# INTRODUCTION TO GEOGRAPHIC INFORMATION SYSTEMS

## GISC1411-23420

<table>
<thead>
<tr>
<th>Day/Time:</th>
<th>Lectures:</th>
<th>Online.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location:</td>
<td>N/A</td>
<td></td>
</tr>
</tbody>
</table>

### Professor: J. Scott Sires
- **Office:** EMGI H115
- **Office phone:** 972-860-4362
- **Office hours:**
  - Monday: None
  - Tuesday: 12:20 p.m. – 3:20 p.m.
  - Wednesday: 4:30 p.m. – 6:30 p.m.
  - Thursday: None
  - Friday: None
- **Email:** ssires@dcccd.edu

### Lab Coordinator: Jerry Bartz
- **Office:** EMGI H105
- **Office phone:** 972-860-4796
- **Open Lab:** M T W R, 9:00 a.m. to 5:00 p.m.
- **Email:** gbartz@dcccd.edu

### Textbooks:
- **Required text**
  - *GIS Fundamentals A First Text on Geographic Information Systems*

## COURSE INFORMATION

<table>
<thead>
<tr>
<th>Number:</th>
<th>GISC1411</th>
<th>Section:</th>
<th>23420</th>
<th>Credit Hours:</th>
<th>4</th>
</tr>
</thead>
</table>

### Description:
Introduction to basic concepts of vector GIS using industry specific software programs including nomenclature of cartography and geography.

### Prerequisites:
None

### Student Email:
Students are to email Scott at the above addresses to provide a valid, secure email for our correspondence. Email is a chief communication protocol for the Geospatial Technology Program students.

### Learning Outcomes:
This course will provide the student with the fundamental concepts of Geographic Information Systems (GIS). By completing this course, students will:
- Expand a basic, practical understanding of GIS concepts and applications.
- Discuss and explain the technical language of GIS.
- Organize file structure (e.g. create directories, perform data and directory housekeeping). **TSSB KA7.2**
- Create, obtain and evaluate data. Define the data requirements, research sources of available data, and purchase data from reputable source. **TSSB KA1.1**
- Integrate data (vector, tabular and raster) into GIS applications. Convert data between formats. **TSSB KA3.4**
Apply and explain Map Projections and related properties. Determine data compatibility (projection), perform data conversion, and populate feature attributes. **TSSB KA1.3**

Compare, contrast and apply data accuracy and data precision properties.

Apply industry-leading GIS software.

Preprocess geographic data (generalize, subset). **TSSB KA4.3**

Perform geo-processing through clipping, buffering, overlay, etc. **TSSB KA4.4**

Geocode data. **TSSB KA1.6**

Collect field attribute and location data via GPS (Tablet PC/PDA). **TSSB KA1.5**

Generate descriptive and spatial statistics. **TSSB KA4.5**

Interpret data results. **TSSB KA4.7**

Explain the history, purpose and elements of a map and apply the minimum required map elements. Create maps. **TSSB KA5.1**

Create map supplement materials. Create analysis reports. **TSSB KA5.2**, Create tables. **TSSB KA5.3** and Create charts. **TSSB KA5.4**

Distribute digital and hard copy products. **TSSB KA5.6**

Create map templates. **TSSB KA6.3**

Create formal and informal communications using email, phone, listservs and written reports. **TSSB KA9.1**

Participate in GIS awareness events such as presentations, conferences and user groups. **TSSB KA9.5**

Continue professional education through credit and/or noncredit courses, technical training and informal education, such as online courses. **TSSB KA10.2**

Discuss GIS career options relative to local DFW metrics.

Outline: 17 week semester meeting online. Due dates are end of business (5:00 PM CST) Friday. For example, Tutorial 1 is due on Friday, Feb. 7th by 5:00 PM. If you turn an assignment in early you may receive feedback early enough to address some issues and again turn in the assignment (still by the due date) and you will receive the later score. The later score will increase by no more than 10% of the first score.

