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

Section 1 (CRN 16377) – Mondays 3:30—5:20 pm, GEOL 404

**Revised 08.27.12 – Syllabus v.3**

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**Course Description**

This 1-credit laboratory course supports and is related to GEOG 1306 Physical Geography (3-credits lecture course) and should be taken concurrently with or subsequent to completing GEOG 1306. It provides practical exercises and opportunities for analysis of problems involving processes and spatial patterns in the atmosphere, hydrosphere, and lithosphere. Our focus will be quantitative and analytical, exploring data, and producing and interpreting graphs and statistical relationships. You will acquire and practice basic skills in data processing and graphing using Microsoft Excel. You will also strengthen your basic skills in related mathematical applications using online learning modules and assessments from The Math You Need (TMYN) project.

**Course Objectives**

1. To understand how scientific methods, models, and theories are used to describe and explain geographical processes and patterns.
2. To provide successful experiences in identifying and acquiring data from maps and other sources, designing and executing analyses, and writing up findings.
3. To explore data and analyze problems in physical geography dealing with:

* metric conversions in basic climatological data, & construction of climographs;
* insolation and Earth-Sun geometry: sun angles & daylength, variations with latitude;
* seasonal temperature patterns: continental effects, & variations with latitude;
* temperature change: global annual average temperatures 1880-2011;
* global temperature & pressure patterns: isarithmic maps, & construction of profiles;
* topographic maps: location, distance, slope, direction & profiles.
* rivers, floods & recurrence intervals;
* lapse rates, adiabatic processes & cloud development; and
* climatic water balance & soil-moisture budgets (use of the WIMP website).

1. To strengthen students’ understanding of the math that underpins lab exercises in unit conversions, graphing, best-fit trendlines, profiles and slopes through application of online learning modules and assessments in The Math You Need (TMYN) project.
2. To acquire basic skills in compilation of worksheets and graphing through Microsoft Excel (line graphs, scatter plots, best-fit trendline, and semi-log graphs).

**Lab Manual**: Nothing to purchase. Study materials and Problem Worksheets will be handed out at the beginning of each lab and/or distributed on the course website in Blackboard.

**Weekly Time Commitment**: You should expect to commit **3 hours a week** to get an A in this course. The labs are scheduled for 2 hours. You should plan on another hour for homework or work in a University computer lab.

**Computer Access**: About 1 hour of your work each week will require use of a computer – either for exercises/problems using Microsoft Excel or for working on external academic websites. We will practice on the computers in the Collaborative Learning Center in the University Library.

**Assignments**

There are 3 sets of requirements in this course and 3 ways in which you can earn points towards your grade for the course.

**1). Physical Geography Problems**

* There will be 11 Physical Geography Problems assigned during the semester **(Labs 2 through 10, 12 and 13 – see Syllabus)**. Each is worth 20 points.
* **Requirement**: you must **pass at least 9** of these Labs. The passing grade is 70% (14 points out of 20).
* For each of the Physical Geography Labs, we will begin with a brief teaching presentation on the Study Materials posted on the course website in Blackboard (15-20 minutes). Then we will work through some of the Problems by hand in the Lab room (Geology 404). This may take an hour. Then we will set up the remaining problems for you to complete either in the Lab, or at home, or in the Collaborative Learning Center in the Library. The completed set of Problems will be due in 2 weeks time. If you complete the Problems on time, you will earn 1 point extra-credit.

**2). The Math You Need (TMYN) Module Tests**

This course is participating in the TMYN national project. It is designed to refresh your learning of basic college math techniques that we will be using in an upcoming lab. In fact several of these topics will appear in more than one lab. The math is presented in geoscience contexts and the online learning modules offer you practice questions where you can see how to work through to the correct answers. The main purpose of studying these modules is to enable you to work quickly through the Problems in our Labs, and to get to the right answers as efficiently as possible. The modules are available on an external website that you will need to access and work through online: [http://serc.carleton.edu/mathyouneed/index.html/](http://serc.carleton.edu/mathyouneed/index.html).

Each module should take you no more than 45 minutes or so.

As an assessment (and reward) for completing a module, you will take a Module Test. These Tests are also available on an external website: <http://wamap.org/index.php>. Each one will consist of 5 questions, each worth 2 points. You can take **as many attempts as you need** on each question (the software will generate a different version of the question, so you’re not just solving the question by elimination).

* There are 4 Modules available for this course. You can earn 10 points for each module, so you should earn a total of 40 points from the Module Tests.
* You will get the greatest benefit if you study the Modules before they come up in the Lab Problems, and you will complete the Module Tests most efficiently if you take them right after you study the module. The reward for completing the Module Test within 1 week is an extra 2 points. But, if life gets in the way (you know s\*\*\*\* happens)[[1]](#footnote-1), you can still take the Module Test later in the term and earn the 10 points.
* **Requirement**: in order to count the points you earned in your TMYN Module Tests towards your course grade, you are required to take the Pre-Test and the Post-Test (see below).

