

## GEOL 701: Research Methods in Geoscience

Fall 2017

Tues & Thurs: 10:00-11:15AM, LFG 202

Instructor: Rod Metcalf

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Office hours: Monday 2:30 - 3:30 PM, Tuesday 3:00 - 4:00 PM

Note: I have an open door policy, as such you may stop by with a question or to ask for help anytime my door is open. I may ask that you make an appointment for another time if I am engaged in something, but I want students to feel that I am available to them.

**Course Description:** This course is intended to introduce incoming graduate students to the processes of scientific research and the design of research projects as applied to modern earth science. The course will focus on both field and laboratory based studies, scientific writing skills particularly research proposals, public presentations, and professional ethics and public policy issues.

### Learning Outcomes:

Students who successfully complete this course will be able to:

- (1) discuss Department and Graduate College rules and guidelines
- (2) discuss the scientific method, including hypothesis testing, as applied to modern earth science research,
- (3) conduct literature searches,
- (4) design a scientific research project,
- (5) write a proposal to conduct graduate research,
- (6) write a proposal to seek external funding,
- (7) prepare and present a professional oral presentation of a research proposal,
- (8) describe the process of peer-reviewed publication of scientific research,
- (9) discuss professional ethics earth science and academia, and
- (10) discuss the role of earth scientists in public policy.

**Participation:** You are expected to be an active participant in the course. Classroom activities will involve significant group discussions.

**Attendance:** Given the participatory nature of the course, class attendance is required.

### Grading:

Homework assignments	15%
Discussion participation	10%
Practice proposal presentations	10%
Draft proposal	10%
GSA-style grant proposal	10%
Final proposal presentation	25%
Final proposal	20%

*Note: late assignments will receive a deduction of 5% per day for that assignment*

**WebCampus:** This course will utilize WebCampus for access to reading assignments. Go to UNLV.edu, use the quick find menu to access WebCampus login.

## Tentative Schedule

Dates	Topic	Preparation for Class/ Assignments Due
<b>Week 1</b>		
29 Aug	Course Introduction	
31 Aug	What is science? What is research?	
<b>Week 2</b>		
5 Sept	Scientific Method Part I: The Ideal	Readings
7 Sept	Present Hypothesis Assignment #1	<b>Hypothesis Assignment #1 due 9/7</b>
<b>Week 3</b>		
12 Sept	Scientific Method Part II: The Messy Truth	Readings
14 Sept	Scientific Method Part III: Earth Science	Readings <b>Hypothesis-Redo Assignment #1R due 9/14</b>
<b>Week 4</b>		
19 Sept	Reading Earth Science Papers	<i>Readings</i> <b>Topic Sentences Assignment #2 due</b>
21 Sept	Reading Earth Science Papers	<i>Readings</i>
<b>Week 5</b>		
26 Sept	Scientific Method Wrap-up	
28 Sept	Research Proposals	
<b>Week 6</b>		
3 Oct	Thesis Topic-Logic Tree Presentations & Discussions	<b>Thesis Topic-Hypothesis- Test-Logic Tree Assignment #3 due 10/3 includes PowerPoint Presentation</b>
5 Oct	<b>No Class</b>	
<b>Week 7</b>		
10 Oct	Communicating Science	
12 Oct	Communicating Science – Writing	<b>Proposal Outline Assignment #4 due 10/12</b>
<b>Week 8</b>		
17 Oct	Communicating Science – Oral Presentations	
18 Oct	Scientific Publishing	<b>Annotated Bibliography Assignment #5 due 10/18</b>
<b>Week 9</b>		
24 Oct	GSA Meeting - <b>no class</b>	
26 Oct	GSA Meeting - <b>no class</b>	

<b>Week 10</b>		
31 Oct	Ethics in Science	<b>Research Proposal 1<sup>st</sup> Draft Assignment #6 due to instructor and advisor</b>
2 Nov	Ethics in Science	
<b>Week 11</b>		
7 Nov	Practice Proposal Presentations 1	
9 Nov	Practice Proposal Presentations 1	
<b>Week 12</b>		
14 Nov	Practice Proposal Presentations 1	<b><i>Draft proposal edits from your advisor due to instructor</i></b>
16 Nov	Individual Instructor-Student Meetings	
<b>Week 13</b>		
21 Nov	Individual Instructor-Student Meetings	
23 Nov	Thanksgiving Break – no class	
<b>Week 14</b>		
28 Nov	Science and Society	
30 Nov	Practice Proposal Presentations 2	
<b>Week 15</b>		
5 Dec	Practice Proposal Presentations 2	
7 Dec	No Class	
8 Dec	Final Proposal Presentations 9:00 – 11:30 AM; 1:30 – 4:00 PM	<b><i>Final Proposal and GSA Proposal due 12 Dec at 5PM</i></b>

**Academic Misconduct**—Academic integrity is a legitimate concern for every member of the campus community; all share in upholding the fundamental values of honesty, trust, respect, fairness, responsibility and professionalism. By choosing to join the UNLV community, students accept the expectations of the Student Academic Misconduct Policy and are encouraged when faced with choices to always take the ethical path. Students enrolling in UNLV assume the obligation to conduct themselves in a manner compatible with UNLV’s function as an educational institution.

