

Fall 2015

GEOG 4805

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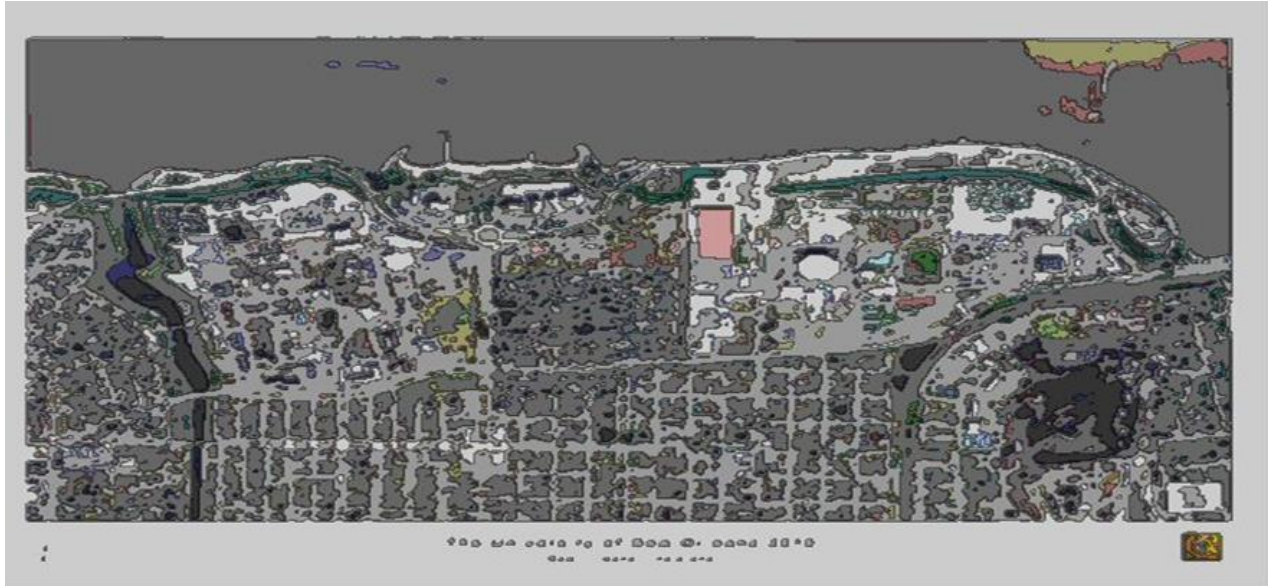
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Recommended Citation

Dupont, Lynn, "GEOG 4805" (2015). *University of New Orleans Syllabi*. Paper 654.
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University of New Orleans **Fall 2015**
GEOG 4805: Fundamentals of Mapping



Fall 2015 – Wednesday- lecture/lab 4:00 to 6:40 PM
Milneburg Hall Room 317

Instructor: Lynn Dupont with guest lecturers

Pre-requisite: Math 1115 or higher and basic Microsoft Office skills, emphasis on Excel.

Purpose of the Course:

Intended Audience: For students at a senior level with an interest in maps, cartographic principles and fundamental mapping systems, GIS and related mapping technologies. I support your efforts to map your own data or data from other courses.

Maps have been used by civilizations for well over 5,000 years. Most aspects of modern mapping are based upon fundamental mapping principles though they involve computers—from the collection of real world data by GPS or satellites, to geo-coding information by address, to drafting and printing. All map making involves some degree of a desire to communicate information spatially.

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. learn how to read and understand the elements of maps.
3. develop an understanding of how maps are constructed – grid systems, projections, datums, ellipsoids, scale, basic map algebra.
4. learn appropriate map use and how their intended use dictates map design.
5. be introduced to geographic information systems and computer mapping skills.
6. gain a basic understanding of the tools available for map communication in today's mapping world.

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

1. Know how to use map and geography reference materials.
2. Have a basic understanding of geographic coordinate systems and their relationship to earth geometry, datum, and projections.
3. Have experienced how geographic information systems (GIS) are used for mapping and practical problem solving.
4. Understand how existing data such as remote sensing, GPS coordinates, and land surveying are used in the construction of maps.
5. Know how to use map legends and standard cartographic symbols.
6. Understand how to communicate with maps using basic map elements.
7. Appreciate the beauty, sophistication, and complexity of maps and map-making as a continuously evolving process.

