

# University of Mosul

## جامعة الموصل



### College of Science

#### كلية العلوم

*First Cycle – Bachelor's degree (B.Sc.) – Biology*

بكالوريوس علوم - علوم الحياة



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### 1. Overview

This catalogue is about the courses (modules) given by the program of Biology to gain the Bachelor of Science degree. The program delivers (51) Modules with (6000) total student workload hours and **240 total ECTS**. The module delivery is based on the Bologna Process.

نظرة عامة

يتناول هذا الدليل المواد الدراسية التي يقدمها برنامج علوم الحياة للحصول على درجة بكالوريوس العلوم. يقدم البرنامج (51) مادة دراسية، على سبيل المثال، مع (6000) إجمالي ساعات حمل الطالب و **٢٤٠ إجمالي وحدات أوروبية**. يعتمد تقديم المواد الدراسية على عملية بولونيا.

### 2. Undergraduate Courses 2025-2026

#### Module 1

| Code   | Course/Module Title   | ECTS          | Semester    |
|--|-----------------------|---------------|-------------|
| Bio-1101   | General Zoology       | 8             | 1           |
| Class (hr/w)   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w) |
| 2  | 2/3                   | 108           | 92          |
| Description  |                       |               |             |
| This section includes a description of the module, 100-150 words |                       |               |             |

#### Module 2

| Code   | Course/Module Title   | ECTS          | Semester    |
|--|-----------------------|---------------|-------------|
| Bio-1102   | Analytical Chemistry  | 8             | 1           |
| Class (hr/w)   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w) |
| 2  | 2/3                   | 108           | 92          |
| Description  |                       |               |             |
| This section includes a description of the module, 100-150 words |                       |               |             |

**Module 3**

| Code   | Course/Module Title   | ECTS          | Semester    |
|--|-----------------------|---------------|-------------|
| Sci-101  | Mathematics           | 2             | 1           |
| Class (hr/w)   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w) |
| 2  |                       | 33            | 17          |
| Description  |                       |               |             |
| This section includes a description of the module, 100-150 words |                       |               |             |

**Module 4**

| Code   | Course/Module Title   | ECTS          | Semester    |
|--|-----------------------|---------------|-------------|
| Bio-1103   | Biophysics            | 8             | 1           |
| Class (hr/w)   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w) |
| 2  | 2/3                   | 108           | 92          |
| Description  |                       |               |             |
| This section includes a description of the module, 100-150 words |                       |               |             |

**Module 5**

| Code   | Course/Module Title        | ECTS          | Semester    |
|--|----------------------------|---------------|-------------|
| UOM104   | Democracy and Human Rights | 2             | 1           |
| Class (hr/w)   | Lect/Lab./Prac./Tutor      | SSWL (hr/sem) | USWL (hr/w) |
| 2  |                            | 33            | 17          |
| Description  |                            |               |             |
| This section includes a description of the module, 100-150 words |                            |               |             |

**Module 6**

| Code   | Course/Module Title   | ECTS          | Semester    |
|--|-----------------------|---------------|-------------|
| UOM101   | Arabic Language       | 2             | 1           |
| Class (hr/w)   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w) |
| 2  |                       | 45            | 5           |
| Description  |                       |               |             |
| This section includes a description of the module, 100-150 words |                       |               |             |

**Module 7**

| Code   | Course/Module Title   | ECTS          | Semester    |
|--|-----------------------|---------------|-------------|
| Bio-1204   | General Botany        | 8             | 2           |
| Class (hr/w)   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w) |
| 2  | 2/3                   | 108           | 92          |
| Description  |                       |               |             |
| This section includes a description of the module, 100-150 words |                       |               |             |

**Module 8**

| Code   | Course/Module Title   | ECTS          | Semester    |
|--|-----------------------|---------------|-------------|
| Bio-1205   | Organic Chemistry     | 8             | 2           |
| Class (hr/w)   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w) |
| 2  | 2/3                   | 108           | 92          |
| Description  |                       |               |             |
| This section includes a description of the module, 100-150 words |                       |               |             |

**Module 9**

| Code   | Course/Module Title   | ECTS          | Semester    |
|--|-----------------------|---------------|-------------|
| Bio-1206   | Biostatistics         | 5             | 2           |
| Class (hr/w)   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w) |
| 2  | 2                     | 63            | 62          |
| Description  |                       |               |             |
| This section includes a description of the module, 100-150 words |                       |               |             |

