**Information for 2015 Field Camp Participants**

Students enrolled in the Precambrian Field Camp course (GEOL4500.2) should carefully read the following information about the 2015 camp.

**Objectives** - At its most fundamental level, UMD's Precambrian field camp will introduce students to basic field mapping methods that would be taught in any six week field camp. However, what sets this camp apart from other field camps (typically Rocky Mountain-based) is its special emphasis on those techniques that are most appropriately suited to field studies of the diverse Precambrian terranes of the southern Canadian Shield. In addition to basic exercises involving structural measurements, measurement and description of stratigraphic sections (both igneous and sedimentary), and unraveling relative age relationships, students in this camp will also be introduced to core logging techniques, acquiring and working with geophysical data, mapping glacial sediments and landforms, and mapping in strongly deformed and metamorphosed terranes. In addition to learning basic mapping and map-making techniques, another major objective of the camp is to train students in the navigational, logistical, and safety skills necessary to maneuver through boreal forests of the Canadian Shield. This training will come from experienced instructors who specialize in Precambrian mapping.

**Tuition and Fees** - The total cost of tuition and fees for the 2014 field camp to students seeking undergraduate credits will be $5,400. This cost applies to all students, regardless of their state or country of residence. The cost breakdown is:

- $2,704.56 - Tuition (6 cr@ $450.76/credit)
- $115.50 - Collegiate Fees
- $2,579.94 - Room and Board Fees
- $5,400.00 - Total

**Payment Schedule** - A $50 application deposit should accompany submission of the field camp application. Tuition and fees are to be paid to the UMD registrar on June 22. Room and board fees (less the $50 deposit and PRC Field Camp scholarship) will be due at the beginning of camp.

**PRC Field Camp Scholarship** - New in 2015, the Precambrian Research Center is seeking funds from its corporate and individual members for a field camp scholarship program. The funds raised will be equally divided among all students accepted into the camp. The goal is to be able to provide each student with as much as $1000. This scholarship will be used to offset the room and board cost, which was substantially increased this year. Scholarship amounts will be announced about the time that students are notified of their acceptance into the field camp, starting in late January.

**Insurance, Medical Care, and Immunizations** - All field camps participants are required to carry their own health insurance during the duration of camp and to have been immunized.
within the past 10 years with a tetanus booster (see application form). In the event of an accident during a mapping project, except during the week of the capstone mapping project, all camp activities will be conducted within a short (15-30 minute) drive of a hospital or medical clinic. A first aid-trained instructor will be present at each project and each capstone project instructor will have received first aid training. Also, a half-day instruction on wilderness first aid will be presented on the first day of camp.

**Safety and Physical Conditioning** - Field work in northeastern Minnesota often involves strenuous hiking in various types of environments ranging from steep hillslopes, to thickly overgrown woods, to broad swampy marshes. It may also involve canoeing many of the state's 10,000+ lakes. And despite its northern geography, weather in mid-summer can often be quite hot and humid. Consequently, a big part of doing field work in this area requires an understanding of how to be safe in the woods. Therefore, a significant amount of time will be spent on safety and emergency first aid training during the field camp.

Given the often strenuous nature of doing field work in this environment, it is important that field camp participants be in good physical and aerobic condition, are not significantly overweight, and have a good sense of balance. If you are not in good physical shape, you may want to reconsider attending this field camp.

**Background Reading** - With most participants being from outside the Upper Midwest and perhaps not too familiar with the Precambrian geology of the Lake Superior region, we recommend some background reading to prepare you for the geology that we will encounter over the course of the summer. First are a couple of 4-page pamphlets published by the MN Geological Survey on the Quaternary and Precambrian Geology of Minnesota, which is part of their Minnesota at a Glance series. Another is a 38-page manuscript prepared by the MGS and the MN DNR on the Geology of Minnesota. Although this manuscript is intended for K-12 earth science teachers, it provides a good overall summary of the geologic history of the state.

