

## Course Syllabus



# GEL 2530 Introduction to Geologic Field Work Summer 2023

sec. 001 - 41343: Field Days Fri 7/28, Sat 7/29, Sun 7/30 & Fri 8/04, Sat 8/05

Course URL: <https://www.geotours.earthscienceeducation.net/GEL2530/>

Professor

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**This syllabus may be modified at any time without prior notice.**

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**Course Description**

Credits: 2

This course is an introduction to field measurements and data collection for earth scientists. It examines methods and procedures in sampling, measuring, describing, mapping, and ascertaining field data. Students will be exposed to hands-on field experiences pertinent to industry and academia. A Brunton™ pocket transit (GeoLite Version Sku: F-5030) is essential for this course and must be purchased. You must be able to drive yourself or ride-share (preferred) to various Front Range locations. Some moderate to easy hiking will be involved at the destinations.

**Required Course Materials****Watch The Course Material Video**

1. **Student MUST Purchase:** BRUNTON™ GEO LITE TRANSIT Sku: F-5030 (*Order directly from [Brunton](#) or other online vendors carrying the product*) Cost~\$75
2. **Provided by Department:** Field Notebook - Waterproof, hardcover 4 ½" × 7 ¼", grid / graph such as Forestry Suppliers™ 49352 Field Book.
3. **Provided by Department:** Kackstaetter, U.R., (2015). Dr.K's GEOLOGIC FIELD WORK BOOKLET - A short field Geologist's Manual.
4. Other **essential required** equipment / material the STUDENT must procure:
  - a. Carrying Case / Backpack dedicated to field materials. May also hold personal items (Lunch, water, etc.)
  - b. Wide rubber band to hold field notebook closed
  - c. Pencils (mechanical), Sharpie™ (waterproof ink pen like "Rite in the Rain™" optional)
  - d. Ruler Protractor Combo such as [Westcott Engineers' Protractor Ruler, 6" \(15cm\), Transparent \(W-8\)](#) or similar as pictured. Make sure to purchase the smaller 6 in version so it will fit into your field notebook! See office supply stores or online order

  - e. Your Handlense and Acid Bottle from the GEL1010 or GEL1020 Rock / Mineral kit
  - f. Small "Mini" key-chain tape measure (~3ft length): [Example](#)
  - g. Long Reel Tape Measure (~100ft +) such as [Harbor Freight™ Pittsburg 165 ft x ½ in Measuring Tape SKU 62412, 35712](#). Purchase online or from Harbor Freight™.
  - h. Clipboard with Cover: [Example](#)
  - i. A few Heavy duty Ziplock™ bags (get the thickest ones you can) for sampling
  - j. A few Small index or note cards for sampling
  - k. Pocket knife (Swiss Army style)
  - l. Toilet paper or paper towels (to wrap specimens) ...and possibly other important business ☺
  - m. FREE Cell phone App "RockD". See <https://rockd.org/> for details.
  - n. Cell Phone Scanner App - to scan and upload your notebook entries and exercises to CANVAS

**Optional, but useful materials / equipment**

- |  |  |
|--|--|
| 5. Rock Hammer (Chisel point, NO carpenter's hammer):<br><a href="#">Example</a> | 9. Pocket microscope   |
| 6. Chisel  | 10. Water bottle (for analysis)  |
| 7. Rock/Mineral ID kit (Hardness, Density, Streak) from GEL1010                  | 11. Lighter  |
| 8. Chemical ID kit from GEL3050  | 12. Magnets (Keep those far away from your Brunton™, especially during transport). |

**Clothing & Personal Items for Field Works**

- Good hiking boots (Previously broken in)! Do not try to break in during field work.
- Quality hiking socks
- Sun glasses that can double as safety goggles.
- Rain coat or poncho (small roll-up to carry in backpack)
- Hat and Beanie hat. You are often in full sun. High elevations may get sensitively cold, even in Summer.
- Sunscreen, sunblock.
- Gloves, for handling rough rocks and against cold.
- Drinking Water.
- First aid kit, especially band-aids.

**Specific (Measurable) Student Behavioral Learning Objectives**

Upon completion of the course the student should be able to:

1. Use a Brunton compass for basic field measurements;
2. Report lithologies accurately in standards field note format;
3. Produce a simple geologic map;
4. Demonstrate the proper use of field sampling techniques;
5. Operate field lab equipment correctly,
6. Represent collected data in a format appropriate for use in a geologic report

**Outline of Course Content**

Major Topics & Subtopics

- A. Review: Rock / mineral ID; geologic maps and map symbols
- B. Brunton™ Compass; eye-height; pacing
- C. The field notebook - a geologist's best friend
- D. Field notes, Field notes, Field notes
- E. Stratigraphic data:
  1. Strike & Dip measurements; Simple formation thickness
- F. Distance and height estimations
- G. Basic Mapping & Orienteering, geologic mapping essentials
- H. Field sampling: Collecting, recording, packing, descriptive terms and preservation
- E. Illustration and reporting

**Grading in GEL2530 Field Methods**

Grades are based on your field notebook entries for each day. Your field notebook pages completed each day must be copied and uploaded to CANVAS at the end of the field days, usually by 6pm. These will be graded by the instructor and the scores and comments will be available before the next field day. For specific grading please see individual rubrics for each field day exercises.