**Module 10**

| Code   | Course/Module Title    | ECTS          | Semester    |
|--|------------------------|---------------|-------------|
| Bio-1207   | Safety and biosecurity | 4             | 2           |
| Class (hr/w)   | Lect/Lab./Prac./Tutor  | SSWL (hr/sem) | USWL (hr/w) |
| 2  | 2/ / /                 | 63            | 37          |
| Description  |                        |               |             |
| This section includes a description of the module, 100-150 words |                        |               |             |

**Module 11**

| Code   | Course/Module Title   | ECTS          | Semester    |
|--|-----------------------|---------------|-------------|
| UOM103   | Computer Science      | 3             | 2           |
| Class (hr/w)   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w) |
| 2  | /2/ /                 | 63            | 12          |
| Description  |                       |               |             |
| This section includes a description of the module, 100-150 words |                       |               |             |

**Module 12**

| Code   | Course/Module Title   | ECTS          | Semester    |
|--|-----------------------|---------------|-------------|
| UOM102   | English Language      | 2             | 2           |
| Class (hr/w)   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w) |
| 2  | 1///                  | 45            | 5           |
| Description  |                       |               |             |
| This section includes a description of the module, 100-150 words |                       |               |             |

**Module 13**

| Code   | Course/Module Title   | ECTS          | Semester    |
|--|-----------------------|---------------|-------------|
| Bio-2308   | Entomology I          | 5             | 3           |
| Class (hr/w)   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w) |
| 2  | /3//                  | 78            | 47          |
| Description  |                       |               |             |
| This section includes a description of the module, 100-150 words |                       |               |             |

**Module 14**

| Code   | Course/Module Title   | ECTS          | Semester    |
|--|-----------------------|---------------|-------------|
| Bio-2309   | Plant Anatomy         | 5             | 3           |
| Class (hr/w)   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w) |
| 2  | /3//                  | 78            | 47          |
| Description  |                       |               |             |
| This section includes a description of the module, 100-150 words |                       |               |             |

**Module 15**

| Code   | Course/Module Title   | ECTS          | Semester    |
|--|-----------------------|---------------|-------------|
| Bio-23010  | Invertebrates         | 6             | 3           |
| Class (hr/w)   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w) |
| 2  | 1/3/ /                | 79            | 71          |
| Description  |                       |               |             |
| This section includes a description of the module, 100-150 words |                       |               |             |

**Module 16**

| Code   | Course/Module Title   | ECTS          | Semester    |
|--|-----------------------|---------------|-------------|
| Bio-23011  | Biochemistry I        | 5             | 3           |
| Class (hr/w)   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w) |
| 2  | /3 / /                | 78            | 47          |
| Description  |                       |               |             |
| This section includes a description of the module, 100-150 words |                       |               |             |

**Module 17**

| Code   | Course/Module Title   | ECTS          | Semester    |
|--|-----------------------|---------------|-------------|
| Bio-23012  | Microbiology I        | 5             | 3           |
| Class (hr/w)   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w) |
| 2  | /3 / /                | 78            | 47          |
| Description  |                       |               |             |
| This section includes a description of the module, 100-150 words |                       |               |             |

**Module 18**

| Code   | Course/Module Title       | ECTS          | Semester    |
|--|---------------------------|---------------|-------------|
| UOM2050  | Crimes of the Baath party | 2             | 3           |
| Class (hr/w)   | Lect/Lab./Prac./Tutor     | SSWL (hr/sem) | USWL (hr/w) |
| 2  | ///                       | 33            | 17          |
| Description  |                           |               |             |
| This section includes a description of the module, 100-150 words |                           |               |             |

**Module 19**

| Code   | Course/Module Title   | ECTS          | Semester    |
|--|-----------------------|---------------|-------------|
| UOM2012  | Arabic Language 2     | 2             | 3           |
| Class (hr/w)   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w) |
| 2  | ///                   | 33            | 17          |
| Description  |                       |               |             |
| This section includes a description of the module, 100-150 words |                       |               |             |

