**COETC Course Map**

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| **Course Name:** Open GIS 101 Introduction to GIS | |
| **Instructor Name:** |  |
| **Course Competencies:** | |
| Surveys the development, application and use of geographic information systems (GIS).  1. Use a computer and related GIS software to input and retrieve information  2. Define Geographic Information Systems  3. Interpret GIS history  4. Demonstrate understanding of the conceptual foundations on which geographic information systems (GIS) are based, including the problem of representing change over time and the imprecision and uncertainty that characterizes all geographic information  5. Discuss the roles of several geometric approximations of the earth's shape, such as geoids, ellipsoids, and spheres  6. Describe characteristics and appropriate uses of common geospatial coordinate systems, such as geographic (latitude .and longitude), UTM and State Plane Coordinates  7. Explain the relationship of horizontal datums, such as North America Datum of 1983 (NAD 83) or the World Geodetic System of 1984 (WGS 84), to coordinate system grids and geometric approximations of the earth's shape  8. Describe characteristics and appropriate uses of common map projections, such as Transverse Mercator, Lambert Conformal Conic, Albers Conic Equal Area, Azimuthal Equidistant, and Polar Stereographic  9. Discuss the elements of geospatial data quality, including geometric accuracy, thematic accuracy, resolution, precision, and fitness for use  10. Identify data quality and integration problems likely to be associated with geospatial and attribute data acquired with legacy systems and processes  11. Calculate and interpret statistical measures of the accuracy of a digital data set, such as Root Mean Square Error (RMSE)  12. Georeference a paper map or map image  13. Recognize raster data structures  14. Recognize vector data structures  15. Acquire and integrate a variety of field data, image data, vector data, and attribute data to create, update, and maintain GIS databases  16. Edit GIS data | |

**Course Materials (Text, Edition and any other publisher items)**

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| **REQUIRED TEXTBOOK/MATERIALS**: |

GIS Tutorial for ArcGIS 10 by Gorr and Kurland

| **Module # and Title** | **CCNS Competencies** | **Instructional Materials** | **Activities: Learner Interaction**  **& Engagement** | **Assessments and Rubrics** |
| --- | --- | --- | --- | --- |
| 1. **Introduction to GIS** | 1, 2 | Module 1 Instructions.html  Module 1 Lecture Slides.pptx |  |  |
| 1. **Designing Maps** | 3, 4 | Module 2 Instructions.html  Module 2 Lecture Slides.pptx |  |  |
| 1. **Maps, Reports, Graphs, and Animations** | 1, 3 | Module 3 Instructions.html  Module 3 Lecture Slides.pptx |  |  |
| 1. **Geodatabases** | 4, 14, 15, 16 | Module 4 Instructions.html  Module 4 Lecture Slides.pptx |  |  |
| 1. **Spatial Data** | 5, 6, 7, 8, 9, 10, 11, 13, 14 | Module 5 Instructions.html  Module 5 Lecture Slides.pptx |  |  |
| 1. **Digitizing Features** | 4, 6 | Module 6 Instructions.html  Module 6 Lecture Slides.pptx |  |  |
| 1. **Geocoding** | 11, 16 | Module 7 Instructions.html  Module 7 Lecture Slides.pptx |  |  |
| 1. **Geoprocessing and Automation** | 15. 16 | Module 8 Instructions.html  Module 8 Lecture Slides.pptx |  |  |