

## *GEO 447-Geographic Information Systems (5cr)*

**Instructors:** Jay D. Gatrell, Ph.D      **Email:** jay.gatrell@wright.edu  
177 M      **Phone:** 775-3867  
**Website:** www.wright.edu/~jay.gatrell  
**Office Hours:** 4-5:15pm MWTh

**Course Objective:** The purpose and objective of this course is to expose students to the fundamental principles, structure, and rudimentary applications of GIS. This course will also expose students to two commercial GISs packages: ESRI ArcView (the industry standard desktop package) and IDRISI (a raster based GIS used for teaching and academic research). The majority of the hand-on experience will be with the ArcView package. **This is however not a training course per se.** The primary objective of this course is to present core concepts and provide hands-on learning opportunities.

**Required Text:**

Hutchinson, S. and Daniel, L. 1997. *Inside ArcView GIS*. Santa Fe: OnWord Press.  
Any additional hand-outs.

**Other Requirements:**

Activate your Wright State University UNIX & E-Mail account

**Recommended Text (especially for students with limited geography background):**

Davis, B. 1997 *Geographical Information Systems: A Visual Approach* Santa Fe: OnWord Press.

**Related Resources:**

Lecture Notes are located on class homepage as Powerpoint slides.

Chou, Y. 1997. *Exploring Spatial Analysis in GIS*. Santa Fe: OnWord Press.

**(Note: Chou will be required for the Applications Course)**

University of South Carolina. *ArcView Reference Materials* (see Lab Library)

ESRI. *Introduction to ArcView GIS* (see Lab Library)

**Organization of Course:**

The course is organized into three parts: 1. Lecture, 2. Lab, and 3. 5<sup>th</sup> Hour Project/Practical Exam

**Course Requirements:**

1. Student are required to complete all 12 labs (**5pts x 13=65 Points**)
2. Students will be evaluated based on class participation and attendance. Attendance will be taken six times during the semester. You will not be penalized for 1 absence. If you are absent more than once, you must have an extreme, legitimate, and documented excuse. Your success in any GIS course requires your attendance. (**5pts x 5 = 25 points**)
3. You will have a short answer mid-term exam and final exam. (**30pts x 2 = 60 points**)
4. The 5<sup>th</sup> Hour Assignment/Practical Final Exam (**30pts**)
5. The grading scale is as follows:

A	90-100%
B	80-89%
C	70-79%
D	60-69%
6. Students are responsible for maintaining academic integrity

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*NOTE: Course Outline Subject to Change*

	<i>Course Outline</i>		
<b>Lecture</b>		<b>Exercise</b>	<b>Due Readings</b>
Week 1	Course Outline Map Basics Computers ArcView Environment		
Week 2	What is GIS? History of GIS	DOS	CH1&2
Week 3	Spatial & Attribute Data Geometric Primitives Spatial Data Models	AV Ex. 1-2	CH 3-6
Week 4	Spatial Relationships: Topology Database	AV Ex. 3-4	CH 7-10
Week 5	<i>Mid-Term</i>	IDRISI Tutorial	
Week 6	Data Input	AV 5-6	CH 11-12
Week 7	Analysis Part 1	AV Ex.7-8	
Week 8	Analysis Part 2	Av Ex 9-10	CH13 & 15
Week 9	GIS & Society Issues Legal Issues <b>**Hand Out Phonebook Pages**</b>	Av Ex 11	<i>READ HAND-OUTS</i>
Week 10	Future of GIS <b>Final Exam</b>		<b>“DEAD WEEK”</b>

**Exam Week 5<sup>th</sup> Hour Assignment/Practical Exam \*\*Restaurant\*\*  
DUE AT THE BEGINNING OF THE UNIVERSITY SCHEDULED EXAM PERIOD**

**KEY TO EXERCISES**

- DOS** This is a simple diagnostic exercise used to demonstrate your proficiency in a DOS & Win95/98 environment
- ESRI** Exercises is the *Introduction to Arc View* text in lab library. Data is located in the main ESRI AV directory file structure under AVTUTOR
- AV** Exercises from the required text. Data is on the CD-ROM that accompanies the text. These exercises are fairly short and should not take longer than 10-15 minutes each (some much less)...although you have been assigned more than one per week. Your total time should not exceed 25-45 minutes.
- RESTAURANT** This is the 5<sup>th</sup> Hour project/practical exam. You will be asked to site a new restaurant in Morgantown, WV. The only data you are provided will be: two pages from the Morgantown Yellow Pages with your potential competitors addresses. You are required to also obtain population data at the Census Tract level for Morgantown. Students will have EXACTLY 7 days to locate & import relevant coverage (e.g., TIGER line & Boundary), input addresses, address match, create some selection criteria (e.g., buffer distances, population), and write a report on where, why, and provide a printout of the decision map.
- IDRISI** IDRISI is a raster based software package. You will be asked to complete the on-line tutorial.

