apply the techniques/skills they learned in each module to use and make maps to solve real-world problems and giving them hands-on experience. The assignments, textbook/workbook, and final project are an integral part of this course.

Instructor Information

The course will be taught by **Susan Rever**. This is the same approach used in the delivery of SLSC 232, a long-running on-line course staffed by the department of Soil Science.

The delivery of the course will be managed by the Distance Education Unit (DEU, formerly part of the Center for Continuing and Distance Education). The DEU is funding the costs associated with course development.

Contact Information

susan.rever@usask.ca

The best way to contact me is by email. I usually respond to emails within 24 hours. It may take longer on weekends. If I plan on being away, I will send an email to the whole class and post a message in the announcements section on BBL.

Office Hours (TBA)

Instructor Profile

I have graduate degrees in biology and physical geography/environmental science. I have been teaching in academia for over 15 years at both the University of Regina and University of Saskatchewan. I taught for 5 years in the Department of Soil Science at the University of Saskatchewan. I have also worked for the Ministry of Environment and Agriculture and Agri-Food Canada as a biologist/environmental scientist.

As a teacher, my philosophy towards teaching is based on three main objectives: to present the class material in a way the students will find appealing, to be able to clarify difficult topics and to put the knowledge learned into context. One of the key ingredients to effective teaching is passion. This leads to thorough preparation and a continuous desire to improve teaching skills. A teacher should encourage critical thinking, should always strive to be respectful of different opinions, and be prepared to challenge and be challenged by their students.

When interacting with students, I am consciously aware of their diverse learning styles and rates. Teaching is a shared responsibility between both the students and teachers. I try to create a comfortable environment where students can openly share their opinions, questions and concerns. I try to be fair when it comes to evaluating my students. My pursuit of higher education is partly due to several teachers who have inspired me and taught me necessary skills to achieve these goals.

Required Resources

Readings/Textbooks

1. Law, M., & Collins, A. (2015). *Getting to Know ArcGIS for Desktop*. 4th ed. esri Press, Redlands, CA USA. ISBN 978-1-58948-382-8.

   Note: The textbook comes with a 180-day trial of ArcGIS for Desktop 10.x.

   Textbooks are available from the University of Saskatchewan Bookstore: http://www.usask.ca/bookstore/

2. Course notes/handouts prepared by course developer

Additional Resources

- ArcGIS Online Help - http://doc.arcgis.com/en/arcgis-online/
- ArcGIS Resources - http://resources.arcgis.com/en/home/
- ESRI Training - http://www.esri.com/training/main
- ESRI Canada - http://www.esri.ca/en
- ESRI Videos - http://video.esri.com/
- ArcGIS Tutorials - http://desktop.arcgis.com/en/desktop/latest/main/get-started/arcgis-tutorials.htm

Downloading ArcGIS

ArcGIS is available for download. Visit the ArcGIS install page for directions on downloading ArcGIS. Along with the install, a license is also needed; this can be requested by emailing research_computing@usask.ca. NOTE: For verification purposes, use your University email when submitting a license request. The ESRI desktop software runs under Microsoft Windows. If you use an Intel-based Macintosh computer, you may still be able to use this software. See ESRI's information page for details. If you have questions or need assistance, please contact ICT Research Computing.

Required Activities Outside of Class Time

Students will be expected to use time outside of the 13 lecture hours (class time) for reading and understanding the required readings and notes. Students are expected to spend up to 2 hours per lecture hour or an additional 26 hours reviewing this material and completing assignments. Preparation for the quizzes is also expected to be done within this time, outside of class.

Mobile Access

Blackboard Mobile Learn™ is an app that is available on many devices including iOS® and Android™ for those occasional times when you may want mobile access. It is still recommended that you use a laptop or desktop computer for the majority of your online studies.

Class Schedule

Week of	Module	Content Topics	Learning Objective(s)	Required Readings	Media	Evaluation / Assessment
Week 1 Oct. 23	1 Introducing GIS	Basic GIS principles a) Layers b) Features c) Surfaces d) Vector e) Raster f) ArcMap & ArcCatalog	1. Describe what geographic information systems are used for. 2. Identify how GIS layers work. 3. Recognize feature locations, scale, and attributes 4. Outline basic knowledge of spatial relationships between features 5. Demonstrate a knowledge of the ArcGIS system	Chapters 1 & 2 textbook Course notes & handouts A quick tour of ArcMap http://desktop.arcgis.com/en/desktop/latest/main/get-started/a-quick-tour-of-arcmap.htm A quick tour of ArcCatalog http://desktop.arcgis.com/en/desktop/latest/main/get-started/a-quick-tour-of-arccatalog.htm	ArcGIS Resources http://resources.arcgis.com/en/home/ ArcGIS Basics 1 of 4 https://www.youtube.com/watch?v=ekmyWkAP4eI ArcMap 10 Tutorials https://www.youtube.com/watch?v=hqHCJUudPvs&list=PL63EB94891DE02AA9	
Week 2 Oct. 30	2 Getting started with maps and data	Interacting with maps a) Displaying map data b) Navigating a map c) Using basic tools d) Looking at feature attributes Interacting with data a) Browsing through map	1. Navigate the ArcMap interface, and locate and open ArcMap windows, menus and tools 2. Examine layers and their properties 3. Locate data on a map 4. Examine attributes 5. Examine contents of your GIS workspace in ArcCatalog 6. Preview geographic data 7. Apply data using various	Chapters 3 & 4 textbook Course notes & handouts	ArcGIS Resources http://resources.arcgis.com/en/home/ ArcGIS Basics 2 of 4 https://www.youtube.com/watch?v=OmFKLTqQhkY	Assignment DUE: **Oct. 30** by 4:30 pm Quiz DUE: **Oct. 31** by 4:30 pm

