



# GEL 2530 Introduction to Geologic Field Work

Summer 2015

A Plateau Field Course: Mon, May 18 - Wed, May 27

Pre- / Post- Meetings: TBA

Professor: Uwe Richard Kackstaetter, Ph.d. (Dr. "K")

Office: SI2014

Prerequisites: GEL1010, GEG1220 or GIS1220 or permission of instructor

Contact: E-mail: [kackstae@msudenver.edu](mailto:kackstae@msudenver.edu) Phone: 303-556-3070

URL: <http://college.earthscienceeducation.net>

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

## Course Description

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. The heart of the course is a field trip to geologic features of the Colorado Plateau. Here, students will be exposed to hands-on experiences pertinent to industry and academia. A Brunton™ pocket transit is essential for this course and must be purchased or checked out through the department. Students will be camping and must be in good physical condition because strenuous hiking is involved. Additional field trip fees are required.

**Prerequisites:** GEL 1010, GEG1220

**Highly Recommended:** Basic algebra concepts as well as some trig

## Required Materials

- Kackstaetter, U.R., (2013). *Dr.K's GEOLOGIC FIELD WORK BOOKLET - A short field Geologist's Manual*. Preliminary Edition. - *PROVIDED*
- Blakey, R. & Ranney, W., (2008) *Ancient Landscapes of the Colorado Plateau*; 176 p.; paperback; ISBN 978-0-934656-03-7 - *PROVIDED*
- Field Notebook (Grid Paper) - *PROVIDED*
- Pencils, Brunton™ Compass, small tape measure (2m), Ziplock™ Bags, Field carrying case .
- In addition: Mineral / Chemical & ID Kits (from GEL1010), rock hammer, index cards, etc. (See list)!

## 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

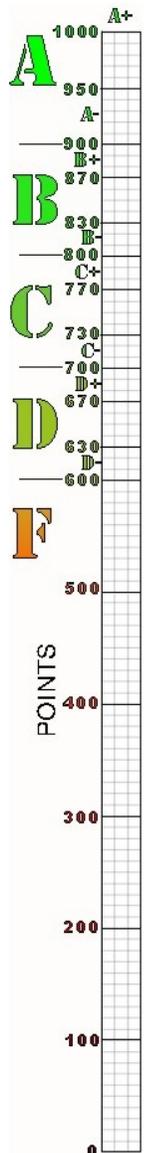
Major Topics & Subtopics

- I. Pre-Trip:
  - 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. Logistics
- II. FIELD:
  - A. Field notes, Field notes, Field notes
  - B. Stratigraphic data:
    1. Strike & Dip measurements; Simple formation thickness
  - C. Distance and height estimations
  - D. Basic Mapping & Orienteering, geologic mapping essentials
  - E. Field sampling: Collecting, recording, packing, descriptive terms and preservation
  - E. Illustration and reporting

## Grading in GEL2530

	Max. Points
Pre Meeting Attendance	50
Field Pack Check	50
Field Methods EXAM	100
Sampling Methods	50
Geopuzzle (self defined / selected)	100
Field Exercises: Turn in your 5 best exercises w/ at least 1 map notebook exercise & 1 strat. notebook exercise.	250 (50 pts ea.)
FIELD NOTEBOOK - incl. Field check by instructor	200
FIELD MAPPING EXERCISE - Geologic Map	200
<b>TOTAL</b>	<b>1000</b>

**FINAL GRADE:** A = 950-1000 A- = 900-949 B+ = 870-899 B = 830-869 B- = 800-829  
 C+ = 770 - 799 C = 730-769 C- = 700-729 D+ = 670-699 D = 630-669 D- = 600-629  
 F = ≤ 599 points



**WARNING! WARNING! WARNING! WARNING! WARNING! WARNING! WARNING! WARNING! WARNING! WARNING!**

**I reserve the right to DROP any student from the course that does NOT show up for our pre-meeting! (Unless you have made special arrangements with me IN WRITING first). YOU HAVE BEEN WARNED!**