	Max. Points
Field Day 1	200
Field Day 2	200
Field Day 3	200
Field Day 4	200
Field Day 5	200
<b>TOTAL</b>	<b>1000</b>

**Final Grade Distribution Scale by Points**

<b>A+ &gt; 970</b>	<b>A = 930-969</b>	<b>A- = 900-929</b>
<b>B+ = 870-899</b>	<b>B= 830-869</b>	<b>B- = 800-829</b>
<b>C+ = 770-799</b>	<b>C = 730-769</b>	<b>C- = 700-729</b>
<b>D+ = 670-699</b>	<b>D = 630-669</b>	<b>D- = 500-630</b>
<b>F = ≤ 500 points</b>		

**Checking Your Course Grade**

All exercises and grades are processed through CANVAS. Please log in to see your grade updates as they become available.

**ABSENCES:**

Undocumented / unverified absences from field days will lose ALL 200 points for that day. ONE documented / verified absences can be made up during a Summer make-up field day decided by the instructor. Two or more absences (documented or undocumented) will result in FAILING the course and the student is encouraged to drop and re-register next academic year.

**FIELD DAYS:**

You are required to arrive at each field destination ON TIME at 9:30am so we all can get started in a timely manner. If you do not show within a grace period of 10 minutes, we will proceed with field lectures and exercises for that day. Whatever you miss because you are late will be your responsibility to make-up. The instructor is not required to repeat field lectures or exercise instructions for your benefit because you are late. Field days are to be concluded around 3:30 pm. At this time you will finish up your field notebook entries, make copies of them (using your cell phone is fine) and upload them to CANVAS **NO** later than 6pm. Make sure the copies are of high quality, sufficiently large and legible or you will lose points during grading.

**LATE WORK:**

Copies of your days completed field notebook pages and exercises must be turned in by 6pm at the conclusion of the field day. If your field notebook is NOT turned in / missing by 6pm, you will lose 10% per hour late with a minimum of 10% score after that.

**EXTRA CREDIT:**

If you do an excellent, top-notch job, some extra credit (up to 10%) can be added at the discretion of the instructor. Note, that extra credit may be assigned not only for your notebook entries, but also observation of your work and work ethic by the instructor in the field.

**USING ELECTRONIC DEVICES:**

YES, you should bring a freshly charged cell phone with the RockD app installed to ALL field day exercises. You should also use the cell phone to make copies of your notebook entries for upload in CANVAS.

**FIELD COURSE LIABILITY WAIVER:**

All participants **MUST INITIAL & SIGN** a **LIABILITY WAIVER!**

**Field Course Liability & Ride Sharing Waiver**

All students participating in field trips taught by the Department of Earth and Atmospheric Sciences (EAS) should be aware that there is always an element of risk in such trips. These risks involve travel by vehicles, including commercial, state, and private vehicles, and in certain cases travel by canoes and rafts, walking as pedestrians on or near roadways, as well as strenuous hiking in mountainous terrains which are sometimes in remote areas. Instructors will use all reasonable precautions and students need to exercise prudent behavior during field trips, but even then there exists the possibility of an accident. Students need to assess their own physical abilities and not exceed their capabilities. Students must be alert and aware of possible risks and dangers during field trips.

**Policies, Rules & Regulations for ALL Participants**

- All students are under the professional responsibility concerning the consumption of alcohol, as well as impairing drugs and medications. While marijuana is legal in Colorado, consumption or smoking of recreational “weed” during the trip is prohibited. To keep all involved safe, a ZERO TOLERANCE POLICY will be enforced concerning alcohol and marijuana.
- Smoking, including e-cigarettes, will NOT be permitted during the trip and in the vehicles (A great time to quit!!!) unless there is a designated smoking area in / at those places we visit. Because of eminent fire dangers in many areas visited, absolutely NO smoking will be allowed during field hikes or outside designated areas. Students who smoke should be considerate of nonsmokers during field trips.
- On overnight trips, there will be strict enforcement of “quiet hours.” Quiet hours will begin at 10:00 PM and will extend until 6:00 AM the next day. During this time, there will be no loud music, boisterous activity, or other disturbance allowed.
- No firearms are allowed on field trips. If you have a Concealed-Carry Permit, you may bring a firearm **ONLY** with pre-approval. A copy of the current permit must be on file with the department / instructor(s), and the firearm **MUST** be concealed at ALL times (NO showing to others). The use of the firearm for recreation or practice is NOT permitted!
- Students with medical problems, including but not limited to asthma and allergies, **must** consult with instructor prior to participating in field trips. Such students **must** carry appropriate medications with them AT ALL TIMES. In case of a medical emergency during the field trip, such students must be prepared to pay for expenses incurred for their evacuation.
- Students will exercise safe behavior at all times, this includes climbing on cliffs and outcrops. In parks and open spaces

students will stay on trails and follow verbal or written instructions by the park or university personnel. Students MUST also adhere to the Buddy System when going anywhere.

