



## Course specification

<b>Description: Physiology and Pathophysiology 1</b>						
Subject	Cat-nbr	Class	Term	Mode	Units	Campus
NSC	3620	40391	1, 2005	EXT	1.00	Toowoomba

<b>Academic group:</b>	FOSCI
<b>Academic org:</b>	FOS004
<b>Student contribution band:</b>	2
<b>ASCED code:</b>	010913

### STAFFING

Examiner: Ron Atkinson  
Moderator: Andrew Hoey

### RATIONALE

The purpose of this course is to provide the nursing student with an understanding of the functioning of the human body in health and disease. It should also have this benefit for other health science students. With this in mind, emphasis is placed on the physiology and pathophysiology of those body systems important in the clinical components of nursing courses in the second and third semesters of the program. The course therefore, also considers whole body homeostasis. An effective grounding in these topics is essential to enable nursing students to understand the clinical disorders they will be required to manage.

### SYNOPSIS

This course examines the concepts, nomenclature and some diagnostic procedures associated with disease states, the principles of inheritance, tissue maintenance and neoplasia, the physiology and pathophysiology of blood, body fluid maintenance, nutrition, metabolism, and the pathophysiology of the cardiovascular, respiratory and digestive systems.

### OBJECTIVES

On successful completion of this course students will be able to:

1. explain the concepts of cellular and whole body homeostasis and define the most widely used terms that describe aspects of ill health;
2. summarise the principles and purposes associated with the devices used for medical imaging or other diagnostic or monitoring reasons.
3. describe the fundamental processes involved in the inheritance of specific traits;
4. explain the essential differences between inherited and congenital disorders, and list some of the more common and important examples of each;
5. summarise the processes whereby tissue cells maintain and replace themselves as needed, with particular reference to the phenomenon of mitosis;
6. define the tissue growth patterns known as atrophy, hypertrophy, hyperplasia, metaplasia, dysplasia, and neoplasia and explain their clinical significance;

7. describe the production, maintenance and functions of the various components (both cellular and soluble) of blood;
8. describe the physiology of the cardiovascular system in health and its more important pathophysiology in ill-health;
9. describe the physiology of the respiratory system in health and its more important pathophysiology in ill-health;
10. list the various body fluid compartments and outline the interactions that occur between these compartments as the result of changes in body water, electrolyte, and acidity levels;
11. describe the physiology of the kidneys and explain how they serve to maintain body fluid homeostasis;
12. describe the more common disease states involving the human kidneys and body fluid systems;
13. summarise the physiology of the digestive (gastro-intestinal) tract and associated organs such as the liver and pancreas, and describe the major disorders that affect these organs;
14. list the important nutrient components of the human diet and state their purposes and the consequences to the body of a continuing deficiency or excess of each nutrient.

## TOPICS

	Description	Weighting (%)
1.	HOMEOSTASIS AND DISEASE DIAGNOSIS - Principles of homeostasis in the state of health; some terms and general features associated with disease states: the principles behind some commonly used imaging and monitoring devices; the role of pathology tests in the diagnosis of diseases.	8.00
2.	GENETICS AND CONGENITAL DISORDERS - Principles of inheritance; genes, loci and features of chromosomes; inheritance laws and patterns; inheritance of disorders; congenital effects not due to genetic abnormalities.	11.00
3.	TISSUE GROWTH PATTERNS AND NEOPLASIA - The cell cycle; tissue growth, maintenance and repair processes; abnormal growth patterns, including atrophy, hypertrophy, hyperplasia, metaplasia, dysplasia and neoplasia; the pathophysiology of benign and malignant neoplasms.	11.00
4.	BLOOD - Functions of blood plasma components; haemopoiesis; functions and fates of the formed elements of blood; some neoplastic diseases of the bone marrow and lymphoid organs.	14.00
5.	THE CARDIOVASCULAR SYSTEM - Normal functions of the heart and vascular systems, including the lymphatics; controls of cardiovascular functioning; major diseases of the heart and blood vessels; shock as a pathophysiological phenomenon.	12.00
6.	THE RESPIRATORY SYSTEM - Normal functions of the respiratory tree; principles of gas exchange across the alveolar linings; controls of respiratory activities; major diseases of the respiratory system.	11.00
7.	THE KIDNEYS AND BODY FLUID BALANCES - Normal functions of the kidneys and lower urinary tract; major diseases	11.00

of the kidneys and urinary tract; body fluid compartments and their interactions; factors controlling the volumes and concentrations of the various body fluid compartments; diseases of the body fluid compartments; maintenance of body fluid pH; acidosis and alkalosis.

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| 8. | THE DIGESTIVE TRACT AND ASSOCIATED ORGANS - Functions of each component of the digestive tract, including the associated exocrine glands; pathophysiology of important diseases of the digestive tract, liver and pancreas. | 11.00 |
| 9. | NUTRITION AND METABOLISM - Nutrients in the human diet and their functions; major disease states with nutritional aetiologies; normal controls of body metabolism; human disorders of metabolic origin.                     | 11.00 |

### **TEXT and MATERIALS required to be PURCHASED or ACCESSED**

ALL textbooks and materials are available for purchase from USQ BOOKSHOP (unless otherwise stated). Orders may be placed via secure internet, free fax 1800642453, phone 07 46312742 (within Australia), or mail. Overseas students should fax +61 7 46311743, or phone +61 7 46312742. For costs, further details, and internet ordering, use the 'Textbook Search' facility at <http://bookshop.usq.edu.au> click 'Semester', then enter your 'Course Code' (no spaces).

