



PHYSIOLOGY

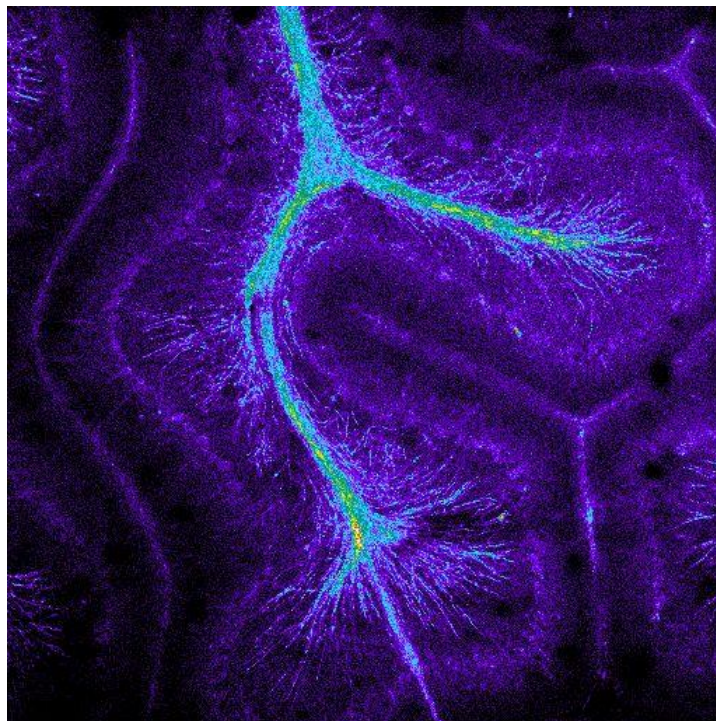


Image: Myelinated axons entering the cerebellum
(Ragnhildur Karadottir & David Attwell, 2013)

INFORMATION FOR BSc and IBSc STUDENTS

(Programme codes: UBSPHLSING05 & UBIMEDWPHL01)

2017/18

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INTRODUCTION

Welcome to the Physiology degree programme in the Faculty of Life Sciences and the Division of Biosciences.

The Division of Biosciences was formed in 2008 when the Faculty of Life Sciences was re-organised. The Division has a number of undergraduate and IBSc programmes covering the Biosciences area – such as Pharmacology, Neuroscience, Physiology, Biochemistry, Biological Sciences and Anatomy.

UCL Biosciences is one of the largest multi-disciplinary research environments in the UK with over 120 research active laboratories. State-of-the-art research facilities enhance the research environment and provide students with the possibility of acquiring research skills.

University College London has a well-established tradition of distinguished teaching and research in Physiology that goes back to the foundation of the subject in the early 1800s. The first Department of Physiology in the world was established at UCL in the mid 19th century. Of the many Nobel Laureates who have worked at UCL, three have taught and had their laboratories in the Physiology Department which is now part of the Neuroscience, Physiology and Pharmacology (NPP) Research Department.

One of the great attractions of Physiology is that its scope is wide. It is as interested in the workings of the whole animal as it is in the workings of the individual cells that make up the animal. You will find physiologists studying the blood supply, digestion, breathing, hormones and the brain. You will also find them looking at how cochlear hair cells respond to different stimuli and how a single photoreceptor responds to a photon of light or what makes individual cells divide and grow. Broad as this scope is, there is a central theme in Physiology: that of the relation of the parts to the whole. It is this integrative bias that distinguishes Physiology from other biological sciences. Physiologists often use the ideas and methods of Physics, Chemistry, Engineering, Biochemistry, Molecular Biology (and even occasionally some mathematics) in coming to an understanding of how animals work: what makes the physiologist's approach different is the emphasis on how the parts fit together and influence one another to make a whole.

Together with the Biosciences Divisional Handbook, these notes are intended to inform BSc and IBSc students about the organisation of the Physiology programmes, and to help students have an enjoyable and productive College life. The aim is also to try to answer some of the questions students commonly ask (or sometimes feel unsure about, but are too shy to ask!). The best way to contact members of staff is by email. Email addresses can be found on the UCL Directory: <http://www.ucl.ac.uk/directory/>

The following pages should be read in conjunction with the information about your modules provided at the start of each module and by referring to the College and Examination Regulations in the UCL Academic Manual, which can be found at: <http://www.ucl.ac.uk/academic-manual>.

Physiology students are encouraged to join the student-run Bernard Katz Society (<http://www.facebook.com/group.php?gid=2210873847>)

CONTACTS AND COMMUNICATION MECHANISMS

Important Staff Contacts

Head of Teaching NPP: Prof. Talvinder Sihra

Location: Medawar Building Room 334

Email: t.sihra@ucl.ac.uk , Tel: 020 7679 3296 (internal 33296)

Physiology Programme Tutor: Dr. Ian Edwards

Location: Medical Sciences Building, Room GM02

Email: i.edwards@ucl.ac.uk , Tel: 020 3108 4060, (internal 54060)

Please call or email Dr. Edwards for an appointment (in an emergency, messages can be left in the Teaching Office, room G10, Medawar Building).