- Students who violate any local, state, or federal statutes or who violate any of the field trip policies or stipulations or who fail to conform to directives from the instructor may be immediately dismissed from the field trip. The instructors have the right to terminate any driver or other student found in violation of these responsibilities, and such actions will terminate him or her from continuing on the trip. The fees already submitted shall be non-refundable in such cases. Terminated drivers of vehicles with passengers may also be responsible for additional charges accrued by their passengers for trip continuance, e.g., rental car. Such students may also be subject to a failing grade in the course, be required to withdraw from the course, and be subject to disciplinary action by the University.

#### Policies, Rules & Regulations for Drivers and/or Personal Vehicle Use

- All drivers of either private, leased, or state vehicles must have valid driver's licenses. A copy must be on file with the trip leader(s).
- All drivers of **State Vehicles** must attend and pass the required training meeting at the University of Northern Colorado Motor Pool facilities. Contact Dr. Kackstaetter ([kackstae@msudenver.edu](mailto:kackstae@msudenver.edu)) for details if you desire to drive a State vehicle.
- All drivers of private vehicles must have current insurance coverage as required by Colorado law. Students should be aware of the State of Colorado liability insurance situation as follows:

#### Use of Personal Vehicle - Auto Liability

When an employee or student uses their personal vehicle for university business or to transport other students on authorized field trips, the student's or employee's personal automobile policy will provide the primary coverage if an accident or car damage occurs.

If the limits of the policy are not sufficient to cover the damages, the State self-insured liability coverage may be effective, but as extended coverage only. This extended coverage is in force only when the vehicle is being used for business purposes and not when in use for personal reasons.

Colorado no longer requires that medical bills that result from an accident be paid from each driver's insurance immediately regardless of fault (formerly "Personal Injury Protection"). Insurance companies now operate on the basis of legal liability for negligence, which is a more complex process especially when negligence is disputed or shared. Injured parties must now either pay the bills themselves or submit them to their own health insurance company. Companies that provide benefits under such circumstances typically require the injured party to agree that the health insurance company will be reimbursed from any judgment or settlement against a negligent driver.

Further, students driving their personal vehicles are responsible for any damage to their vehicles related to road damage, including, but not limited to, tire, oil pan, and body damage.

In consideration of my being permitted to participate in this activity, I, the undersigned hereby: release and hold harmless the Trustees of Metropolitan State University of Denver, the Department of Earth and Atmospheric Sciences, and respective employees, from all claims, losses, damages, or expenses because of property damage or personal or bodily injury incurred or caused by me during or in conjunction with the above mentioned activity. In filling out this form, I acknowledge that I fully understand the risk that is inherent to off-campus activities. Furthermore, I have fully read and understand the department policies and my liability and do accept the restrictions.

**EAS Social Media Information**

Our departmental social media is a great way to get updates on national and international field trip opportunities; find interesting events, outings, and new courses; connect with alumni, professionals, and other students; and network for career, internships, scholarships and travel opportunities.

Facebook: <https://www.facebook.com/MSUDenverEAS>

Instagram: [https://www.instagram.com/eas\\_msudenver/](https://www.instagram.com/eas_msudenver/)

LinkedIn: <https://www.linkedin.com/company/msu-denver-department-of-earth-and-atmospheric-sciences>

LinkedIn is the best way to connect with faculty, alumni, and current students for career opportunities

**COLLEGE OF LETTERS, ARTS, AND SCIENCES SYLLABUS STATEMENTS**

A syllabus is a binding contractual document for any course and becomes the guiding legal document when enrolling in a course. Many policies, procedures and resources are university, college and / or department wide and thus are automatically an integral part of THIS SYLLABUS.

To read these additional policies, procedures and resources, log in to your course in CANVAS and look at the always up-to-date material listed under the

**University Policies and Resources Module**

for further information.

In case of disagreements between the student and the university faculty and staff, students are responsible for full knowledge of the provisions and regulations pertaining to all aspects of their attendance at MSU Denver, and should familiarize themselves with the policies found in the

**University Policies and Resources Course Module**

***FYI:***

*For this course you are part of the  
COLLEGE OF LETTERS, ARTS, AND SCIENCES (CLAS)  
and the  
DEPARTMENT OF EARTH & ATMOSPHERIC SCIENCES (EAS)*