If you want a more robust treatment, we would recommend two recently published books. One is "Roadside Geology of Minnesota" by Richard Ojakangas (an emeritus UMD professor) and published in 2009 by Mountain Press. Another book is "The Geology of the Lake Superior Region" by Gene LaBerge (2002). A rather dated book that you can probably used is "Minnesota's Geology" by Ojakangas and Matsch (1982). Although the book is quite out of date, the basics of the geology are still true (only some of the interpretations have changed). You can purchase new or used copies of both these books on-line (e.g., Amazon.com).

General powerpoint overviews of the regional geology will be presented throughout the camp to provide context for the various mapping exercises. These powerpoints will be posted on the camp website as they are presented.
Participants and Staff - The maximum number of students that will be accepted into this year's field camp is 24. During the first four weeks of camp, students will be involved in eight different projects (see schedule). For each of these projects, two to four instructors and one to two TA's will be assisting. Drs. Hudak, Miller and Peterson and Sarah Gordee will be involved in most of the projects throughout the camp while various other instructors will be involved in projects that fit with their geological expertise. Marsha Patelke will serve as safety coordinator throughout the camp.

Daily Schedule - The daily schedule for the field camp will be demanding of your time and effort, but will include opportunities for relaxation, recreational activities, and general free-time. During the first four weeks of camp, Monday through Saturday will be instructional days with Sunday routinely being a free-day. Participants may leave camp on Sunday, but must be ready for activities on Monday morning. A typical instructional day schedule for the first four weeks is:

7-8 - Breakfast in cafeteria (pick up bag lunch)
8-9 - Meet in classroom for morning lecture or head directly out to field
9-5 - Outdoor field project (lunch in the field)
5-6:30 - Dinner in cafeteria
7-10 - Open lab to work on daily exercise, occasional evening lecture

Housing and Meals - Field camp participants will be housed for five of the six weeks in dormitories on the UMD campus (weeks 1, 2, & 6) and at Vermilion Community College (VCC, weeks 3 & 4). For one night during week 2, we will camp at Tettegouche State Park. Students will be expected to room with one other roommate during this time. If single rooms are needed for legitimate reasons, this can be arranged at an additional cost to be determined. During the Capstone Mapping Projects in week 5, most students will be primitive tent camping in various locations. In all these settings, students will be expected to supply their own bedding (for twin beds) and/or sleeping bags and pillows.

While housed at UMD and VCC, breakfast and dinner will be served in campus cafeterias. Bag field lunches will be provided each day by the school's catering service. Please indicate on the application form if you require a vegetarian/vegan diet or if you have other dietary restrictions. After normal meal times, snacks, take-out foods, and restaurant dining are available at various locations within walking distance of both campuses.

Transportation - Daily travel from campus to field sites will be by 14-passenger vans and mini-vans. These vehicles may not be used to transport students to non-field camp related activities. When at UMD, students can use the city bus system or may use their own vehicles to run errands. When at VVC in Ely, the vans may be used to make laundry and grocery runs into town, however, they must be driven by instructors or teaching assistants. Personal vehicles may be brought to Ely or may be left in Duluth.
**Field and Personal Gear**  See attachment at end of document for a list of required and optional field and camping equipment, clothing, and other personal gear to bring to camp. The equipment list also notes field equipment that will be supplied to participants.

**Personal Business** - While at UMD, access to various services for personal business (laundry, banking, shopping, etc.) will be available either on campus or with a short walk or bus ride. The Kirby Student Center at UMD has a food court, gift shop, grocery, coffee shop, bank tellers, and ATM machines. Also leaving from Kirby Center is a city bus network that can transport you to downtown Duluth, the Miller Hill shopping mall, or other areas of town. Click here for more information about Duluth.

While at VCC, many services and businesses are within a 15 minute walk of campus. We will make vans available on some evenings for laundry runs over the two weeks we are in Ely. Click here for more information about Ely.

Most national cell phone services (Verizon, Sprint, AT&T, Nextel, Cellular One, T-mobile, Unicel) have network access in Duluth, though the coverage in Ely is less complete.

**Recreation** - Although we will keep a rather rigorous work schedule over the six week camp, we will make time each day for some rest, relaxation, and recreation. In addition to scheduling occasional group recreational activities, students can access various athletic and recreational options at UMD during the evenings or on free days. These include swimming, weight room/cardio machines, and running track. TV's are available in the dormitory commons areas of the UMD dormitories.

**Camp Policies** - Camp participants are expected to conduct themselves in a responsible and lawful manner during the field camp. Any gross violations of camp policies or University policies (during time on campus) will be grounds for dismissal from camp. Camp policies include:

Visitors - students may invite visitors (family members, friends) to participate in free-time activities, but must request permission from instructors to have visitors attend program activities. Visitors must provide their own transportation and meals.

Firearms - no firearms are allowed to be in a student's possession during the camp (black bears rarely, if ever, attack humans).

Fireworks - fireworks are not allowed on campus and are strongly discouraged from being used elsewhere during camp.

Alcohol - alcoholic beverages are prohibited on the UMD campus. Students who are of legal drinking age (21 and older) must go off-campus to consume alcoholic beverages. Bad and unlawful behavior due to excess alcohol consumption will not be tolerated.

Drugs - only prescription drugs will be allowed in camp (students must provide proof that drugs are doctor-prescribed). Use of illicit or non-prescription drugs will not be tolerated and may be grounds for dismissal.
Directions to UMD - Interstate 35 is the main freeway into Duluth from all points south; US 2-53 is the entry from the east and west, which then intersects I-35 just south of downtown. Take I-35 through downtown to the 21st E. Ave exit. Take a left on 21st Ave and proceed about 8 blocks up the hill to where the road merges to the right with Woodland Ave. After Woodland crosses the stoplight at 8th St/Kent Rd, cross to the left lane and turn on to College Ave. The UMD campus will soon appear on the right hand side.

To get to the dormitories, proceed to Junction Ave and turn right. Make another right on Niagara Ct. and follow the signs to Lake Superior Hall, where you will check in to the dormitories. You will be instructed where to park your car after you check into your dorm room.

To get to the geology building (Heller Hall; see campus map below), proceed on College Ave. to Kirby Drive and turn right. After passing the skyway to the Swenson Science Building, Heller Hall is the first building on the right. There are a few metered parking areas immediately behind in front of the building and others scattered along Kirby Drive. For more long-term parking (free in the summer), park in lots A or B off University Drive (see map).
**Arrival** - For out-of-town students, you should plan to arrive at UMD between noon and 4PM on Sunday, July 5th. If you would like to check in a day earlier (Sat. 7/4), please notify Marsha Patelke or Jim Miller (you will not be charged for the extra night). To check into your dorm, go to the housing desk in the lobby of Lake Superior Hall (see campus map above). You will be instructed where you can park your vehicle.

Plan to gather in the lobby of Lake Superior Hall at 4:00PM for a brief walk-thru of campus. After a group meal, we will gather in Chemistry 206 & 207, which will serve as our classrooms while at UMD. Here we will make introductions, distribute course and field equipment, and give an overview of the camp schedule and curriculum.

**Contact Information** - Camp Directors may be reached throughout field camp by cell phone at the following numbers (see staff directory for email addresses):

- Jim Miller - 218-391-5320
- George Hudak - 920-573-2662
- Dean Peterson - 218-290-8398

Camp Manager and Safety Coordinator

- Marsha Patelke - 218-720-4242, mpatelke@nrri.umn.edu

University of Minnesota Duluth

- Department of Earth and Env. Sciences office - 218-726-7238 or 726-8385
- Student Housing office - 218-726-8178 or 726-8768
- General Information - 218-726-8000

Vermilion Community College (Ely)

- Summer Program Coordinator - 218-235-2163
- General Information - 218-365-7200 or 1-800-657-3608

U.S. Forest Service Superior National Forest office (Duluth) - 218-626-4300
SUPPLY LIST FOR 2015 PRECAMBRIAN FIELD CAMP

**Geology Field Gear**
Backpack/Rucksack (rugged enough to carry up to 20 lbs and 2 liters of water)
Personal First Aid Kit
Hand lens (10x)
Hammer w/ belt holster (2.5lb. “blacksmith” sledge is best for crystalline rocks; can be purchase at a general hardware store, e.g., Home Depot carries a Stanley 2.5lb sledge for ~$15)
Orienteering compass - Silva Explorer (shown below) is an ideal compass and best value

![Orienteering compass](image)

Notebook/pencil pouch (leather or nylon; should hold 5”x7” notebook and 4-6 pencils; not necessary if you have a field vest, see below)
Mechanical pencils (bring several 0.5mm pencils and extra leads)
Flash Drive (2GB minimum)
Field hat (short brimmed canvas hat best in woods; e.g. Tilley hat)
Rain gear (separate jacket and pants; do not use expensive gear as it will get torn)
Waterproof hiking boots (over the ankle is best)
Bandana
Water bottles (2 qts minimum)
Watch
Small flashlight
Pocket knife
Waterproof matches
Insect repellent (lotion or spray; 20-30% DEET)
Sunscreen (15-30 SPF)

**Optional**
Digital Camera (camp will provide cameras if you do not have one)
Field vest (canvas or cordua nylon fabric is best);

From Forestry Suppliers (~$60 each)

**10.1 Ounce Cotton Army Duck – Orange or Tan** Made of 100% pre-shrunk 10.1 ounce Cotton Duck fabric, these heavy-duty vests will stand up to most anything. Fabric is mildew-resistant.

WE WILL ORDER AN ORANGE VEST FOR YOU IF YOU LET US KNOW BEFORE JUNE 15TH.
**Will be Supplied**
Brunton compass  
GPS unit  
Digital camera  
Photo scale card  
Sample bags  
Field notebook  
Pen magnet  
First Aid Kit refills  
Colored pencils  
Micron mylar film pens  
Map board  
Flagging tape  

**Geological Supply Websites**
Miners - [http://www.minerox.com](http://www.minerox.com)  
Chaltrek - [http://www.chaltrek.com](http://www.chaltrek.com)  
CGS Mule - [http://www.cgsmule.com](http://www.cgsmule.com)  
Forestry Suppliers - [http://www.forestry-suppliers.com](http://www.forestry-suppliers.com)  

**Personal Gear**
Sleeping bag (rated to 20°F)  
Sleeping pad or cot (for camping)  
Pillow  
Radio alarm clock  
Bedding for twin beds at Vermilion Comm. College dorms; may substitute sleeping bag if you prefer  
(bedding will be provided at UMD)  
Towels - for bathing and swimming; towels will be provided at UMD dorms  
Toiletries - toothpaste, toothbrush, deodorant, shampoo, hand soap, …  
Medications - Tylenol, cold medicine, Benadryl  
Field clothing - long pants and long sleeved shirts are recommended for summer field work in northern Minnesota forests; for some projects, shorts and T-shirts may be OK, but these are the exceptions.  
Window or desk fan (optional) – Dormitories are **NOT** air conditioned and some days can get quite warm.  
Tent (optional) - 2-4 person, lightweight; for possible use during Capstone Mapping Project  

**Sports and Recreational Equipment (optional)**
Sportsgear - **baseball mitt***, hacky sack, frisbee,(sportsgear for volleyball (ball and net) and softball (balls and bats) will be provided)  
Sportswear - athletic shoes, shorts, T-shirts  
Fishing gear (will need MN license)  
Musical instrument - guitar, harmonica, …  
Games - playing cards, small boardgames, hand-held video game players  
Music - IPod and other MP3 players  
Laptop computer - wireless access is available at UMD and VCC for personal laptops (if you do not have a laptop, computers will be available throughout camp)  

* mitts needed for annual softball game in Ely.