

**Semester 1**

| Teaching Unit                                                             | Subject |                                                             | Credit    | Coefficient | Weekly V.H  |             |             | MVH<br>(15 weeks) | Others      | Evaluation method |     |      |     |
|---------------------------------------------------------------------------|---------|-------------------------------------------------------------|-----------|-------------|-------------|-------------|-------------|-------------------|-------------|-------------------|-----|------|-----|
|                                                                           | Code    | Title                                                       |           |             | Courses     | DW          | PW          |                   |             | Continue          |     | Exam |     |
| <b>Fundamental TU</b><br>Code : UEF 1.1<br>Credit: 15<br>Coefficients : 7 | F 1.1.1 | General and organic chemistry                               | 6         | 3           | 1h30        | 1h30        | 1h30        | 67h30             | 60h00       | x                 | 40% | x    | 60% |
|                                                                           | F 1.1.2 | Cell biology                                                | 9         | 4           | 1h30        | 1h30        | 3h00        | 90h               | 90h00       | x                 | 40% | x    | 60% |
| <b>Methodology TU</b><br>Code : UEM 1.1<br>Credit: 8<br>Coefficients: 4   | M 1.1.1 | Mathematics Statistics<br>Computer Science                  | 5         | 2           | 1h30        | 1h30        | -           | 45h00             | 60h00       | x                 | 40% | x    | 60% |
|                                                                           | M 1.1.2 | Communication and<br>Expression Techniques 1<br>(in French) | 3         | 2           | 1h30        | 1h30        | -           | 45h00             | 45h00       | x                 | 40% | x    | 60% |
| <b>Discovery TU</b><br>Code : UED 1.1<br>Credit: 5<br>Coefficients : 3    | D 1.1.1 | Geology                                                     | 5         | 3           | 1h30        | -           | 3h00        | 67h30             | 60h00       | x                 | 40% | x    | 60% |
| <b>Transversal TU</b><br>Code : UET 1.1<br>Credit: 2<br>Coefficients : 1  | T 1.1.1 | Universal History of<br>Biological Sciences                 | 2         | 1           | 1h30        | -           | -           | 22h30             | 45h00       | x                 |     |      |     |
| <b>Total Semester 1</b>                                                   |         |                                                             | <b>30</b> | <b>15</b>   | <b>9h00</b> | <b>6h00</b> | <b>7h30</b> | <b>337h30</b>     | <b>360h</b> |                   |     |      |     |

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## Semester 2

| Teaching Unit                                                             | Subject |                                                        | Credit    | Coefficient | Weekly V.H   |             |             | MVH<br>(15 weeks) | Others      | Evaluation method |     |      |     |
|---------------------------------------------------------------------------|---------|--------------------------------------------------------|-----------|-------------|--------------|-------------|-------------|-------------------|-------------|-------------------|-----|------|-----|
|                                                                           | Code    | Title                                                  |           |             | Courses      | DW          | PW          |                   |             | Continue          |     | Exam |     |
| <b>Fundamental TU</b><br>Code : UEF 2.1<br>Credit: 22<br>Coefficients : 9 | F 2.1.1 | Thermodynamics and solution chemistry                  | 6         | 3           | 1h30         | 1h30        | 1h30        | 67h30             | 60h         | x                 | 40% | x    | 60% |
|                                                                           | F 2.1.2 | Plant Biology                                          | 8         | 3           | 1h30         | -           | 3h00        | 67h30             | 90h         | x                 | 40% | x    | 60% |
|                                                                           | F 2.1.3 | Animal Biology                                         | 8         | 3           | 1h30         | -           | 3h00        | 67h30             | 90h         | x                 | 40% | x    | 60% |
| <b>Methodology TU</b><br>Code : UEM 2.1<br>Credit: 6<br>Coefficients : 4  | M 2.1.1 | Physics                                                | 4         | 2           | 1h30         | 1h30        | --          | 45h00             | 45h         | x                 | 40% | x    | 60% |
|                                                                           | M 2.1.2 | Communication and Expression Techniques 2 (in English) | 2         | 2           | 1h30         | 1h30        | -           | 45h00             | 45h         | x                 | 40% | x    | 60% |
| <b>Transversal TU</b><br>Code : UET 2.1<br>Credit: 2<br>Coefficients : 1  | T 2.1.1 | Working methods                                        | 2         | 1           | 1h30         | -           | -           | 22h30             | 25h         | x                 |     |      |     |
| <b>Total Semester 2</b>                                                   |         |                                                        | <b>30</b> | <b>14</b>   | <b>10h30</b> | <b>4h30</b> | <b>7h30</b> | <b>315h</b>       | <b>355h</b> |                   |     |      |     |

