

**GRIFFITH UNIVERSITY GOLD COAST
SCHOOL OF HEALTH SCIENCE**

1010HSC PRINCIPLES OF PHYSIOLOGY – COURSE OUTLINE

Year of Offer: 2004	Semester of Offer: 1	Credit Point Value: 10
Access: Open	Miscellaneous Offering: No	
Program/s for which course is designed: BExercise Science, BExSci/BEd, BPhysiotherapy/ExSci, BExSci/BBusines, BExSc/BArts (Psychology) BHSc, BDSc		
Status of course within Program:	1 st year, core	
Prerequisites:	Nil	
Expected Enrolment:	380	
Course Convenor:	Dr. Glenn Harrison Room number: GO5 2.21 Phone: 07 555 28529 Email: g.harrison@griffith.edu.au	
Physiology Facilitator:	Ms Melanie Forsyth Room number G05 1.30 Phone: 07 555 29149 Email: m.forsyth@griffith.edu.au	
Teaching Team Members:	Dr Glenn Harrison, Dr Steve Ralph, Dr Jay Browning, Tutors, Laboratory Demonstrators.	

OBJECTIVES

At the end of this course the student will be able to:

- appreciate the wonder and complexity of physiology
- understand in broad terms human physiological structure and function
- place the study of physiology and developments in physiology in a historical context
- know how to use modern information technology to search and reference physiology material
- describe functional organisation of the human body and control of its internal environment
- describe the cell, its components and its function
- demonstrate an understanding of genetic control of protein synthesis, cell function and cell reproduction
- describe transport of ions and molecules throughout the cell membrane
- demonstrate an understanding of membrane potentials and action potentials
- understand how the majors controlling systems of the body, endocrine and central nervous system
- discuss the major regions and functions of the brain and spinal cord
- describe how hormones react with cell receptors to bring about cell, organ and homeostatic changes
- list the major organs of the endocrine system, examples of their hormones and provide examples of homeostatic control pathways

BRIEF DESCRIPTION

This course will provide a strong foundation and basis for an understanding of human physiology. Important historic milestones in physiology will be introduced in order to help place study of this course in the context of current and predicted physiological science developments. Particular attention will be paid to understanding the link between structure and function, particularly at a cellular level. Students will begin to appreciate the concept of excitable membranes, with reference to the nervous system. The concept of physiological control will be introduced.

LECTURE TIMES: 1. TUESDAY 1100-1300 G06 2.05 (100 SEAT CAPACITY)

2. TUESDAY 1600-1700 G06 2.05 (100 SEAT CAPACITY)
REPEAT 1. THURSDAY 1500-1600 G03 LT1 (280 SEAT CAPACITY)
REPEAT 2. FRIDAY 0800-1000 G17 LT4 (300 SEAT CAPACITY)

Please note: students need to attend 3 hours of lectures per week as **EITHER** lecture times 1&2 (Tuesday) **OR** repeat times (Thursday/Friday). There are **NO LECTURE SIGN-ONS**, it is “first-in first-seated” on a weekly basis for the Tuesday lecture slot (100 seat) with the remainder of students having to take the Thursday/Friday lecture times. Please note due to the 2hour and 1hour lecture combinations it will not be possible to take one Tuesday and one Thursday/Friday lecture.

ORGANISATION AND TEACHING METHODS

Student learning in this course will be facilitated via a number of strategies. Formal lectures will provide opportunity for students to be provided with a guided passage through the key topics in this course. The lecture series will rely on pre-reading and post-reading of the textbook, and supplementary lecture notes, internet searching and other materials provided for specific topics.

There will be 1 x 1hr and 1 x 2hr lectures per week. Weekly tutorials (starting week 2) will provide opportunity for students to ask questions based on the previous weeks lecture material and participate in interactive learning exercises with tutors and their peers. Opportunity will be provided for informal testing via short quizzes and case studies regarding key topics.

Practical laboratory sessions will allow development of practical laboratory skills, and principles of practice in physiology such as careful measurement, safe practice, careful recording and meticulous observation. Laboratory handouts will be downloaded and printed from the course web-site, completed within the laboratory class and submitted at the end of the session, graded to provide a learning record and returned at the start of the next session. There will be a 3-hour laboratory session every second week.

A web-based course site (Blackboard) specific to 1010HSC POP will be established and used by teaching staff to post lecture presentations / laboratory notes / tutorial / exam results / quizzes etc. Students will become aware of how to access this system in the first week of lectures. Students are expected to check this web-site regularly as important information may only be available on-line and not in hard-copy.

LABORATORY SESSIONS

There are five (3-hour) laboratories during the semester, each laboratory is run in 14 sessions over each two week period. Students will therefore complete one laboratory every fortnight, laboratories start in Week 3/4. You will need to sign-on for a laboratory session, this is done during the sign-on days during orientation week (group lists will then be posted on the convenor's door). Please choose carefully as all sessions will be full (30 per group only) and groups will be finalised in Week 2 with very few changes possible, swapping laboratory times during semester is not allowed.

