GEOLOGY 5315: Field Techniques and Technology
The University of Texas at El Paso
Department of Earth, Environmental and Resource Sciences
Spring 2023

Instructors:
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NOTE: This syllabus is subject to change. Schedules and materials may be altered. However, notice will be provided at least 1 week in advance if possible.

Course Objectives

Welcome to this course! It is our hope that during the semester you will gain valuable experience collecting field data in a variety of formats that will directly help with your individual research projects. This course is designed to give you the skills and techniques you need to perform field work, as part of your graduate research, and/or as part of a job after graduation. The course will cover 1) Creating spatial data structures to keep you research organized and available, 2) Planning and preparing for field data collection, 3) Using technology on phones, tablets or field computers to collect field data, and 4) Using drones for imagery and creating 3D terrain models, 5) Processing and viewing of drone data to create models and DEM's, and 6) Adding interpretations to 3-D models.

Assignments

Most weeks the class will create some image, DEM or dataset using data collected in the field. These assignments will give you the opportunity to collect and organize data, produce a product from the data, and write up the results of the data.

Grading

Your grade in this course will be a combination of weekly assignments and write-ups, a final report due at the end of the semester, and a final presentation you will give to the class.

Weekly Assignments  50%
Final Report  25%
Final Presentation  25%

Schedule

Week
1  Preparation for the field
   Data Organization. Making sure you can keep track of everything. Keeping images referenced
2  Preparation for the field 2 --Organizing your data collection files
3  Strabosspot and tablet data collection
Collecting orientation data.
Collecting imagery and DEMs with a drone
Collecting imagery and DEMs with a drone
Processing 3-D data
Working 3-D models.
Collecting geomorphic/soil/ ecological data.
Using Photos as base maps for outcrop mapping
Collecting data from cliffs
Student Requests – What else do you need
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Academic Honesty Policy

Academic dishonesty will not be tolerated. The University guidelines for academic dishonesty are very specific and will be strictly followed. Please read the guidelines (see http://studentaffairs.utep.edu/dos), and contact the Dean of Students or the instructors if you have any concerns. Note that a large part of this course will require you to work in groups. Although reasonable collaboration is allowed (even encouraged), all work you turn in is expected to be your own! You MUST learn to trust your own observations and NOT rely on the interpretations of others, otherwise you are wasting your time. These three weeks are your opportunity to hone your field skills, so don’t cheat yourself by copying the mapping of others. Copying of other's work WILL be noticed and WILL NOT be tolerated.

Other Issues

Civility: This class requires group interactions with your fellow students, both in the field and online. Think about your colleagues and your role in this environment. Collegiality will make this class a wonderful experience, but if you devolve into factions with infighting, bullying, or other nasty social issues, the class can become unpleasant. The instructors will be exercising important leadership skills with you throughout the course, emphasizing good expedition behavior and team dynamics.

Disability: If you have or suspect you have a disability and need an accommodation, you should contact the Disabled Student Services Office (DSSO) at 747-5148 or at dss@utep.edu or go to Room 106 Union East Building. You are responsible for presenting the instructors any DSS accommodation letters and instructions IN ADVANCE OF GOING TO THE FIELD.

Military Service: If you are a military student with the potential of being called to military service and/or training during the course of the semester, you are encouraged to contact the instructor(s) as soon as possible.

UTEP and Course Policies

Technology Requirements
Course content is delivered via the Internet through the Blackboard learning management system. Ensure your UTEP e-mail account is working and that you have access to the Web and a stable web browser. Google Chrome and Mozilla Firefox are the best browsers for Blackboard; other browsers
may cause complications. If you have technical problems, 1) update your browser, 2) make sure it is blackboard compatible (most are), 3) clear your cache, finally 4) try switching to another browser.

You will need to have access to a computer/laptop, and a cellular phone. You will need to download or update the following software: a word processing software like Microsoft Office, Adobe Acrobat Reader, a Media Player, QuickTime, Excel, and Powerpoint, and Google Earth, and other programs. Check that your computer hardware and software are up-to-date and able to access all parts of the course. We will also use some specialized software for this course that is free and open source. Install QGIS 3.10 or newer and make sure it works on your computer. You might also install Strabospot or another field data collection program on your phone.

