

**Geochemistry & Ecology of Red Mat Systems (GERMS)
Undergraduate Summer Research Program**

Red Layer Microbial Observatory (RLMO)

National Science Foundation
Western Oregon University
Yellowstone National Park



NSF Microbial Observatories Summer Stipend Contract

Return by Friday May 27, 2005

Project Title: Geochemistry & Ecology of Red Mat Systems (GERMS) Research Experience

Advisor/Supervisor: Sarah Boomer

Support Time: July 5, 2005 through July 14, 2005, according to the following schedule. Hours provided reflect the times planned for training experiences when advising and equipment is available; some days will not require all hours.

July 5	Planning Meeting (9-11 a.m.)	Included Support
July 6	Drive to Pocatello (11 hours)	Transportation, lodging
July 7	To Yellowstone, Norris and Canyon sightseeing	Transportation, lodging, breakfast/lunch
July 8	Survey Imperial and Spray Geysers (7 mile hike)	Transportation, lodging, breakfast/lunch
July 9	Old Faithful sightseeing/Survey Hillside (2-4 mile hike)	Transportation, lodging, breakfast/lunch
July 10	Survey Fairy and Sentinel (6 mile hike)	Transportation, lodging
July 11	Drive Home (14 hours)	Transportation
July 12	No Class	None
July 13	Pigments and General Microscopy (9 a.m. to 1 p.m.)	None
July 14	Metal Chemistry and Data Entry (9 a.m. to 1 p.m.)	None

Travel support does not include meals during the drives and nightly dinners in the field. Participants should plan to use a portion of the stipend for these costs.

Support Includes:

(1) \$250 stipend for each trainee, classified as a student financial aid stipend. This check will be available at the Planning Meeting July 5, 2005. To receive these funds, participants must have completed, signed, and mailed this contract, the volunteer liability form, and the registration form to Sarah Boomer (Dept. of Biology, Western Oregon University, 345 Monmouth Ave., Monmouth, OR 97361) by no later than May 27, 2005.

(2) 2 independent study credits (\$45 cost covered by grant) – enrollment required, pass/no credit option. In accordance with Biology Department lab attendance policy, three unexcused, missed activities over the course of the program will constitute a “no credit.”

(3) Travel costs associated with the field portion (transportation, hotels, and some meals). These are outlined above (under “Included Support” above).

Project Description and Goals: The goals of this project have been established and approved by the NSF-Microbial Observatory grant authored by Sarah Boomer. Using materials collected at long-term study sites in Yellowstone, students will assess microbial diversity using molecular, microscopic, and chemical methods. Data will be hand-logged in daily notebooks and electronically or digitally incorporated into existing databases or web-based portfolios.

Health and Safety Understanding: It is understood that this stipend may not cover every working hour in the lab or field. This means that a portion of this project experience is volunteer and, by definition, stipend recipients will be covered by the WOU Volunteer and Liability Agreement form. Research activity participants will follow safety rules and regulations in the lab and in the field to minimize risks while participating in this project.

Signatures reflect commitment to this contract, stipend, and course.

Recipient Name

signature and date

Sarah Boomer, Ph.D.

signature and date

Kelly Shipley, Research/Outreach
Coordinator

signature and date

Darin E. Silbernagel
Director of Business

signature and date

Western Oregon University
Agreement for Volunteers Who Receive Credit or Remuneration
Return by Friday May 27, 2005

Volunteers wishing to participate in fulfilling Western's mission are subject to the following conditions:

TORT LIABILITY

You will be protected from civil liability for injuries or damage to a person or property of others, subject to the following conditions:

You are working on university-assigned duties under the direction of a university supervisor;

You limit your actions to the duties assigned;

You perform your assigned duties in good faith without recklessness or intent to unlawfully inflict harm to others.

VOLUNTEER INJURY COVERAGE

Volunteers who receive credit or outside remuneration for volunteering do not qualify for Volunteer injury coverage. It is the responsibility of the volunteer to provide whatever medical insurance is desired. Western Oregon University does not provide medical coverage for any kind of injury or illness incurred while performing Volunteer duties.

MOTOR VEHICLE LIABILITY

Personally owned vehicle insurance coverage is required when a private vehicle is used in the course of your duties. State Insurance will apply on a limited basis only after your primary limits have been used.

REPORTING RESPONSIBILITIES

If you are involved in an accident or have a liability exposure while performing assigned duties, you are to report this to your direct supervisor as soon as possible.

