

Illinois IDEA HS
Course Outline
Fall, 2008

College/Division: Northern Illinois University, Department of Geography

Course Title: Fundamentals of Mapping

Course Number: Geography 556

Credit Hours: 3

Instructors: Paul Sill, Adjunct Instructor of Geography, psill@forumanalytics.com
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Catalog Description: Introduction to maps as models of our earth, tools of visualization, and forms of graphic communication. Use of satellite and aerial imagery, land surveying, and geographic information systems in map production. Thematic maps and how they are used. Map design for informational and persuasive purposes. Two hours of lecture, two hours of laboratory.

Restrictions/Suggestions: None

Rationale: Though maps have been used by civilizations for well over 5,000 years, practically all aspects of mapping today involve computers—from the collection of real-world data by GPS or satellites to drafting and printing. Rather than study the history of maps and mapping, this course examines maps as tools of modern communication and visualization. Through this course, students will:

1. understand maps as depictions of geographic space
2. develop an understanding of how maps are constructed
3. learn how maps are used and how their intended use dictates map design
4. learn how to read and use various types of maps
5. be introduced to geographic information systems and computer mapping
6. have fun with maps and geospatial technologies

Intended Audience: Students at any graduate level with an interest in maps, GIS, and related mapping technologies.

Student Learning Outcomes: By the end of this course, students will:

- know how to use map and geography reference materials
- understand geographic coordinate systems and their relationship to earth geometry, datum, and projections
- understand the basic types and proper uses of map projections
- have experienced how geographic information systems (GIS) are used for mapping and practical problem solving

- understand how new maps are constructed from old maps and what considerations are involved
- understand how remote sensing, aerial imagery, and land surveying are used in the construction of maps
- know how to use map legends and read standard cartographic symbols
- recognize when a map is designed to educate vs. when it is intended to impart a specific message
- appreciate the beauty, sophistication, and complexity of maps and the map making process

Textbooks: *Map Use and Analysis*, by John Campbell, Dubuque, IA: WCB/McGraw-Hill, 2001; **4th Edition**

Software: ArcExplorer (Free Shareware), Adobe Acrobat Reader, Macromedia Flash Player 6.0 or higher. Both are downloadable from Blackboard. They can also be obtained online at www.esri.com // www.adobe.com // www.macromedia.com

Course Content and Timelines:

| Lessons | Topic(s) | Chapter(s) | Exercise | Points |
|-----------------------------------------------------------|--------------------------------------------------------------------------------|-------------|------------|--------|
| PRE-TEST: Mandatory | | | 0 | |
| 1 | Maps Basics: Introductions to Maps | | | 1 |
| 2 | Map Measurement and Symbology. Map Classification Systems, Thematic Map Intro. | 11 | 1 | 50 |
| 3 | Classifying Maps | 11 | 2 | 10 |
| 4 | Geographic Information Systems. Intro to ArcExplorer. | 21 | 3 | 30 |
| 5 | Earth Geometry | | | 2 |
| EXAM 1: Must be completed by February 29th 11:55PM | | | 86 | |
| 6 | Map Projections | | | 3 |
| 7 | Map Projections (cont.) Expanding on the uses and interpretations. | 3 | 4 | 20 |
| 8 | Locational Coordinate Systems | 4 | 5 | 40 |
| 9 | Land Partitioning Systems | 4 | 6 | 50 |
| 10 | Understanding Map Scale | | | 5 |
| EXAM 2: Must be completed by March 21st 11:55PM | | | 101 | |
| 11 | The History of the Cartographic Production Process | | | NOTES |
| 12 | Cartographic Production Techniques | | | NOTES |
| 13 | Small Scale Maps Explored in More Detail | | | 20 |
| 14 | Remote Sensing | 17,18 | 7 | 25 |
| 15 | Aerial Imagery | 17 | 8 | 25 |

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|---------------------------------------------------------|----------------------------------------|-------|------------|-------|
| EXAM 3: Must be completed by: April 18th 11:55PM | | | 113 | |
| 16 | Large Scale Maps & Coordinate Systems | 4,19 | 9 | 40 |
| 17 | Plane Surveying and Intro to GPS | | | NOTES |
| 18 | Map Design and Communication | 14,15 | 10 | 40 |
| 19 | Distorting the Message: Map Propaganda | | | 16 |

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|-----------------------------------------------|-----------------------------------------------------------|-------|
| 20 | The Business of Maps. Using GIS and Geography in Business | NOTES |
| EXAM 4: Must be completed by: May 8th 11:55PM | | 129 |
| Total Points | | 759 |

Course Activities: Complete on-line assignments

Evaluation/Assessment:

1. Interactive Assignments (Exercises):_There are 10 lab exercises that each student will complete and submit into the Digital Dropbox in Blackboard for grading in a WORD, EXCEL, TEXT, or PDF format ONLY.

- These assignments will be worth 30% of the course grade.
- EXERCISES MUST BE COMPLETED AND TURNED INTO THE DROP BOX PRIOR TO TAKING THAT SECTION'S EXAM.
- All exercises for that section should be turned in with a single document containing all the exercises for that section of the course. I do NOT want separate documents for each individual exercise.
- I also will NOT accept exercises send to my email address. I will not accept late exercises under any circumstances.
- Your NAME MUST PRINT on every page of your exercise document when I print it out. If it does not, you will not get a grade for that exercise.

2. Exams:_There will be FOUR 60-70 minute exams worth a combined 70% of the course grade. They will be multiple choice and short answer and will be administered in Blackboard. All 4 exams and 10 exercises must be completed to pass this course. **YOU WILL ONLY HAVE A 3-4 DAY WINDOWS IN WHICH TO COMPLETE ALL EXAMS. THERE ARE NO RETAKES OR EXTENDED TIME WINDOWS FOR EXAMS FOR ANY REASON. SO PAY ATTENTION TO THE TIME WINDOW SHOWN IN BLACKBOARD.**
Final grading: The final course grade will be determined based on the Total Weighted Points achieved by students.

Bibliography/References: