My CareerHub SERT project adverts for projects that can count as placements

Placement opportunity title

Staff name(s):	Andrew Ford
Project title:	Optimising terrain mapping in woodland
Project location:	New Forest
Project time (month):	Split between Feb 2019 and Summer 2019

Project Description

Forest and woodland surveys are essential for measuring, modelling and monitoring habitats, wildfire potential, biomass and species richness (amongst other factors), all of which are impacted by human development and anthropogenic climate change to varying degrees. Terrestrial surveys of forest and woodland are often prohibitively time consuming and expensive unless small samples are used. In comparison an entire census of trees in a forest can be conducted using either 1) airborne laser scanning (ALS); or 2) photogrammetry from aerial photography. The former is usually expensive, whereas the latter is increasing employed thanks to the availability of relatively cheap small unmanned aerial systems (sUAS, popularly known as drones). However, unlike laser scanning, aerial photography does not routinely map the elevation of the terrain (i.e. the bare ground) on which the trees are growing, which is essential for estimating their height and other important metrics. This project sets out to test the best timings and methods for optimising drone photography for mapping woodland terrain. In order to do so the terrain within woodland must also be mapped by independent means, in this case field surveying.

This project will use three test sites in the New Forest (deciduous, coniferous and mixed woodland). Prior to fieldwork all students will spend a day on campus be tutored on the use of advanced survey techniques, commonly used in both science and industry, including the use of differential Global Navigation Satellite Systems (GNSS, popularly known as GPS) and Total Station Theodolites (TST). These will then be employed by pairs of students (one pair for each woodland type) to record elevations of bare ground at a multitude of locations. These will be conducted in late January/early

February 2019, so as to 1) avoid the exam period; 2) make surveying quicker and easier, thanks to the leaves being off the deciduous trees; and 3) to coincide as much as possible with ALS flights due to be conducted by Environment Agency aircraft over the New Forest this winter (a rare opportunity).

Additional duties include the deployment and survey of ground control points (GCP) for the drone photography and acting as spotter for the drone flights themselves*. The latter will provide students with an insight into the use and applications of drones for professional purposes. Extra duties, time allowing, may include surveying on the trees themselves, based upon species and metrics such as height, canopy width, trunk girth etc.

Surveying of each field site will take a pair of students two working days (therefore 4 person-days for each site). It is anticipated field sites surveys will be conducted concurrently, as will the drone surveys (weather permitting).

Repeat drone surveys will also be conducted during an extra 1 day at the end of Semester 2 or start of Semester 3 (during mid-summer, i.e. leaf-on conditions), for which two students from the original six will be needed again.

*Please note that due to 1) clauses in the University insurance policies; and 2) laws set out by the Civil Aviation Authority (CAA) students can act as Spotters and regrettably cannot act as Pilot.

Student groups this opportunity is likely to most suit:

Geography, Environmental Sciences,

How much will it cost?

Nothing – public travel costs will be reimbursed. You will need to bring your own lunches.

How many days placement will this count as?

Negotiable with Andrew Ford (must be at least 10 to count as a placement)

How many student places are available?

6

How to apply or find out more information

For further information contact Andrew Ford **aford@bournemouth.ac.uk**.

To apply please send Andrew your CV and a short letter of application explaining why you would like to apply. If accepted onto the placement you must also register your placement place with Julie Gill through myCareerhub for it to count officially as a BU placement.

Deadline for application

21st Dec 2018