

**TOBACCO ROOT MOUNTAINS  
MONTANA**

*one of the best places in the  
world to learn geology in the field*

here's how to reach us

**EXECUTIVE DIRECTOR**

**Dr. Erika Elswick | [eelswick@indiana.edu](mailto:eelswick@indiana.edu)**

**ENROLLMENT INFORMATION**

**[iugfs@indiana.edu](mailto:iugfs@indiana.edu) | 812-855-1475**

JUDSON MEAD  
GEOLOGIC FIELD STATION  
**2024 summer  
courses**

**[iugfs.indiana.edu](http://iugfs.indiana.edu)**



**EARTH AND ATMOSPHERIC SCIENCES**



**GEOLOGIC FIELD STATION**



# advantages of our courses

## More than 3.5 Ga of geologic history available for study

- Cambrian through Pleistocene sedimentary rock
- Mesozoic and Cenozoic igneous rocks
- Precambrian rock units
- Excellent examples of the three major structural styles found in the Northern Rocky Mountains

## Gain experience with performing field investigations and developing professional skills:

- Time management in the field
- Problem-solving skills and lateral thinking
- Observation, data collection, analysis and interpretation
- Ability to recognize patterns and understand complex systems
- Collect, prepare, process and present data
- Develop independence in field work planning
- Experience with geologic report writing

## Field station facilities and staff are focused on optimizing the student learning experience

- All meals in camp are provided
- Modern classrooms, computer lab and WiFi
- Comfortable dorms
- Numerous recreational opportunities for down time
- World-class curriculum and faculty, from diverse backgrounds

Successful alumni have found professional positions in geoscience education, state and federal agencies, and industry.

We have scholarships available for 2024!

# more flexible course options

All of these courses are open to upper division undergraduates and graduate students

## EAS X429 Field Geology in the Rocky Mountains

6 CREDIT, 6-WEEK CAPSTONE FIELD COURSE **June 3 - July 24, 2024**

This course is designed to prepare students to be successful in a geoscience job or graduate school. It focuses on integration of geology, geochemistry and geophysics to solve 4-dimensional geoscience problems and includes a deep-dive into a subdiscipline concentration of your choosing.

- 3 weeks of intensive outcrop scale field mapping with different objectives each week
- 1 week of regional mapping, incorporating your field work with other data
- 1 week concentration in a subdiscipline of your choice
- 1 week studying classic geology localities across Montana, Wyoming and South Dakota

## EAS X498 Subdiscipline Concentration Courses

1 CREDIT, 1-WEEK **June 29 - July 3, 2024**

Each concentration is a 5-day deep-dive into a subdiscipline. We will be offering five different options, subject to sufficient enrollments. The concentration week is included in X429, but the week is now open to any student who wants to enroll for the 1-week concentration and meets the prerequisites.

## E432 Field Geology Fundamentals in Montana and Wyoming

4 CREDIT, 3-WEEK (40 hours/week) **Virtual Course 22 July – 09 Aug 2024**

The virtual, online version of Field Geology Fundamentals is designed to teach students field geology skills, thought processes and workflows without requiring actually travel into the field. It is recommended for students who are unable to participate in rigorous field experience. It is intensive with the 4 credits, taught online over 3 weeks and assumes a 40 hours/week commitment. The course is taught mostly asynchronously.

# concentration descriptions

The concentrations are designed to expose students to research techniques and skills in the various subdisciplines and projects evolve from one year to the next.

**X429c/498c Igneous Extrusive and Intrusive Systems** uses field relationships and geochemistry to unravel the geologic history and petrogenesis of a local geologic complex.

**X429e/498e Environmental Geology and Surface Hydrology** studies the impacts of mining and other human activity on rock, water, and soil systems.

**X429t/498t Quantitative Structural Geology** uses balanced cross sections to validate possible geometries and quantify shortening in contractional orogenic belts..

**X429s/498s Sequence Stratigraphy, Depositional Facies, and Paleoclimate** studies the relationships of depositional facies, sedimentary structures, fossil assemblages, and geochemistry to untangle depositional environment and paleoclimate interpretations.

**X429g/498g Digital Mapping Techniques** uses quantitative methods to validate possible geometries and quantify geologic process on the landscape.

## Prerequisites

X429 and E432 are capstone courses and require a minimum of two years of a standard undergraduate geoscience curriculum including at least one introductory course plus at least two courses covering the following:

- Sedimentary and/or stratigraphy
- Mineralogy and/or petrology
- Structural geology and/or tectonics

## Daily Schedule

These courses are physically demanding. The typical week is six 8-hour field days with lectures and work sessions in the evening. It is normal to hike 6-10 miles each day in terrain that may reach 1,500' of vertical relief. Average daily temperatures can range from 40oF at night to 90oF during the day. The SW Montana climate is generally dry, but we can experience rain, and even snow any day during the summer.

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contact  
us

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<https://iugfs.indiana.edu/courses/index.html>