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### Semester 3

| Teaching Unit                                                               | Subject                                                     | Credit    | Coefficient | Weekly V.H   |             |             | MVH<br>(15 weeks) | Others      | Evaluation method |     |      |      |
|-----------------------------------------------------------------------------|-------------------------------------------------------------|-----------|-------------|--------------|-------------|-------------|-------------------|-------------|-------------------|-----|------|------|
|                                                                             | Title                                                       |           |             | Courses      | DW          | PW          |                   |             | Continue          |     | Exam |      |
| <b>Fundamental TU</b><br>Code : UEF 2.1.1<br>Credit: 8<br>Coefficients : 3  | <b>Zoology</b>                                              | 8         | 3           | 2 x 1h30     | 1h30        | 1h30        | 90h00             | 45h00       | x                 | 40% | x    | 60%  |
| <b>Fundamental TU</b><br>Code : UEF 2.1.2<br>Credit: 16<br>Coefficients : 6 | <b>Biochemistry</b>                                         | 8         | 3           | 2 x 1h30     | 1h30        | 1h30        | 90h00             | 45h00       | x                 | 40% | x    | 60%  |
|                                                                             | <b>Genetic</b>                                              | 8         | 3           | 2 x 1h30     | 2 x 1h30    | -           | 90h00             | 45h00       | x                 | 40% | x    | 60%  |
| <b>Methodology TU</b><br>Code : UEM 2.1.1<br>Credit: 2<br>Coefficients: 1   | <b>Communication and Expression Techniques (in English)</b> | 2         | 1           | 1h30         | -           | -           | 22h30             | 20h00       |                   |     | x    | 100% |
| <b>Methodology TU</b><br>Code : UEM 2.1.2<br>Credit: 2<br>Coefficients: 1   | <b>Working methods</b>                                      | 2         | 1           | 1h30         | -           | -           | 22h30             | 20h00       |                   |     | x    | 100% |
| <b>Discovery TU</b><br>Code : UED 2.1.1<br>Credit: 2<br>Coefficients : 2    | <b>Biophysics</b>                                           | 2         | 2           | 1h30         | 1h30        | 1h30        | 67h30             | 10h00       | x                 | 40% | x    | 60%  |
| <b>Total Semester 3</b>                                                     |                                                             | <b>30</b> | <b>13</b>   | <b>13h30</b> | <b>7h30</b> | <b>4h30</b> | <b>382h30</b>     | <b>185h</b> |                   |     |      |      |