**Field Trip:**

***Read ALL other documents concerning Field Trip Preparedness & Safety!***

This course is offered parallel with GEL3530 - Geology of the Colorado Plateau and you will share transportation, food, lodging etc. with the GEL3530 students. An ALL INCLUSIVE non-refundable trip fee of \$550 is required when you enroll in the course. This fee will cover transportation, food, lodging, entrance fees, text-books, handouts and trip administrative fees. It does NOT cover tuition and/or any academic fees charged as part of the enrollment, including, but not limited to MSU Denver extended campus costs. However, any trip money left over will be equally distributed to paying participants at the end of the course.

Students are required to bring appropriate clothing, personal hygiene items, sleeping bags and mat, a mess kit (cups, plates, silverware), and field material as separately described.

**Field Trip Liability 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.

\_\_\_\_\_ All students are under the professional responsibility concerning the consumption of alcohol, as well as impairing drugs and medications. To keep all involved safe, a "no drinking" policy will be enforced for ALL students.

\_\_\_\_\_ Smoking 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 the 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.

\_\_\_\_\_ 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 during the field trip. 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 good common sense at all times.

\_\_\_\_\_ 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.

\_\_\_\_\_ All drivers of State vehicles must attend and pass the required training meeting at the University of Northern Colorado Motor Pool facilities. Contact Dr. K 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. to off-campus activities. Furthermore, you have fully read and understand the department policies and your liability and do accept the restrictions.

**ATTENDANCE (50 points):** You are EXPECTED to attend all pre- and post-trip meetings and to stay for the entire duration of the meetings.

**FIELD PACK CHECKS (50 points):** A field pack check will be conducted during the trip similar to military inspections. Students must be able to present certain required materials and will be graded completeness, field pack availability and organization.

**FIELD METHODS EXAM (100 points):** This test will be given to you during the trip. You will have to perform the assigned task and report the results to the instructor. For example you may be asked to figure the height of a stratigraphic column, the thickness of a section, the distance to an outcrop, strike & dip measurements, the weight of a geologic feature or a combination thereof. A complete, handwritten, detailed approach in a specific field notebook with the correct result will be the basis for your grade.

**FIELD SAMPLING (50 points):** You will collect samples for further investigation. Grading will commence on appropriate sampling methods, labeling, and storage of sampled material.

**GEOPUZZLE (SELF DEFINED / SELECTED) (100 points):** You need to select one geologic problem in the field that you will solve. The problem should address something inherent to the course. The initial question, measurements, analysis, any calculations, results, conclusions etc. are to be recorded in your field notebook. It should include labeled, hand-drawn illustrations to clarify any answers. Once completed, show your field note entries to the instructor for grading.

**FIELD EXERCISES (250 pts / 50 pts ea.):** Besides the GEOPUZZLE and the FIELD METHODS TEST, you will be asked to complete several field assignments. These all need to be recorded in detail. After the trip, select your 5 best problems outside of what has already been graded and submit them to your instructor. You may do so in the evening around the campfire, or you can submit photocopies after the trip. One of these assignments shall be a sketch map drawn inside your notebook, the other assignment shall be a detailed measured stratigraphic section within your notebook.

**FIELD NOTEBOOK (200 pts):** The field notebook is the heart of every field geologist. You must learn to write legibly and illustrate neatly. Field notebooks become permanent records of any geologic survey and are often turned in with the completion of a project. They are to be written in such a manner that another geologist continuing with the project can decipher your entries without any difficulties. The instructor will do occasional graded spot checks during the trip to give you feedback on how to improve your meticulous keeping of a field notebook. These spot check grades together with a final overall grade at the end of the course comprise the 200 points to be earned for this assignment.

**FIELD MAPPING EXERCISE (200 pts):** You will be given a basemap by the instructor and your assignment is to create a complete geologic map of the area assigned and within the allotted time frame. You will turn in the completed geologic map for grading. Remember, your map must have a legend.