Physiology Teaching Administrator: Mr Nick Clarke

Email: n.m.clarke@ucl.ac.uk

Location: Division of Biosciences Teaching Office, Room G10, Medawar Building

Tel: 020 7679 3751 (internal 33751)

The Biosciences Teaching Office

Your first point of contact for general enquiries and submission/collection of coursework is the Teaching Office located in Room G10, Medawar Building, open 09.30 am - 4.00 pm Monday to Friday. Out of term opening hours are Monday to Thursday 10am-12noon & 2-4pm, Friday 10am-12noon.

Staff Communication: Email and Moodle Forums

Please use your UCL email address for all communication with staff. It is important to save staff contact details in your email address book, to ensure important messages do not go into your junk or clutter folders. You will also receive important emails from staff via your module Moodle Forums. We strongly discourage the use of the Moodle message email digest facility, in case you miss important communication. To check, go to the drop down under your name in the top right hand side of your Moodle home page and under 'Preferences' and make sure you are set up as 'No digest (single email per forum post)' in your 'Forum Preferences'.

Personal Tutor

Students are provided with a Personal Tutor from within the Division of Biosciences who is responsible for monitoring your academic progress and providing pastoral support. Students are expected to meet your tutor at least once a term to discuss your progress and plans for the future.

Further Sources of Support

[Student Union Rights and Advice Centre](#) is located at 25 Gordon Street, London, WC1H 0AY. Tel: 020 7679 2998

[UCL Student Disability Services](#) provide a comprehensive range of support services for students who have a disability which impacts upon their studies at UCL. Location: level 4, UCL Institute of Education, 20 Bedford Way, London, WC1H 0AL. Email: disability@ucl.ac.uk

[UCL Student Psychological Services](#) is dedicated to helping UCL students with personal, emotional and psychological concerns. Location: Ground Floor, 3 Taviton Street, London WC1H 0BT. Tel: 020 7679 1487. E-mail: g.nandagopal@ucl.ac.uk (Gopiha Nandagopal, Senior Executive Officer)

[The Student Centre](#) is located on the ground floor of the Chadwick Building on the Gower Street Campus and is open from 10:00 – 16:00, Monday, Tuesday, Thursday and Friday. On Wednesdays the Student Centre is open 11:00 to 17:00.

[Ridgmount Practice](#) (formerly Gower Place Practice) is the UCL Health Centre. Registered students can make appointments or attend the walk-in surgery which operates from Monday – Friday between 9.30am to 10.30am and 2.30pm to 3.30pm. Ridgmount Practice is located at 8 Ridgmount Street.

UCL Student Support and Wellbeing is working in partnership with [Care first](#) to provide students with an out of hours support and information helpline. Information and counselling are provided via telephone from Monday to Friday from 5pm to 9am, at weekends and during Bank Holidays and College closure periods.

Staff-Student Consultative Committee (SSCC)

The joint NPP SSCC meets two times per year to provide a forum for discussions between staff and students. All students are invited to contribute to SSCC meetings by providing items for the agenda to Dr. Ian Edwards (i.edwards@ucl.ac.uk) or Dr Martina Wicklein (m.wicklein@ucl.ac.uk) who co-chair the SSCC meetings, or via the student representative from the programme on the SSCC.

If you would like to become a student representative for Physiology, please give your name to Mr Nick Clarke or contact Dr. Ian Edwards.

Nominations for SSCC representatives can be made early in the autumn term. The NPP SSCC is, however, open to any student wishing to attend to voice their views on a module or programme.

The dates of the Staff Student Consultative Committee (SSCC) meetings and minutes will be posted on a Moodle site for the SSCC (<http://moodle.ucl.ac.uk/course/view.php?id=9563>).

The Head of Teaching normally attends the SSCC meetings as well as other members of staff according to the needs of the agenda. All the main groups of undergraduate and postgraduate students present in NPP are represented on the SSCC.

The Physiology student representative/s from the SSCC are also invited to attend meetings of the Programme Teaching/Steering Committee and the NPP Teaching Committee for agenda items relevant to matters raised at the SSCC.

PROGRAMME OF STUDY

The programme of study is designed to give you a good background in all areas of Physiology and to provide some advanced training in specialized areas. The degree also teaches you a variety of transferable skills including presentation and communication skills.

A reading list is supplied with each module unit and items are listed as either strongly recommended, preferred or background reading.

Aims and Objectives of the BSc Physiology and Integrated BSc Physiology

In both our programmes we aim to:

- Recruit high calibre students.
- Stimulate the student's interest in the subject.
- Inform students of the basic facts on which their knowledge can be built.
- Promote the capacity for self-education.
- Develop the ability to evaluate critically both theories and evidence.
- Provide teaching that is informed by research.
- Produce graduates well equipped for advanced study, research, and for a wide variety of careers in the private or public sector.

Common objectives are that students should be able, as appropriate, to:

- Compile and critically evaluate information (study skills).
- Use a range of common laboratory techniques competently and safely, as part of a team or individually.
- Plan, carry out and compile a detailed report on a piece of original research that they have personally conducted (specific subject knowledge, research skills, report writing).
- Demonstrate the development of skills necessary to work both as individuals and as part of a team, e.g time management, decision making, sharing of resources, co-operation with others, autonomous learning.

Additional specific aims and objectives for each degree programme are:

BSc Physiology

Aim to:

- Meet the national need for graduates who have a detailed knowledge of specialist subjects and can apply this knowledge in a research environment.