**Module 20**

| Code   | Course/Module Title   | ECTS          | Semester    |
|--|-----------------------|---------------|-------------|
| Bio-24113  | Entomology II         | 4             | 4           |
| Class (hr/w)   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w) |
| 2  | /2/ /                 | 78            | 22          |
| Description  |                       |               |             |
| This section includes a description of the module, 100-150 words |                       |               |             |

**Module 21**

| Code   | Course/Module Title   | ECTS          | Semester    |
|--|-----------------------|---------------|-------------|
| Bio-24114  | Plant Taxonomy        | 4             | 4           |
| Class (hr/w)   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w) |
| 2  | /2/ /                 | 78            | 22          |
| Description  |                       |               |             |
| This section includes a description of the module, 100-150 words |                       |               |             |

**Module 22**

| Code   | Course/Module Title   | ECTS          | Semester    |
|--|-----------------------|---------------|-------------|
| Bio-24115  | Parasitology          | 4             | 4           |
| Class (hr/w)   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w) |
| 2  | /2/ /                 | 78            | 22          |
| Description  |                       |               |             |
| This section includes a description of the module, 100-150 words |                       |               |             |

**Module 23**

| Code   | Course/Module Title   | ECTS          | Semester    |
|--|-----------------------|---------------|-------------|
| Bio-24116  | Biochemistry II       | 4             | 4           |
| Class (hr/w)   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w) |
| 2  | /2/ /                 | 78            | 22          |
| Description  |                       |               |             |
| This section includes a description of the module, 100-150 words |                       |               |             |

**Module 24**

| Code         | Course/Module Title   | ECTS          | Semester    |
|--------------|-----------------------|---------------|-------------|
| Bio-24117    | Microbiology II       | 5             | 4           |
| Class (hr/w) | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w) |

|  |       |    |    |
|--|-------|----|----|
| 2  | /3 // | 78 | 47 |
| <b>Description</b>   |       |    |    |
| This section includes a description of the module, 100-150 words |       |    |    |

#### Module 25

| Code   | Course/Module Title   | ECTS          | Semester    |
|--|-----------------------|---------------|-------------|
| Bio-24018  | Plant Groups          | 4             | 4           |
| Class (hr/w)   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w) |
| 2  | /2 //                 | 78            | 22          |
| <b>Description</b>   |                       |               |             |
| This section includes a description of the module, 100-150 words |                       |               |             |

#### Module 26

| Code   | Course/Module Title   | ECTS          | Semester    |
|--|-----------------------|---------------|-------------|
| UOM2032  | Computer Science2     | 3             | 4           |
| Class (hr/w)   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w) |
| 2  | /2 //                 | 63            | 12          |
| <b>Description</b>   |                       |               |             |
| This section includes a description of the module, 100-150 words |                       |               |             |

#### Module 27

| Code   | Course/Module Title   | ECTS          | Semester    |
|--|-----------------------|---------------|-------------|
| UOM2022  | English Language 2    | 2             | 4           |
| Class (hr/w)   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w) |
| 2  |                       | 33            | 17          |
| <b>Description</b>   |                       |               |             |
| This section includes a description of the module, 100-150 words |                       |               |             |

**Module 1-28**

| Code   | Course/Module Title   | ECTS          | Semester     |
|--|-----------------------|---------------|--------------|
| Bio1-35019   | Cell Biology          | 5             | Five/Biology |
| Class (hr/w)   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w)  |
| 2  | /3/ /                 | 78            | 47           |
| Description  |                       |               |              |
| This section includes a description of the module, 100-150 words |                       |               |              |

**Module 1- 29**

| Code   | Course/Module Title   | ECTS          | Semester     |
|--|-----------------------|---------------|--------------|
| Bio1-35020   | Ecology               | 5             | Five/Biology |
| Class (hr/w)   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w)  |
| 2  | /3/ /                 | 78            | 47           |
| Description  |                       |               |              |
| This section includes a description of the module, 100-150 words |                       |               |              |

**Module 1-30**

| Code   | Course/Module Title   | ECTS          | Semester     |
|--|-----------------------|---------------|--------------|
| <b>Bio1-35021</b>  | Biotechnology         | 5             | Five/Biology |
| Class (hr/w)   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w)  |
| 2  | /3/ /                 | 78            | 47           |
| Description  |                       |               |              |
| This section includes a description of the module, 100-150 words |                       |               |              |