RLMO/GERMS-Specific Topics

DURATION OF PROGRAM: July 5, 2005 through July 14, 2005

FIELD SAFETY

Most of this program is conducted in the field and will involve both hiking along trails and, in some cases, hiking off-trail. Course travel will involve significant travel by automobile, both to Yellowstone and within the park. While every effort is made by program directors and leaders to exercise caution and prevent accidents or injury, program participants must assume full responsibility for their individual safety and must provide their own health and accident insurance. Program participants should bring their own first aid kits, including treatment for allergies and other appropriate supplies. Program participants should also affirm that their general health is good and that they are not under a doctor's care for any conditions which will endanger their health or the health and safety of other participants. Because unpredictable natural elements such as inclement weather can be encountered in the field, participants should adhere to recommended packing lists that include protective clothing, sunscreen, and raingear.

Medical Condition Leaders Should Be Aware of _____

I have read and understood the above duties and conditions of volunteer service

Printed Name _____

Signature _____

Date _____

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NSF Microbial Observatories Packing and Food Survey
Return by Friday May 27, 2005

Field Trip Information	Provide Information
<p><u>Vehicles:</u> Taking one 15-passenger state van to Yellowstone. Only SAIFER-trained drivers can drive the state vans; drivers will include Sarah Boomer, Kelly Shipley (research/outreach coordinator), and Terry Manning (undergraduate research student since 2001).</p>	None.
<p><u>On the Road Meals:</u> Fast food style lunch (e.g. Subway) using stipend support. Dinner will be Applebee's/Denny's using stipend support.</p>	None.
<p><u>Tentative Field Breakfasts:</u> Planning cold cereals/milk, instant warm cereals, and bagel/toast with condiment. Individuals will prepare on own in the kitchen area based on planned daily departure times. If you are a coffee drinker, there is a simple coffee maker but you should bring your own coffee supplies.</p>	Do you prefer certain kinds of any of the named breakfast items? Please recommend other options or tell me about any food allergies.
<p><u>Tentative Field Lunches:</u> Planning simple peanut-butter/jelly sandwiches, granola bars, cheese blocks, and some daily fresh produce (apples and carrots). Water, in bottles you fill at the hotel, will be the only beverage for hiking during the day because sugary things dehydrate you. If you want to bring your own Gatorade-style hydration materials, please let me know specifics.</p>	Do you prefer certain kinds of any of the named lunch items? Please recommend other options or tell me about any food allergies.
<p><u>Tentative Dinners:</u> In the field, dinner is on your own in West Yellowstone using stipend. Restaurant options include various price ranges within 3-4 blocks. The kitchen will be available for limited cooking after research is done each evening.</p>	None.
<p><u>Clothing List:</u> Be prepared for EVERY kind of weather, including sitting/working 60-90 minutes in rain. Tennis shoes or lightweight hiking boots - MUST be broken in. Back-up comfortable shoes/sandals for town, hotel, van. 4-6 pairs of socks - ideally, synthetic or wool for hiking. <u>Warm Weather:</u> T-shirt, shorts, wide-brimmed hat (avoid cotton). <u>Average Weather:</u> long-sleeved shirt and long pants (avoid cotton/jeans). <u>Foul Weather:</u> sweater or fleece top, rainproof top (bottoms optional), warm hat. If you get cold easily: gloves and a neck-warmer.</p>	Please alert me to any items you have questions about. There are some cheap substitutions I can recommend.
<p><u>Hiking Stuff (Non-Clothing):</u> A comfortable small backpack (for raingear, warm clothes, lunch, water). Anti-Sun stuff: sunscreen (SPF 15-40), lip balm, sunglasses. Personal First Aid: a few bandages, moleskin/blister tape, choice legal painkiller Flashlight or headlamp. 2X1L water bottles or hydration system and way to carry them easily with pack. Women - bring menstrual supplies regardless of your predicted cycle. People will need to carry toilet paper each day - taken from hotel before we leave.</p>	Concerns?

<p>We will carry an advanced first aid kit for major problems. Some larger packs with science gear will be shared/distributed.</p>	
<p><u>Safety/Communication Information:</u> We will be on public trails 90% of the time, within 4 miles from the road. Hiking policy (rain or shine) - no sub-parties of less than 4 will break-away. We call regional ranger offices daily to report plans and check on bear status. No guns in the park; only pepper spray (front/back leaders carry 2 bottles). Limited cell phone reception throughout park; we carry one cell phone. No phone at hotel; payphone across street at Laundromat. No incidents of bear aggression in North America with parties of 4 or more</p>	<p>Please describe any concerns or relevant health/first aid information I should know about (e.g. allergies to bee stings etc.). Personal Pepper Spray at REI runs \$30.</p>
<p><u>Alcohol Policy:</u> No alcohol may be carried or consumed in state van - PERIOD. Alcohol is available in West Yellowstone, will not be purchased for group use. Legal drinking after designated activities are over is a personal choice. Impaired states - either while drinking or morning after – will be discouraged.</p>	<p>Concerns?</p>

Please provide any additional feedback, comments, concerns, or questions. If additional thoughts or questions come up, you will receive a follow-up on June 5 (thereabouts).

Some equipment and science training will take place during mandatory planning meeting when checks, etc. will be distributed.