

Peaks Island Project

All of us participated in the field research for our class project on the geology of Peaks Island. In the week after our weekend field trip, we compiled our field data, annotated photos, and prepared rock samples. For the next three weeks, we will divide into groups to address different aspects of the project during our laboratories. Then, during the last week of the semester we will present our research through a short paper (abstract) and a presentation. Details of the abstract and presentation assignments are on the next two pages. Below are brief descriptions of the laboratory projects that focus on different aspects of the geology of Peaks Island. We'll teach you the laboratory techniques that you need to complete the projects. By Monday November 8, I ask that you email your top three laboratory project choices to me (rbeane@bowdoin.edu).

Laboratory projects

Geochemistry

What can we interpret about the type of volcano and the composition of magma that formed the Cushing Formation as observed on Peaks Island? This group will plot geochemical data for five samples using the program Igpet, examine corresponding thin sections (microscope slides) for these samples, and compare the results with data from modern volcanoes.

Cushing rocks

What do the minerals and textures of the rocks tell us about the igneous Cushing Formation? We've made over 20 thin sections (microscope slides) of rock samples we took on Peaks Island. Each person who chooses this project will individually examine 1-2 thin sections using the petrographic and scanning electron microscopes. Then, we will combine this information to describe the range of rocks exposed on Peaks Island.

Pyroclasts

What might the length and width data from the pyroclasts tell us about deformation in the area? What are the compositions of the pyroclasts, and how do they compare with the matrix composition or compositions of non-pyroclastic volcanics on Peaks Island? This group will do a strain analysis of the clasts, and examine thin sections of the clasts using the petrographic and scanning electron microscopes.

Dike

What is the mineral and geochemical composition of the dike on Peaks Island? And, how does it compare to other local dikes? This group will examine the thin section of the dike sample using the petrographic and scanning electron microscopes, and will plot the geochemical data for the dike in relation to other dikes analyzed by previous Geo101 classes.

GIS

The field and laboratory data collected for this project need to be organized using a Geographic Information System (GIS). Those who choose this project will work with Joanne outside the normally scheduled lab (instead of coming to the scheduled labs) to use GIS to place the observed geologic contacts and sample localities on a digital map and create links for photos and other data.

Webpage

Photos taken in the field will be annotated and incorporated into a web page that includes a map of the area. This project is ideal for someone who was in Scott's or John's groups. The accompanying write-up will focus on the field relations and variety of rocks found on the Peaks Island.

Blue quartz

What does the blue quartz found with the pyroclasts signify? This group will do a literature search for references and interpretations of blue quartz. They also will examine the blue quartz collected using the petrographic and scanning electron microscopes.

Peaks Island Abstract due Tuesday, December 7

Each of you will need to write a **500 word** abstract of your project. This part of the project is your own individual work; it is not to be done in collaboration with others. It is due on December 7, the same day that you give your presentation.

An abstract is a concise summary of research that precedes an article in a journal or that is placed in a volume distributed at a conference. Generally the abstract is designed to stand alone without referring to the paper or presentation. A well-prepared abstract will summarize the important points clearly, and help the reader decide whether to read the accompanying paper or attend the presentation. Concise writing is imperative: abstracts submitted to geology journals and conferences generally have word limits between 200 and 500 words. You are writing an extended abstract with a limit of 500 words. The extended abstract also should include one key figure or table and a references cited section.

Your abstract should state the main objectives of the research and explain why it is important, describe the methods used, and summarize the results and conclusion. You should put as much specific information into your abstract as possible, including locations, mineral and rock names, significant chemistry, important texture and size information, and so forth. Examples of abstracts will be available in Druckenmiller 216.

Peaks Island Project - Power Point due December 2 - Group Presentation due December 7

After completing your research, it is time to share the findings with the other students in the class through a presentation. Effective presentations promote the exchange of ideas and information between many people, and they are a primary means by which geologists share their research at scientific meetings.

For this presentation, each group will prepare a six minute Microsoft Power Point presentation. This should allow all groups to give their presentations on December 7, with a few minutes allowed for questions in between the presentation. Each group will be allowed 6 Power Point slides. Your presentation will be due December 2. You should put your final presentation on the Collaboration Server in folder Geology\Courses\geo101f04\drop_box. Choose your slides carefully to share all aspects of your research (for example field, petrographic, SEM, or geochemistry), as well as your conclusions and any insights your have made.

Assuming a presentation follows the assignment, then it will be graded primarily as follows:

A

- ✓ Strong research
- ✓ Conclusions are insightful and follow clearly from data
- ✓ Careful organization
- ✓ Photos, graphs, or illustrations in the slides substantiate the oral presentation
- ✓ Clear and artful presentation of information and ideas

B

- ✓ Substantial research
- ✓ Conclusions follow clearly from data
- ✓ Logical flow of information
- ✓ Slides support presentation
- ✓ Clear presentation of information and ideas

C

- ✓ Competent research
- ✓ Conclusions follow from data
- ✓ Adequate organization
- ✓ Slides relate to presentation
- ✓ Perfunctory presentation

D

- ✓ Rudimentary research
- ✓ Unclear how conclusions follow from data
- ✓ Unclear or ineffective organization
- ✓ Uncertain relation of slides to presentation
- ✓ Overall impression of haste

F

- ✓ Superficial research
- ✓ Lacks conclusions or conclusions don't follow from data
- ✓ Lacks organization
- ✓ Slides absent or irrelevant
- ✓ Below the acceptable level of college work