Objectives - Students graduating should:

- Have followed a coherent programme of study which includes a broad grounding in life sciences.
- Have detailed knowledge of a chosen area.
- Be familiar with selected current research issues.
- Be aware of relevant state-of-the-art research techniques.

Integrated BSc Physiology

Aim to:

- Provide the opportunity for in-depth study of a defined area of medical science.
- Develop the skills needed for research into a selected topic.

Objectives - Students graduating should:

- Have detailed knowledge of the specialist area they have chosen.
- Be familiar with selected current research issues.
- Be aware of relevant state-of-the-art research techniques.

CURRICULUM

Term Dates

Term 1: Monday 25 September 2017 - Friday 15 December 2017

Term 2: Monday 08 January 2018 - Friday 23 March 2018

Term 3: Monday 23 April 2018 - Friday 08 June 2018

Induction Week: Monday 25 September - Friday 29 September 2017

Reading Weeks: Monday 06 November – Friday 10 November 2017
Monday 12 February – Friday 16 February 2018

Additional teaching sessions such as practicals and tutorials may be scheduled during the term 1 and term 2 Reading Weeks and you must be available to attend these. **Reading Weeks should not be viewed as a holiday.**

Main Exam Period: The UCL exam period runs from late April to late May - you could have exams scheduled at anytime during this period so you must be available on all these dates. The exam timetable is published by Central Exams, and should be made available directly to students by the end of term 2.

Common Timetable Teaching Blocks

Modules run within the [Common Timetable](#) structure. Most modules include small-group tutorial sessions as well as lectures, and most have in-course assessments (practical reports, essays, oral presentations etc.), usually amounting to 20 - 30% of the total.

	Monday	Tuesday	Wednesday	Thursday	Friday
9am – 11am	Block A	Block B	Block C	Block D	Block E
11am – 1pm	Block C	Block D	Block E	Block A	Block B
1pm – 2pm	Lunch break *	Lunch break *	Lunch break *	Lunch break *	Lunch break *
2pm – 6pm	Block F	Block G		Block H	Block I

* The lunch break may be used by some modules for teaching which cannot be timetabled otherwise.

Life Sciences Faculty (Harmonised) Marking Scheme (November 2015)

Descriptor	Percentages	Notes to Guide Examiners (marks for individual questions)
exceptional performance	91 - 100	<i>91-100</i> An outstanding answer, work submitted publishable in current form.
High 1st	81 - 90	<i>81-90</i> An excellent answer, original and showing a deep and critical understanding of the question. Work potentially publishable.
Mid-range 1st	76 - 80	<i>76-80</i> Clear first class answer; almost everything included that you can think of (containing critical discussion of facts or evidence). Well argued, to the point. No significant errors.
Low 1 st	70 - 75	<i>70-75</i> A very good, correct answer, showing insight and well written.
High 2i	66-69	A well organised and well expressed answer which shows clear understanding; a good number of correct facts, with no significant errors, but lacking the critical insight of a 1st class answer.
mid-range 2i	65	
low 2i	60-64	
High 2ii	56-59	Undoubtedly sufficient to pass but not enough detail, and/or not sufficiently well constructed or well argued to be considered for a 2:1. May have had potential for a higher grade but contains one or two significant errors. MSci Pass
mid-range 2ii	55	
low 2ii MSci Pass	50-54	
High 3 rd MSci Fail	46-49	MSci Fail Adequate number of relevant points to pass (BSc) but muddled presentation. Several significant errors or very poor expression of material. Poor judgment about what is important.
mid-range 3 rd	45	
low-mid 3 rd	40-44	
Fails/referrals Referrals are NOT available to 1 st year or final year students or for students on M- or G-level modules	35-39	Addresses question set but supplies inadequate information, Relevant points counterbalanced by multiple significant errors. No judgement about balance of what is important or what is trivial. With a little extra work, candidate could pass (BSc).
fail	25-34	<i>25-34</i> Tries to answer question set but shows weak knowledge of subject/core concept throughout.
clear fail	15-24	Numerous and significant errors, poor presentation <i>15-24</i> Doesn't answer question set; little understanding of topic/core concepts but makes a few (2-3) relevant points.
weak fail	1-14	<i>1-14</i> Doesn't answer question set or is unacceptably brief, little/no understanding of the topic/core concepts but makes a single relevant point.
zero	0	<i>0</i> irrelevant/unintelligible and/or doesn't answer question of fails to provide an answer.

Pass mark for BSc modules = 40% and no referrals for 1st year or final year students.

Pass mark for M-level and G-level modules = 50% and no referrals.

Course Unit Assessment

Your performance is assessed by coursework (e.g. essays and practical write-ups) which are usually marked by tutors, and by final examinations at the end of each year.

BSc Physiology

For Science students the final B.Sc. degree classification is based on a weighted overall mark calculated using results from all three years. The weighting is 1:3:5 for the 1st, 2nd and 3rd year respectively, with other specific requirements stipulated below. In final evaluation of the overall degree, marks from the best 10.5 course unit (1st year, 3 course units; 2nd year, 3.5 course units; 3rd year, 4 course units) will be considered, but note below the total number of course credits required for progression and completion.