<table>
<thead>
<tr>
<th>Week #</th>
<th>Dates</th>
<th>TEXT Chapter</th>
<th>Lab Exercise</th>
<th>Due dates 5:00PM Fridays</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1/21</td>
<td>ArcGIS 3X3 matrix and terms; demystify ESRI. Slide show of standards GUIs with discussion explanations. <strong>“A good GIS professional will …”</strong></td>
<td>1 – Introduction to GIS GUI and basic elements Launch slide show power points.</td>
<td>Compressed-file email &amp; Text file email.</td>
</tr>
<tr>
<td>2</td>
<td>1/27</td>
<td>1 – Introduction and the basic elements</td>
<td>Install GIS Tutorial data. Begin T1 – Introduction to GIS GUI and basic elements</td>
<td>Nothing due</td>
</tr>
<tr>
<td>3</td>
<td>2/03</td>
<td>2 – Data models and nomenclature</td>
<td>Continue T1</td>
<td>Tutorial 1 compressed-file &amp; Text Ch. 1 review doc.</td>
</tr>
<tr>
<td>4</td>
<td>2/10</td>
<td>3 – Projections and Coordinate systems</td>
<td>T2 – Map Design</td>
<td>Text Ch. 2 review doc. due</td>
</tr>
<tr>
<td>5</td>
<td>2/17</td>
<td>4 - Data sources and data entry</td>
<td>T3 – Output, reports and graphs</td>
<td>Tutorial 2 compressed-file &amp; Text Ch. 3 review doc.</td>
</tr>
<tr>
<td>6</td>
<td>2/24</td>
<td>5 – GPS and Fieldwork</td>
<td>T4 - Geodatabases</td>
<td>Tutorial 3 compressed-</td>
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</tbody>
</table>
### Course Schedule

<table>
<thead>
<tr>
<th>Week</th>
<th>Date</th>
<th>Topic</th>
<th>Tutorial</th>
<th>Review Materials</th>
</tr>
</thead>
<tbody>
<tr>
<td>7</td>
<td>3/03</td>
<td>6 – Aerials and Imaging</td>
<td>T5 – Spatial and attribute import</td>
<td>Tutorial 4 compressed-file &amp; Text Ch. 4 review doc.</td>
</tr>
<tr>
<td>8</td>
<td>3/10</td>
<td>SPRING BREAK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>3/17</td>
<td>Review &amp; Testing</td>
<td></td>
<td>Complete online exam</td>
</tr>
<tr>
<td>10</td>
<td>3/24</td>
<td>7 – Digital data and sources</td>
<td>T6 – Digitizing</td>
<td>Tutorial 5 compressed-file &amp; Text Ch. 5 review doc.</td>
</tr>
<tr>
<td>11</td>
<td>3/30</td>
<td>8 – Attributes and Tables</td>
<td>T7 - Geocoding</td>
<td>Tutorial 6 compressed-file &amp; Text Ch. 7 review doc.</td>
</tr>
<tr>
<td>12</td>
<td>4/07</td>
<td>9 – Basic Spatial Analysis</td>
<td>T8 – Spatial Data Processing</td>
<td>Tutorial 7 compressed-file &amp; Text Ch. 8 review doc.</td>
</tr>
<tr>
<td>13</td>
<td>4/14</td>
<td>10 – Raster Analysis</td>
<td>T9 – Spatial Analysis</td>
<td>Tutorial 8 compressed-file &amp; Text Ch. 9 review doc.</td>
</tr>
<tr>
<td>15</td>
<td>4/28</td>
<td>12 - Spatial Estimation, Interpolation, Prediction, and Core Area Delineation</td>
<td>T11 – ArcGIS Spatial Analyst</td>
<td>Tutorial 10 compressed-file &amp; Text Ch. 11 review doc.</td>
</tr>
<tr>
<td>16</td>
<td>5/05</td>
<td>Review</td>
<td>Portfolio Preparation</td>
<td>Tutorial 11 compressed-file &amp; Text Ch. 12 review doc.</td>
</tr>
<tr>
<td>17</td>
<td>5/12</td>
<td>Final Exam</td>
<td></td>
<td>Complete online final &amp; Portfolio due</td>
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</table>

Resist the natural urge to scan the pictures neither reading nor comprehending the content. It is suggested that you review the Tutorial chapter before your first attempt to read any chapter while also operating to software.

**Recommendations:**
- Industry periodicals and web-sites as mentioned throughout the course.
- Storage device; to be used in this class as well as all other program courses.
- Ask for help before due dates and before test dates.

