Aims and objectives

The aim of this course is to explore some of the many physiological and neural systems that modulate patterns of behaviour in a range of species, including humans. It will highlight the importance of integrating information from both psychology and neuroscience disciplines in order to further our understanding of how and why animals and humans behave the way they do in different situations. The course will deal with examples of mechanisms across different levels of complexity (from genes to physiology, focussing on the actions of hormones). The course will include lectures and student presentations/journal club discussions based around current research articles in the field and a practical session with hands on experience of a physiological technique.

Course organisation/administration

The module will mostly follow the standard structure of senior honours modules in the School. You will be given a list of articles that are relevant to each week’s topic at the start of the semester. These will be available on Moodle. The initial part of each week (50 min) will provide you with background information about each topic in a lecture format. The second half will be in the form of a discussion group, where we will discuss the Moodle papers for each week. Each student will be expected to sign up to ONE week’s discussion and TWO people will lead the discussion each week, you can work in pairs if you wish. Please note that everyone will need to read the papers for each week for us to have a proper discussion, you do not just have to read the papers for the week you are leading! Guidance will be given on how to lead a paper discussion at the lecture in week 1. We will also be running a practical and this will be over two weeks, one week to collect the samples and go over the assay you will do and then one week to actually run the samples.

The module co-ordinator is Karen Spencer. I can be reached via email (kas21@st-andrews.ac.uk) or found in room 2.53 in Psychology. I do not have office hours as such, but have an open door policy. If you need to see me then you have two options; either pop into my office and if I can help right away I will, or email me and I will respond within 24 hours to give you an appointment to see me. Other than that I can be approached at the weekly sessions.

Assessment

The course has 3 continuous assessments [reference sections not counted in word count in any of these]:

1) Lay summary (500 words max.). This will be a summary of one of the papers that have been presented in the discussion part of the class. You can choose any paper that has been presented, if you need help deciding which one to choose please ask! You will be expected to describe and evaluate the chosen paper briefly in terms of: 1) importance of topic, 2) methods used, 3) results found and their significance. This will be written in a lay style. This will be in the style of a long abstract, but emphasis is made on the evaluation of the paper as well as purely describing the study. DEADLINE for submission: 3rd March 2017

2) Technical report (2500 words max.). You will be required to write up the practical session (week 6) in the form of a short paper using the traditional format of intro/methods/results [with stats analysis]/discussion/references. A good example of how a paper can be written in 2500 words is the journal Biology Letters, so it might be worth having a look at it. Guidance will also be given on how to write the paper in the practical session. The practical will involve two sessions of 2 hours – one to
collect the samples and introduce the assay that you will carry out and then another to carry out the analysis. **DEADLINE for submission: 31st March 2017.**

3) **Essay (1500 words max.).** This is a traditional essay, requiring an evaluation of the evidence to date and suggestions for future research directions. Students should read outside the papers provided to obtain a good mark. You will be able to choose from 5 essay questions and these will be posted on Moodle at the start of term. **DEADLINE for submission: 14th April 2017.**

**Timetable of lecture themes – please note practical sessions may move dates – TBC at the start of semester 2**

- **Week 1:** General introduction to the course, assessment and the main integrative research themes (e.g. behaviour, hormones, neuroendocrinology).
- **Week 2:** Individual behaviours: This lecture will give an insight into behaviours important at the individual level, such as sleep, risk-taking, eating habits and responses to stressful stimuli.
- **Week 3:** Social behaviour I: In this lecture we will explore how individuals interact in small and large groups, aggression and also the mechanisms that underlie an animal’s ability to compete for resources within a group of conspecifics.
- **Week 4:** Social behaviour II: Mate choice is a critically important determinant of reproductive success. This lecture will focus on the neuroendocrine mechanisms underlying sexual preference for mates and discrimination of mate quality. In addition we will explore the regulation of behavioural traits aimed at attracting a mate.
- **Week 5:** Reproductive behaviour: Here we will look at the mechanisms that underlie sexual behaviour in males and females.
- **Week 6:** Practical session 1. Collection of samples and overview of assay and write up.
- **Week 7:** Practical session 2. Enzyme-immunoassay kits used to determine hormone levels
- **Week 8:** Parental care I: This lecture will focus on which physiological and hormonal traits modulate both maternal and paternal care in a range of species.
- **Week 9:** Family life: This lecture will focus on how parents interact and look at family conflict, including sibling rivalry, parental conflict and cooperation and divorce.
- **Week 10:** Development of behaviours: Here we will investigate the role of early life conditions in shaping later behaviours – and track the physiological systems that can be affected and drive the behavioural changes.
- **Week 11:** Overview session and Q&A

**Reading list – general background**

These are books that give an overview of physiological/endocrine mechanisms and will be a good companion to the lectures and journal papers we will explore. Most are available as ebooks via SAULCAT.


Reading list for discussion sessions will be posted on Moodle at the start of term.

Transferable skills/Graduate attributes.

This course aims to expand your skill base. During the course you will be assisted to demonstrate original thought, construct a coherent argument or debate, and apply critical analysis and evaluation and reason from specific issues and examples to the general. You will also be able to test hypotheses, theories, methods and evidence within their proper contexts. You will need to demonstrate the use of an appropriate range of resources to the task at hand, which will involve engaging directly with current research, developments and skills in the discipline. You will gain experience of dealing with primary and secondary material and learn how to differentiate between them. The course also facilitates skills in active learning, reflective learning and will hone your creative skills. As you are able to choose the sources you write about the course will also allow you to demonstrate independence of thought and reasoning and improve your skills in time management. The practical work that you will undertake will also allow you develop your advanced IT skills, your knowledge of quantitative methods of analysis and you will be able to demonstrate expertise in the use of statistical software packages for recording, manipulation & analysis of data.