Laboratory 1(Weeks 3-4)	Use & calibration of the light microscope (+ Histology slide analysis Physio-Ex)
Laboratory 2(Weeks 5-6)	DNA isolation, structure & function (+Cell Transport Mechanisms Physio-Ex)
Laboratory 3(Weeks 8-9)	Compound action potential analysis (AT HOME LAB FROM PHYSIO-EX 4.0)
Laboratory 4(Weeks 10-11)	Brain Anatomy and CNS
Laboratory 5(Weeks 12-13)	Homeostatic functions and Endocrine Control (+ Endocrine System Physio-Ex)

Please note that attendance to laboratories is compulsory. Failure to attend more than one laboratory without acceptable reason is likely to result in the student being awarded a Fail grade for the course. Verification that adequate laboratory records/reports have been completed will be undertaken at the end of the semester.

Students will be required to be properly attired, that is to have a white coat, long hair tied back, and feet covered (open sandals are not acceptable for either sex). Under all circumstances assume the need for **Universal precautions** when handling or otherwise exposed to body fluids, including blood, saliva or urine. Specific aspects of Laboratory Safety will be covered, where appropriate, during the year. Students will be made aware of other Health & Safety requirements prior to laboratories commencing.

TUTORIALS

There are 12 weekly (1 hour) tutorials during the semester, they start in Week 2. There are 19 tutorial sessions each week. You will need to sign-on for a tutorial session, this is done during the sign-on days during orientation week (group lists will then be posted on the convenor's door). Please choose carefully as all sessions will be full (20 per group only) and groups will be finalised in Week 2 with very few changes possible. Swapping tutorial times during semester is not allowed. A role is taken by the tutor and kept for grading.

Please Note: When a tutorial session falls on a public holiday (eg Good Friday Week 6, Anzac Day Week 8, Labour Day Week 9), students must attend another tutorial session during that week only, so that the tutorial is completed.

ASSESSMENT

End of Semester Exam - 55% This exam will be conducted during the nominated exam period (weeks 14-16) and includes multiple choice, short and long answer questions, and cover all material covered in lectures, laboratories & tutorials weeks 1-13.

Mid-Semester Exam – 20% This exam will be conducted within the allotted lecture slot (Monday Week 7) and includes only multiple choice style questions and will cover material covered in lectures from weeks 1-5 only.

Laboratory reports - 20% Satisfactory completion of the five laboratory reports and computer-based simulations from PhysioEx4.0.

Tutorial Participation - 5% Tutorials are compulsory and important for your learning and understanding of the physiology material. Attendance will be kept by your tutor and any failure to attend consecutive weekly tutorial sessions can only be credited by providing a medical certificate or similar.

TEXTBOOK

Prescribed Textbook: Rhodes and Pflanzer. *“Human Physiology”* 4th Edition Thompson Learning 2003.
+
Stabler and Zao *“PhysioEx 4.0 Laboratory Simulations in Physiology”* Pearson Education 2003.

You will find copies of this textbook and Physio-Ex 4.0 at the University BookShop. Copies of the text can be found in the library. The lecture material for this and future physiology courses will approximately follow the chapters in this book. You will find that the 1010HSC course website has direct links to this textbook with chapter summaries, review quizzes and links to other physiology based information.

Students are advised that lecturers may use material and figures from other physiology textbooks and over the next three years it will be necessary and advisable to have access to a second physiology textbook. Some of the Physiology textbooks used by lecturers include:

Lauralee Sherwood *“Human Physiology”*, 5th Edition. Thomson Brooks/Cole. http://www.brookscole.com/cgi-brookscole/course_products_bc.pl?fid=M20b&product_isbn_issn=0534395015&discipline_number=22

Marieb *“Human Anatomy & Physiology”* 5th Edition

Guyton *“Textbook of Medical Physiology”*, 10th Edition

Boron & Baulpaep *“Medical Physiology”*, 1st Edition, W.B. Saunders 2003.

Ganong *“Review of Medical Physiology”*

Stuart, Ira, Fox *“Human Physiology”* <http://www.mhhe.com/biosci/ap/foxhumphys/>

Silverthorn DE. *“Human Physiology: An Integrated Approach”* Prentice Hall 2001.

<http://cw.prenhall.com/bookbind/pubbooks/silverthorn2/>

Berne and Levy *“Physiology”*

Johnson *“Essential Medical Physiology”*

Martini *“Fundamentals of Anatomy and Physiology”*

NOTE: As you can see other textbooks have web-sites which you are free to access for more information.

