# Course specification

**University/Academy:** Damanhour  
**Faculty/Institute:** Science  
**Department:** Botany

### 1. course Data:

| Course code: Bot 301 | Course title: **Bacteria and bacterial disease** | Academic year/level: 2009/2010  
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Specialization: botany</td>
<td>No. of instructional units:</td>
<td>lecture 3</td>
<td>practical 3</td>
</tr>
</tbody>
</table>

### 2. course Aim

The aim of the course is to learn the basic information about prokaryotes with particular emphasis on the bacterial cell structure, bacterial nutrition and growth. It is also aims to study the interaction between human and pathogenic microorganisms and how to control it.

### 3. Intended learning outcome

**a) Knowledge and understanding**

By the end of the course, students will be able to:

- A1: Draw the structure of bacterial cells
- A2: Describe Gram positive and Gram negative bacteria
- A3: Give methods for isolation and culturing of bacterial
- A4: List nutritional and environmental requirements for good growth and reproduction of bacteria
- A5: Describe the different growth measurements
- A6: Define bacterial groups
- A7: List some pathogenic microorganisms

**b) Intellectual skills**

By the end of the course, the students are expected to develop higher order skills that are reflected in their ability to:

- B1: Conclude the bacterial cell and the function of each structure
- B2: Compare the growth requirement of the different microorganisms
- B3: Modify the growth media of bacteria
- B4: Contrast between autotrophic and heterotrophic bacteria

**c) Professional skills**

By the end of the course, students will be able to:

- C1: use the microscope with oil immersion lens, autoclave and instruments related to the course
- C2: Prepare and examine bacterial cultures
- C3: Prepare the different physiological and biochemical tests
- C4: Examine different bacteria toward different media and different conditions

**d) General skills**

By the end of the course, students will be able to:
### 4. Course Content

<table>
<thead>
<tr>
<th>Topic</th>
<th>Description</th>
</tr>
</thead>
</table>
| **Introduction** | - The position of bacteria among microorganisms  
- Microscopy  
  - morphological characters  
  - Structure of prokaryotic cell  
External Structures of the bacterial cell  
Internal Structures of the bacterial cell  
- Reproduction of bacteria  
endospore formation  
Bacterial nutrition  
Conditions required to bacterial growth  
Bacterial growth and measurement  
Control of bacteria  
Importance group of bacteria  
Bacterial disease |

### 5. Teaching and Learning Methods

- **a. Lecture using PowerPoint presentations.**
- **b. Practical sections.**
- **c. Essay.**
- **d. Independent reading throughout basic Texts books and research papers.**

### 6. Teaching and Learning Methods for Students with Special Needs

<table>
<thead>
<tr>
<th>Topic</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>N/A</td>
<td></td>
</tr>
</tbody>
</table>

### 7. Student Assessment

<table>
<thead>
<tr>
<th>Topic</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Quizzes.</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Mid term exam.</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Practical exam.</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Final term exam</strong></td>
<td></td>
</tr>
</tbody>
</table>

#### a) Procedures used:

- **Assessment 1: Quizzes.**  
  Week: 4-7
### Assessment:

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Week</th>
</tr>
</thead>
<tbody>
<tr>
<td>2: Mid term exam</td>
<td>8</td>
</tr>
<tr>
<td>3: Practical exam</td>
<td>15</td>
</tr>
<tr>
<td>4: Final term exam</td>
<td>16</td>
</tr>
</tbody>
</table>

### Weighing of Assessment:

<table>
<thead>
<tr>
<th>Assessment</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semester work</td>
<td>10</td>
</tr>
<tr>
<td>Mid term exam</td>
<td>10</td>
</tr>
<tr>
<td>Practical examination</td>
<td>30</td>
</tr>
<tr>
<td>Final term exam</td>
<td>100</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>150</strong></td>
</tr>
</tbody>
</table>

### List of Textbooks and References:

<table>
<thead>
<tr>
<th>Type</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>a) Course Notes</td>
<td>- Lecture notes on general bacteriology.</td>
</tr>
</tbody>
</table>
| b) Required Books (Textbooks) | - Schlegel, HG. General Microbiology, 7th edition, Cambridge press, 1995  
| c) Recommended Books | Medical Microbiology, Sensory Mechanisms in Bacteria: Molecular Aspects of Signal Recognition and Environmental Microbiology: Current Technology and Water Applications |
| d) Periodicals, websites, etc | - Bergey’s Manual of Systematic Bacteriology (recent edition)  
  http://www.bact.wisc.edu/the microbial world/homepage.html  
  http://www.text book of bacteriology.net |

**Course Instructor:** Dr. Mona E. Mabrouk  
**Head of Department:** Dr.  
**Date:** 17/8/2009