**E-MAIL:** You may e-mail me any time at [kackstae@msudenver.edu](mailto:kackstae@msudenver.edu). In general, I will NOT accept any assignments via e-mail, except the final day report. All other assignments must be turned in as hard copies AT THE ALLOTTED DUE DATES!!!! Since the last deadline is always the last day of your regular scheduled class for the semester, **there will be absolutely NOTHING accepted during and after Finals Week! Don't even try!**

**CIVILITY:** The student code of conduct will be enforced in this class. The short version of the code: Students are expected to assist in maintaining a classroom environment conducive to learning and respectful of the instructor and fellow students. Students have an opportunity to gain from time spent in class. Therefore, students are prohibited from using cell-phones or beepers, text messaging, eating or drinking in class, making offensive remarks, reading newspapers, using their laptop or PDA for class unrelated activities (such as browsing the internet, checking email, watching videos, etc.) or doing other assignments unrelated to the class, sleeping or engaging in any other form of distraction. While you may feel that you are doing it quietly and unobtrusive enough, it does indeed distract other students (as scores of them have reported to me). Inappropriate behavior shall result minimally in a request to cease the behavior and upon continuation despite warnings to leave the class.

**ELECTRONIC DEVICES:** Put ALL your consumer electronics away (which means they are NOT to be visible, even if you don't use them) including but not limited to cell phones, ipods, MP3 players, headphones, etc. They are NOT to be used at any time during my class. Cell phone calculators are NOT ALLOWED, you must bring a "real" calculator. Personal computers are allowed in class only with approval from the instructor and a written and signed contract. Permission for use of PCs will be immediately revoked for the remainder of the course if a student is found to be engaged in unrelated activities, such as checking e-mail, surfing the web, playing games, etc. Texting, emailing, gaming, listening to music or similar unrelated activities during classtime is not only rude and unprofessional, it is highly annoying to me and the majority of your fellow students. If you are caught you will be unceremoniously asked to leave my class and you will lose any or all participation points for that day. Repeat offenders will face disciplinary action on the college level. **You have been warned!**

**CELL PHONE WARNING:** There are NO cell phones allowed in the classroom! PERIOD! If you text or do anything with your cell phone, **Dr. K has the right to REMOVE YOU FROM THE CLASS. PERIOD!** First infraction will most likely involve a stern, public and very embarrassing warning. Continued infractions will result in a removal from the class and possible failing grades.

## UNIFYING LAS SYLLABUS POLICIES – SUMMER 2015

### **WITHDRAWING FROM THE COURSE**

#### **Withdrawal (W):**

The Withdrawal (W) notation is assigned when a student officially withdraws from a course via [ConnectU](#) after the drop deadline (census date) and before the withdrawal deadline posted in the 2014-15 Academic Calendar: <http://www.msudenver.edu/events/academic/>. Deadlines differ proportionally for courses offered during part of a semester, including late-start and weekend courses. Students should refer to the Student Detail Schedule via [ConnectU](#) to review drop and withdrawal deadlines for individual courses. When a student withdraws from a course, no academic credit is awarded. The course remains on the student's academic record with a "W" notation and counts toward the student's attempted hours. The course is not calculated in the student's GPA or quality points. After the withdrawal deadline, students may not withdraw from a course and will be assigned the grade earned based on the course syllabus.

#### **Administrative Withdrawal (AW):**

The Administrative Withdrawal (AW) notation is assigned when a student, or representative, requests to be withdrawn from a course due to unforeseen or extenuating circumstances beyond the student's control. When the "AW" notation is assigned, no academic credit is awarded. The course remains on the student's academic record with an "AW" notation and counts toward the student's attempted hours. The course is not calculated in the student's GPA or quality points.

Students may request an administrative withdrawal from the [Office of the Registrar](#) after the drop deadline (census date) posted in the 2014-2015 Academic Calendar. Deadlines differ proportionally for courses offered during part of a semester, including late-start and weekend courses. Students should refer to the Student Detail Schedule in [ConnectU](#) to review drop deadlines for individual courses.

