Gaia Laidler – Civil Engineering fieldtrip to Scotland, summer 2016

On the 26th of July I went on a 2 week surveying course with the Department of Engineering. The course is part of my fourth year studies in Civil Engineering. We spent 2 weeks learning about high accuracy surveying in a hilly landscape. The output of the course was a set of numerical calculations which led to our team accurately setting-out two points in the fields.

Each day we had early starts, packing the vans with all our equipment before breakfast. Then we spent the day carrying out the necessary surveying tasks in the Lammermuir hills. The first week was predominantly spent fixing control stations using GNSS and carrying out high-accuracy traversing and resectioning using Theodolites and total stations. In the second week we worked on fixing heights by precise digital levelling and trigonometric heighting and long-range distance measurements. We would return to Carfraemill back in time for dinner, after which we had time to work through our day's readings and make the next day's plans.

Throughout the course, we also had daily lectures in the evenings to explain the theory needed for the practical work in hand. Topics covered included the theory of geoids, ellipsoids, projections and grids, the theory and practice of GPS (including the verification of Geoid models) and the theory behind reduction of angles and distances measurement. We also learnt how to use LSQ, a program used for least-squares adjustment, developed by the University Engineering Department.

The course was very enjoyable and we learnt lots about 3D surveying that would be impossible near Cambridge. The entire project was done as a group and this meant that everyone had the opportunity to learn all the different techniques and carry out a variety of exercises. I would definitely recommend it to engineers intending to do a fourth year in Civil Engineering.