



The University of Southern Queensland

## Course specification

This version produced 20 Dec 2007.

The current and official versions of the course specifications are available on the web at  
<<http://www.usq.edu.au/coursespecification/current>>.

Please consult the web for updates that may occur during the year.

### Description: Science Concepts for Nurses

Subject	Cat-nbr	Class	Term	Mode	Units	Campus
NSC	2000	63293	1, 2007	ONC	1.00	Fraser Coast

**Academic group:**

FOSCI

**Academic org:**

FOS002

**Student contribution band:**

National Priority Nursing

**ASCED code:**

060399

### STAFFING

Examiner: Helen Ison

Moderator: Michael Watson

### REQUISITES

Pre-requisite: NSC1931 or NSC2180 or BIO1203

### RATIONALE

The purpose of this course is to provide students with an understanding of the pathophysiology of the most common diseases affecting patients in developed countries. This course will then build on an understanding of normal physiology and pathophysiology to address treatment approaches to such diseases with a particular focus on pharmacology and nutrition. This course also provides an understanding of basic microbiology and immunology from a clinical perspective, outlining the nature of the infectious process and its control. Information learnt from this course will be intergrated into learning from nursing practice courses.

### SYNOPSIS

This course focuses on understanding the basis for disease states that are most prevalent in the developed world and how they can be treated. Major topics to be covered include mental health, cardiovascular disease, osteoarthritis, peptic ulcer disease, diabetes mellitus, asthma and cancer. Perioperative drugs will also be considered. The nature of infectious agents, mechanisms of pathogenicity and modes of microbial control are investigated. The course also provides the fundamentals of infection control practice in the health care setting.

### OBJECTIVES

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

1. describe the effects of the major neurotransmitters in the central and peripheral nervous system (MS test);
2. demonstrate an understanding of how changes in the level of, or responsiveness to neurotransmitters or hormones can contribute to disease states (MS test);

3. explain the theories underlying a biological basis to depression, anxiety, psychoses, Alzheimers and Parkinsons disease and review how drugs can be used to improve mental health (MS test);
4. name the major groups of drugs of addiction/abuse and demonstrate an understanding of how they affect the body and addiction can be treated (MS test);
5. explain the pathophysiology of common cardiovascular conditions including hypertension, myocardial infarction/stroke and heart failure and name and describe the importance of nutrition, fluid regulation, exercise and review the major drugs used to treat these conditions (ES examination);
6. explain the pathophysiology of osteoarthritis and inflammatory disorders and review how these are treated pharmacologically (ES examination);
7. explain the pathophysiology of peptic ulcer disease and review the major drugs used to treat this condition (ES examination);
8. demonstrate an understanding of the causes of diabetes mellitus and how the importance of nutrition, exercise and drugs in treating this condition (ES examination);
9. explain the pathophysiology underlying the development of asthma and review how it can be treated pharmacologically (ES examination);
10. demonstrate an understanding of the fundamental nature of viruses, bacteria, fungi and parasites and explain the relevance of microbes to human disease (ES examination);
11. demonstrate an understanding of the fundamentals controlling infections in a hospital setting and the relationship between infectious disease and patient immunological status (ES examination).
12. demonstrate skills and knowledge required to perform laboratory experiments safely with appropriate equipment (laboratory classes, MS test, ES exam).

## TOPICS

	Description	Weighting (%)
1.	The role of neurotransmitters in health and disease	10.00
2.	Pathophysiology and pharmacological treatment of conditions affecting mental health	20.00
3.	Cardiovascular disease and treatment by drugs, exercise, nutrition and fluid regulation	10.00
4.	Osteoarthritis and Inflammation	5.00
5.	Pain Relief	10.00
6.	Peptic Ulcer Disease	5.00
7.	Diabetes Mellitus and treatment by drugs, exercise and nutrition	10.00
8.	Chronic Obstructive Pulmonary Disease (Asthma)	5.00
9.	Microbiology and Immunology	25.00

## 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).

2007, *Instructional guide for science concepts for nurses*, USQ Publication, Toowoomba.

2006, *Australian medicines handbook*, Australian Medicines Handbook Pty Ltd, Adelaide.

(This handbook is available online free through the Library using USQ connect username and password.)

Interactive Physiology CD-ROM

Bryant, B, Knights, K & Salerno, E 2003, *Pharmacology for health professionals*, Mosby, Sydney.

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

(Students can either purchase the Human Anatomy and Physiology text or purchase the text book and Interactive Physiology CD-ROM. The latter two are shrink wrapped.)

## 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.

Galbraith, A, Bullock, S & Manias, E 2004, *Fundamentals of pharmacology*, 4th edn, Pearson Education, Australia.

Lee, G & Bishop, P 2006, *Microbiology and infection control for health professionals*, 3rd edn, Pearson, Sydney, Australia.

Minneman, Kenneth 2004, *Human pharmacology: molecular to clinical*, 4th edn, Mosby, St Louis.

Rang, HP et al 2003, *Pharmacology*, 5th edn, Churchill Livingstone, Edinburgh.

Tiziani, A 2002, *Havard's nursing guide to drugs*, 6th edn, Harcourt Brace & Company, Sydney.

## STUDENT WORKLOAD REQUIREMENTS

ACTIVITY	HOURS
Examinations	3.00
Laboratory or Practical Classes	12.00
Lectures	26.00
Private Study	104.00
Tutorials	6.00

## ASSESSMENT DETAILS

Description	Marks out of	Wtg(%)	Due date
PART A 1 HR CMA TEST	30.00	20.00	05 May 2007 (see note 1)
PART B 1 HR CLOSED SHORT ANSWER	20.00	13.00	05 May 2007
PART A 2 HR CMA EXAM	60.00	40.00	END S1 (see note 2)
PART B 2 HR CLOSED SHORT ANSWER	40.00	27.00	END S1

### NOTES

1. Examiner to advise date and details of the midsemester test (part a) and (part b).
2. Examination dates will be available during the Semester. Please refer to the examination timetable when published (part a) and (part b)

## IMPORTANT ASSESSMENT INFORMATION

- 1 Attendance requirements:  
It is the students' responsibility to attend and participate appropriately in all activities (such as lectures, laboratory classes and tutorials) scheduled for them, and 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. To maximize their chances of satisfying the objectives of the practical component of the course, students should attend and actively participate in the tutorial sessions in the course.
- 2 Requirements for students to complete each assessment item satisfactorily:  
To complete the tests and examinations satisfactorily, students must obtain at least 50% of the marks available for assessment. Assessments will cover content provided in lectures, laboratory classes and tutorials.
- 3 Penalties for late submission of required work:  
Not applicable for this course as there are no assignments.
- 4 Requirements for student to be awarded a passing grade in the course:  
To be assured of receiving a passing grade a student must submit all of the summative assessment items, achieve at least 50% in the examination and at least 50% of the available weighted marks for the 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:  
In a Closed Examination, candidates are allowed to bring only writing and drawing instruments into the examination.
- 7 Examination period when Deferred/Supplementary examinations will be held:  
Any Deferred or Supplementary examinations for this course will be held in the second week of the semester following this course offering and the examiner will advise students via USQ Connect of the date, time and location of any such examination.
- 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 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).
- 10 In order to attend laboratory classes, students must provide and wear appropriate personal protective equipment. This shall include a laboratory coat, closed in shoes, and safety glasses. Such equipment must be approved by supervising staff. Failure to provide and wear the appropriate safety equipment will result in students being excluded from classes.