Description: Biophysical Science Foundations

<table>
<thead>
<tr>
<th>Subject</th>
<th>Cat-Nbr</th>
<th>Class</th>
<th>Term</th>
<th>Mode</th>
<th>Units</th>
<th>Campus</th>
</tr>
</thead>
<tbody>
<tr>
<td>NSC</td>
<td>1951</td>
<td>20476</td>
<td>1, 2003</td>
<td>ONC</td>
<td>1.00</td>
<td>WIBAY</td>
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Academic Group: FOSCI
Academic Org: FOS002
HECS Band: 2
ASCED Code: 019999

STAFFING
Examiner: Bernadette McCabe
Moderator: Robert Learmonth

OTHER-REQUISITES
Co-requisites: NSC1931

RATIONALE
The purpose of this course is to assist students to understand the chemistry, biochemistry and physics relevant to the functioning of the healthy human body. This course relates to studies in anatomy and physiology, pharmacology, pathophysiology and to nursing practice.

SYNOPSIS
This course contains the basic chemistry, biochemistry and physics necessary for understanding the functioning of the healthy human body and for nursing practice.

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

- demonstrate an understanding of basic chemical concepts with particular reference to chemical processes found within the healthy human body;
- describe the structure and functions of cells and their processes at the molecular level;
- demonstrate a knowledge of the principles of optics and acoustics as related to the eyes and ears;
- utilise an understanding of the scientific basis of therapeutic and diagnostic devices used in health care settings;
- demonstrate competence in theoretical and practical activities designed for nursing science.
TOPICS

<table>
<thead>
<tr>
<th>Description</th>
<th>Weighting (%)</th>
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</thead>
<tbody>
<tr>
<td>1. PHYSICS: The metric system and measurement; Physics of human vision and hearing; Mechanics as related to human function and therapeutic equipment; Electricity and its therapeutic application including safety; Gas laws including pressure, volume and temperature relationships.</td>
<td>30.00</td>
</tr>
<tr>
<td>2. CHEMISTRY: Nomenclature; Atomic theory, radiation and its therapeutic applications; Bonding; Chemical quantities, equations, reactions and equilibria; Solutions, diffusion, osmosis, filtration and dialysis; Acids, bases and buffers.</td>
<td>40.00</td>
</tr>
<tr>
<td>3. BIOCHEMISTRY: Properties of biological molecules - proteins, carbohydrates, nucleic acids and lipids; Enzymes, major metabolic pathways and biosynthetic processes.</td>
<td>30.00</td>
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</tbody>
</table>

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.


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.


**STUDENT WORKLOAD REQUIREMENTS**

<table>
<thead>
<tr>
<th>ACTIVITY</th>
<th>HOURS</th>
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<tbody>
<tr>
<td>Examinations</td>
<td>3</td>
</tr>
<tr>
<td>Laboratory or Practical Classes</td>
<td>22</td>
</tr>
<tr>
<td>Lectures</td>
<td>35</td>
</tr>
<tr>
<td>Private Study</td>
<td>95</td>
</tr>
<tr>
<td>Tutorial</td>
<td>12</td>
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**ASSESSMENT DETAILS**

<table>
<thead>
<tr>
<th>Description</th>
<th>Marks Out of</th>
<th>Wtg(%)</th>
<th>Required</th>
<th>Due Date</th>
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<tbody>
<tr>
<td>QUIZZES ON LAB &amp; TUTE SESSIONS</td>
<td>100.00</td>
<td>25.00</td>
<td>Y</td>
<td>04 Mar 2003</td>
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<tr>
<td></td>
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<td></td>
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<tr>
<td>1HR CLOSED TEST - PHYSICS</td>
<td>40.00</td>
<td>25.00</td>
<td>Y</td>
<td>07 Apr 2003</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td>(see note )</td>
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<tr>
<td>PTA - 2HR CLSD EXAM-CHEM&amp;BIOCH</td>
<td>70.00</td>
<td>39.00</td>
<td>Y</td>
<td>END S1</td>
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<tr>
<td></td>
<td></td>
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<td>(see note )</td>
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<tr>
<td>PTB - 2HR CLSD EXAM-CHEM&amp;BIOCH</td>
<td>20.00</td>
<td>11.00</td>
<td>Y</td>
<td>END S1</td>
</tr>
<tr>
<td></td>
<td></td>
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<td>(see note )</td>
</tr>
</tbody>
</table>
NOTES:
- Examiner to advise details regarding quizzes on lab & tute sessions
- Examination dates will be available during the Semester. Please refer to the examination timetable when published. Part A 2hr closed exam - Chem and Biochem
- Examination dates will be available during the Semester. Please refer to the examination timetable when published. Part B 2hr closed exam - Chem and Biochem

IMPORTANT ASSESSMENT INFORMATION

1 Attendance requirements:
   It is the students' responsibility to attend and participate appropriately in all activities (such as lectures, tutorials, laboratories and practical work) 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 laboratory sessions in the course.

2 Requirements for students to complete each assessment item satisfactorily:
   To complete the weekly quizzes, chemistry examination and biochemistry-physics examination satisfactorily, students must obtain at least 50% of the marks available for assessment. Medical certificates and other appropriate documentation for a maximum of two (2) weeks, are taken into consideration when calculating final quiz marks.

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 fourth week of the semester following this course offering and the examiner will advise students involved in writing 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

ASSESSMENT NOTES

9 Students who do not perform satisfactorily in weekly quizzes or 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.

10 A laboratory coat, closed-in shoes and long hair tied back are required for all laboratory sessions.