

Approved by Geosciences faculty March 14, 2019

Geosciences Department Independent Study and Undergraduate Research Policy

GEOL 494A-I Independent Study provides students with formal credited opportunities to pursue topics of special interest. This is a type of learning that supplements regular, supervised classroom instruction under the necessary and sufficient guidance of a supervising instructor.

GEOL 498 Research provides an additional registration avenue for students pursuing independent work best characterized as research. To be consistent with university policy GEOL 498 Research requires submission of a formal paper at the end of the course. The purpose and philosophy of the undergraduate research experience is for students to collaborate with faculty on actual research projects that give students firsthand experience to make an original intellectual or creative contribution. Additional resources for faculty interested in engaging undergraduates in research are listed below.

Students signing up for GEOL 494 Independent Study or GEOL 498 Research must engage a faculty member who is willing to serve as the supervising instructor. Before registering, the student and faculty member must write and sign a contract using the department *Request for Approval of Undergraduate Independent Study/Research* form and file it with the Geosciences Office. The Department Head will review and approve, as appropriate. The contract specifies:

- The project title and description
- The number of credit hours
- The types of activities the student is expected to engage in
- The number of hours of weekly effort anticipated (consistent with the university's general policy of 48 hours of directed effort per credit; see credit limits below)
- The expectations for contact between the student and faculty member.
- The project deliverables. At a minimum, GEOL 494 Independent Study should result in a summary report that is approved by the faculty member. This report, upon supervisor approval must be submitted to the Department and retained for at least seven years, per University policy. GEOL 498 Research should result in a formal paper approved by the faculty member and submitted to the Department, where it will be retained for at least seven years. The formal paper may take the form of an abstract and poster presented at the undergraduate research symposium, if appropriate and specified as a deliverable in the contract.

Students enrolled in either GEOL 494 or GEOL 498 will maintain biweekly time sheets logging the nature of their activities and the hours invested throughout the course. These sheets will be submitted to the supervising faculty member biweekly and to the Department at conclusion as an appendix to the summary report or formal paper.

GEOL 494 and GEOL 498 run for one 16-week semester or partial semester and can be repeated for additional credit. A student can earn a total of 6 credits in GEOL 494 and in GEOL 498, but the following program limits apply to how such credits may be used in to fulfill specific requirements in Geology Major concentrations:

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- Geology Concentration: Up to two credits for courses with numbers ending in -82 through -99 may count toward “Geology Electives”. Additional credits may count toward general electives.
- Environmental Geology, Geophysics, and Hydrogeology Concentrations: Credits of GEOL 494 or 498 may count toward general electives.

Students registering for GEOL 494 or GEOL 498 are expected to have completed a basic course in Physical Geology.

Grading for GEOL 494 and GEOL 498 is Instructor Option (which allows for either traditional letter or S/U grading).

Resources on Undergraduate Research

Council on Undergraduate Research

<https://www.cur.org/what/events/students/ncur/>

Starting Point, Teaching Entry Level Geoscience, SERC website

<https://serc.carleton.edu/introgeo/studentresearch/index.html>

<https://serc.carleton.edu/introgeo/studentresearch/refs.html>