

# NRM 435 GIS Analysis Spring 2019

**Jan. 14 - Apr. 29, 2019**

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## 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.
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## Instructors:

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

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**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.**

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**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) |
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| <p><a href="#">Week 1 Learning Objectives</a></p> <p>16-Jan-2019:</p> <p><a href="#">Course Preview</a></p> <p><a href="#">Customizing ArcMap Windows</a></p> <p><a href="#">Geoprocessing Tips in Arcmap</a></p> <p><a href="#">How to Select Features</a></p> <p><a href="#">Working With Tables</a></p> <p><a href="#">Point Analysis Tools</a></p> | <p><a href="#">2018 Points Quiz</a></p> <p>Key: 2018 Points Quiz Geoprocessi43.25 Tm [(Point)-13( Analysis Tools)]TJ</p> |   |
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| <p>6-March-2019:</p> <p>Temporal Data in ArcGIS:</p> <p>Date and Time Functions in Arcmap<br/>Field Calculator</p> <p>Computing Speed Using Temporal Data</p> <p>Animating Discrete Point Events</p> <p>Animating Moving Points</p> <p>Animating Changing Point Sensor Values</p> <p>Animating Changing Lines or Polygons</p> | <p><a href="#">Temporal Quiz 2018</a></p> <p><a href="#">Key 2018 Temporal Quiz</a></p> | <p>Animal Movement Lab</p> |
| <p><b>Spring Break</b></p>  | <p><b>Spring Break</b></p>  | <p><b>Spring Break</b></p> |
| <p>20-March-2019:</p> <p>Raster Analysis:</p> <p>Creating A Test Raster</p> <p>Querying Rasters</p> <p>Raster Calculator</p> <p>Using Points and Polygons With Rasters</p> <p>Raster Distance Analysis</p> <p>Raster Area Analysis</p> <p>Reclassifying Rasters</p>   | <p><a href="#">Raster Analysis Quiz 2018</a></p>  | <p>Raster Analysis Lab</p> |
| <p>27-March-2019:</p> <p>Optimal Paths Cost Rasters</p>   | <p><a href="#">Optimal Path Quiz 2018</a></p>   | <p>Cost Path Lab</p>       |
| <p>3-April-2019:</p> <p>Lidar Analysis:</p> <p>Simulating First Return/Last Return Rasters</p> <p>Delineating Tall Patches</p> <p>Mapping Percent Forest Canopy Closure</p>   | <p><a href="#">2018 LIDAR Quiz</a></p>  | <p>LIDAR Elevation Lab</p> |

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