**Assessments:**
- Portfolio of Lab products (2 Items) 10 %
- Discussion participation 10 %
- Exercise worksheets 50 %
- Exams of lecture material (1 midterm and 1 final) 30 % (15 % each)

**ADA Statement:**
If you are a student with a disability and/or special needs who requires accommodations, please contact the college Disability Services Office, in the S Building, Room S-124, 972-860-4847.
Religious Holidays: Absences for observance of a religious holy day are excused. The student is required to notify the instructor 10 days prior to the holiday. A student whose absence is excused to observe a religious holy day is allowed to take a make-up examination or complete an assignment within a reasonable time after the absence.

Academic Dishonesty: Scholastic dishonesty is a violation of the Code of Student Conduct. Scholastic dishonesty includes, but is not limited to, cheating on a test, plagiarism, and collusion.

As a college student, you are considered a responsible student. Your enrollment indicates acceptance of the Dallas County Community Colleges Code of Student Conduct published in the Dallas County Community Colleges Catalog.

https://www1.dcccd.edu/cat0506/ss/code.cfm

Pay specific attention to Pages 3 of 5 and 4 of 5 of the STUDENT RIGHTS AND RESPONSIBILITIES, STUDENT CONDUCT, item number 11 defines how we define cheating.

Withdrawal Policy: If you are unable to complete this course, it is your responsibility to withdraw formally. The withdrawal request must be received in the Registrar’s Office by Thursday, April 17th, 2014. Failure to do so will result in your receiving a performance grade, usually an “F”. If you drop a class or withdraw from the college before the official drop/withdrawal deadline, you will receive a “W” (Withdraw) in each class dropped.

Six Drop Issue: **STOP BEFORE YOU DROP**

For students who enrolled in college level courses for the first time in the fall of 2007, Texas Education Code 51.907 limits the number of courses a student may drop.

You may drop no more than 6 courses during your entire undergraduate career unless the drop qualifies as an exception. Your campus counseling/advising center will give you more information on the allowable exceptions.

Remember that once you have accumulated 6 non-exempt drops, you cannot drop any other courses with a “W”. Therefore, please exercise caution when dropping courses in any Texas public institution of higher learning, including all seven of the Dallas County Community Colleges. For more information, you may access:

https://www1.dcccd.edu/coursedrops

Repeating this course: Effective for Fall Semester 2005, the Dallas County Community Colleges will charge additional tuition to students registering the third or subsequent time for a course. All third and subsequent attempts of the majority of credit and Continuing Education/Workforce Training courses will result in additional tuition to be charged. Developmental Studies and some other courses will not be charged a higher tuition rate. Third attempts include courses taken at any Dallas County Community Colleges since the Fall 2002 Semester.

If you are receiving Financial Aid grants or loans, you must begin attendance in all classes. Do not drop or stop attending any class without consulting the Financial Aid Office. Changes in your enrollment level and failing grades may require that you repay financial aid funds.

Cell phones and pagers are no longer allowed in the Testing Center.

COURSE EDUCATIONAL OBJECTIVES
1. Understand and apply methods and appropriate technology to the study of the geospatial technologies.
2. Recognize geographic and quantitative methods and the differences between these approaches and other methods of inquiry and to communicate findings, analyses, and interpretation both orally and in writing.
3. Identify and recognize the differences among competing geographic theories.
4. Demonstrate knowledge of the major issues and problems facing geospatial technologies, including issues that touch upon ethics, values, and public policies.
5. Demonstrate knowledge of the interdependence of geospatial technology and their influence on, and contribution to modern culture.

**COURSE INTELLECTUAL COMPETENCIES**

1. Reading – The ability to analyze and interpret a variety of printed materials – books, documents, and articles.
2. Writing – The ability to produce clear, correct and coherent prose adapted to purpose, occasion and audience.
3. Speaking – The ability to communicate orally in clear, coherent and persuasive language appropriate to purpose, occasion, and audience.
4. Listening – Analyze and interpret various forms of spoken communication, possess sufficient literacy skills of writing, and reading.
5. Critical Thinking – Think and analyze at a critical level.

Right to Change syllabus: The instructor reserves the right to amend this syllabus as necessary.