In order to progress from Year 2, students must be complete in the 4.0 course units from Year 1, and have passed at least 7.0 course units, and be registered to complete in their final year any course unit not yet complete. However, students may not progress from Year 2 or register for incomplete course units or re-sit attempts if they have exhausted the permitted number of opportunities.

For the consideration of an award of an honours degree, a minimum of 11 course units should be passed on a three-year programme with three course units passed at advanced level, Twelve course units overall must be completed on a three-year programme.

Further information can be found via the 'UCL Academic Regulations for Students' documentation: <http://www.ucl.ac.uk/srs/academic-regulations/docs/ug-section2.pdf>

IBSc Physiology

For Integrated BSc students the weighting for the final degree classification is 1:1:6 for 1st, 2nd and 3rd (integrated) year respectively.

Information about in-course assessment within a course unit is given by individual module organisers in the module documentation. Criteria for the assessment of course units are as follows:-

- Your depth of knowledge and understanding of the module contents.
- Knowledge of set texts and original articles relevant to the module.
- Accuracy and clarity of the work produced by the student.
- Skill in essay writing and presentation, including the correct use of English.
- Relevance to the set question and appropriate use of references.
- Credit is given for original ideas, as long as they are relevant.

Strength in these areas will normally result in high marks. Coursework submissions are usually expected to be made as duplicate paper copies AND on-line, through the use of Turnitin®

Year 2 Modules

Students must take a total of 4 course units in their 2nd year.

The following modules are compulsory:

PHOL2001: Animal and Human Physiology: Integrative Physiology	0.5cu
PHOL2003: Systems Neuroscience	0.5cu
PHOL2005: Structure and Function of Nervous Systems	0.5cu
STAT6101: Introductory Statistical Methods and Computing	0.5cu
BIOC2002: Essential Protein Structure and Function	0.5cu
BIOC2003: Essential Molecular Biology	0.5cu

Students must then select a further 1cu, so long as the timetable does not clash with the above and at the discretion of the degree programme tutor.

Language courses are also an option.

Year 2 Term Timetables

Year 2 Term 1					
	Monday	Tuesday	Wednesday	Thursday	Friday
9 AM	Block A BIOC2003 Essential Molecular Biology	Block B PHOL2001 Integrative Physiology	Block C PHOL2005 Structure and Function of the Nervous System	Block D	Block E STAT6101 Intro to statistical methods & computing (group A)
10 AM					
11 AM	Block C PHOL2005 Structure and Function of the Nervous System	Block D	Block E STAT6101 Intro to statistical methods & computing (group A)	Block A BIOC2003 Essential Molecular Biology	Block B PHOL2001 Integrative Physiology
12 PM					
1 PM					
2 PM	Block F	Block G STAT6101 Intro to statistical methods & computing (group B) PHOL2001 Integrative Physiology		Block H STAT6101 Intro to statistical methods & computing (group B) PHOL2001 Integrative Physiology	Block I PHOL2005 Structure and Function of the Nervous System
3 PM					
4 PM					
5 PM					

Reading week term 1: Some PHOL2005 Structure and Function of the Nervous System practical groups will run in reading week.

Year 2 Term 2

Monday Tuesday Wednesday Thursday Friday

9 AM	Block A BIOC2002 Essential Protein Structure and Function	Block B PHOL2003 Systems Neuroscience STAT6101 Intro to statistical methods & computing (Group C)	Block C	Block D	Block E
10 AM					
11 AM	Block C	Block D	Block E	Block A BIOC2002 Essential Protein Structure and Function	Block B PHOL2003 Systems Neuroscience STAT6101 Intro to statistical methods & computing (Group C)
12 PM					
1 PM					
2 PM	Block F	Block G		Block H PHOL2003 Systems Neuroscience	Block I
3 PM					
4 PM					
5 PM					

Year 3 Modules

Listed below are the modules currently offered to students in the 3rd year of their BSc or IBSc. A total of 4 course units are studied, made up of a combination of 1.0 cu or 0.5 cu modules, which must include either a laboratory* (1.5 cu) or literature* (1.0 cu) project. Students should take 2 cu worth of study in each teaching term (1st and 2nd terms). Also listed are modules offered by other departments that may be taken as part of the 4 course units required for the degree programme.

Module rules:

Students MUST take either PHOL3902 or PHOL3904. Students can then take a minimum of 2 credits and a maximum of 3 credits from the modules below. Students may take undergraduate module(s) elsewhere within the Faculty of Life Sciences, so long as the timetable does not clash with any of their chosen modules and at the discretion of the degree programme tutor.

PHOL3001 Respiration in Health and Disease	0.5 cu	Term 2
PHOL3002 Heart and Circulation	1.0 cu	Term 1
PHOL3004 Cell Signalling in Health and Disease	1.0 cu	Term 1 & 2
PHOL3006 Cellular Basis of Brain Function	1.0 cu	Term 1
PHOL3009 Space Medicine & Extreme Environment Physiology	1.0 cu	Term 1
PHOL3011 Autonomic and Central Control of Cardiorespiratory Function	0.5cu	Term 2
PHOL3016 Cell Polarity and Disease	1.0 cu	Term 1
ANAT3042 Pain	0.5 cu	Term 2
NEUR3031 Control of Movement	0.5 cu	Term 2
NEUR3045 Visual Neuroscience	0.5 cu	Term 2
NEUR3001 Advanced Visual Neuroscience	1.0 cu	Term 2
NEUR3003 Metabolic Neuroscience	0.5cu	Term 2
CELL3001 Stem Cell and Regenerative Medicine	0.5cu	Term 2
CELL3050 Advanced Molecular Cell Biology	0.5cu	Term 1
*PHOL3902 Literature Project	1.0 cu	
*PHOL3904 Laboratory Project	1.5 cu	