Although requests are evaluated on a case-by-case basis, examples include the death of an immediate family member, serious illness or medical emergency, or other life-altering event. The student must provide supporting documentation to substantiate the request.

Students who request an administrative withdrawal may also request a tuition refund by filing an [Undergraduate Tuition and Fees Appeal](#) through the [Office of the Bursar](#).

This policy is included in the online University Catalog in the Academic Policies and Procedures section: <http://catalog.msudenver.edu/content.php?catoid=13&navoid=502>

### **INCOMPLETE POLICY**

The Incomplete (I) notation may be assigned when a student, who was achieving satisfactory progress in a course and who had completed most class assignments, is unable to take the final examination and/or did not complete all class assignments due to unusual circumstances such as hospitalization or disability. Incomplete work denoted by the Incomplete "I" notation must be completed within one calendar year or earlier, at the discretion of the faculty member. If the incomplete work is not completed within one year, the "I" notation will convert to an "F." Students must have completed at least 75% of the course work to qualify for consideration for an incomplete. The student must be passing the course in order to be granted an incomplete. The course counts toward the student's attempted hours, does not count toward earned hours, and is not calculated in the GPA or quality points until a grade is posted.

Determination of eligibility does not guarantee that an incomplete will be granted. Students who do meet the qualifications may request an incomplete from the faculty member who is teaching the course. The decision to grant an incomplete is up to the faculty member or at the department chair's discretion. The decision to grant an incomplete as an accommodation based on a student's disability shall be made by the faculty member or the department chair, if the faculty member is not available, in consultation with the Director of the Access Center.

If an incomplete is granted, the student and instructor should fill out and sign an Incomplete Agreement form to clarify what the student needs to do to complete the course.

Graduating seniors may not graduate with an "I" on their MSU Denver academic record if:

- The course in which the "I" was assigned is required for graduation, or
- a "D" or "F" assigned for that course would result in an overall GPA less than 2.00.

The "I" notation may not be given for a self-paced course. If a student does not complete a self-paced course within the semester that he or she enrolled in the course, he or she must re-enroll in the course in order to complete it.

If a student receives an "I" in an online class, the instructor should contact the Educational Technology Center, whose staff will add the student to the online course roster so that the student will be able to logon to the course. This step must be done by the instructor each semester that the student continues to work on the course.

In order for an "I" to be changed to a letter grade, the incomplete work must be completed for the course for which the student originally registered. The student should NOT re-enroll for the same course, unless intending to retake the entire course. In this case, the student will pay tuition and fees.

## **ACADEMIC DISHONESTY<sup>1</sup>**

Academic dishonesty is a serious offense at the University because it diminishes the quality of scholarship and the learning experience for everyone on campus. An act of Academic Dishonesty may lead to sanctions including a reduction in grade (up to and including a permanent F for the course), probation, suspension, or expulsion. Academic dishonesty includes cheating, fabrication, and plagiarism, submitting the same paper or work for more than one class, and facilitating academic dishonesty. For definitions and more information, see the Student Engagement and Wellness website:

<http://www.msudenver.edu/studentengagementandwellness/studentconductandconflictresolutionsservices/studentconductservices/academicintegrity/academicdishonesty/> .

## **MSU DENVER POLICY STATEMENT ON SEXUAL HARASSMENT, GENDER-BASED DISCRIMINATION AND SEXUAL VIOLENCE**

Title IX addresses sexual harassment, gender-based discrimination and sexual violence. Sexual violence includes attempted or completed rape or sexual assault, as well as sexual harassment, stalking, voyeurism, exhibitionism, verbal or physical sexuality-based threats or abuse and intimate partner violence. Title IX is helpful as it aims to create educational environments absent from all forms of sex discrimination. Students may report incidents in which the alleged perpetrator is a student to the Deputy Title IX Coordinator/Assistant Dean & Student Conduct Officer by calling 303.556.3559 or by going to Tivoli 311.

If the alleged perpetrator is an MSU Denver employee, visitor to campus or a non-student, please report the incident to the Title IX Coordinator/Executive Director of Equal Opportunity & Assistant to the President, by calling 303.556.4746 or by visiting the Student Success Building, #440.

