

Project proposal template – Faculty studentships Summer 2014

<i>Project title</i>	Constraints on heat production and geothermal energy potential in Scottish granites	<i>Director of Study</i>	Prof Gavin Gillmore
<i>Second Supervisor</i>	Dr Andrew Miles	<i>School</i>	Geography, Geology ▼
<i>Other members of supervisory team</i>	Dr Alistair Mccay (University of Glasgow) Prof Paul Younger (University of Glasgow)	<i>Any requirements from applicant (eg degree in specific subject area)</i>	A 1st or high 2.1 class degree in geology (or related field) is essential ▲ ▬ ▼

**Project summary
(max 1,000 characters)**

Geothermal energy is a potentially viable source of sustainable, low carbon heat and energy and is highlighted as a potentially important addition to the Scottish energy sector. Granite is a target of such geothermal exploration because of the accumulation and decay of radioelements like K, U, and Th. This project will examine how changes in heat flow relate to variations in granite chemistry, with the aim of developing a chemical fingerprint for the highest heat producing granites in Scotland. The successful candidate will investigate the relative importance of different processes responsible for concentrating heat producing elements such as fractional crystallisation, mineralogy, element redistribution by hydrothermal alteration and source rocks. The student will work from both Kingston and Glasgow University for extended periods and will acquire training in using gamma ray spectroscopy to measure heat flow and chemical analytical techniques. The results will be used to guide decision making in geothermal exploration, providing workflows that may allow the hottest part of a granite pluton to be targeted.