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## Semester 4

| Teaching Unit                                                                 | Subject                                                                 | Credit    | Coefficient | Weekly V.H   |             |             | MVH<br>(15 weeks) | Others        | Evaluation method |     |      |      |
|-------------------------------------------------------------------------------|-------------------------------------------------------------------------|-----------|-------------|--------------|-------------|-------------|-------------------|---------------|-------------------|-----|------|------|
|                                                                               | Title                                                                   |           |             | Courses      | DW          | PW          |                   |               | Continue          |     | Exam |      |
| <b>Fundamental TU</b><br>Code : UEF 2.2.1<br>Crédits : 8<br>Coefficients : 3  | <b>Botany</b>                                                           | 6         | 3           | 3h00         | -           | 1h30        | 67h30             | 82h30         | x                 | 40% | x    | 60%  |
| <b>Fundamental TU</b><br>Code : UEF 2.2.2<br>Crédits : 14<br>Coefficients : 5 | <b>Microbiology</b>                                                     | 8         | 4           | 3h00         | 1h30        | 1h30        | 90h00             | 110h00        | x                 | 40% | x    | 60%  |
|                                                                               | <b>Immunology</b>                                                       | 4         | 2           | 1h30         | 1h30        | -           | 45h00             | 55h00         | x                 | 40% | x    | 60%  |
| <b>Methodology TU</b><br>Code : UEM 2.2.1<br>Crédits : 4<br>Coefficients: 2   | <b>Scientific methodology and techniques for studying living beings</b> | 4         | 2           | 1h30         | -           | 1h30        | 45h00             | 55h00         | x                 | 40% | x    | 60%  |
| <b>Methodology TU</b><br>Code : UEM 2.2.2<br>Crédits : 4<br>Coefficients: 2   | <b>Biostatistics</b>                                                    | 5         | 3           | 1h30         | 1h30        | 1h00        | 60h00             | 65h00         | x                 | 40% | x    | 60%  |
| <b>Discovery TU</b><br>Code : UED 2.2.1<br>Crédits : 2<br>Coefficients : 2    | <b>General ecology</b>                                                  | 2         | 2           | 1h30         | 1h30        | -           | 45h00             | 5h00          | x                 | 40% | x    | 60%  |
| <b>Transversale TU</b><br>Code : UET 2.2.1<br>Crédits : 1<br>Coefficients : 1 | <b>Computer Tools</b>                                                   | 1         | 1           | 1h30         | -           | -           | 22h30             | 2h30          | -                 | -   | x    | 100% |
| <b>Total Semester 4</b>                                                       |                                                                         | <b>30</b> | <b>17</b>   | <b>13h30</b> | <b>6h00</b> | <b>5h30</b> | <b>375h00</b>     | <b>375h00</b> |                   |     |      |      |

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## Semester 5

| Teaching Unit                                                          | MVH           | Weekly V.H   |           |             |        | Coeff     | Credit    | Evaluation method |            |
|------------------------------------------------------------------------|---------------|--------------|-----------|-------------|--------|-----------|-----------|-------------------|------------|
|                                                                        | 14-16 weeks   | Courses      | DW        | PW          | Others |           |           | Continue (40%)    | Exam (60%) |
| <b>Fundamental TU</b>                                                  |               |              |           |             |        |           |           |                   |            |
| <b>FTU 3.1.1 (O/P) : Microbial Taxonomy</b>                            | <b>135h</b>   | <b>6h</b>    | -         | <b>3h</b>   | -      | <b>7</b>  | <b>11</b> |                   |            |
| <b>Subject 1:</b><br>Systematics of Prokaryotes (Bacteria and Archaea) | 67h30         | 3h00         | -         | 1h 30       | -      | <b>3</b>  | <b>5</b>  | x                 | x          |
| <b>Subject 2:</b><br>Mycology-Algology-Virology                        | 67h00         | 3h00         | -         | 1h 30       | -      | <b>4</b>  | <b>6</b>  | x                 | x          |
| <b>FTU3.1.2 (O/P) : Molecular Microbiology</b>                         | <b>180h</b>   | <b>7h30</b>  | <b>3h</b> | <b>1h30</b> | -      | <b>8</b>  | <b>13</b> |                   |            |
| <b>Subject 1:</b><br>Microbial Biochemistry                            | 67h30         | 3h00         | -         | 1h30        | -      | <b>3</b>  | <b>5</b>  | x                 | x          |
| <b>Subject 2 :</b><br>Molecular Biology and Genetic Engineering        | 67h30         | 3h00         | 1h30      | -           | -      | <b>3</b>  | <b>5</b>  | x                 | x          |
| <b>Subject 3 :</b><br>Microbial Genetics                               | 45h00         | 1h30         | 1h30      | -           | -      | <b>2</b>  | <b>3</b>  | x                 | x          |
| <b>Total TF Semester 5</b>                                             | <b>315h</b>   | <b>13h30</b> | <b>3h</b> | <b>4h30</b> | -      | <b>15</b> | <b>24</b> |                   |            |
| <b>MTU 3.1.1 (O/P) : Microbiology Practices</b>                        | <b>82h30</b>  | <b>3h</b>    | -         | <b>2h30</b> | -      | <b>3</b>  | <b>6</b>  | <b>x</b>          | <b>x</b>   |
| <b>Subject 1 :</b> Microbiological Analysis Techniques                 | 45h           | 1h30         | -         | 1h30        | -      | <b>2</b>  | <b>4</b>  | x                 | x          |
| <b>Subject 2 :</b> Antimicrobial Agents and Antibiotic Resistance      | 37h30         | 1h30         | -         | 1h          | -      | <b>1</b>  | <b>2</b>  | x                 | x          |
| <b>Total Semester 5</b>                                                | <b>397h30</b> | <b>16h30</b> | <b>3h</b> | <b>7h</b>   |        | <b>18</b> | <b>30</b> |                   |            |