**3). The Math You Need (TMYN) Pre-Test and Post-Test**

* The Pre-Test is part of Lab 1 and the Post-Test is part of Lab 11.

**Grades**

The total number of points available in this course is:

* Physical Geography Problems Labs (Labs 2-10, 12 & 13) 220 points
* Excel Preparation, TMYN Pre- & Post Tests (Labs 1 & 11) 40
* TMYN Module Tests 40

Total … 300 points

Your letter grade for the course will be based on your aggregate score from all of the Labs and TMYN Module Tests:

A … >90% (271-300 pts) B … 80-89% (240-269 pts) C … 70-79% (210-239 pts)

D … 60-69% (180-209 pts) F … ≤59% (179 pts or less)

Question: if I ace every Lab and Module Test and earn all the on-time extra points, when would I have an A in the course?

Answer: when you complete the TMYN Post-Test (Lab 11 on November 19th)!

**Make-Ups**

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).

**Sign-In Sheet**

Please sign in each week, using the sheet provided at the beginning of each Lab.

**Working Together:** You may work together with another person as a lab-partner. In order to submit a joint report, please identify your partner when you sign in. You may change partners as you wish.

**Scholastic Dishonesty**: Don’t cheat! If it even looks suspicious, don’t do it. Copying work by someone else and presenting it as if it was your own is plagiarism. **Unauthorized** collaboration also counts as cheating. Cheating on a lab will definitely result in a zero grade for that lab and may lead to an F for the entire course. Please go to the following website and make sure you know what scholastic dishonesty is: <http://admin.utep.edu/Default.aspx?PageContentID=2084&tabid=30292>

**Students with Disabilities**: If you think you may have a disability or if you are experiencing learning difficulties, please contact the Disabled Student Services Office (DSSO) at (915) 747-5148. They are located in Union East room 106 or you can reach them by e-mail at [dss@utep.edu](mailto:dss@utep.edu). All communications/conversations with them are confidential.

**Blackboard:** If you are registered for this course, you should be enrolled in the website for this course (and section). Course materials and your Lab and Test grades will be posted there.

**Course Outline (subject to change): v.3**

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| --- | --- | --- | --- |
| **Week**  **Mondays** | **Lab #** | **Topics** | **The Math You Need (TMYN) Module** |
| Sep. 10 | 1 | Orientation to TMYN (and pre-test) & Excel worksheets |  |
| Sep. 17 | 2 | Geographic Measurements: Units & Conversions | Unit Conversions |
| Sep. 24 | 3 | Exploring Data & Graphs | Graphing: Plotting Points |
| Oct. 1 | 4 | Earth-Sun Geometry: Insolation, Sun Angles, Day Length | Graphing: Plotting Points |
| Oct. 8 | 5 | Temperature: Continentality, Latitude Gradients | Best-Fit Line |
| Oct. 15 | 6 | Temperature Change | Best-Fit Line |
| Oct. 22 | 7 | Isarithmic Maps & Profiles: Temperature & Pressure | Profiles (Pressure) |
| Oct. 29 | 8 | Topographic Maps | Profiles & Slopes |
| Nov. 5 | 9 | Flood Probability | Best-Fit Line |
| Nov. 12 | 10 | Lapse Rates | Graph Reading |
| Nov. 19 | 11 | Complete Module Assessments & TMYN Post-Test |  |
| Nov. 26 | 12 | Water Balance & Soil Moisture |  |
| Dec. 3 | 13 | Terrestrial Biomes / Google Earth / TBD |  |

TMYN Modules:

Overview: <http://serc.carleton.edu/mathyouneed/index.html>

1). Unit Conversions: will be posted on Sep. 10; complete Module Test for extra points by Sep. 17.

<http://serc.carleton.edu/mathyouneed/units/>

2). Graphing: Plotting & Reading Points (combined) – will be posted on Sep. 17; complete Module Test for extra points by Sep. 24.

<http://serc.carleton.edu/mathyouneed/graphing/index.html>

<http://serc.carleton.edu/mathyouneed/graphing/plotting.html>

<http://serc.carleton.edu/mathyouneed/graphing/interpret.html>

3). Best-Fit Lines – will be posted on Oct. 1; complete Module Test for extra points by Oct. 8.

<http://serc.carleton.edu/mathyouneed/graphing/bestfit.html>

4). Slopes & Topographic Profiles (combined) – will be posted on Oct. 15; complete Module Test for extra points by Oct. 22.

<http://serc.carleton.edu/mathyouneed/slope/index.html>

<http://serc.carleton.edu/mathyouneed/slope/topoprofile.html>

1. s\*\*\*\* = stuff [↑](#footnote-ref-1)