**Safety is most important: It is our number one concern.**

Please be prepared when we go outdoors! Wear a hat, use sunscreen, wear proper clothing, and drink lots of water. A water bladder (Camelbak or similar system) helps keep you hydrated and is very convenient compared to water bottles. Use sunscreen with an SPF of at least 50. Appropriate sun-protective clothing includes long sleeves and long pants and a hat with a brim. You are expected to have appropriate footwear, i.e. proper hiking shoes, preferably boots with ankle support. Open toe shoes, sandals, and most athletic shoes are not acceptable. Always be prepared for inclement weather and extremes in temperature, so dress in layers and bring jackets and rain gear!

When in the field, always be cognizant of your limits and potential dangers and **do not get yourself into situations where you can injure yourself or others.** For safety, you will typically be working with at least one other person and every group will carry a radio. In addition, (optional, but recommended) field trip insurance will be available at the Department's expense. **NOTE: Any safety violations (e.g. failure to communicate, abandonment of field partners, careless/dangerous actions, etc.) will be dealt with seriously.**

**Safety hazards include, but are not limited to:**

- **Weather:** As you all know, winter weather around El Paso is wildly variable. It can be a beautiful, spring-like day in the morning and be snowing by afternoon. So bring plenty of warm weather as well as cold weather gear. Dressing in layers is crucial in the winter because all morning will cold, but you will need to shed layers as the day goes on. We know it rarely rains in winter in this area, but if you get caught out in the rain with no protection in the winter it is very dangerous because hypothermia is a real possibility. So bring rain gear and keep it in your pack every day.

- **Terrain:** Maintain situational awareness of where you are walking and be aware if someone might be downslope from you in the path of rocks you may cause to fall. Be careful around steep and/or unstable slopes where there is a danger of falling. Do not go somewhere if you are not comfortable with the terrain. Never roll or throw rocks downhill or do anything else that can cause a danger to yourself others while in the field. **If you are caught doing something egregiously stupid and dangerous, you will be immediately and automatically excused from the course with an F and sent home.**
Vegetation and Critters: There are many spiky, prickly plants out there. Otherwise, it is unlikely that you will have many wildlife encounters. Snakes exist in the desert, but in winter you are unlikely to see them except in the afternoon when they might be soaking up the sunshine. Some poisonous arthropods, including scorpions are out there, too. So, always be careful of where you put your hands and feet! If you encounter a snake, stay calm, move away from it carefully, and alert others in the area. If you are bitten by something that might be poisonous, call for help immediately. Bees are present in numbers in some places, so be careful if you are allergic to stings (inform the instructors if this is the case and always carry any needed medication). Other animals you might see include javelina and coyotes. Be very careful if you encounter either of these – avoid interacting with them and move away from the area where you see them and communicate with the rest of the group to make them aware of the animals.

Talk to the instructors if you have any concerns about field equipment or working in the field, especially in terms of safety. In particular the instructors need to know about any physical disability or condition that may affect your ability to work outside. At our first official meeting (training session) we will hand out a series of forms and questionnaires related to insurance and medical issues.

Course Drop Policy – According to UTEP Curriculum and Classroom Policies, “When, in the judgment of the instructor, a student has been absent to such a degree as to impair his or her status relative to credit for the course, the instructor may drop the student from the class with a grade of “W” before the course drop deadline and with a grade of “F” after the course drop deadline.” If you are not active in the first five weeks of the class and in my judgement you are unable to complete the course with a passing grade, I will drop you from the course. However, otherwise I will not drop you from the course. However, if you feel that you are unable to complete the course successfully, please let me know and then contact the Registrar’s Office to initiate the drop process. If you do not, you are at risk of receiving an “F” for the course. I will do my best to make sure that you have a good understanding of your progress and grade in the class.