Description: Microbiology and Immunology

<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>
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<tr>
<td>NSC</td>
<td>2921</td>
<td>14489</td>
<td>2, 2002</td>
<td>ONC</td>
<td>1.00</td>
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Academic Group: FOSCI
Academic Org: FOS002
HECS Band: 2
ASCED Code: 010911

STAFFING
Examiner: Michael Kotiw
Moderator: Tk Mukkur

PRE-REQUISITES
Pre-requisite: NSC 1951

RATIONALE
This course provides an understanding of basic microbiology and immunology from a clinical perspective. Students require a sound foundation in the nature of the infectious process and the fundamentals of infection control for nursing practice.

SYNOPSIS
This course provides an introduction to the significance of microbes to human health. The nature of infectious agents, mechanisms of pathogenicity and modes of microbial control are investigated. The interaction between infectious agents and the host immune system is investigated in terms of susceptibility to developing infectious disease. The course also provides the fundamentals of infection control practice in the health care setting.

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

- demonstrate an understanding of the fundamental nature of viruses, bacteria, fungi and parasites;
- demonstrate an understanding of the fundamentals of controlling infections in a hospital setting;
- explain the relevance of microbes to human disease;
- demonstrate an understanding of the relevant procedures used for the collection of microbiological specimens;
• demonstrate an understanding of the relationship between infectious disease and patient immunological status;
• demonstrate a basic understanding of antimicrobial therapy.

**TOPICS**

<table>
<thead>
<tr>
<th>Description</th>
<th>Weighting (%)</th>
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<tbody>
<tr>
<td><strong>1. FUNDAMENTAL CONCEPTS IN MICROBIOLOGY</strong> Historical perspective of microbiology Introduction to the bacteria, viruses, fungi and parasites The bacteria: - The nature of bacteria - Bacterial diversity - Bacterial growth and survival - Introduction to microbial genetics - Bacteriophages - Plasmids - Bacterial virulence factors - Examples of clinically important bacteria The Fungi: - The nature of fungi - Examples of clinically important fungi The Parsites: - The nature of parasites - Examples of clinically important parasites The Viruses: - The nature of viruses - Examples of clinically important viruses Controlling microbes: - Concepts of disinfection - Concepts of antisepsis - Concepts of sterilisation Antibiotics - Antibacterials</td>
<td>60.00</td>
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<tr>
<td><strong>2. CONCEPTS IN INFECTIOUS DISEASES</strong> The host/microbial interaction Normal microbial flora Factors in microbial pathogenesis The microbial pathogen The opportunistic pathogen The commensal microbe</td>
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<tr>
<td><strong>3. THE HOST IMMUNE RESPONSE TO INFECTION</strong> An overview of the human immune system Non specific host defence mechanisms Circulating and tissue leucocytes Inflammation Other biological non specific responses Specific immune responses - The nature of antibodies and antigens - The humoral immune response - Cell mediated immunity Immunological disorders - Hypersensitivity reactions - Autoimmune diseases</td>
<td>15.00</td>
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<tr>
<td><strong>4. CLINICAL MICROBIOLOGY</strong> Introduction to epidemiology Introduction to aetiology Community acquired infections Nosocomial infections Infection control procedures Community acquired infections-case studies The notion of standard and additional precautions Skin and soft tissue infections - Most common agents involved - Prophylaxis and therapy Respiratory infections - Most common agents involved - Prophylaxis and therapy Genitourinary tract infections - Most common agents involved - Prophylaxis and therapy</td>
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**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.


2002, *NSC2921 Microbiology and Immunology*, USQ Publication,

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>
</tr>
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<tbody>
<tr>
<td>Examinations</td>
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<tr>
<td>Laboratory or Practical Classes</td>
<td>30</td>
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<tr>
<td>Lectures</td>
<td>24</td>
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<tr>
<td>Private Study</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>ASSIGNMENT 1</td>
<td>20.00</td>
<td>20.00</td>
<td>Y</td>
<td>13 Sep 2002</td>
</tr>
<tr>
<td>2HR OPEN PRACTICAL TEST</td>
<td>20.00</td>
<td>20.00</td>
<td>Y</td>
<td>22 Jul 2002</td>
</tr>
<tr>
<td>1.5 HR CLOSED EXAMINATION</td>
<td>100.00</td>
<td>60.00</td>
<td>Y</td>
<td>END S2</td>
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</table>

NOTES:
1. Examiner will advise due date of Assignment 1.
2. Examiner will advise the date of the 2hr Open Practical Test.
3. Examination dates will be available during the Semester. Please refer to the examination timetable when published.

OTHER REQUIREMENTS
1. Attendance It is the students' responsibility to participate actively in all classes 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. Students must attend at least 80% of the practical/laboratory classes for this course to be able to satisfy the practical requirements of Objective 2 to 5.
2. Requirements to Complete Satisfactorily Each Assessment Item To complete satisfactorily the assignment students must obtain at least half of the marks available for the assignment. To complete satisfactorily the practical component of the course, students must obtain at least half of the marks available for each examination. It is unlikely that students will be able to do this unless they attend at least 80% of the practical/laboratory classes.
3. Minimum Requirements to Pass the Course To be assured of a pass in this course, students must satisfactorily complete each assessment item.
4. 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.
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 will normally be held in the Semester 3 examination period of the current academic year.
6. Assignments The due date for an assignment is the date by which a student must despatch it to the USQ. The onus is on the student to provide proof of the despatch date, if requested by the Examiner. Students must retain a copy of each item submitted for assessment. This must be produced within 2 days if required by the Examiner. In accordance with University's Policy on Assignments (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 Study Guide and the Faculty of Sciences' Orientation Handbook for new on-campus students. All students are advised to study and follow the guidelines associated with this policy. An assignment, submitted after the due date without an extension approved by the Examiner, will attract a penalty 10% of the total mark for the assessment for each day (or part thereof) that the assignment is late.

7 Examinations Candidates should be aware that the University has policies and regulations (Regulation 5.6.2.2) about the use of unfair means and electronic devices in an examination and they should refer to them to determine whether or not actions they intend to take are acceptable to the University. Closed Examination: Candidates are allowed to bring only writing and drawing instruments into the closed examination.