Further information on these modules can be found further in this handbook, on the Division of Biosciences webpages <https://www.ucl.ac.uk/biosciences/degree-programmes/modules-teaching> and Faculty of Life Sciences module database: <http://www.ucl.ac.uk/lifesciences-faculty-php/courses/search.php>

Year 3 Projects

Project Selection Procedures and Criteria

Projects may research any topic of relevance to Physiology. Students will already have been contacted by e-mail to start the project selection procedure detailed at: <https://www.ucl.ac.uk/biosciences/departments/npp/study/npp-projects> . After browsing the list of supervisors/laboratories offering projects, students decide their fields of interest, and formally apply to five supervisors/laboratories in order of preference as indicated on the aforementioned web-site.

PHOL3902 literature projects for 3rd year BSc and IBSc students will be assigned based on student preference and then, for over-subscribed projects, on merit (i.e. based on 2nd and 1st year marks).

For PHOL3904 laboratory projects, once a supervisor has accepted a student for supervision and agreed on an appropriate project title, projects have to be registered with Dr. Fry by completion of a Registration Form available from the PHOL3904 Moodle page, or online from the NPP Projects website.

All students must normally have achieved an overall mark of at least 60% in the 2nd year to do a laboratory project. Admission to laboratory projects will remain at the discretion of the prospective supervisor and Projects Tutor.

The exact time-tabling of the project is decided between the student and the supervisor. While frequent interaction with the supervisor is essential with PHOL3904 laboratory projects, students are reminded that PHOL3902 literature projects should also involve at least five "steering meetings" with the supervisor, which are arranged by the student.

While technically nine weeks are allocated for the PHOL3904 1.5-unit module, students are reminded that this allocation includes the time reading around the subject before beginning experiments and for analyzing the results and writing the report. Allowing laboratory work or writing-up to impinge on the time allocated for other modules is usually extra effort for diminishing returns and is accordingly to be discouraged.

Project Assessment

For both PHOL3902 (literature project, 1.0 unit) and PHOL3904 (laboratory project, 1.5 unit) the project report comprises the major component of the final assessment. For laboratory projects, students' laboratory performance will also be taken into account in the final assessment.

PHOL3902 Literature Projects will be assessed by a poster presentation and a written dissertation. PHOL3902 students will be required to have had at least five supervisory meetings during the project with their supervisor. The dates of these are flexible, but the onus is on the student to ensure that these meetings are arranged and documented on the Progress Form (found on the aforementioned web-site and the PHOL3902 Moodle page), which will need to be returned together with the completed project dissertation at the end of the year.

PHOL3904 Laboratory Projects will be assessed by a supervisor's report on the student's laboratory performance, a poster presentation, and by a written dissertation. Poster presentations for PHOL3902 and PHOL3904 will be held in the penultimate week of Term 2, prior to project submission.

Project dissertations for PHOL3902 and PHOL3904 should be typewritten. Dissertations are expected to be a maximum of 7500 words. If the dissertation is in excess of this maximum word limit, the standard UCL penalties will be applied. All sources of information in the project must be properly referenced, both in the text and in the bibliography. Students must check Project Moodle pages for word limit regulations.

Extensive unacknowledged use of published text is considered as [plagiarism](#). The penalty for plagiarism is severe with a Department Panel (DP) being automatically convened to consider every reported instance. Recommendations of DPs have in the past ranged from a deduction of marks, according to the extent of plagiarism, to a complete nullification of the module mark.

Two copies of the written project reports together with an electronic copy of the project text submitted to Turnitin© must be submitted no later than the stated deadline (at the end of Term 2 before the Easter break) unless prior arrangements for late submission have been approved by the Faculty Tutor.

The submission of the electronic copy of the project text is compulsory and will be scanned for journal/text-book or web-based plagiarism, using Turnitin software designed for the task.

All projects will be double marked by the supervisor and one other field expert. The mark for laboratory projects will include an assessment of practical skills and diligence in the lab as well as academic skills. The Department is obliged to keep both marked copies for the Physiology Examination Board meeting in June. These copies are not returnable, therefore students should retain an electronic and/or hard copy for their own records.

For more details on project preparation and assessment, please refer to the relevant project guidelines from: <https://www.ucl.ac.uk/biosciences/departments/npp/study/npp-projects> as well as relevant Moodle pages for PHOL3902 and PHOL3904.

