# Course specification

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

## 1. Course Data

| Course code: Bot 321 | Course title: Bacteriology | Academic year/level:  
|---------------------|-----------------------------|---------------------|
|                     |                             | 2009/2010  
|                     |                             | 3\textsuperscript{rd} year student (first term)  
| Specialization: Chemistry / botany | No. of instructional units: lecture 2 practical 3 |

## 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: List the differences between Gram positive and Gram negative bacteria
- A3: Describe the methods for isolation and culturing of bacterial
- A4: write details of nutritional and environmental requirements for good growth and reproduction of bacteria
- A5: Identify the different growth measurements
- A6: Classify bacterial groups
- A7: Identify 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: Design the bacterial cell and the function of each structure
- B2: Conclude the growth requirement of the different microorganisms
- B3: Explain the growth curve of bacteria
- B4: Differentiate unknown bacteria and compare between the types

### 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: write course report

| d) General skills | By the end of the course, students will be able to:  
|                  | D1: communication skills, covering both written and oral communication  
|                  | D2: problem-solving skills, relating to quantitative information, extending to situations have to be made on the basis of limited information  
|                  | D3: interpersonal skills, relating to the ability to interact with other people and to engage in team-working and to be creative and innovative for academia and industry. |

| 4. course content | 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  
|                  | - Bacterial infection and virulence  
|                  | - Pathogens – host interactions  
|                  | Common human bacterial pathogens |

|                                | 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 | N/A |

| 7. Student Assessment | |

| a) Procedures used: | Assessment 1: Quizzes.  
|                     | Assessment 2: Mid term exam.  
<p>|                     | Assessment 3: Practical exam. |</p>
<table>
<thead>
<tr>
<th><strong>Assessment</strong></th>
<th><strong>Week</strong></th>
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</thead>
<tbody>
<tr>
<td>Assessment 1: Quizzes.</td>
<td>4-7</td>
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<tr>
<td>Assessment 2: Mid term exam.</td>
<td>8</td>
</tr>
<tr>
<td>Assessment 3: Practical exam.</td>
<td>15</td>
</tr>
<tr>
<td>Assessment 4: Final term exam.</td>
<td>16</td>
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</tbody>
</table>

**b) Schedule:**

<table>
<thead>
<tr>
<th><strong>Assessment</strong></th>
<th><strong>Week</strong></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>
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</tbody>
</table>

**c) Weighing of Assessment:**

<table>
<thead>
<tr>
<th><strong>Assessment</strong></th>
<th><strong>Weight</strong></th>
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</thead>
<tbody>
<tr>
<td>Semester work</td>
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<td>Mid term exam</td>
<td>10</td>
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<tr>
<td>Practical examination</td>
<td>30</td>
</tr>
<tr>
<td>Final term exam</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>150</strong></td>
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**8. List of Textbooks and References:**

**a) Course Notes**
- Lecture notes on general bacteriology.

**b) Required Books (Textbooks)**

**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 микробиological world/homepage.html](http://www.bact.wisc.edu/the микробиological world/homepage.html)

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