Prerequisites: Familiarity with basic computer skills, Microsoft Windows, Microsoft Word, and basic spreadsheet knowledge of **Excel** and use of zip files is presumed. Basic math, geometry and algebra skills are presumed. Labs will introduce ESRI ArcGIS 10(x) - one of the most widely used GIS software environments. Previous ArcGIS experience is not necessary.

Office hours and Correspondence: I am adjunct, I have access to Office 339 when I am on campus for appointments – my full-time job is off campus. I work at the Regional Planning Commission, which is located at 10 Veterans, NOLA 70124 at the I-10 West End Blvd. exit. Email is the best way to get hold of me. **Do not hesitate to contact me.**

- I do my best to respond via email or phone, but please follow these parameters:
- I will receive correspondence email at ([which I can also read on my phone](#) (best way to get my attention)).
- You can call and leave a message. I cannot always reply immediately.

Do not correspond by my UNO email, I rarely check it. [Use ldupont@norpc.org](mailto:ldupont@norpc.org)

Attendance Policy:

Attendance is required. Please be on time. Should you have an excused absence please notify me by email at. [I take role per the UNO guidelines](#) – **please be on time.** If you must leave early, please do so quietly. Class time is an opportunity to gain from group discussion of concepts and also from the group experience of learning the software and helping one another through the labs. There are always software issues (especially since we are serving the software through a large agency system).

The class is taught in a lecture/lab scenario. Labs are highly interactive. I attempt to expose you to practical applications and real world examples – please regard this as an opportunity and a networking experience – I don't do this for the money. We will work through some lab exercises together as a class, generally during the second part of each Wednesday class time. You are responsible for the material even if you do not attend. Since my time on campus is limited, class time is especially important for questions and assistance and group learning. Even if you don't like the exercises, give them a chance. It's just possible that you may not know where I am going with the work, and you could possibly pick up something valuable. Please, trust me, this course has received lots of practical input from the real world – especial those who hire graduates.

One required text:**Required:**

Map Use: Reading Analysis Interpretation, **Seventh Edition (or Sixth Edition)**

ISBN: 9781589482791 2011 610 pages \$99.95

Supplementary (You do not need to purchase these, but much of the background material from the lectures come from these books – I upload the powerpoints to Moodle):

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

How to Lie with Maps (2nd Edition), by Mark Monmonier, University of Chicago Press, 1996, 2nd Edition, **ISBN-13: 978-0226534213, 17.00**

(We use exercises from two GIS tutorials that I supply to you, however, if you wish to purchase those books I will give you the information. One of those is used in the spring class; please beware of updated editions that pop up at the last minute.)

Course Requirements:

Keep up with the *class schedule* on Moodle – I update it as we go (as needed) and send you email alerts. You are responsible for reviewing updated materials on Moodle.

GIS Software (available in the GIS Lab) – an evaluation copy of ArcGIS 10 can be downloaded from the ESRI site for use on a personal computer. This is not necessary; it is just a convenience. Do not start your free license before we start using GIS in the lab. I suggest you wait as long as possible or download your personal license once the course is over.

- *After midterm or after the course, if you want to: go to <http://www.esri.com/landing-pages/software/arcgis/arcgis-desktop-student-trial>*
- *Create an Esri Global ID and password if you don't have one already and it will let you download the software from there for **60 days**.*
- **Things you need to have:**
 - 1) Please purchase or have available a personal storage device with USB2 capability (small - 2 gigs is fine if you won't be using high resolution imagery of a large area for your final project) – **jump drive, pen drive, flash drive etc.** to store your work for class and to transfer work – there are some issues with editing files when using the UNO folder, so you will need to work from your flash drive at times and then store your answers in your UNO folder if you wish your data to all be on the UNO system.
 - 2) Your hard copy of the New Orleans East Quadrangle will be handed to you in class next week. Yes, you can fold it or roll it and get a map tube only if you wish to. This is yours to keep. You will use it for several of the exercises, so don't throw it away. It is also a study tool.
 - 3) Access to a (minimum of a) 12 inch ruler
 - 4) Pencils with erasers
 - 5) a sharpie
 - 6) access to a simple calculator (computer calculator or phone calculator are fine)
 - 7) access to the internet (UNO lab access is quite acceptable)

Tentative due dates and tests:

Please read the **Map Use** text prior to class and be prepared with questions.