Project Tutor Contact Details:

PHOL3902 & PHOL3904

Dr. Jonathan Fry

j.fry@ucl.ac.uk

020 7679 6214

Year 3 Term Timetables

Term 1

	Monday	Tuesday	Wednesday	Thursday	Friday	
9 AM	Block A PHOL3002 Heart & Circulation PHOL3006 Cellular Basis of Brain Function	Block B	Block C PHOL3004 Cell signalling In Health and Disease PHOL3009 Space Medicine & Extreme environment Physiology	Block D	Block E PHOL3016 Cell Polarity and Disease CELL3050 Advanced Molecular Cell Biology	
10 AM						
11 AM	Block C PHOL3004 Cell signalling In Health and Disease PHOL3009 Space Medicine & Extreme environment Physiology	Block D	Block E PHOL3016 Cell Polarity and Disease CELL3050 Advanced Molecular Cell Biology	Block A PHOL3002 Heart & Circulation PHOL3006 Cellular Basis of Brain Function	Block B	
12 PM						
1 PM						
2 PM	Block F CELL3050 Advanced Molecular Cell Biology	Block G PHOL3004 Cell signalling In Health and Disease PHOL3009 Space Medicine & Extreme environment Physiology			Block H PHOL3002 Heart & Circulation PHOL3006 Cellular Basis of Brain Function	
3 PM						Block I PHOL3016 Cell Polarity and Disease
4 PM						
5 PM						

Term 2

	Monday	Tuesday	Wednesday	Thursday	Friday
9 AM	Block A NEUR3031 Control of movement PHOL3001 Respiration in Health and Disease CELL3001 Stem Cell and Regenerative Medicine	Block B PHOL3011 Autonomic and Central Control of Cardiorespiratory Function	Block C	Block D ANAT3042 Pain NEUR3001 Advanced Visual Neuroscience PHOL3004 Cell signalling In Health and Disease	Block E NEUR3003 Metabolic Neuroscience
10 AM					
11 AM					
12 PM	Block C	Block D ANAT3042 Pain NEUR3001 Advanced Visual Neuroscience PHOL3004 Cell signalling In Health and Disease	Block E NEUR3003 Metabolic Neuroscience	Block A NEUR3031 Control of movement PHOL3001 Respiration in Health and Disease CELL3001 Stem Cell and Regenerative Medicine	Block B PHOL3011 Autonomic and Central Control of Cardiorespiratory Function
1 PM					
2 PM					
3 PM	Block F	Block G NEUR3045 Eye & Brain PHOL3001 Respiration in Health and Disease NEUR3001 Advanced Visual Neuroscience		Block H PHOL3011 Autonomic and Central Control of Cardiorespiratory Function	Block I PHOL3004 Cell signalling In Health and Disease
4 PM					
5 PM					

DETAILED 2ND YEAR MODULE INFORMATION

Compulsory Modules:

[PHOL2001: Animal and Human Physiology](#)

0.5 units

Course organiser: Dr. Brian King

Term 1 Blocks B, G & H

This module is designed for students with a background knowledge of Mammalian Physiology, but who are not enrolled in the Physiology BSc degree programme, yet wish to increase their knowledge of the major physiological systems. This course excludes the central nervous system which is covered in PHOL2003 (Systems Neuroscience) and PHOL2005 (Structure & Function of the Nervous System). In addition to lectures and tutorials, the course includes practical work in cardiovascular & respiratory physiology and in endocrinology.

Module assessment: Unseen three-hour written examination 60%; Online MCQ test 10%; Two written accounts of lab/field work 30%.

[PHOL2003: Systems Neuroscience](#)

0.5 units

Course organiser: Dr. Margaret Mayston

Term 2 Blocks B & H

This neurophysiology course aims to advance and consolidate knowledge gained during the first year course PHOL1001. It will allow students to develop specialist interests in motor and sensory physiology. The course also provides a forum to develop transferable skills.

Module assessment: Unseen three-hour examination 65%; Group presentation 10%; Two online MCQ tests 25%.

[PHOL2005: Structure and Function of the Nervous System](#)

0.5 units

Course organiser: Dr. Frances Edwards and Prof. Kristjan Jessen

Term 1 Blocks C, I

This course is an introduction to neurobiology. It covers neural structure and function, organisation of the vertebrate nervous system, sensory pathways and perception, neurochemistry and pharmacology and the neural basis of behaviour. The course is available in the first or second year. It assumes a basic knowledge of biological principles (eg A-level). This module aims to give an overview of how the nervous system functions and how it is structured. It is broad and introductory in nature rather than selective and detailed. Using lectures, practicals and revision tutorials the module covers molecular, cellular, systematic and behavioural aspects.

Module assessment: In-course assessment 25%; Unseen three-hour written examination 75.00%.

STAT6101: Introduction to Statistical Methods and Computing

0.5 units

Course organiser: Dr. Matina Stamatiki Rassias

Term 1 / 2 (depending on your timetable, groups assigned after Portico registration)

This course provides an introduction to statistical methods and interpretation of data, along with associated computing. It provides some expertise in applying quantitative methods in the Life and Physical Sciences. The statistical methods covered are useful in the routine analysis of scientific methods, as might be encountered in other course units. Weekly practical exercises are set and are carried out in supervised workshops. There are no formal lectures for this course; all classes are workshops at which attendance is compulsory. The syllabus includes: descriptive statistics and graphical methods; introduction to probability theory; use of normal, binomial and Poisson distributions; confidence intervals and significance tests applied to one and two sample problems by parametric and non-parametric methods; goodness-of-fit and contingency tables; correlation and regression; use of the Minitab statistical computing package.

