

# GEOG 5210 Fundamentals of GIS – Fall 2016

## Meeting Times:

*Lecture:* Mondays AND Wednesdays, 9:10am – 10:05am, Jennings Hall 155

*Lab:* Mondays OR Wednesdays, 8:00am – 8:55am, Derby Hall 135

**Instructor Name and Email:** Emily S. Castellucci, [castellucci.5@osu.edu](mailto:castellucci.5@osu.edu)

**Office Hours and Location:** Tuesdays & Thursdays, 10am-11am, Derby Hall 1168\*

**Teaching Assistant Name and Email:** Minkyung Koh, [koh.54@osu.edu](mailto:koh.54@osu.edu)

**Office Hours and Location:** Wednesdays, 11am-12pm, Derby Hall 1070\*

\*Both the instructor and the teaching assistant are available to meet by appointment as needed.

**Course Description:** This course introduces principles of geographic information systems and their applications in spatial analysis and information management. The course is designed to give students an understanding of cutting-edge geospatial technologies, their capabilities, uses, and limitations. Representative applications for each discipline area are demonstrated in the computer laboratory portion.

## Texts (required):

- For lecture, we will use the book *GIS Fundamentals: A First Text on Geographic Information Systems, 5th Edition* (2016) by Paul Bolstad as the required text. Available at Student Book Exchange (SBX), Barnes & Noble The Ohio State University Bookstore, or Amazon (see <https://amzn.com/1506695876>).
- For lab, we will use the book *GIS Tutorial 1: Basic Workbook, 10.3 Edition, 6th Edition* (2016) by Wilpen L. Gorr and Kristen S. Kurland as the required text. Available at Student Book Exchange (SBX), Barnes & Noble The Ohio State University Bookstore, or Amazon (see <https://amzn.com/1589484568>).

## Evaluation:

- Labs: 50%
  - There will be 6 labs, and you will have 2 weeks to complete each. For each lab, you will be assigned two chapters from Gorr & Kurland. After completing the tutorials for the assigned chapters, choose ONE assignment from each of the assigned chapters to complete. Submit your results on Canvas.
  - It is suggested that you complete one chapter's tutorials and assignment per lab meeting. However, do not expect to complete all of your lab work during the scheduled lab time. You may need to dedicate time outside of class to completing your labs.
- Examinations: 45%
  - There will be 3 examinations, consisting of multiple choice, matching, true/false, and other questions. See lecture schedule for dates of exams.

- Other: 5%
  - There may be other tasks/activities you are expected to do or complete as a participant in this course. This other category is intended to reflect your participation in and completion of these tasks/activities.
- *Grading Scale* (OSU standard scale):
 

|      |         |      |        |      |        |
|------|---------|------|--------|------|--------|
| ○ A  | 93-100% | ○ B- | 80-82% | ○ D+ | 67-69% |
| ○ A- | 90-92%  | ○ C+ | 77-79% | ○ D  | 60-66% |
| ○ B+ | 87-89%  | ○ C  | 73-76% | ○ E  | 0-59%  |
| ○ B  | 83-86%  | ○ C- | 70-72% |      |        |

**Policies:**

1. *Disability services.* Students with disabilities that have been certified by the Office for Disability Services will be appropriately accommodated and should inform the instructor as soon as possible of their needs. The Office for Disability Services is located in 150 Pomerene Hall, 1760 Neil Avenue; telephone 292-3307, TDD 292-0901; <http://www.ods.ohio-state.edu/>
2. *Academic misconduct.* It is the responsibility of the Committee on Academic Misconduct to investigate or establish procedures for the investigation of all reported cases of student academic misconduct. The term “academic misconduct” includes all forms of student academic misconduct wherever committed; illustrated by, but not limited to, cases of plagiarism and dishonest practices in connection with examinations. Instructors shall report all instances of alleged academic misconduct to the committee (Faculty Rule 3335-5-487). For additional information, see the Code of Student Conduct: [http://studentlife.osu.edu/pdfs/csc\\_12-31-07.pdf](http://studentlife.osu.edu/pdfs/csc_12-31-07.pdf)
3. *Examination policy.* Exams must be taken at the scheduled time, unless you have a documented reason for your absence at the regular scheduled exam time. You also must contact me in advance of the scheduled exam, except in the case of emergency.
4. *Labs policy.* Assignments will be penalized 10% for each day late and will not be accepted after the third day. Do NOT keep your work on the lab computers only! You are responsible for backing up your work (via BuckeyeBox, flash drive, external hard drive, or other method). Extensions will not be granted due to lost work.
5. *Technology policy.* This is the 21st century, so I will not ban the use of laptops, tablets and other digital devices. However, there are some guidelines and restrictions:
  - a. Be mindful – when you are emailing, tweeting, texting, updating, surfing, etc. you are not paying attention. Research shows that no one can multitask that well – not even you. Paying attention and taking good notes is essential to success in this course. Why are you here?
  - b. Be courteous – your use of digital devices should not distract other students in the class. It is unlikely that taking notes or searching class-relevant topics will be distracting. However, viewing videos of kittens or ice bucket challenges will likely distract others. Complaints about inappropriate technology use in class will result in your privileges being curtailed or revoked.