1010 HSC PRINCIPLES OF PHYSIOLOGY LECTURE TIMETABLE

WEEK	TEACHING WEEK	TOPIC	LECTURER	CHAPTER
3/3	1	1. Introduction to Course, Tutes & Labs 2. The History of Physiology 3. Organization of the Body	GH GH GH	1 1
10/3	2	1. Study and Learning Physiology 2. Macromolecules and Thermodynamic Principles 3. Cells Structure and Function I	GH SR SR	1 2 3
17/3	3	1. Cells and Function II 2. Cell Life Cycle 3. Intracellular Control	SR SR SR	3 3 5
24/3	4	1. DNA RNA & Proteins I 2. DNA RNA & Proteins II 3. Overview of Cellular Metabolism	SR SR SR	5 5 6
31/3	5	1. Overview of Membranes 2. Gradients and Movement 3. Membrane Transport Mechanisms I	JB JB JB	4 4 4
7/4	6	1. Membrane Transport Mechanisms II 2. Good Friday (NO LECTURE) 3. Good Friday (NO LECTURE)	JB	4
14/4	7	MID SEMESTER EXAM FRIDAY 23rd APRIL 8-10AM LT4 (G17) 8-9AM = HEALTH SCIENCE STUDENTS, 9-10AM PES STUDENTS		
28/4	8	1. Organization of Nervous System 2. Membrane Potentials 3. Action Potentials I	JB JB JB	7 7
5/5	9	NOTE TUESDAY LECTURES CANCELLED, THURSDAY/FRIDAY ONLY		
		1. Action Potentials II 2. Synapses 3. Integration of Neural Information	JB JB JB	7 7 7
12/5	10	1. Introduction to Control Systems (CNS and Endocrine) 2. Sensory receptors and Pathways 3. Motor systems and Pathways	GH GH GH	7-15 8 9
19/5	11	1. Autonomic Nervous System I 2. Autonomic Nervous System II 3. Central Integrative Systems	GH GH GH	10 10 11
26/5	12	1. Central Integrative Systems 2. Introduction to Hormones and their Action 3. The Endocrine Glands and their actions	GH GH GH	11 12 12
2/6	13	1. Hypothalamus and Pituitary 2. Adrenals and Pancreas 3. Review and Exam Preparation	GH GH JB, GH	13 14/15

IMPORTANT NOTE ON TIMETABLE: All Timetabled items (lectures/labs/tues) from Monday 3rd May (Labour day holiday) are rescheduled on Tuesday 4th May (Tuesday timetable cancelled). Lectures for Week 9 are available only on Thursday/Friday.

ADMINISTRATION

Ms Sarah Braisby is the School Administration Officer (School of Health Science office, level 2, G05 2.13), and routine enquires on School/University policies can be directed to her. Enquires about the content and teaching of “Principles of Physiology” should be directed to the lecturers concerned, or the Course Convenor.

Feedback will be provided about each assessable activity. Allocation of grades will be according to Griffith University Assessment Policy:

High Distinction (HD) > 85%
Distinction (D) 75% - 84%
Credit (C) 65% - 74%
Pass (P) 50% - 64%
Pass Conceded (PC) 45%-49%
Fail (F) < 45%

- This course (1010HSC Principles of Physiology) is a pre-requisite for the second semester “1011HSC Physiological Science I” course for all students in the School of Physiotherapy & Exercise Physiology and the School of Health Science. Those who do not pass in Semester I *will not be permitted* to enrol in this Semester II course.
- It should be noted that a Pass Conceded (PC) grade, *does not* enable this course to be used a prerequisite for another course. Students who obtain a Pass Conceded grade will be offered a supplementary exam (SP grade will appear on published results) and this supplementary exam will be timetabled prior to the start of semester II, 2004. If a student passes the supplementary exam, overall grade is PASS, if not overall grade is PASS CONCEDED.
- If students are experiencing any difficulty with the material, or any related aspects of this course then they are strongly encouraged to discuss the situation with tutors, lecturers or course convenor. It is the role of these people to facilitate your learning and it is your responsibility to let someone know if you need some assistance.
- Please consult the online Griffith University handbook for all information regarding requests for deferred or supplementary assessment, or special consideration.

NOTE ON MEDICAL CERTIFICATES:

Provision of a *valid* medical certificate for a laboratory/tutorial session only gains students a pass grade (50% of the assessment value) for that session or an equivalent attendance mark. Further marks can be obtained for successfully attempting the item to the best of the students ability.

COURSE EVALUATION

In the last week of the 1010HSC course, you will be asked to complete a course evaluation, which allows you to provide comments to the teaching staff about your experiences in POP. These comments are anonymous and are used to improve the course in future years.

THANK YOU AND WELCOME TO 1010HSC PRINCIPLES OF PHYSIOLOGY



DR GLENN HARRISON