Module assessment: Details available from Department of Statistical Science

BIOC2002: Essential Protein Structure and Function

0.5 units

Course organiser: Prof. Stephen Perkins

Term 2 Blocks A

This half course unit is designed for students whose principal discipline is not Biochemistry, but whose interests lie in the broad area of biological sciences. It is primarily a lecture course with tutorials and a dry lab practical on protein structures. The course covers key topics in protein structure and function. The depth of understanding of these topics that the students will attain will equip the student for final year studies in non-molecular based fields of biological science such as Anthropology, Psychology, and Physiology, or in some cases Human Sciences.

Module assessment: Unseen two hour written examination 80%; Test 20%.

BIOC2003: Essential Molecular Biology

0.5 units

Course organiser: Prof. Stephen Perkins

Term 1 Blocks A

The 1/2 unit course, intended for students not specialising in Biochemistry, is a lecture course with tutorials. It covers topics in molecular biology.

Module Assessment: Unseen two hour written examination 80%; Test 20%.

DETAILED 3rd YEAR MODULE DETAILS

PHOL3902: Literature Project in Physiology

1 unit

Module organiser: Dr. Jonathan Fry

Term 1 or 2 Blocks - Any

A literature-based project allowing final year students to conduct physiological research, utilizing library resources, on a subject/topic offered by a member of staff in the Division of Biosciences or associated departments. See <https://www.ucl.ac.uk/biosciences/departments/npp/study/npp-projects> for further information.

Module assessment: Poster presentation 30%; report 70%.

PHOL3904: Laboratory Project in Physiology

1.5 units

Module organiser: Dr. Jonathan Fry

Term 1 or 2 Blocks - Any

A research based project which allows final year students to conduct some original research in the laboratory of a member of academic staff or in one of the laboratories of one of our associated Institutes or, with the approval of the Project Tutor, in the laboratory of a non-associated Institution. See <https://www.ucl.ac.uk/biosciences/departments/npp/study/npp-projects> for further information

Module assessment: poster presentation 15%; Report 70%; Laboratory performance 15%

PHOL3001: Respiration in Health and Disease

0.5 unit

Module organiser: Prof. Alex Gourine

Term 2 Blocks A & G

This module examines the control of breathing particularly in humans, in a wide range of physiological and pathophysiological conditions including exercise, altitude, sleep and asthma. The relationship between respiratory function, structural anatomy and pathological states are explored.

Module assessment: Oral Presentation (10 minutes) 20%; Summary of Oral Presentation (One page) 5%; Unseen two-hour written examination 75%.

PHOL3002: The Heart and Circulation

1 unit

Module organiser: Prof. Lucie Clapp

Term 1 Blocks A & H

The module builds upon your primary knowledge of the heart and circulation. Essential aspects of cardiac and vascular physiology will be considered. This will enable you to grasp a number of areas of experimental, applied and patho- physiology.

Module assessment: Organ Bath Pharmacology Prac 5.00%, Poster presentation (15 minutes) 15.00%, Unseen three-hour written examination 60.00%, Essay (3,000 words) 20.00%.

PHOL3004: Cell Signalling in Health and Disease

1 unit

Module organiser: Dr. Julie Pitcher

Term 1 Blocks C & G and Term 2 Blocks D & I

All cell processes are regulated by signalling pathways. The correct regulation of cell processes is critical for the development and homeostasis of animals whereas dysregulation of these processes results in diseases as diverse as diabetes, schizophrenia and cancer. Taking advantage of the outstanding research environment at UCL, this module will consist of a series of lectures and associated journal clubs presented by research scientists of international renown. The lecturers will discuss the signalling pathways that regulate distinct cell processes such as proliferation, cell:cell communication, motility, differentiation, fertilisation and cell death. Each researcher will focus on their own research strengths to present an overview of the field, followed by a presentation of work from their own laboratory. The associated journal club will discuss a recent innovative piece of work related to the research area.

Module assessment: Essay 10%; One orally assessed coursework 10%; One written coursework/problem paper 10%; Unseen three-hour written examination 70%.

Note: Students are not permitted to take both PHAR3004 and PHOL3004

PHOL3006: Cellular Basis of Brain Function

1 unit

Module organisers: Prof. Angus Silver, Prof. Jonathan Ashmore & Dr. Beverley Clark

Term 1 Blocks A & H

The course covers the description of brain function from Molecule, to Cell and to System levels. The detailed topics include: 1) Methods, ion channels, channelopathies, transporters and ischaemia; 2) Synaptic transmission, plasticity, integration and dendrites; 3) Metabolism, microcircuits, coding, sensory processing, neural networks and the control of behaviour. This structure is designed to provide a thorough grounding in the cellular mechanisms of brain function in health and disease.

Module assessment: Two essays 25%; Unseen three-hour written examination 60%; Two practical write ups 15%.

PHOL3009: Space Medicine and the Extreme Environment Physiology

1 unit

Module organisers: Dr. Kevin Fong and Dr. Daniel Martin

Term 1 Block C & G

The Module aims to: 1) To provide an understanding of the physiological effects of the space environment upon the human body and the biomedical problems associated with long and short duration manned space flight. 2) To explore the physiological effects of ascent to high altitude and understand the pathophysiology of altitude induced illnesses. 3) To understand the effects of the hyperbaric environment experienced underwater and the benefits of hyperbaric oxygen administered in a chamber. 4) To discuss the issues faced when travelling to areas of extreme temperature and how the body adapts to them.