McCance, KL & Huether, SE 2001, *Pathophysiology, the Biological Basis for Disease in Adults and Children*, 4th edn, CV Mosby, St Louis.

### **REFERENCE MATERIALS**

Reference materials are materials that, if accessed by students, may improve their knowledge and understanding of the material in the course and enrich their learning experience.

Atkinson, R 2001, *Physiology and Pathophysiology 1 and 2*, University of Southern Queensland, Toowoomba.

(CD Package)

Braunwald, E 2001, *Harrison's Principles of Internal Medicine*, 15th edn, McGraw-Hill, New York, Vol 1,2.

Cotran, RS, Kumar, V & Collins, T 1999, *Robbins Pathologic basis of Disease*, 6th edn, WB Saunders, Harcourt Brace and Company, Philadelphia.

Marieb, EN 2004, *Human Anatomy and Physiology*, 6th edn, Benjamin/Cummings, Menlo Park, California.

Porth, CM 2002, *Pathophysiology, Concepts of Altered Health States*, 6th edn, JB Lippincott, Philadelphia.

## STUDENT WORKLOAD REQUIREMENTS

ACTIVITY	HOURS
Assessment	20.00
Directed Study	46.00
Examinations	2.00
Private Study	97.00

## ASSESSMENT DETAILS

Description	Marks out of	Wtg(%)	Due date
ASSIGNMENT 1	20.00	20.00	08 Apr 2005
ASSIGNMENT 2	20.00	20.00	20 May 2005
2HR CLOSED EXAMINATION	75.00	60.00	END S1 (see note 1)

### NOTES

1. Examination due dates will be available during the semester. Please refer to the examination timetable when published.

## IMPORTANT ASSESSMENT INFORMATION

- 1 Attendance requirements:  
There are no attendance requirements for this course. However, it is the students' responsibility to study all material provided to them or required to be accessed by them to maximise their chance of meeting the objectives of the course and to be informed of course-related activities and administration.
- 2 Requirements for students to complete each assessment item satisfactorily:  
To complete an assessment item satisfactorily, students must obtain at least 50% of the marks available for that assessment item.
- 3 Penalties for late submission of required work:  
If students submit assignments after the due date without prior approval then a penalty of 5% of the total marks available for the assignment will apply for each working day late.
- 4 Requirements for student to be awarded a passing grade in the course:  
To be assured of a passing grade, students must demonstrate, via the summative assessment items, that they have achieved the required minimum standards in relation to the objectives of the course by satisfactorily completing the examination and assignments. Students who do not qualify for a Passing grade may, at the discretion of the Examiner, be awarded a Supplementary Examination and/or assigned additional work to demonstrate to the Examiner that they have achieved the required standard. It is expected that such students will have gained at least 45 % of the total marks available for all summative assessment items.
- 5 Method used to combine assessment results to attain final grade:  
The final grades for students will be assigned on the basis of the weighted aggregate of the marks obtained for each of the summative assessment items in the course.
- 6 Examination information:

Candidates are allowed to bring only writing and drawing instruments into the closed examination.

- 7 Examination period when Deferred/Supplementary examinations will be held:  
Any Deferred or Supplementary examinations for this course will be held during the next examination period.
- 8 University Regulations:  
Students should read USQ Regulations 5.1 Definitions, 5.6. Assessment, and 5.10 Academic Misconduct for further information and to avoid actions which might contravene University Regulations. These regulations can be found at the URL <http://www.usq.edu.au/corporateservices/calendar/part5.htm> or in the current USQ Handbook.

## **ASSESSMENT NOTES**

- 9 The due date for an assignment is the date by which a student must despatch the assignment to the USQ. The onus is on the student to provide proof of the despatch date, if requested by the Examiner.
- 10 Students must retain a copy of each item submitted for assessment. This must be sent to USQ within 24 hours of receipt of a request from the Examiner to do so.
- 11 The examiner may grant an extension of the due date of an assignment in extenuating circumstances.
- 12 The Faculty will normally only accept assessments that have been written, typed or printed on paper-based media.
- 13 The Faculty will NOT accept submission of assignments by facsimile.
- 14 Students who do not have regular access to postal services or who are otherwise disadvantaged by these regulations may be given special consideration. They should contact the examiner of the course to negotiate such special arrangements.
- 15 In the event that a due date for an assignment falls on a local public holiday in their area, such as a Show holiday, the due date for the assignment will be the next day. Students are to note on the assignment cover the date of the public holiday for the Examiner's convenience.
- 16 Students who have undertaken all of the required assessments in a course but who have failed to meet some of the specified objectives of a course within the normally prescribed time may be awarded the temporary grade: IM (Incomplete - Make up). An IM grade will only be awarded when, in the opinion of the examiner, a student will be able to achieve the remaining objectives of the course after a period of non directed personal study.
- 17 Students who, for medical, family/personal, or employment-related reasons, are unable to complete an assignment or to sit for an examination at the scheduled time may apply to defer an assessment in a course. Such a request must be accompanied by appropriate supporting documentation. One of the following temporary grades may be awarded IDS (Incomplete - Deferred Examination); IDM (Incomplete Deferred Make-up); IDB (Incomplete - Both Deferred Examination and Deferred Make-up).