RESEARCH STUDENTSHIP OR BURSARY

Research studentships are offered to students wishing to undertake a PhD programme. All studentships are highly competitive and you should ensure (and demonstrate) that there is a good match between your own qualifications and interests and those being sought for the particular studentship.

Research Centre where studentship will be held	Chemical Sciences, Faculty of Natural Sciences, Keele University.
Studentship reference	FNS GS 2018-15
Web link to any further information (e.g. Research Institute)	Faculty Research Office - http://www.keele.ac.uk/fnsro/
Research topic or field - title	The decomposition of carrion in water environments: Implications for search and recovery techniques and PMI estimates
Research topic or field – full description (or attach document)	See below
Available from (date)	January 2019
Funding support available – Fees, stipend, duration	Funding support is provided as follows: 100% UK/EU tuition fees for 3 years commencing January of academic year 2018/2019. Stipend support for three years at Research Council rates (2018/19 £14,777 per annum). Funding for consumables and conference attendance is available.
Source of funding	Keele University, Faculty of Natural Sciences
Eligibility criteria	Applicants must be UK or EU nationals to be eligible for the studentship. BSc in forensic sciences - minimum degree classification 2i. MSc or equivalent in a related subject. An interest in field work (forensic anthropology and geoscience) is essential.
Terms and conditions of studentship	As per the University Code of Practice
Number of studentships available	1
Application details	Go to http://www.keele.ac.uk/pgresearch/studentships/ and click on the "Apply online here" button in this studentship.
Closing date for applications	5th November 2018
Contact for further information and to whom applications will be sent	Informal enquiries about the project should be made to the Project Lead [Vivienne Heaton] and should include a CV. Full applications to: http://www.keele.ac.uk/pgresearch/studentships/

Candidate profile

	Essential	Desirable
Qualifications, Experience and Skills	Degree in forensic science – minimum 2i classification or equivalent. MSc or equivalent in a related discipline. Training or experience in forensic anthropology (specifically forensic taphonomy) and forensic geoscience. Experience of working independently on a research project and scientific writing at a technical and professional level. Competent at word processing, data handling and statistical analysis.	Training or knowledge of decompositional scoring and PMI estimates. Experience of working outdoors on a decompositional project and/or with geophysical survey equipment. Experience of researching/working in the field of water decomposition, search and recovery. Experience of presenting research, both written and orally. Experience in assisting laboratory/outdoor undergraduate practical sessions.
Attitude and Personality	The ability to work both independently and as part of a research team. Self-motivation to undertake advanced research study at PhD level. Excellent communication, interpersonal, organizational and time management skills. Natural inquisitiveness and a flair for problem solving. Willingness to learn new practical skills.	Flexible attitude to working long hours outdoors as well as in the laboratory. Willingness to get involved and assist other researchers with their research projects. Willingness to undertake training outwith the University if so required.

The decomposition of carrion in water environments: Implications for search and recovery techniques and PMI estimates

Drowning is the third leading cause of death by "unintentional injury" worldwide, accounting for approximately 400,000 fatalities annually (World Health Organisation, 2004). In the UK alone more than 300 deceased individuals are recovered from water each year (National Water safety Forum, 2016), their manner of death often being ruled as accidental, suicide or homicide. However, for each individual recovered there is another who remains missing, with research showing that only 45% of bodies deposited in water are recovered within 12 months (Kringsholme et al., 2001).

Despite the increasing number of water related deaths being reported each year, there is a lack of controlled research investigating the environmental variables that impact on the search, recovery and analysis of human remains submerged in aquatic environments. The majority of what is already known is based on published case studies, and whilst there is something that can be learnt from each of these, they are limited in their applicability to future casework and training. This is in part due to the large number of variables related to both the body and the environment, that can influence not just the movement and decomposition of the cadavers (Heaton et al., 2010), but also the effectiveness of the techniques used to locate them (Healy et al., 2015: Ruffell et al., 2017). Research has shown that bodies recovered from UK waterways are similar in regards to their pattern of decay and movement within the watercourse, but there are significant variations observed, even in the same stretch of river (Heaton et al. 2010). Since the extent of decomposition impacts on the size of the target and its movement in the water column (Bassett and Manhein), the fields of forensic geoscience and forensic anthropology are directly linked. Collaborative research between the two fields is essential for furthering our knowledge in this subject.

The aim of the research is to improve the success rates of water searches and increase accuracy for postmortem interval (PMI) estimates. This will be achieved by conducting a series of controlled experiments that cover the fields of forensic anthropology and geoscience, which will allow us to identify the variables that significantly influence the postmortem movement and decomposition of cadavers in water. The results of the study can then be applied to existing casework, allowing us to predict the size of the target (stage of decomposition) and its position/movement in the water, identify the tools most suited to the scene, reduce search times, and increase success rates at recovering individuals.

References:

Bassett, H.E. and Manhein, M.H. (2002). Fluvial transport of human remains in the lower Mississippi River. *Journal of Forensic Sciences* 47(4): 719-724

Healy, C.A., Schultz, J.J., Parker, K. and Lowers, B. (2015) Detecting submerged bodies: Controlled research using Side-Scan Sonar to detect submerged proxy cadavers. *Journal of Forensic Sciences* 60(3): 743-752

Heaton V., Lagden A., Moffatt C. and Simmons T (2010). Predicting the Postmortem Submersion Interval for Human Remains Recovered from UK Waterways. *Journal of Forensic Sciences* 55(2): 302-307

Kringsholm, B., J. Jakobsen, B. Sejrsen & M. Gregersen (2001). Unidentified bodies/skulls found in Danish waters in the period 1992-1996. *Forensic Science International* 123: 150-158.

Ruffell, A., Pringle, J.K., Cassella, J.P., Morgan, R.M., Ferguson, M., Heaton, V.G., Hope, C. and McKinley, J.M. (2017). The use of geoscience methods for aquatic forensic searches. *Earth-Science Reviews* 171: 323-337.