Module assessment: Unseen two and a half hour written examination 80.00%, One essay (2,000 words) 10.00%, One seminar presentation (10 minutes) 10.00%

PHOL3011: Autonomic and Central Control of Cardiorespiratory Function

0.5 units

Module organiser: Dr. Ian Edwards

Term 2 Block B & H

This module will look at the autonomic control of the cardiovascular and respiratory systems. The module will cover the anatomy of the autonomic nervous system (introducing the relevant peripheral and central areas that are involved in homeostatic control), the sympathetic nervous system and the parasympathetic nervous system (specifically how they interact to control the activity of the cardiovascular system), the central respiratory network and how it establishes normal breathing patterns, and finally how the activity in these pathways changes in response to exercise and disease. This will be accompanied by a mini-project comparing the sympathetic/parasympathetic balance in different exercise paradigms.

Module assessment: Project report (2,000 words) 20.00%, Laboratory worksheets 10.00%, Unseen three-hour written examination 70.00%.

PHOL3016: Cell Polarity and Disease

1 unit

Module organisers: Prof. Shamshad Cockcroft and Dr. Anselm Zdebik

Term 1 Block E & I

Epithelial cells form sheets that cover the surface of the body and line the internal organs and perform vectorial functions. The module aims to provide an understanding of epithelia tissues by describing: how the polarization of epithelia is maintained; the mechanisms underlying the regulated directional transport of ions, nutrients and water across epithelia; normal physiological function of the renal, gastro-intestinal and respiratory systems.

Module assessment: Unseen three-hour written examination 60%; Seminar presentation 10%; two In-class written essays 20%; Invigilated Paper Review 10%.

NEUR3003: Metabolic Neuroscience

0.5 units

Module organiser: Dr. Stefan Trapp

Term 2 Block E

The lectures in this module cover metabolic neuroscience research at an advanced level. They provide a thorough understanding of the physiology of metabolic regulation based on current ongoing research in this area. The lectures cover metabolic disease and discuss current and novel treatment strategies. Finally, emphasis is placed on the key technical approaches applied in metabolic neuroscience and their critical evaluation, as addressed in the journal club. The in-course assessment and associated guidance is aimed at honing both verbal and written presentation skills within the subject area. The content of the course is delivered through 22 lectures given by research-active experts in the respective areas. This will be supplemented by a series of Journal clubs and Seminars where each student will be taking the lead in turn. These presentations will form part of the in course assessment together with the preparation of a 'News and Views' style review article selected from a variety of topics.

Module assessment: Review article (2,000 words) 15%, Unseen three-hour written examination 70%, Oral presentation 15%.

NEUR3031: Control of Movement

0.5 unit

Module organiser: Prof. Christopher Yeo

Term 2 Block A

The module begins by considering the anatomy and physiology of essential components of the motor system; muscles and the motor unit; proprioception; spinal integration; ascending and descending pathways in the spinal cord; motor cortex; basal ganglia and cerebellum. The integrated action of these systems in locomotion, voluntary movements and eye movements is considered. The module includes tutorials with target papers through the course and concludes with analyses of motor learning and modelling of motor control.

Module assessment: Unseen three-hour written examination 100%

NEUR3045: Visual Neuroscience

0.5 unit

Module organiser: Prof. Andrew Stockman

Term 2 Block G

This module will teach visual neuroscience from a broad, interdisciplinary point of view. Our modern understanding of vision and visual processing depends not only on the more traditional fields of anatomy, physiology and psychophysics, which remain centrally important, but also on the fields of genetics, molecular and cellular biology, ophthalmology, neurology, cognitive neuroscience and brain imaging. In this module, we will present visual neuroscience as a multidisciplinary, yet integrated field of study. This half unit also makes up part of the full unit module NEUR3001 "Advanced Visual Neuroscience".

Module assessment: Unseen two-hour written examination 80%; Oral presentation 20%.

ANAT3042: Pain

0.5 unit

Module organiser: Prof. Steve Hunt

Term 2 Block D

1. To provide an interdisciplinary view of the neuroscience of pain. 2. To provide a basis for understanding the major clinical problem of chronic pain. 3. To introduce current ideas about pain management. 4. To relate research on pain to broad ideas about the organisation of the nervous system, especially sensory systems.

Module assessment: Unseen three-hour written examination 80%; 1 Essay 20%.

CELL3001: Stem Cells and Regenerative Medicine

0.5 unit

Module organiser: Prof. Tim Arnett

Term 2, Block A

The aim of the module is to provide an up-to-date survey of the rapidly changing field of stem cell research, from fundamental principles to the practicalities of regenerative medicine. Realistic assessments of progress to date and future potential will be made.

Module assessment: Unseen two-hour written examination 100%

CELL3050: Advanced Molecular Cell Biology

0.5 unit

Module organisers: Dr. Jonathan Chubb & Prof. Geraint Thomas

Term 1 Blocks E and F

Introduction to concepts and problems in selected topics of current cell biology Understanding the methods by which data are obtained and their limitations To study original scientific literature relevant to cell function To develop skills to judge the quality and validity of literature.

Module assessment: Unseen three-hour written examination 75%; Essay (1,500 words) 20%; Practical 20%.

UCL CAMPUS MAP

