

NRM 435 GIS Analysis Spring 2019

Jan. 14 - Apr. 29, 2019

Course Goals:

- To learn GIS analysis concepts independent of GIS software .
 - To apply conceptual tools using ArcGIS software.
 - To maximize hands-on experience in using GIS to solve spatial problems.
-

Instructors:

Dave Verbyla, Professor,
Dept. of Natural Resources Management, O'Neill Bldg 368
Email: dverbyla@alaska.edu

Office Hours: Most days by email appointment so we can screen-share.

I will try my best to answer emails within 24-hours.

Disability Services: I will work with the Office of Disabilities Services (203 WHIT, 474-7043) to provide reasonable accommodation to to any student with a disability.

Please inform us the first week of class if you have a disability that we should be aware of.

Grading will be based on 500 total possible points from

- Fifteen GIS quizzes (posted every Weds by 8am, due by Friday 5pm) (@ 20 pts each) = 300 points
- Ten blackboard assignments (@20 pts each) = 200 points (<https://classes.alaska.edu>)
 1. ArcGIS / Tables Analysis Quiz due 5pm Tuesday 22-Jan-2019
 2. Points Analysis Quiz due 5pm Tuesday 29-Jan-2019
 3. Lines Analysis Quiz due 5pm Tuesday 5-Feb-2019
 4. Linear Referencing Quiz due 5pm Tuesday 12-Feb-2019
 5. Network Analysis Quiz due 5pm Tuesday 19-Feb-2019
 6. Polygons Analysis Quiz due 5pm Tuesday 26-Feb-2019
 7. Temporal Analysis Quiz due 5pm Tuesday 19-March-2019
 8. Raster Analysis Quiz due 5pm Tuesday 2-April-2019
 9. Elevation Analysis Quiz due 5pm Tuesday 9-April-2019
 10. 3D Analysis Quiz due 5pm Tuesday 23-April-2019

Late assignments will not be accepted.

Final Grade: Total Points:

A+: >474 A: 450-474 A-: 440-449

B+: 435-439 B: 425-434
C+: 400-419 C: 375-399 C-: 365-374
D 350- 364
F <350

Weekly lectures (view by Wednesday)	Weekly ArcGIS Quiz (posted by 8am every Wednesday)	Practice Lab (do before weekly ArcGIS quiz)
Week 1 Learning Objectives 16-Jan-2019: Course Preview Customizing ArcMap Windows Geoprocessing Tips in Arcmap How to Select Features Working With Tables Point Analysis Tools	 2018 Points Quiz Key: 2018 Points Quiz	 Point Analysis Lab
23-Jan-2019 Week 2 Learning Objectives More Point Analysis Tools: Uniform and Random Sample Locations Computing Point Density Interpolating Point Quantities	 2018 Points Density Quiz Key: 2018 Points Quiz	 Point Analysis2 Lab
30-Jan-2019: Geoprocessing Lines: Line Direction and Intersection Converting Lines to Points, Points to Lines Splitting Lines	 2018 Lines Quiz: Weeds Near Highways Key: 2018 Lines Quiz	 Line Analysis Lab

Generating Points Along Lines		
6-Feb-2019: Linear Referencing : Creating Measured Lines Point Events at Measure Locations Line Events Along Measured Lines	2018 Quiz: Linear Referencing Along River Key: 2018 Linear Referencing Quiz	Measured Lines Lab
13-Feb-2019: Network Analysis Overview New Route New Closest Facility Service Area/Network Origin-Destination Cost Matrix Allocation-Location	2018 Network Quiz Key: 2018 Network Quiz	Network Analysis Lab
20-Feb-2019 Polygon Analysis: Spatial Join Intersect Dissolve Clip/Erase/Split Buffer	2018 Polygon Quiz Key: 2018 Polygon Quiz	Polygon Analysis Lab
27-Feb-2019 Adjacency and Overlap Analysis: Analysis of Overlapping Polygons Analysis of Adjacent Polygons	2018 Quiz Private Parcels with road or trail access Key 2018 Adjacency/Overlap Quiz	Adjacency and Overlap Analysis Lab

6-March-2019:		
Temporal Data in ArcGIS:		
Date and Time Functions in Arcmap Field Calculator	Temporal Quiz 2018	Animal Movement Lab
Computing Speed Using Temporal Data	Key 2018 Temporal Quiz	
Animating Discrete Point Events		
Animating Moving Points		
Animating Changing Point Sensor Values		
Animating Changing Lines or Polygons		
Spring Break	Spring Break	Spring Break
20-March-2019:		
Raster Analysis:		
Creating A Test Raster		
Querying Rasters		
Raster Calculator	Raster Analysis Quiz 2018	Raster Analysis Lab
Using Points and Polygons With Rasters		
Raster Distance Analysis		
Raster Area Analysis		
Reclassifying Rasters		
27-March-2019:		Cost Path Lab
Optimal Paths Cost Rasters	Optimal Path Quiz 2018	
3-April-2019:		
Lidar Analysis:		
Simulating First Return/Last Return Rasters	2018 LIDAR Quiz	LIDAR Elevation Lab
Delineating Tall Patches		
Mapping Percent Forest Canopy Closure		

10-April-2019: Watershed Delineation : Processing Elevation Rasters To Square Pixels in Meters Hypsometric Symbology With Elevation Rasters Delineating a Watershed in Arcmap	2018 Watershed Quiz	Watershed Delineation Lab
17-April-2019: 3-D Analysis : 3D Points 3D Lines 3D Polygons 3D Surfaces 3D Triangulated Irregular Networks (TINS)	2018 3D QUIZ	3-D Analysis Lab
24-April-2019: GIS Data Quality Assessment	Quiz 14 and Quiz 15 due 5pm Tuesday May 1, 2019 2018 Quiz 14: Point/Polygon Analysis 2018 Quiz 15: Raster Analysis	GIS Quality Assessment Lab

Page last update Jan 2019

dlverbyla@alaska.edu