**Module 1-31**

| Code   | Course/Module Title   | ECTS          | Semester     |
|--|-----------------------|---------------|--------------|
| Bio1-35022   | Mycology I            | 5             | Five/Biology |
| Class (hr/w)   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w)  |
| 2  | /3/ /                 | 78            | 47           |
| Description  |                       |               |              |
| This section includes a description of the module, 100-150 words |                       |               |              |

**Module 1-32 E-L**

| Code   | Course/Module Title   | ECTS          | Semester     |
|--|-----------------------|---------------|--------------|
| Bio1-35023-L   | Laboratory analysis   | 5             | Five/Biology |
| Class (hr/w)   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w)  |
| 2  | /3/ /                 | 78            | 47           |
| Description  |                       |               |              |
| This section includes a description of the module, 100-150 words |                       |               |              |

**Module 1-32 E-A**

| Code   | Course/Module Title             | ECTS          | Semester     |
|--|---------------------------------|---------------|--------------|
| Bio1-35023-A   | Applied and Economic Entomology | 5             | Five/Biology |
| Class (hr/w)   | Lect/Lab./Prac./Tutor           | SSWL (hr/sem) | USWL (hr/w)  |
| 2  | /3/ /                           | 78            | 47           |
| Description  |                                 |               |              |
| This section includes a description of the module, 100-150 words |                                 |               |              |

**Module 1-33**

| Code   | Course/Module Title   | ECTS          | Semester     |
|--|-----------------------|---------------|--------------|
| Bio1-35024   | Mycotoxins            | 5             | Five/Biology |
| Class (hr/w)   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w)  |
| 2  | /3/ /                 | 78            | 47           |
| Description  |                       |               |              |
| This section includes a description of the module, 100-150 words |                       |               |              |

**Module 1- 34**

| Code   | Course/Module Title   | ECTS          | Semester    |
|--|-----------------------|---------------|-------------|
| <b>Bio1-36025</b>  | Plant Pathology       | 6             | Six/BIOLOGY |
| Class (hr/w)   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w) |
| 2  | /3/ /                 | 78            | 72          |
| Description  |                       |               |             |
| This section includes a description of the module, 100-150 words |                       |               |             |

**Module 1- 35**

| Code   | Course/Module Title   | ECTS          | Semester    |
|--|-----------------------|---------------|-------------|
| <b>Bio1-36026</b>  | Histology             | 6             | Six/BIOLOGY |
| Class (hr/w)   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w) |
| 2  | /3/ /                 | 78            | 72          |
| Description  |                       |               |             |
| This section includes a description of the module, 100-150 words |                       |               |             |

**Module 1-36-E-D**

| Code   | Course/Module Title   | ECTS          | Semester    |
|--|-----------------------|---------------|-------------|
| Bio1-36027-D   | Diagnostic parasite   | 6             | Six/BIOLOGY |
| Class (hr/w)   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w) |
| 2  | /3/ /                 | 78            | 72          |
| Description  |                       |               |             |
| This section includes a description of the module, 100-150 words |                       |               |             |

**Module 1-36-E-E**

| Code   | Course/Module Title   | ECTS          | Semester    |
|--|-----------------------|---------------|-------------|
| Bio1-36027-E   | Endocrinology         | 6             | Six/BIOLOGY |
| Class (hr/w)   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w) |
| 2  | /3/ /                 | 78            | 72          |
| Description  |                       |               |             |
| This section includes a description of the module, 100-150 words |                       |               |             |

**Module 1-37**

| Code   | Course/Module Title   | ECTS          | Semester    |
|--|-----------------------|---------------|-------------|
| Bio1-36128   | Pollution             | 4             | Six/BIOLOGY |
| Class (hr/w)   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w) |
| 2  | 1/2/ /                | 64            | 36          |
| Description  |                       |               |             |
| This section includes a description of the module, 100-150 words |                       |               |             |

**Module 1- 38**

| Code   | Course/Module Title   | ECTS          | Semester    |
|--|-----------------------|---------------|-------------|
| <b>Bio1-36129</b>  | Genetics              | 5             | Six/BIOLOGY |
| Class (hr/w)   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w) |
| 2  | /3/ /                 | 78            | 47          |
| Description  |                       |               |             |
| This section includes a description of the module, 100-150 words |                       |               |             |

