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GPHY 385.01: Field Techniques in Environmental Science and Society

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FIELD TECHNIQUES

~ Fall 2022 ~

Semester Theme:

Field Techniques in Environmental Science and Society

Class Meets: Mondays 2:00 – 4:50 pm
Health Sciences, 207

Ryan P. Rock

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Office Hours: Tuesdays 2:00-4:00 p.m. and by appointment

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Office Hours: Weds. 2:00-3:00 pm

Course Description

This course is intended to give you practical experience for use in designing and implementing research in the geographical sciences and in professional practice. We will emphasize a variety of geospatial, quantitative, and qualitative research methods used by geographers to investigate problems and questions that are grounded in one or more of the five traditional foci of geography as a scientific discipline: spatial, earth science, human-environment interaction, regions, and place/landscape. You will complete several field projects and exercises that delve into physical and spatial geographic work such as hydrology, climatology, cartography (basic mapping), global positioning systems (GPS), as well as human geographic approaches that involve interviewing, observation, social surveys, and content analysis.

Over the semester our attention will center on the theme of “environmental science and society,” and all of our field activities will address substantive concerns associated with socio-ecological systems. Socio-ecology seeks to observe, understand and predict the dynamics of coupled human-ecological systems.

Course Mechanics

This course meets once weekly for almost three hours. Sessions might include a lecture and field exercise, or only a field exercise. There are no hours assigned to any GIS/Computer Lab work during the sessions. However, you might want to analyze your data and prepare your assignments in one of Geography’s computer labs (Stone 106, Stone 107, Stone 218, Stone 219). For the field laboratory portion, you should be prepared to be working outside, as all the work will be on and around campus and Mount Sentinel, Rattlesnake Creek, and other

locations of interest in Missoula or in your own locale. You will have the opportunity to work in groups of two to three, and on occasion, you may be working in the field outside of the scheduled fieldwork time or perhaps on a different day. We will teach you the basics during the field lab period, but it is up to you to conduct the field activities and projects, record your findings, analyze the data, and present your work via field lab reports or other means as directed.

Required Textbook and Supplementary Materials

There is no required textbook for this course. Readings will be provided via Moodle for given weeks. Be sure to read the assigned material prior to the pertinent class and/or lab session.

Class Meetings, Field Policies and Procedures

The following policies allow us to teach without distractions and to create and support a pleasant atmosphere and learning environment:

- Please make sure your cell phone is muted in the classroom and during the fieldwork. Refrain from texting, etc. (As an exception, you will use your cell phone for specific lab-related exercises).
- Please be as flexible and adaptable this semester as possible as we work to accommodate the realities of this COVID-19 era.
- Equipment: you will have opportunities to use field equipment, some of which is relatively fragile and/or sensitive. The expectation is that you take good care of this equipment and properly handle, store, check out, sanitize and return according to the course protocol.

Other Policies

- Accommodations: The University of Montana assures equal access to instruction through collaboration between students with disabilities, instructors, and Disability Services for Students. If you think you may have a disability adversely affecting your academic performance, and you have not already registered with Disability Services, please contact Disability Services in Lommasson Center 154 or 406.243.2243. We will work with you and Disability Services to provide an appropriate modification.
- All students must practice academic honesty. Academic misconduct is subject to an academic penalty by the course instructor and/or disciplinary sanction by the University. All students need to be familiar with the Student Conduct Code. The Code is available for review online: <http://www.umt.edu/student-affairs/community-standards/>. Cheating and plagiarism are not tolerated and will be dealt with as outlined in the Code.
- Due to the dynamic nature of scheduling and unforeseen events, the instructor and TA reserve the right to make changes to this syllabus as needed and if necessary.

Grading Scheme

A	93 – 100%
A-	90 – 92.99%
B+	87 – 89.99%
B	83 – 86.99%

B-	80 – 82.99%
C+	77 – 79.99%
C	73 – 76.99%
C-	70 – 72.99%
D+	67 – 69.99%
D	63 – 66.99%
D-	60 – 62.99%
F	59.99% and below

The course is offered as traditional “T” letter grade only.

Attendance Policy

Attendance is important for your success in this science course, and therefore, counts for ~15% of the final course grade. We will take attendance during each session. If you cannot make it to a session, please inform us via email and generally describe the reason why you will miss or have missed a session.

Required Assignments and Value

Assignment	Points
10 Field Labs (25 points each)	250
Field Research Project (report and presentation)	115
Attendance (5 points for each class meeting)	65
Total	430

Assignments and Fieldwork Activities:

The fieldwork activities and associated assignments encompass the practical or applied side of the course. Each field lab is designed to cover an aspect of a sub-discipline within geography and requires a plan, procedure, analysis, and write-up. The field labs will be discussed at the beginning of each session, and then the actual fieldwork will consist of a demonstration and the completion of the fieldwork either during the remaining time of the session or outside of class time. The fieldwork forms the crux of this course, and it constitutes a major part of your final grade. The due dates for the field reports will be announced and are generally two to three weeks after the initial lab session.

Field Research Project

Completion of the Field Research Project will allow you to demonstrate that you are able to successfully integrate the various elements of the course. You will prepare and undertake a field-based research project and presentation that will appropriately introduce, describe, and tackle the following components:

- *The Problem:* What is the environmental science and society topic and research question that your field project addresses? Examples: flood or drought hazard, human perceptions concerning water quality, recreation trends and uses, aquatic invasive species, lawn watering practices, water-based recreation, storm water management, meteorological variability across a landscape continuum, hillslope erosion potentials

related to slope modification, human-wildlife interactions in a wetland or neighborhood pond, invasive species management, urban wildlife conflicts, wildfire risk etc.

- *Background:* What do prior studies indicate about the nature of the particular issue or question (Problem) that you are investigating? Examine and summarize key findings from several relevant bodies of published literature in the form of scientific papers such as peer-reviewed journal articles, government reports, etc.
- *Field Site:* What type of field site is the ideal research setting for addressing your research question? Some examples: stream, river, trailhead, wetland, neighborhood pond, water park, drainage system, dam removal site, urban setting, agricultural field, university campus, and so forth.
- *Methods:* What are the data you need to address your research question? What are the data collection methods, tools, and/or instruments that you could use? How do you sample in such a way to ensure that you are obtaining a representative sample? How many observations are necessary to achieve sample validity? What are the analytical methods you employ to analyze the data and develop your findings? What are the specific tools that you use for data analysis, and why have you chosen to use these?
- *Findings:* What are the major results that your field study has produced?

Additional Information

1. Please consult the Class Schedule for relevant dates.
2. For assistance with writing, please consult the resources available through the UM Writing and Public Speaking Center and also the Mansfield Library.