You are responsible for assignments as noted in the schedule, which is subject to change. For written or drawn assignments, please turn in completed paperwork. For digital homework assignments, we have a class gmail account: 2015geog4805@gmail.com **This prevents clogging up UNO email accounts with large attachments.**

Student Evaluation

- Two tests (multiple choice, true/false, short answer) are given during class time are worth 25% of the total. The tests will come from the text, exercises, assignments, lectures and handouts which include other information not in the text. These tests are heavily weighted towards terminology and basic concepts. The first is around midterm and the second is during the last weeks of class. I give a quiz the second class on unit conversions, which counts as an Exercise grade. You get a second chance on the quiz and I average the grades of the two attempts.
- A sequence of 10 exercises and 1 quiz grade make up 75% of the total grade. (Exercises 1, 2, 3, 3A, 4, 4A, and 5, 5A, 6, 7 and one grade from two unit conversion quizzes (averaged score)). The last exercise is your final map project that you present during the final exam period. Lab exercises are expected on the due date unless otherwise noted in the schedule. **(A 20% penalty is assessed for exercises turned in anytime up to one week after the due date; after one week they are a zero)**. These are graded on completion and on correctness. Partial credit is given where applicable. **Please keep up with the assignments!!** Please complete your own lab work – you can work with others, but please do your own writing, drawing & clicking – it is the best way to learn. Assignments are graded upon completeness and correctness. These are the basic exercise topics– I will hand you paper Exercises:

Exercise 1 - The Earth & Earth Coordinates

Quiz - Unit conversions (2 quizzes given and averaged)

Exercise 2 – Scale, Scale Conversions, Scale & Levels of Accuracy

Exercise 3 – Projections, Grid Coordinate Systems & USGS Map Series Products

Exercise 3A – Louisiana Common Projections

Exercise 4 - Terrain Interpretation & Contours

Exercise 4A - Azimuths, Compass Rose and Bearing Angles

Exercise 5 - GIS 1 – Intro to ArcGIS Basic Tools, ArcCatalog

Exercise 5A - GIS 2 – Intro to ArcGIS – Working with Map Layers. Selecting Data Attributes

Exercise 6 - GIS 3 – Data Classification Methods

Exercise 7 - Final Map Project – You work with data of your choice you want to map. I help.

- Paper assignments need to be turned in during class time up. Exercise 3a, and 5, 5A, 6,, and 7 shall be sent to the gmail account 2015geog4805@gmail.com. **Please do send GIS digital assignment completions to my UNO email account or to my work account (clogging my email accounts with your assignments makes me unhappy!– we have a course gmail account if you need to scan and email. When we move to GIS, use only our course gmail account 2015geog4805@gmail.com.**

- **Please follow naming conventions for assignment naming and later for ArcGIS project naming: lastname_[Exercise#].docx (or .mxd or .shp or .pdf or .jpg etc.)**
- Make sure your full name is typed into the document, pdf, jpg etc you are forwarding.
- Exercise 7 is your final project. You are required to write a one page lab report to accompany your ArcGIS work. It is due on the final exam date with your accompanying project files and data. Let me know if you want your graded Ex. 7 returned after the end of classes. (Think of the format as a lab report with complete sentences). You are welcome to use data you may have gathered for another class and attempt to make into a mapping project.
- Final Project Paper Sections should include:
 1. Problem Statement (reason for the map product)
 2. brief background about the issues from the problem statement
 3. data used (including sources and dates of data creation)
 4. methodology in inputting the data
 5. tools used
 6. final map product analysis
 7. conclusions

Academic integrity is fundamental to the process of learning and evaluating academic performance. Academic dishonesty will not be tolerated. Academic dishonesty includes, but is not limited to, the following: cheating, plagiarism, tampering with academic records and examinations, falsifying identity, and being an accessory to acts of academic dishonesty. Refer to the Student Code of Conduct for further information. The Code is available online at <http://www.studentaffairs.uno.edu>.

** It is University policy to provide, on a flexible and individualized basis, reasonable accommodations to students who have **disabilities** that may affect their ability to participate in course activities or to meet course requirements. Students with disabilities should contact the Office of Disability Services as well as their instructors to discuss their individual needs for accommodations. For more information, please go to <http://www.ods.uno.edu>.

The course Schedule is also uploaded to Moodle and will give you the basic course structure, class by class. The schedule is an addendum to the syllabus. Please review it.

I may periodically update both the syllabus and the schedule based upon class performance and outside schedule conflicts. Please check Moodle for updates – it is your responsibility to know schedule changes!

If you are looking for data layers to support your research as background information, I will be glad to reach out to state and local agencies and try to help you find anything that is available. I serve on the state GIS Council the 3rd Thursday of every month where we discuss data availability. Let me know if advance of those meeting what data you are seeking, so I can ask on your behalf.