

Equine Science Newsletter 2022

List of Courses

MSc

Equine Science,
 Animal Science,
 Livestock Science

BSc Honours

Equine Science,
 Equine Studies,
 Equine and Veterinary Bioscience,
 Life Sciences

Interested? Phone Debbie Nash on
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Llest Equine Centre news

Normality is resuming!!

We welcomed two new horses to our herd – George and Rocky. They aren't twins, we promise. Both have settled in very well and seem to be enjoying their work life here. They have also stolen the hearts of the students with their unique personalities.

Our unaffiliated dressage and show jumping competitions are back and up running and are proving very popular with the liveries and the local community. It is also nice to see the local Riding Clubs and Pony Clubs using the facilities again.

We are now hosting monthly clinics with Tim Downes. Tim is a Fellow of the British Horse Society, a List 1 Dressage Judge and British Dressage Master Judge, a 5* international 3 day event judge and a British Eventing Master Coach. He is a Chief Assessor for the BHS, a UKCC Assessor and an FEI Olympic Solidarity trainer. Tim has competed in all of the Equestrian Olympic Disciplines and has produced many horses from untrained to advanced levels of competition. He regularly conducts clinics in Ireland, Scotland, Hong Kong, New Zealand and in the UK, so we are very lucky to have him visit us here in Aberystwyth.



George (left) and Rocky (right)

Equine team publication successes

Congratulations to equine parasitology PhD student, Pom Wititkornkul, who has had her first research paper from her PhD published in the journal, *Parasites*. Pom's study established the first transcriptome and secretory proteome for the equine tapeworm, *Anoplocephala perfoliata*. From this, Pom identified immune modulators that are secreted by the parasite, demonstrating key-players likely involved in the host-parasite interaction. This study has therefore given us a better understanding of how the parasite may modulate the horse's immune system to allow it to survive in the host. Pom is supervised by Drs Ruth Wonfor and Russ Morphew.

Furthermore, following the successful completion of her PhD in IBERS, Dr Maithe deBarros published her first paper in *Animals* journal in the summer of 2021. The study assessed the gene expression of uterine lining tissue cultured in the laboratory that may be used to study inflammation in future, avoiding the use of live mares to do so. By assessing the genes expressed by these uterine tissues at different time points during their laboratory life, the optimal time for using them was defined as 24 – 48 hrs after the start of the process. The hope is that these tissues can be used as models in future to explore uterine inflammation and test potential new treatments. Maithe was supervised by Dr Debbie Nash and has since taken up a post-doc position in New York studying human eye conditions.



Maithe deBarros after completing her PhD viva. Left to right: Prof Patrice Humblot (external examiner, SLU, Sweden); Dr Maithe deBarros, Dr Debbie Nash (supervisor); Prof Luis Murr (internal examiner, Aberystwyth University).

Equine research success

The past 12 months have been very busy on the research front with PhD students completing their doctorate training programmes, exciting papers being published and new projects getting underway.

Former PhD student, Dr **Clare Winton** submitted the final paper of three from her thesis. The paper, published in Ecology and Evolution, is titled 'Genetic diversity within and between British and Irish breeds: the maternal and paternal history of native ponies'. The work provides valuable information and recommendations to guide breeding and conservation of native pony breeds for preserving their genetic resources. Clare's PhD was supervised by Drs Debbie Nash, Matt Hegarty and Mina Davies Morrel.

We also have a number of exciting equine MRes projects currently underway.

Cosette Darby is using a cutting-edge laboratory model to assess the effect of an anthelmintic (a worming drug), specifically praziquantel used to kill tapeworms, on the caecal microbiome. Kat Montgomery is seeking to improve equine egg freezing using techniques developed for human oocyte vitrification.

Josh Downing (MRes.), **Daniella Amiouny** (undergrad.) and **Line Lekang** (undergrad.) are currently carrying out important research projects into equine sleep. Sleep is critical for the wellbeing of all domesticated animals and yet the lack of sleep is rarely monitored. The horse in particular, because it stands for such large portions of the day (approximately 80%), has limited opportunity to engage in sleep states, particularly REM sleep which requires the animal to be lying down with no muscle use. Horses are seen as 'opportunistic sleepers' reflecting an evolutionary strategy of predator avoidance (by not lying down) with higher frequencies of coming in and out of sleep states. This means that the horse is potentially more susceptible to getting poor sleep due to changes in its environment (e.g. unfamiliar sounds, changes of stable, changes in lighting). The aim is to examine how routine changes in husbandry (bedding depth and night time light exposure) might affect sleep duration in the horse and also how this might be impacting on important aspects of behaviour and cognition such as learning and memory. Josh, Daniella and Line will be presenting their results at this year's UFAW conference in Birmingham www.ufaw.org.uk/bham20. Very best of luck with these exciting studies!



Sternal recumbent behaviour



Lateral recumbent behaviour



Equine and Veterinary Bioscience student wins industry award

Kathryn Wilson, a final year BSc Equine and Veterinary Bioscience student spent a year working for Randox Biosciences as part of her Year in Employment Scheme (YES). She worked in a Business Development Role, helping them to launch a new range clinical molecular diagnostic tests. During her time she participated in 14 conferences throughout the UK and Ireland negotiated contracts with several universities for biochemistry instruments. Every year Randox hold a competition for all their intern students, and Kathryn was runner up Business Student of the Year for 2019 of a total of 62 students! Huge congratulations!

Students on all our BSc Equine and Equine and Veterinary Bioscience courses have the opportunity to take a year in industry, to gain valuable employability skills.



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