

**Preliminary Syllabus – GEO 429 – Field Geology (6 credits)
Summer 2012**

Instructors: Julie Baldwin, Jim Sears, James Staub, Bill Woessner

Dates: May 14 – June 12, 2012

Course description: This course is a senior capstone experience in field-mapping and applied geology for Geosciences majors at UM as well as upper-division geology majors from other institutions. The course emphasizes field mapping and is designed to train students in field-oriented problem solving and critical thinking that will prepare them for a professional career in the Geosciences. In addition to four field mapping projects, we will conduct a week-long exercise in applied hydrogeology in the Missoula area. The regional geologic setting of the Dillon, MT area allows us to introduce students to intensely deformed Precambrian metamorphic rocks, Paleozoic to Cenozoic sedimentary rocks, Cretaceous to Tertiary volcanic and plutonic rocks, and Quaternary glacial and fluvial deposits. Thus, the course covers a variety of field problems and mapping techniques.

Learning Goals:

- 1) To learn how to construct geologic maps and stratigraphic sections using topographic base maps, GPS units, and compasses
- 2) To learn how to identify and map surficial sedimentary deposits, geomorphic features and active faults
- 3) To learn about hydrologic systems within a geologic framework
- 4) To use and gain confidence in applying problem-solving skills to understand regional geology, structural deformation, tectonics, and geologic histories
- 5) To learn how to make observations outside the classroom, learn how to integrate knowledge across disciplines, and learn how geologists think when confronted with incomplete or contradictory geologic data
- 6) To learn to work and cooperate in the field with your fellow geologists.

Prerequisites: GEO 101N/102N, Entire 200-level GEO sequence (GEO 211, GEO 226, GEO 228, GEO 231), GEO 309 (Sedimentation and Stratigraphy), GEO 315 (Structural Geology). These prerequisites will be enforced. If you are lacking one or more of these courses, please contact James Staub to discuss your individual situation at james.staub@umontana.edu or 406-243-4953.

Application: An application form will be posted on the Geosciences website. All students will be required to fill this out by February 1. Applications are welcome after this date as long as space remains for additional students.

Course enrollment: Maximum of 21 students. A waitlist will be maintained if maximum course enrollment is achieved. Priority will be given to students who have completed all required prerequisite coursework.

Tentative Schedule of Projects

May	14-18	(Project 1) Groundwater project in Missoula area
	19	Travel to Dillon
	20-24	(Project 2) Fundamentals of geologic mapping (McCartney Mt)
	25	Day off
	26-27	(Project 3) Field project in metamorphic rocks (Sweetwater Pass)
	28-30	(Project 4) Mapping and assessment of active faults and geomorphology (Sweetwater Pass)
	31	Day off
June	1-4	(Project 5) Bedrock mapping of Clark Canyon Reservoir and dam site
	5	Field trip to Holocene Red Rocks fault scarp at Dell, MT
	6	Day off
	7-10	(Continue Project 5) Geomorphologic mapping and interpreting geologic faulting and fracturing hazard at Clark Canyon Reservoir and dam site
	11	(Project 6) Final independent project –course ends
	12	Return to Missoula

Living arrangements and meals: The first week of the course will be run out of Missoula and students are responsible for their housing arrangements and all meals during this week. From May 19 onwards, the course will be run out of UM-Western in Dillon, MT. All students **will be required** to stay in the dorms. Students have the option of purchasing a meal plan (including sack lunches) or may opt to prepare their own meals.

STUDENT CONDUCT CODE: Please be familiar with the UM Student Conduct Code. The Student Conduct Code can be found on the Vice President for Student Affairs web site at http://life.umt.edu/vpsa/student_conduct.php.