

Syllabus for International Volcanological Field School, White River Ash session, Summer 2024

**International Volcanological Field School
Investigating the White River Ash eruption and magma storage from Mt. Churchill, Alaska**

GEOS 624- 3 credits

Acceptance into the course is contingent upon 1) a completed application, 2) a reference letter, and 3) permission of instructor

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for the trip. Students must be willing to follow a high level of safety protocols and standards in the lab and pass a lab safety test before starting experiments.

***Pending approval of fee justification. Includes shared dormitory room at UAF for the duration of the course. If students wish to find their own housing or are local, the course fees can be reduced.**

GEOS 424 will be a hybrid field and lab course experience, suitable for undergraduates who would like to learn more about Alaska volcanism, basic field methods, and combine those with hands-on learning about high pressure and temperature magma experiments.

GEOS 624 is an excellent course for students new to the graduate field as an introduction to explosive volcanism, Alaska volcanoes, and experimental petrology as possible future topics for their research careers.

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This course will use a combination of instructional methods: traditional in-class lectures, hands on learning of volcanology and tephrochronology fieldwork methods, fieldnote taking practice, hands on laboratory methods training, field and laboratory safety training

(note- this schedule is subject to change, but should give you a general idea of what to expect)

Day 1: July 14th or earlier: Arrive in Fairbanks. Please arrange for travel to UAF. Be prepared to arrange for your first night of lodging and transportation to and from UAF.

July 15th: ~~Learn about the field school and the field trip (6:00-8:00 AM) Breakfast and lunch~~

Location Reid Hall building at UAF

- Lecture 1- Alaska tectonics, Wrangell Volcanic Field**
- Lecture 2- Mt Churchill and the White River Ash eruption, Physical volcanology 1- Conduit dynamics, plume dynamics**
- Lecture 3- Plinian style eruptions, isopach mapping VEI determination**
- Field preparation- we will go over the field gear and make sure everyone is all set! We will sort through and pack up the field food**

July 16 We will meet at 800

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July 22– Return to Fairbanks (about a 4 hour drive) by mid day. Unpack the vans, check into the dorms, and rest and relax

July 23 Introduction to experimental petrology. Location Reichardt building UAF

- Lecture 4– using petrology to estimate magma storage conditions, tour EPM lab
- Lecture 5– Experimental petrology and phase equilibria, tour exp pet lab
- First day– all hands safety, SOP, and protocols lecture and demonstration of methods

Safety Quiz– students must pass the safety quiz to be able to participate in the experiments

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July 31 (6 to 8 hours): Group phase diagram assembly session in the morning presentations in the afternoon

July 31 evening Farewell dinner! Students may depart this evening or the following morning

Students are expected to participate in all class activities and graded assignments. All participants must be willing to listen to and abide by important safety information and safety related instructions given by instructor both in the field and in the lab. Students should conduct themselves in a manner that is inclusive and respectful of others. No drugs, alcohol, or firearms will be allowed during the field trip. Students will record their field observations in a notebook according to the examples given on the first day before the field trip begins. Students will also keep a laboratory notebook to record experimental parameters for their runs. The 400 level students will participate in the presentations with a graduate student team member. The 600 level students will be expected to help mentor the undergraduates in their experiments and presentation work.

Students should bring their own camping gear. However, if this is a barrier to participation, please contact the instructor who can provide you with loaned gear:

- Tent
- Rain jacket and pants
- Bug net and/or bug spray
- A variety of layers for chilly or wet nights as well as warm sunny days
- Rain jacket and pants
- Long sleeve warm fleece jacket
- Hat for sun or rain
- Study shoes or lightweight hiking boots
- Rain boots if you prefer (like Xtra Tuff brand)
- Sunglasses
- Sunscreen
- Sleeping bag
- Sleeping pad
- 1 L water bottle(s) for personal use
- Personal eating gear (bowl, cup, spoon)
- Field notebook and pencils
- Hand lens
- Handheld GPS- optional
- Any necessary medications or other personal items you can't live without
- Small personal first aid kit
- Laptop for class and lab sessions

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We will provide camp ground cooking gear and related utensils, water jugs, and other communal camp items. Instructor will have a first aid kit, satellite phone, and inReach device for emergencies.

Field notebook

Safety exam- must pass to be allowed to do experiments

Isopach assignment- advanced modeling

Make a capsule

Help load and quench horn run

Help make thick section

Lab notebook

Rhyolite MELTS modeling assignment

Mentorship reflection assignment

Final presentation

Notebooks 20% total, 10% each

Final presentation 25%

Safety Exam 10%

Isopach assignment: 10%

Capsule, plus load and quench run, and make thick section (participation): 10%

Rhyolite MELTS 10%

Mentorship reflection 15%

Letter grades for the course will be given according to the following percentage scale according to the assignment percentages listed above: A+ (100-97), A (96-93), A- (92-90), B+ (89-87), B (86-83), B- (82-80), C+ (79-77), C (76-73), C- (72-70), D+ (69-67), D (66-63), D- (62-60), F (59-0).

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Geosphere 10

Volcanic ash

The encyclopedia of volcanoes

(will be provided to you)

encyclopedia of volcanoes

The

The encyclopedia of volcanoes

Radiocarbon 62

Volcanoes

Bulletin of

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**UAF Department of Equity and Compliance
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uaf-deo@alaska.edu**

I will work with the Office of Disability Services to provide reasonable accommodation to students with disabilities. The Office of Disability Services implements the Americans with Disabilities Act (ADA), and ensures that UAF students have equal access to the campus and course materials. I will work with the Office of Disability Services (208 Whitaker; 907-474-5655) to provide reasonable accommodation to students with disabilities. [uaf.edu/disability/https://www.uaf.edu/disabilityservices/](https://www.uaf.edu/disabilityservices/)