Students who wish to make a criminal report of an incident should contact Auraria Police by calling 303.556.5000 or 911 on campus or other appropriate law enforcement agency if the incident occurred off campus.

## **MSU DENVER POLICY STATEMENT ON STUDENTS WITH DISABILITIES**

Metropolitan State University of Denver is an equal opportunity employer; applications from minorities and women are particularly invited. Metropolitan State University of Denver does not discriminate on the basis of race, color, creed, national origin, sex, age, sexual orientation or disability in admissions or access to, or treatment or employment in, its educational programs or activities. Inquiries concerning the University grievance procedures may be directed to the designated MSU Denver officials. Inquiries concerning Title VI and Title IX may be referred to:

Dr. Percy Morehouse, Jr.  
MSU Denver Office of Equal Opportunity  
Campus Box 63, P.O. Box 173362  
Denver, CO 80217-3362  
Ph: 303-556-4746

Inquiries concerning the Americans with Disabilities Act (ADA) or 504 may be referred to:

Mr. Lloyd Moore  
Faculty & Staff ADA Coordinator  
MSU Denver  
Campus Box 47  
P.O. Box 173362  
Denver, CO 80217-3362  
Ph: 303-556-8514

Mr. Steve Monaco  
Student ADA Coordinator  
Ph: 303-556-3881

Mr. Greg Sullivan  
Director Access Center  
MSU Denver  
Campus Box 56  
P.O. Box 173361  
Denver, CO 80217-3361  
Ph: 303-556-8387

Otherwise, all inquiries may be referred to the Office for Civil Rights, U.S. Department of Education, 1244 Speer Boulevard, Denver, CO 80204, 303-844-3723.

## **CLASS ATTENDANCE ON RELIGIOUS HOLIDAYS**

Students at MSU Denver who, because of their sincerely held religious beliefs, are unable to attend classes, take examinations, participate in graded activities or submit graded assignments on particular days shall, without penalty, be excused from such classes and be given a meaningful opportunity to make up such examinations and graded activities or assignments provided that advance written notice that the student will be absent for religious reasons is given to the faculty members during the first two weeks of the semester.

Nothing in the paragraph above shall require MSU Denver faculty members to reschedule classes, repeat lectures or other ungraded activities or provide ungraded individualized instruction solely for the benefit of students who, for religious reasons, are unable to attend regularly scheduled classes or activities. However, presentations, critiques, conferences and similar activities involving individual students shall be scheduled to avoid conflicts with such students' religious observances or holidays provided that reasonable advance notice of scheduling

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<sup>1</sup>**I-CLICKER:** Responding to i-clicker questions for someone else (e.g., by using their i-clicker together with your own) **CONSTITUTES ACADEMIC CHEATING** (same as cheating on a test or exam).

conflicts is given to faculty members. Because classroom attendance and participation is an important aspect of learning, MSU Denver students should not register for courses if regularly scheduled classes or activities routinely conflict with their religious observances or holidays (e.g., conflicts resulting in weekly absences for an entire semester). Any MSU Denver student who believes that an MSU Denver faculty member has violated this policy is entitled to seek relief under Section V of the MSU Denver Equal Opportunity Grievance Procedure.

#### **STUDENT EMAIL POLICY**

Electronic communication (i.e., email and personal portal announcements) is a rapid, efficient and cost-effective form of communication. Consequently, reliance on electronic communication is expanding among students, faculty, staff and administration at MSU Denver. Because of this increasing reliance and acceptance of electronic communication, forms of electronic communication have become in fact the means of official communication to students, faculty and staff within MSU Denver. This policy acknowledges this fact and formally makes electronic communication an official means of communication for the University.

For more details on the Electronic Communication Policy, visit

[http://www.msudenver.edu/handbook/generaluniversitypolicies/#Electronic Communication Policy](http://www.msudenver.edu/handbook/generaluniversitypolicies/#Electronic%20Communication%20Policy)