An example of academic misconduct is plagiarism. Plagiarism is using the words or ideas of another, from the Internet or any source, without proper citation of the sources. See the *Student Academic Misconduct Policy* (approved December 9, 2005) located at: <https://www.unlv.edu/studentconduct/student-conduct>.

***A student found to be responsible for academic dishonesty (including but not limited to plagiarism) in this course will face disciplinary actions up to and including failure of the course (grade of F) and referral to the Office of Student Conduct.***

**Disability Resource Center (DRC)**—The UNLV Disability Resource Center (SSC-A 143, <http://drc.unlv.edu/>, 702-895-0866) provides resources for students with disabilities. If you feel that you have a disability, please make an appointment with a Disabilities Specialist at the DRC to discuss what options may be available to you. If you are registered with the UNLV Disability Resource Center, bring your Academic Accommodation Plan from the DRC to the instructor during office hours so that you may work together to develop strategies for implementing the accommodations to meet both your needs and the requirements of the course. Any information you provide is private and will be treated as such. To maintain the confidentiality of your request, please do not approach the instructor in front of others to discuss your accommodation needs.

**Copyright**—The University requires all members of the University Community to familiarize themselves **with** and to follow copyright and fair use requirements. **You are individually and solely responsible for violations of copyright and fair use laws. The university will neither protect nor defend you nor assume any responsibility for employee or student violations of fair use laws.** Violations of copyright laws could subject you to federal and state civil penalties and criminal liability, as well as disciplinary action under University policies. Additional information can be found at: <http://www.unlv.edu/provost/copyright>.

**Religious Holidays Policy**—Any student missing class quizzes, examinations, or any other class or lab work because of observance of religious holidays shall be given an opportunity during that semester to make up missed work. The make-up will apply to the religious holiday absence only. It shall be the responsibility of the student to notify the instructor **within the first 14 calendar days of the course for fall and spring courses (excepting modular courses), or within the first 7 calendar days of the course for summer and modular courses**, of his or her intention to participate in religious holidays which do not fall on state holidays or periods of class recess. For additional information, please visit: <http://catalog.unlv.edu/content.php?catoid=6&navoid=531>.

**Transparency in Learning and Teaching**—The University encourages application of the transparency method of constructing assignments for student success. Please see these two links for further information:

<https://www.unlv.edu/provost/teachingandlearning>

<https://www.unlv.edu/provost/transparency>

**Incomplete Grades**—The grade of I—Incomplete—can be granted when a student has satisfactorily completed three-fourths of course work for that semester/session but for reason(s) beyond the student's control, and acceptable to the instructor, cannot complete the last part of the course, and the instructor believes that the student can finish the course without repeating it. The incomplete work must be made up before the end of the following regular semester for undergraduate courses. Graduate students receiving "I" grades in 500-, 600-, or 700-level courses have up to one calendar year to complete the work, at the discretion of the instructor. If course requirements are not completed within the time indicated, a grade of F will be recorded and the GPA will be adjusted accordingly. Students who are fulfilling an Incomplete do not register for the course but make individual arrangements with the instructor who assigned the I grade.

**Tutoring and Coaching**—The Academic Success Center (ASC) provides tutoring, academic success coaching and other academic assistance for all UNLV undergraduate students. For information regarding tutoring subjects, tutoring times, and other ASC programs and services, visit <http://www.unlv.edu/asc> or call [702-895-3177](tel:702-895-3177). The ASC building is located across from the Student Services Complex (SSC). Academic success coaching is located on the second floor of the SSC (ASC Coaching Spot). Drop-in tutoring is located on the second floor of the Lied Library and College of Engineering TEB second floor.

**UNLV Writing Center**—One-on-one or small group assistance with writing is available free of charge to UNLV students at the Writing Center, located in CDC-3-301. Although walk-in consultations are sometimes available, students with appointments will receive priority assistance. Appointments may be made in person or by calling 702-895-3908. The student's Rebel ID Card, a copy of the assignment (if possible), and two copies of any writing to be reviewed are requested for the consultation. More information can be found at: <http://writingcenter.unlv.edu/>.

**Rebelmail**—By policy, faculty and staff should e-mail students' Rebelmail accounts only. Rebelmail is UNLV's official e-mail system for students. It is one of the primary ways students receive official university communication such as information about deadlines, major campus events, and announcements. All UNLV students receive a Rebelmail account after they have been admitted to the university. Students' e-mail prefixes are listed on class rosters. The suffix is always [@unlv.nevada.edu](mailto:@unlv.nevada.edu). **Emailing within WebCampus is acceptable.**