Description: Physiology and Pathophysiology 1

<table>
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<th>Subject</th>
<th>Cat-Nbr</th>
<th>Class</th>
<th>Term</th>
<th>Mode</th>
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<td>NSC</td>
<td>3620</td>
<td>10476</td>
<td>1, 2002</td>
<td>EXT</td>
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Academic Group: FOSCI
Academic Org: FOS004
HECS Band: 2
ASCED Code: 060199

STAFFING
Examiner: Ron Atkinson
Moderator: Joachim Ferrer

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. 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, the pathophysiology the cardiovascular, respiratory and digestive systems.

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

- explain the concepts of cellular and whole body homeostasis and define the most widely used terms that describe aspects of ill health;
- Summarise the principles and purposes associated with the devices used for medical imaging or other diagnostic or monitoring reasons.
- describe the fundamental processes involved in the inheritance of specific traits;
- explain the essential differences between inherited and congenital disorders, and list some of the more common and important examples of each;
• summarise the processes whereby tissue cells maintain and replace themselves as needed, with particular reference to the phenomenon of mitosis;
• define the tissue growth patterns known as atrophy, hypertrophy, hyperplasia, metaplasia, dysplasia, and neoplasia and explain their clinical significance;
• describe the production, maintenance and functions of the various components of blood, both cellular and soluble;
• describe the physiology of the cardiovascular system in health and its more important pathophysiology in ill-health;
• describe the physiology of the respiratory system in health and its more important pathophysiology in ill-health;
• 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;
• describe the physiology of the kidneys and explain how they serve to maintain body fluid homeostasis;
• 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;
• 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

<table>
<thead>
<tr>
<th>Description</th>
<th>Weighting (%)</th>
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<tbody>
<tr>
<td>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.</td>
<td>8.00</td>
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<td>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.</td>
<td>11.00</td>
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<td>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 neoplasias.</td>
<td>11.00</td>
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<td>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.</td>
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<td>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.</td>
<td>12.00</td>
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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.

7. THE KIDNEYS AND BODY FLUID BALANCES Normal functions of the kidneys and lower urinary tract; major diseases 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.

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.

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.

TEXT and MATERIALS required to be PURCHASED or ACCESSED:

Books can be ordered by fax or telephone. For costs and further details use the 'Book Search' facility at http://bookshop.usq.edu.au by entering the author or title of the text.

McCance, K.L. & Huether, S.E. 1997 Pathophysiology, the Biological Basis for Disease in Adults and Children, 3rd 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. Physiology and Pathophysiology 1 and 2, 2001 CD package, USQ.


Marieb, E.N. 2001 Human Anatomy and Physiology, 5th edn, Benjamin Cummings, Menlo Park, California.


STUDENT WORKLOAD REQUIREMENTS

<table>
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<tr>
<th>ACTIVITY</th>
<th>HOURS</th>
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<tr>
<td>Directed Study</td>
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<td>Examinations</td>
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<td>Private Study</td>
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ASSESSMENT DETAILS

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<tr>
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<th>Marks Out of</th>
<th>Wtg(%)</th>
<th>Required</th>
<th>Due Date</th>
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<tr>
<td>ASSIGNMENT 1</td>
<td>20.00</td>
<td>20.00</td>
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<td>04 Mar 2002</td>
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<tr>
<td>2HR CLOSED EXAMINATION</td>
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NOTES:
1. Further details about the due dates are detailed in the assessment section of the Course Specifications.
2. Further details about the due dates are detailed in the assessment section of the Course Specifications.
3. Further details about the due dates are detailed in the assessment section of the Course Specifications.

OTHER REQUIREMENTS

1. Attendance Requirements It is the students' responsibility to actively participate in all activities scheduled for them, and to study all material provided to them or required to be accessed by them to maximize their chance of meeting the objectives of the Course and to be informed of Course-related activities and administration.

2. Minimum requirements to pass the course: A satisfactory standard must be achieved in each of the assessments to obtain a passing grade. To be certain of gaining a passing grade in this course, students must gain a mark of 12 or better for each assignment and gain at least 50% of the marks available for the final examination. This will mean an overall mark of at least 54% is required.

3. Assignments: The due date for an assignment is the date by which a student must dispatch the assignment to the USQ. The onus is on the student to provide proof of the dispatch date, if requested by the Examiner. Students must retain a copy of each item submitted for assessment. This must be produced within five days if required by the Examiner. In accordance with University's Assignment Extension Policy (Regulation 5.6.1), the examiner of a Course may grant an extension of the due date of an assignment in extenuating circumstances. This policy may be found in the USQ Handbook, the Distance Education Student Guide and the Faculty of
Sciences’ Orientation Handbook for on-campus students. All students are advised to study and follow the guidelines associated with this policy.

4 Examinations: Closed Examination: a closed examination is an examination where the candidates are allowed to bring only writing and drawing instruments into the examination.

5 Supplementary and Deferred Examinations: Students who obtain an overall passing mark, but who do not perform satisfactorily in an examination, may, at the discretion of the examiner, be granted a supplementary examination. Students will be granted a deferred examination only if they perform satisfactorily in all other assessment items. Any supplementary or deferred examinations for this Course will be held during the semester 3 examination period.

6 Grading: Final grades for students will be determined by the addition of the marks obtained in each assessment item, weighted as in the Assessment Details and by considering the student’s level of achievement of the objectives of the course.