**Module 1- 39**

| Code   | Course/Module Title   | ECTS          | Semester    |
|--|-----------------------|---------------|-------------|
| <b>Bio1-36030</b>  | Allelopathy           | 3             | Six/BIOLOGY |
| Class (hr/w)   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w) |
| 2  | /2/ /                 | 63            | 12          |
| Description  |                       |               |             |
| This section includes a description of the module, 100-150 words |                       |               |             |

**Module 2-28**

| Code   | Course/Module Title   | ECTS          | Semester              |
|--|-----------------------|---------------|-----------------------|
| <b>Bio2-35019</b>  | Soil Microbiology     | 5             | Five/<br>Microbiology |
| Class (hr/w)   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w)           |
| 2  | /3/ /                 | 78            | 47                    |
| Description  |                       |               |                       |
| This section includes a description of the module, 100-150 words |                       |               |                       |

**Module 2- 29-E-L**

| Code   | Course/Module Title   | ECTS          | Semester              |
|--|-----------------------|---------------|-----------------------|
| Bio2-35020-L   | Laboratory Analysis   | 5             | Five/<br>Microbiology |
| Class (hr/w)   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w)           |
| 2  | /3/ /                 | 78            | 47                    |
| Description  |                       |               |                       |
| This section includes a description of the module, 100-150 words |                       |               |                       |

**Module 2- 29-E-L**

| Code   | Course/Module Title   | ECTS          | Semester              |
|--|-----------------------|---------------|-----------------------|
| Bio2-35020-C   | Diagnostic parasite   | 5             | Five/<br>Microbiology |
| Class (hr/w)   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w)           |
| 2  | /3/ /                 | 78            | 47                    |
| Description  |                       |               |                       |
| This section includes a description of the module, 100-150 words |                       |               |                       |

**Module 2-30**

| Code   | Course/Module Title   | ECTS          | Semester              |
|--|-----------------------|---------------|-----------------------|
| Bio2-35021   | Histology             | 5             | Five/<br>Microbiology |
| Class (hr/w)   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w)           |
| 2  | /3/ /                 | 78            | 47                    |
| Description  |                       |               |                       |
| This section includes a description of the module, 100-150 words |                       |               |                       |

**2-31**

| Code   | Course/Module Title   | ECTS          | Semester              |
|--|-----------------------|---------------|-----------------------|
| Bio2-35022   | Ecology               | 5             | Five/<br>Microbiology |
| Class (hr/w)   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w)           |
| 2  | /3/ /                 | 78            | 47                    |
| Description  |                       |               |                       |
| This section includes a description of the module, 100-150 words |                       |               |                       |

**Module 2-32**

| Code   | Course/Module Title   | ECTS          | Semester              |
|--|-----------------------|---------------|-----------------------|
| Bio2-35023   | Cell Biology          | 5             | Five/<br>Microbiology |
| Class (hr/w)   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w)           |
| 2  | /3/ /                 | 78            | 47                    |
| Description  |                       |               |                       |
| This section includes a description of the module, 100-150 words |                       |               |                       |

**Module 2-33**

| Code   | Course/Module Title                 | ECTS          | Semester              |
|--|-------------------------------------|---------------|-----------------------|
| Bio2-35024   | Classification and Bacterial groups | 5             | Five/<br>Microbiology |
| Class (hr/w)   | Lect/Lab./Prac./Tutor               | SSWL (hr/sem) | USWL (hr/w)           |
| 2  | /3/ /                               | 78            | 47                    |
| Description  |                                     |               |                       |
| This section includes a description of the module, 100-150 words |                                     |               |                       |

**Module 2- 34**

| Code   | Course/Module Title   | ECTS          | Semester         |
|--|-----------------------|---------------|------------------|
| Bio2-36025   | Water Microbiology    | 5             | Six/Microbiology |
| Class (hr/w)   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w)      |
| 2  | /3/ /                 | 78            | 47               |
| Description  |                       |               |                  |
| This section includes a description of the module, 100-150 words |                       |               |                  |

