**GEOG 1106: Laboratory for Physical Geography (GEOG 1306) … Fall 2012 (TMYN)**

3 Sections

**Revised 07.28.12 – Syllabus v. TMYN2**

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**Course Description**

This laboratory course supports and is related to GEOG 1306 Physical Geography and should be taken concurrently with or subsequent to completing GEOG 1306. It provides individual and group practical exercises and opportunities for discussion of subjects, problems, and issues across the broad realms of physical geography. We will deal with maps and data systems involving processes and spatial patterns in the atmosphere, hydrosphere, lithosphere, and biosphere. Our focus will be quantitative and analytical, producing and interpreting graphs and statistical relationships.

**Course Objectives**

1. To understand the compilation of maps and to be able to demonstrate competence in extracting and interpreting geographic information from the types of maps most commonly used in physical geography, with special emphasis on topographic maps and weather maps.
2. To understand and be able to compute and explain concepts of frequency and recurrence of events in physical geography.
3. To strengthen students’ understanding of the math that underpins lab exercises in unit conversions, graphing, profiles and slopes through application of The Math You Need (TMYN).
4. To acquire basic skills in compilation of worksheets and graphing through Excel (line graphs, scatter plots, best-fit trendline, semi-log and log-log graphs).
5. To explain how scientific methods, models, and theories are used to describe and explain environmental processes and patterns.
6. To provide successful experiences in identifying and acquiring data from maps and other sources, designing and executing analyses, and writing up findings.

**Lab Manual**: None. Lab exercises will be handed out at the beginning of each lab.

**Grades**

Each week there will be a laboratory exercise that begins during the class meeting and is due for submission within 2 weeks. If you have to miss a lab for a legitimate, unavoidable reason, please let me know by email in advance, or within 24 hours after the lab session. In most cases, you will be able to make up the Lab on your own from materials posted in Blackboard (but it will take you longer).

12 labs will be offered during the course of the term. Each lab is worth 20 points. Your letter grade for the course will be based on your aggregate score from all of the labs you submit (maximum of 12 x 20 = 240 points):

A … >90% (216-240 pts) B … 80-89% (192-215 pts) C … 70-79% (168-191 pts)

D … 60-69% (144-167 pts) F … ≤59% (143 pts or less)

Four online modules from The Math You Need program will be used to provide support for critical math foundation work. Tutorial reviews are found at [http://serc.carleton.edu/mathyouneed/index.html/](http://serc.carleton.edu/mathyouneed/index.html). Assessments of students’ work on the modules will be provided through <http://wamap.org/index.php>. These assessments are quizzes of 5 questions that you can take as many times as you want to achieve mastery. There will also be a pre-test (in Week 1) and a post-test (in the last week) of work covered in The Math You Need modules. Completion of all The Math You Need modules and the pre- and post-tests will count as 1 lab (20 points) towards your grade.

**Course Outline (subject to change): v.1 TMYN**

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| Week  Mondays | Lab # | Topics | The Math You Need (TMYN) Module |
| Aug. 27 | 1 | Orientation to TMYN (and pre-test) & Excel worksheets |  |
| Sep. 10 | 2 | Geographic Measurements: Units & Conversions | Unit Conversions |
| Sep. 17 | 3 | Exploring Data & Graphs | Graphing  Plotting Points |
| Sep. 24 | 4 | Earth-Sun Geometry: Insolation, Sun Angles, Day Length |  |
| Oct. 1 | 5 | Temperature: Continentality, Latitude Gradients | Best-Fit Line |
| Oct. 8 | 6 | Temperature Change |  |
| Oct. 15 | 7 | Isarithmic Maps & Profiles: Temperature & Pressure (1) | Topographic Profiles (Pressure) |
| Oct. 22 | 8 | Isarithmic Maps & Profiles: Temperature & Pressure (2) |  |
| Oct. 29 | 9 | Lapse Rates | Reading Points from Graph |
| Nov. 5 | 10 | Water Balance |  |
| Nov. 12 |  | Flood Probability | Best-Fit Line  Reading Points from Graph |
| Nov. 19 | 11 | Topographic Maps | Topographic Profiles  Slopes |
| Nov. 26 |  | Make-Up Week |  |
| Dec. 3 | 12 | Complete Module Assessments & TMYN Post-Test |  |

TMYN Modules:

1). Unit Conversions

2). Graphing & Plotting Points (combined)

3). Best-Fit Line & Reading Points from Graph (combined)

4). Profiles (Topographic Profiles) & Slopes (combined)