Week of	Module	Content Topics	Learning Objective(s)	Required Readings	Media	Evaluation / Assessment
		data b) Adding data to a map c) Working with map layers	methods 8. Perform data searches 9. Use data frames in layout view 10. Manipulate layers using copy, paste and remove			
Week 3 Nov. 6	3 Working with coordinate systems and projections	1. Examining coordinate systems 2. Projecting data 3. Defining a map projection	1. Explain geographic coordinate and projected coordinate systems 2. Define a coordinate system 3. Identify projection parameters 4. Align datasets with different coordinate systems	Chapter 6 textbook Course notes & handouts	ArcGIS Resources http://resources.arcgis.com/en/home/	Assignment DUE: **Nov. 6** by 4:30 pm Quiz DUE: **Nov. 7** by 4:30 pm
Week 4 Nov. 20	4 Displaying Data	1. Symbolizing features a) Creating custom symbology b) Symbolizing features and rasters 2. Classifying features a) Classifying features by	1. Modify the default ArcMap symbology for points, lines and polygons 2. Reorder layers 3. Symbolize features using same symbol for each feature & based on descriptive attributes 4. Apply label features 5. Create layer files 6. Select a new color	Chapters 7, 8 & 9 textbook Course notes & handouts	ArcGIS Resources http://resources.arcgis.com/en/home/ ArcGIS Basics 3a of 4 https://www.youtube.com/watch?v=uWYY0h-9g4M ArcGIS Basics 3b of 4 https://www.youtube.com/watch?v=DkGmRv5cHIQ	Assignment DUE: **Nov. 20** by 4:30 pm Quiz DUE: **Nov. 21** by 4:30 pm

Week of	Module	Content Topics	Learning Objective(s)	Required Readings	Media	Evaluation / Assessment
		standard methods b) Using graduated and chart symbols 3. Labeling features a) Using and creating dynamic and graphic labels.	scheme for a raster layer 7. Use layer transparency 8. Describe various classification methods 9. Produce symbology based on classification type 10. Create dot density & graduated color maps 11. Create & modify dynamic labels 12. Create graphic labels using the text tools on the Draw toolbar			
Week 5 Nov. 27	5 Presenting Data	1. Creating a layout 2. Adding titles and additional text 3. Adding standard map elements 4. Adding final touches & setting print options	1. Demonstrate page layout tools 2. Create effective map layouts 3. Apply text to a layout 4. Create map elements such as a north arrow, scale bar and legend 5. Apply print settings and options	Chapter 10 textbook Course notes & handouts	ArcGIS Resources http://resources.arcgis.com/en/home/ ArcGIS Basics 4a of 4 https://www.youtube.com/watch?v=XGiVChKdQjM ArcGIS Basics 4b of 4 https://www.youtube.com/watch?v=VRa0xnPP87M	Assignment DUE: **Nov. 27** by 4:30 pm Quiz DUE: **Nov. 28** by 4:30 pm

Week of	Module	Content Topics	Learning Objective(s)	Required Readings	Media	Evaluation / Assessment
Week 6 Dec 4						Assignment DUE: **Dec. 4** by 4:30 pm Quiz DUE: **Dec. 4** by 4:30 pm
Dec 11	Final Project					DUE: **Dec. 11** by 4:30 pm

The University of Saskatchewan Learning Charter is intended to define aspirations about the learning experience that the University aims to provide, and the roles to be played in realizing these aspirations by students, instructors and the institution. A copy of the Learning Charter can be found at: http://www.usask.ca/learning_charter/

Evaluation Components

As a non-credit student you are encouraged to complete the module assignments, quizzes and the final project, however you will not be graded or receive a final mark in the class.

Assignment Module 1: Introducing GIS

Due Date: See Class Schedule

Type: Tutorial

Description: Describe basic GIS principles and demonstrate a working knowledge of the ArcGIS system.

Assignment Module 2: Getting started with maps and data

Due Date: See Class Schedule

Type: Tutorial

Description: Use basic ArcMap tools to interact with maps and data.

Assignment Module 3: Working with coordinate systems

Due Date: See Class Schedule

Type: Tutorial

Description: Explain, define and identify geographic coordinate and projected coordinate systems.

Assignment Module 4: Displaying data

Due Date: See Class Schedule

Type: Tutorial

Description: Create symbols and layer files, and classify and label features.

Assignment Module 5: Presenting data

Due Date: See Class Schedule

Type: Tutorial

Description: Create a map using standard map elements.

Quizzes: Module 1 to 5

Date: See Class Schedule

Length: 10 minutes

Type: Online

Description: Demonstrate knowledge and understanding of learning objectives from each module.

Final Project

Due Date: See Class Schedule

Type: Online

Description: Creating a map using the techniques learned in this course. Data will be provided.

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Acknowledgements

Course Author

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