**Module 2-35**

| Code   | Course/Module Title   | ECTS          | Semester         |
|--|-----------------------|---------------|------------------|
| Bio2-36026   | Bacterial Physiology  | 5             | Six/Microbiology |
| Class (hr/w)   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w)      |
| 2  | /3/ /                 | 78            | 47               |
| Description  |                       |               |                  |
| This section includes a description of the module, 100-150 words |                       |               |                  |

**Module 2- 36**

| Code   | Course/Module Title   | ECTS          | Semester         |
|--|-----------------------|---------------|------------------|
| Bio2-36027   | Animal Physiology     | 5             | Six/Microbiology |
| Class (hr/w)   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w)      |
| 2  | /3/ /                 | 78            | 47               |
| Description  |                       |               |                  |
| This section includes a description of the module, 100-150 words |                       |               |                  |

**Module 2-37**

| Code   | Course/Module Title   | ECTS          | Semester         |
|--|-----------------------|---------------|------------------|
| Bio2-36128   | Pollution             | 5             | Six/Microbiology |
| Class (hr/w)   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w)      |
| 2  | 1/2/ /                | 78            | 47               |
| Description  |                       |               |                  |
| This section includes a description of the module, 100-150 words |                       |               |                  |

**Module 2-38**

| Code   | Course/Module Title   | ECTS          | Semester         |
|--|-----------------------|---------------|------------------|
| Bio2-36129   | Genetics              | 5             | Six/Microbiology |
| Class (hr/w)   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w)      |
| 2  | /2/ /                 | 78            | 47               |
| Description  |                       |               |                  |
| This section includes a description of the module, 100-150 words |                       |               |                  |

**Module 2-39-E-A**

| Code   | Course/Module Title   | ECTS          | Semester         |
|--|-----------------------|---------------|------------------|
| Bio2-36030-A   | Antibiotics           | 5             | Six/Microbiology |
| Class (hr/w)   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w)      |
| 2  | /3/ /                 | 78            | 47               |
| Description  |                       |               |                  |
| This section includes a description of the module, 100-150 words |                       |               |                  |

**2-39-E-C**

| Code   | Course/Module Title   | ECTS          | Semester         |
|--|-----------------------|---------------|------------------|
| Bio2-36030-C   | Mycotoxins            | 5             | Six/Microbiology |
| Class (hr/w)   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w)      |
| 2  | /3/ /                 | 78            | 47               |
| Description  |                       |               |                  |
| This section includes a description of the module, 100-150 words |                       |               |                  |

**Module 1-40**

| Code   | Course/Module Title   | ECTS          | Semester      |
|--|-----------------------|---------------|---------------|
| Bio1-47031   | Animal Physiology 1   | 6             | Seven/BIOLOGY |
| Class (hr/w)   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w)   |
| 2  | 1/3/ /                | 79            | 71            |
| Description  |                       |               |               |
| This section includes a description of the module, 100-150 words |                       |               |               |

**Module 1-41**

| Code   | Course/Module Title   | ECTS          | Semester      |
|--|-----------------------|---------------|---------------|
| Bio1-47032   | Plant Physiology 1    | 5             | Seven/BIOLOGY |
| Class (hr/w)   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w)   |
| 2  | /3/ /                 | 78            | 47            |
| Description  |                       |               |               |
| This section includes a description of the module, 100-150 words |                       |               |               |

**Module 1-42**

| Code   | Course/Module Title   | ECTS          | Semester      |
|--|-----------------------|---------------|---------------|
| Bio1-47033   | Embryology            | 6             | Seven/BIOLOGY |
| Class (hr/w)   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w)   |
| 2  | 1/3/ /                | 79            | 71            |
| Description  |                       |               |               |
| This section includes a description of the module, 100-150 words |                       |               |               |

**Module 1-43**

| Code   | Course/Module Title   | ECTS          | Semester      |
|--|-----------------------|---------------|---------------|
| Bio1-47034   | Quantitative Genetics | 6             | Seven/BIOLOGY |
| Class (hr/w)   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w)   |
| 2  | 1/3/ /                | 79            | 71            |
| Description  |                       |               |               |
| This section includes a description of the module, 100-150 words |                       |               |               |

**Module 1-44**

| Code   | Course/Module Title   | ECTS          | Semester      |
|--|-----------------------|---------------|---------------|
| Bio1-47035   | Molecular biology     | 5             | Seven/BIOLOGY |
| Class (hr/w)   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w)   |
| 2  | /3/ /                 | 78            | 47            |
| Description  |                       |               |               |
| This section includes a description of the module, 100-150 words |                       |               |               |