- c. Be honest - emailing, surfing, and the use of any other applications or technologies is not allowed during the computer-based examinations. Be aware that your activity on the lab desktop computers may be monitored during exams.

**Canvas:**

You are responsible for all announcements, additional reading, assignments and other material posted at the Canvas site, so be sure to check it frequently.

**Lecture Schedule:**

| <b>Date</b>            | <b>Topic</b>  | <b>Reading (Bolstad)*</b> |
|------------------------|---|---------------------------|
| W, August 24           | Course Overview   | Chapter 1                 |
| M, August 29           | An Introduction to GIS  | Chapter 2, pp. 29-62      |
| W, August 31           | Data Models – Part 1  | Chapter 2, pp. 63-84      |
| W, September 7         | Data Models – Part 2  | Chapter 3, pp. 85-115     |
| M, September 12        | Geodesy, Datums, Map Projections and Coordinate Systems – Part 1  | Chapter 3, pp. 116-146    |
| W, September 14        | Geodesy, Datums, Map Projections and Coordinate Systems – Part 2  | Chapter 4, pp. 147-169    |
| M, September 19        | Maps, Data Entry, Editing, and Output – Part 1                    | Chapter 4, pp. 170-202    |
| W, September 21        | Maps, Data Entry, Editing, and Output – Part 2                    | None. (Study for Exam 1.) |
| <b>M, September 26</b> | <b>Exam 1</b>   | Chapter 5                 |
| W, September 28        | Global Navigation Satellite Systems and Coordinate Surveying      | Chapter 6, pp. 249-271    |
| M, October 3           | Aerial and Satellite Images – Part 1                              | Chapter 6, pp. 272-296    |
| W, October 5           | Aerial and Satellite Images – Part 2                              | Chapter 7                 |
| M, October 10          | Digital Data  | Chapter 8, pp. 331-349    |
| W, October 12          | Tables – Part 1   | Chapter 8, pp. 350-372    |
| M, October 17          | Tables – Part 2   | Chapter 9, pp. 373-402    |
| W, October 19          | Basic Spatial Analysis – Part 1                                   | Chapter 9, pp. 403-442    |
| M, October 24          | Basic Spatial Analysis – Part 2                                   | None. (Study for Exam 2.) |
| <b>W, October 26</b>   | <b>Exam 2</b>   | Chapter 10, pp. 443-459   |
| M, October 31          | Topics in Raster Analysis – Part 1                                | Chapter 10, pp. 460-482   |
| W, November 2          | Topics in Raster Analysis – Part 2                                | Chapter 11                |
| M, November 7          | Terrain Analysis  | Chapter 12, pp. 519-545   |
| W, November 9          | Spatial Estimation: Interpolation, Prediction, Core Area – Part 1 | Chapter 12, pp. 546-570   |
| M, November 14         | Spatial Estimation: Interpolation, Prediction, Core Area – Part 2 | Chapter 13, pp. 571-594   |
| W, November 16         | Spatial Models and Modeling – Part 1                              | Chapter 13, pp. 595-616   |
| M, November 21         | Spatial Models and Modeling – Part 2                              | Chapter 14                |
| M, November 28         | 14  | To be announced.          |

|  |               |                           |
|--|---------------|---------------------------|
| W, November 30                             | Ethics        | Chapter 15                |
| M, December 5                              | 15            | To be announced.          |
| W, December 7                              | Careers       | None. (Study for Exam 3.) |
| <b>M, December 12,<br/>10:00am-11:45am</b> | <b>Exam 3</b> |                           |

\* The assigned reading prepares you for the next lecture.

#### Lab Schedule:

| Lab   | Reading (Gorr & Kurland)   | Dates for Monday lab                      | Dates for Wednesday lab                     |
|-------|--|---|---|
| Lab 1 | Chapter 1: Introduction &<br>Chapter 2: Map design   | Assigned: August 29<br>Due: September 19  | Assigned: August 31<br>Due: September 14    |
| Lab 2 | Chapter 3: GIS outputs &<br>Chapter 4: File geodatabases   | Assigned: September 19<br>Due: October 3  | Assigned: September 14<br>Due: September 28 |
| Lab 3 | Chapter 5: Spatial data &<br>Chapter 6: Geoprocessing  | Assigned: October 3<br>Due: October: 17   | Assigned: September 28<br>Due: October 12   |
| Lab 4 | Chapter 7: Digitizing &<br>Chapter 8: Geocoding  | Assigned: October 17<br>Due: October 31   | Assigned: October 12<br>Due: October 26     |
| Lab 5 | Chapter 9: Spatial analysis &<br>Chapter 10: ArcGIS 3D Analyst<br>for Desktop                            | Assigned: October 31<br>Due: November 14  | Assigned: October 26<br>Due: November 9     |
| Lab 6 | Chapter 11: ArcGIS Spatial<br>Analyst for Desktop &<br>Chapter 12: ArcGIS Network<br>Analyst for Desktop | Assigned: November 14<br>Due: November 28 | Assigned: November 9<br>Due: November 30    |

**Disclaimer:** This course syllabus provides a general plan for the course; deviations may be necessary. Any changes will be announced by the instructor with as much advance notice as possible.