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## Semester 6

| Teaching Unit                                                        | MVH         | Weekly V.H   |             |             |          | Coeff     | Credit    | Evaluation method |            |
|----------------------------------------------------------------------|-------------|--------------|-------------|-------------|----------|-----------|-----------|-------------------|------------|
|                                                                      | 14-16 weeks | Courses      | DW          | PW          | Others   |           |           | Continue (40%)    | Exam (60%) |
| <b>Fundamental TU</b>                                                |             |              |             |             |          |           |           |                   |            |
| <b>FTU 3.2.1(O/P) :<br/>Applied Microbiology</b>                     | <b>225h</b> | <b>9h</b>    | <b>1h30</b> | <b>4h30</b> | <b>-</b> | <b>10</b> | <b>16</b> |                   |            |
| <b><u>Subject 1</u> :</b><br>Industrial Microbiology                 | 67h30       | 3h00         | -           | 1h30        | -        | 3         | 5         | x                 | x          |
| <b><u>Subject 2</u> :</b><br>Environmental Microbiology              | 90h00       | 3h00         | 1h30        | 1h30        | -        | 4         | 6         | x                 | x          |
| <b><u>Subject 3</u> :</b><br>Food Microbiology                       | 67h30       | 3h00         | -           | 1h30        | -        | 3         | 5         | x                 | x          |
| <b>FTU 3.2.2 (O/P) :<br/>Bacterial Physiology and<br/>Enzymology</b> | <b>90</b>   | <b>3h</b>    | <b>-</b>    | <b>3h</b>   | <b>-</b> | <b>4</b>  | <b>8</b>  |                   |            |
| <b><u>Subject 1</u> :</b> Bacterial Physiology                       | 45          | 1h30         | -           | 1h30        | -        | 2         | 4         | x                 | x          |
| <b><u>Subject 2</u> :</b> Enzymology                                 | 45          | 1h30         | -           | 1h30        | -        | 2         | 4         | x                 | x          |
| <b>Total TF Semester 6</b>                                           | <b>315h</b> | <b>12h</b>   | <b>1h30</b> | <b>7h30</b> | <b>-</b> | <b>14</b> | <b>24</b> |                   |            |
| <b>MTU 3.2.1 : Data Analysis</b>                                     | <b>75h</b>  | <b>2h30</b>  | <b>1h30</b> | <b>1h</b>   | <b>-</b> | <b>2</b>  | <b>6</b>  |                   |            |
| <b><u>Subject 1</u> :</b> Computer science                           | 37h30       | 1h30         | -           | 1h          | -        | 1         | 3         | x                 | x          |
| <b><u>Subject 2</u> :</b> Biostatistics                              | 37h30       | 1h           | 1h30        | -           | -        | 1         | 3         | x                 | x          |
| <b>Total Semester 6</b>                                              | <b>390</b>  | <b>14h30</b> | <b>3h</b>   | <b>8h30</b> | <b>-</b> | <b>16</b> | <b>30</b> |                   |            |

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