**Module 1-45**

| Code   | Course/Module Title   | ECTS          | Semester      |
|--|-----------------------|---------------|---------------|
| Bio1-47036   | Research Methodology  | 2             | Seven/BIOLOGY |
| Class (hr/w)   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w)   |
| 2  |                       | 33            | 17            |
| Description  |                       |               |               |
| This section includes a description of the module, 100-150 words |                       |               |               |

**Module 1-46**

| Code   | Course/Module Title   | ECTS          | Semester      |
|--|-----------------------|---------------|---------------|
| Bio1-48137   | Animal Physiology 2   | 6             | Eight/BIOLOGY |
| Class (hr/w)   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w)   |
| 2  | 1/3/ /                | 79            | 71            |
| Description  |                       |               |               |
| This section includes a description of the module, 100-150 words |                       |               |               |

**Module 1-47**

| Code   | Course/Module Title   | ECTS          | Semester      |
|--|-----------------------|---------------|---------------|
| Bio1-48138   | Plant Physiology 2    | 6             | Eight/BIOLOGY |
| Class (hr/w)   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w)   |
| 2  | 1/3/ /                | 79            | 71            |
| Description  |                       |               |               |
| This section includes a description of the module, 100-150 words |                       |               |               |

**Module 1-48**

| Code   | Course/Module Title   | ECTS          | Semester      |
|--|-----------------------|---------------|---------------|
| Bio1-48039   | Comparative Anatomy   | 6             | Eight/BIOLOGY |
| Class (hr/w)   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w)   |
| 2  | 1/3/ /                | 79            | 71            |
| Description  |                       |               |               |
| This section includes a description of the module, 100-150 words |                       |               |               |

**Module1- 49**

| Code   | Course/Module Title   | ECTS          | Semester      |
|--|-----------------------|---------------|---------------|
| Bio1-48040   | Biodiversity          | 6             | Eight/BIOLOGY |
| Class (hr/w)   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w)   |
| 2  | 1/3/ /                | 79            | 71            |
| Description  |                       |               |               |
| This section includes a description of the module, 100-150 words |                       |               |               |

**Module 1-50**

| Code   | Course/Module Title   | ECTS          | Semester      |
|--|-----------------------|---------------|---------------|
| Bio1-48041   | Immunology            | 4             | Eight/BIOLOGY |
| Class (hr/w)   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w)   |
| 2  | /3/ /                 | 78            | 22            |
| Description  |                       |               |               |
| This section includes a description of the module, 100-150 words |                       |               |               |

**Module 1-51**

| Code   | Course/Module Title   | ECTS          | Semester      |
|--|-----------------------|---------------|---------------|
| Bio1-48142   | Research Project      | 2             | Eight/BIOLOGY |
| Class (hr/w)   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w)   |
| 2  |                       | 33            | 17            |
| Description  |                       |               |               |
| This section includes a description of the module, 100-150 words |                       |               |               |

**Module 2-40**

| Code   | Course/Module Title   | ECTS          | Semester               |
|--|-----------------------|---------------|------------------------|
| Bio2-47031   | Immunology            | 6             | Seven/<br>MICROBIOLOGY |
| Class (hr/w)   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w)            |
| 2  | 1/3/ /                | 79            | 71                     |
| Description  |                       |               |                        |
| This section includes a description of the module, 100-150 words |                       |               |                        |

**Module 2-41**

| Code   | Course/Module Title     | ECTS          | Semester               |
|--|-------------------------|---------------|------------------------|
| Bio2-47032   | pathogenic Bacteriology | 6             | Seven/<br>MICROBIOLOGY |
| Class (hr/w)   | Lect/Lab./Prac./Tutor   | SSWL (hr/sem) | USWL (hr/w)            |
| 2  | 1/3/ /                  | 79            | 71                     |
| Description  |                         |               |                        |
| This section includes a description of the module, 100-150 words |                         |               |                        |

**Module 2-42**

| Code   | Course/Module Title   | ECTS          | Semester               |
|--|-----------------------|---------------|------------------------|
| Bio2-47033   | Food Microbiology     | 5             | Seven/<br>MICROBIOLOGY |
| Class (hr/w)   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w)            |
| 2  | /3/ /                 | 78            | 47                     |
| Description  |                       |               |                        |
| This section includes a description of the module, 100-150 words |                       |               |                        |

