Research Methods
BIOL/CHEM/GEOL/MATH/PHYS 3825
Fall 2019

Instructor: Dr. Logan Leslie

Email (best way to contact): lleslie@westga.edu

Office Hours: M: 9:55-10:50 am and 12:30-1:30 pm
   W: 9:55-10:50 am and 12:30-2:30 pm
   Th: 1:00-4:00 pm
   F: 9:55-10:50 am and 1:00-2:00 pm

Class time: MWF, 8:50-9:40 am (Education Annex A, Room 170)

Textbook: Research Methods for Science, by Michael P. Marder

Course Description: Research Methods is a one-semester, three-hour course in the required UTeach sequence. It is one of several content courses specially designed to meet the needs of future teachers (others include Perspectives on Science and Mathematics and Functions and Modeling). The course is cross-listed in Physics, Chemistry, Math, Geology, and Biology. This course also meets Discipline Specific Writing Requirements (DSW), https://www.westga.edu/dsw.

Course Objectives:

Students will be able to...
- create their own experiments to answer scientific questions.
- design experiments to reduce systematic and random errors and use statistics to interpret the results.
- use probes and computers to gather and analyze data.
- use statistics to interpret experimental results and deal with sampling errors.
- treat human subjects in an ethical fashion.
- apply safe laboratory procedures.
- find and read articles in the scientific literature.
- apply scientific arguments in matters of social importance.
- write scientific papers.
- give oral presentations of scientific work.
Pre-requisites: In order to be enrolled in this course, you must have taken and passed the Step 1 and Step 2 courses (UTCH 2001 and 2002). Additionally, you must have a C or better in Pre-calculus (MATH 1113) before taking this class.

Grades:

Participation Grade: 20%
Homework: 15%
Inquiry 1: 5%
Inquiry 2 Draft: 5%
Inquiry 2 Presentation: 5%
Inquiry 2 Final Write-Up: 10%
Inquiry 3 Write-Up: 10%
Inquiry 4 Draft: 5%
Inquiry 4 Presentation: 10%
Inquiry 4 Final Write-Up: 15%

Final Grade:
A- 89.5-100 D- 59.5-69.5
B- 79.5-89.4 F- 0-59.4
C- 69.5-79.4

Attendance and Participation: The class will meet three days a week. Regular attendance at all class meetings is expected. Some course topics will be covered only in class. Students will be held responsible for informing themselves of all announcements and assignments made in the classroom. Students must advise the instructor in writing (via a my.westga.edu email address) during the first two weeks of class of any scheduled athletic, music, or other college activities that will require their absence during the semester. Such written notice does not imply a waiver of course requirements. Part of the grade in this course will depend on class participation, including working in groups in class and asking questions during presentations as well as oral presentations on scheduled days. Arrangements should be made ahead of time if an absence is for a school event. In the case of illness, the instructor should be contacted as soon as possible so arrangements can be made for a makeup for oral presentations. Students will be given 3 absences (in addition to approved school trips) before their participation grade is affected. If more than 3 absences are necessary such as because of illness the instructor should be contacted.

Homework: When homework is assigned it will be due at the start of class. Homework turned in late will be counted off 10 points per day and not be accepted more than 5 days late.
**Reading:** There will be regular reading assignments. In order to participate in class, you will need to have read the assignment before class.

**Inquiries:** In this class you will design and carry out four independent inquiries, which you will have to write up and present in the manner that is common in the scientific community. The inquiries incorporate mathematics and the various science disciplines. A large portion of the class grade will depend on the inquiry write-ups and presentations. Grading for each of the inquiries will depend on a rubric. Each rubric will be posted on CourseDen, and is included in Appendix D of the Research Methods textbook.

**Presentations:** For Inquiries 2 and 4, in addition to writing a report, you will also have to give a short presentation.

**Common Syllabus Information:**

Students, please carefully review the information at this link:

https://www.westga.edu/UWGSSyllabusPolicies/

It contains important information pertaining to your rights and responsibilities in this class. Because these statements are updated as federal, state, university, and accreditation standards change, you should review the information each semester. This link contains information about such things as the university honor code and class accommodations related to the Americans with Disabilities Act.

**Academic Honesty:**

Plagiarism and cheating will not be tolerated. Students caught cheating will receive a 0 for the assignment and possibly face further disciplinary action. A second occurrence will result in receiving an F for the course in addition to any further action taken by the university.

**Changes to the Syllabus**

The information in this syllabus may be updated or changed during the course. Changes to the course syllabus will be provided via CourseDen announcement.