**Module 2-43**

| Code   | Course/Module Title   | ECTS          | Semester               |
|--|-----------------------|---------------|------------------------|
| Bio2-47034   | Mycology              | 5             | Seven/<br>MICROBIOLOGY |
| Class (hr/w)   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w)            |
| 2  | /3/ /                 | 78            | 47                     |
| Description  |                       |               |                        |
| This section includes a description of the module, 100-150 words |                       |               |                        |

**Module 2-44**

| Code   | Course/Module Title   | ECTS          | Semester               |
|--|-----------------------|---------------|------------------------|
| Bio2-47035   | Enzymology            | 6             | Seven/<br>MICROBIOLOGY |
| Class (hr/w)   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w)            |
| 2  | 1/3/ /                | 79            | 71                     |
| Description  |                       |               |                        |
| This section includes a description of the module, 100-150 words |                       |               |                        |

**Module 2-45**

| Code   | Course/Module Title   | ECTS          | Semester               |
|--|-----------------------|---------------|------------------------|
| Bio2-47036   | Research Methodology  | 2             | Seven/<br>MICROBIOLOGY |
| Class (hr/w)   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w)            |
| 2  |                       | 33            | 17                     |
| Description  |                       |               |                        |
| This section includes a description of the module, 100-150 words |                       |               |                        |

**Module 2- 46**

| Code   | Course/Module Title   | ECTS          | Semester               |
|--|-----------------------|---------------|------------------------|
| Bio2-48037   | Microbial Genetics    | 6             | Eight/<br>MICROBIOLOGY |
| Class (hr/w)   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w)            |
| 2  | 1/3/ /                | 79            | 71                     |
| Description  |                       |               |                        |
| This section includes a description of the module, 100-150 words |                       |               |                        |

**Module 2-47**

| Code   | Course/Module Title   | ECTS          | Semester               |
|--|-----------------------|---------------|------------------------|
| Bio2-48038   | Virology              | 6             | Eight/<br>MICROBIOLOGY |
| Class (hr/w)   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w)            |
| 2  | 1/3/ /                | 79            | 71                     |
| Description  |                       |               |                        |
| This section includes a description of the module, 100-150 words |                       |               |                        |

**Module 2- 48**

| Code   | Course/Module Title     | ECTS          | Semester               |
|--|-------------------------|---------------|------------------------|
| Bio2-48139   | Industrial Microbiology | 6             | Eight/<br>MICROBIOLOGY |
| Class (hr/w)   | Lect/Lab./Prac./Tutor   | SSWL (hr/sem) | USWL (hr/w)            |
| 2  | 1/3/ /                  | 79            | 71                     |
| Description  |                         |               |                        |
| This section includes a description of the module, 100-150 words |                         |               |                        |

**Module 2- 49**

| Code   | Course/Module Title   | ECTS          | Semester               |
|--|-----------------------|---------------|------------------------|
| Bio2-48140   | Fungal Taxonomy       | 5             | Eight/<br>MICROBIOLOGY |
| Class (hr/w)   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w)            |
| 2  | /3/ /                 | 78            | 47                     |
| Description  |                       |               |                        |
| This section includes a description of the module, 100-150 words |                       |               |                        |

**Module 2- 50**

| Code   | Course/Module Title   | ECTS          | Semester               |
|--|-----------------------|---------------|------------------------|
| Bio2-48041   | Molecular biology     | 5             | Eight/<br>MICROBIOLOGY |
| Class (hr/w)   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w)            |
| 2  | /3/ /                 | 78            | 47                     |
| Description  |                       |               |                        |
| This section includes a description of the module, 100-150 words |                       |               |                        |

**Module 2-51**

| Code   | Course/Module Title   | ECTS          | Semester               |
|--|-----------------------|---------------|------------------------|
| Bio2-48142   | Research Project      | 2             | Eight/<br>MICROBIOLOGY |
| Class (hr/w)   | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w)            |
| 2  |                       | 33            | 17                     |
| Description  |                       |               |                        |
| This section includes a description of the module, 100-150 words |                       |               |                        |

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