

# Biology FORM

## نموذج وصف المادة الدراسية

| Module Information                 |                       |                               |  |
|------------------------------------|-----------------------|-------------------------------|--|
| معلومات المادة الدراسية            |                       |                               |  |
| Module Title                       | <b>Biology</b>        |                               | Module Delivery  |
| Module Type                        | Core                  |                               | <input checked="" type="checkbox"/> Theory<br><input type="checkbox"/> Lecture<br><input checked="" type="checkbox"/> Lab<br><input type="checkbox"/> Tutorial<br><input type="checkbox"/> Practical<br><input type="checkbox"/> Seminar |
| Module Code                        | <b>UOMU0302011</b>    |                               |  |
| ECTS Credits                       | 6                     |                               |  |
| SWL (hr/sem)                       | <b>150</b>            |                               |  |
| Module Level                       | 1                     | Semester of Delivery          |  |
| Administering Department           | الأنظمة الطبية الذكية | College                       | العلوم   |
| Module Leader                      | أ.د. فاضل فرهود مكي   | e-mail                        | <a href="mailto:Fadhil.Farhood@uomus.edu.iq">Fadhil.Farhood@uomus.edu.iq</a>   |
| Module Leader's Acad. Title        | Professor             | Module Leader's Qualification | PhD  |
| Module Tutor                       | أ.د. فاضل فرهود مكي   | e-mail                        | <a href="mailto:Fadhil.Farhood@uomus.edu.iq">Fadhil.Farhood@uomus.edu.iq</a>   |
| Peer Reviewer Name                 | ا.د مهدي عبادي مانع   | e-mail                        | <a href="mailto:mahdi.ebadi@uomus.edu.iq">mahdi.ebadi@uomus.edu.iq</a>   |
| Scientific Committee Approval Date | 11/06/2025            | Version Number                | 1.0  |

| Relation with other Modules       |      |          |  |
|-----------------------------------|------|----------|--|
| العلاقة مع المواد الدراسية الأخرى |      |          |  |
| Prerequisite module               | None | Semester |  |
| Co-requisites module              | None | Semester |  |

| Module Aims, Learning Outcomes and Indicative Contents   |  |
|--|--|
| أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية |  |
| Module Aims<br>أهداف المادة الدراسية                     | The course is aimed to make the student understand the basic concept of cell structure, membrane, cellular functions of different types of cell, modes of cellular signaling and signal amplification. |

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| <b>Module Learning Outcomes</b><br><br>مخرجات التعلم للمادة الدراسية | <ul style="list-style-type: none"> <li>- To study cell structure and functions of organelle functions and understand the mechanism of cellular transport within and outside the cell membrane.</li> <li>- To focus on different receptors and model of signaling and introduce the concept of cell signaling and their role in diseases.</li> <li>- Helping the student to become familiar with the existing scientific facts, whether in the human body or in the universe surrounding us, and to know the scientific assumptions and theories of scientists and specialists.</li> <li>- Enable students to gain knowledge and understanding of how to maintain and restore biological systems.</li> <li>- Introduce students to laboratory work and apply theoretical information and link it to the reality of laboratory work</li> </ul> |
| <b>Indicative Contents</b><br>المحتويات الإرشادية                    | <p>Indicative content includes the following.</p> <p><b>I – Origin and evolution of cells, cells as experimental models, tools of cell biology</b></p> <ul style="list-style-type: none"> <li>– chemistry of cells</li> <li>– molecular composition of cells, central role of enzymes, metabolic energy, biosynthesis of cell constituents, cell membrane</li> </ul> <p><b>II - CELL SIGNALING – CELL REGULATION</b></p> <p>Signaling molecules and their receptors, functions, pathways of intracellular signal transduction – the Cell Cycle stem cells and therapeutic cloning</p> <p><b>III- – Mitosis and Meiosis : Cell death and cell renewal- Programmed cell death- Stem cells- Embryonic</b></p>   |

| <b>Learning and Teaching Strategies</b><br>استراتيجيات التعلم والتعليم |  |
|--|--|
| <b>Strategies</b>  | 1- Learning by Experimentation<br>2- Cooperative Learning<br>3- Brainstorming<br>4- Self-Learning<br>5- Individual Skills Assessment |

|  |   |
|--|---|
|  | <b>6- Achievement Tests</b><br><b>7- Standard Tests</b> |
|--|---|

| <b>Student Workload (SWL)</b><br>الحمل الدراسي للطالب                          |     |   |   |
|--|-----|---|---|
| <b>Structured SWL (h/sem)</b><br>الحمل الدراسي المنتظم للطالب خلال الفصل       | 63  | <b>Structured SWL (h/w)</b><br>الحمل الدراسي المنتظم للطالب أسبوعيا       | 4 |
| <b>Unstructured SWL (h/sem)</b><br>الحمل الدراسي غير المنتظم للطالب خلال الفصل | 87  | <b>Unstructured SWL (h/w)</b><br>الحمل الدراسي غير المنتظم للطالب أسبوعيا | 6 |
| <b>Total SWL (h/sem)</b><br>الحمل الدراسي الكلي للطالب خلال الفصل              | 150 |   |   |

| <b>Module Evaluation</b><br>تقييم المادة الدراسية |                        |             |                  |            |                           |
|---|------------------------|-------------|------------------|------------|---------------------------|
|   |                        | Time/Number | Weight (Marks)   | Week Due   | Relevant Learning Outcome |
| <b>Formative assessment</b>                       | <b>Quizzes</b>         | 1           | 10% (10)         | 6          | LO #1, 2, 10 and 11       |
|   | <b>Assignments</b>     | 1           | 10% (10)         | 11         | LO # 3, 4, 6 and 7        |
|   | <b>Projects / Lab.</b> | 1           | 10% (10)         | Continuous |                           |
|   | <b>Report</b>          | 1           | 10% (10)         | 12         | LO # 5, 8 and 10          |
| <b>Summative assessment</b>                       | <b>Midterm Exam</b>    | 3 hr        | 10% (10)         | 13         | LO # 1-7                  |
|   | <b>Final Exam</b>      | 3 hr        | 50% (50)         |            | All                       |
| <b>Total assessment</b>                           |                        |             | 100% (100 Marks) |            |                           |

| <b>Delivery Plan (Weekly Syllabus)</b><br>المنهاج الاسبوعي النظري |  |
|---|--|
|   | <b>Material Covered</b>                    |
| <b>Week 1</b>   | <b>Introduction to Biology</b>             |
| <b>Week 2</b>   | <b>Branches of Biology</b>                 |
| <b>Week 3 - 4</b>   | <b>Characteristics of Living Organisms</b> |
| <b>Week 5</b>   | <b>Taxonomy and Classification</b>         |

|                   |  |
|-------------------|--|
| <b>Week 6</b>     | <b>Assignment and Presentation</b>               |
| <b>Week 7 - 8</b> | <b>The Basic Unit of Life</b>                    |
| <b>Week 9</b>     | <b>Midterm Exam</b>                              |
| <b>Week 10</b>    | <b>The Cell Membrane and Transport</b>           |
| <b>Week 11</b>    | <b>Cell Signaling and Communications</b>         |
| <b>Week 12</b>    | <b>Cell Reproduction (Mitosis &amp; Meiosis)</b> |
| <b>Week 13</b>    | <b>Stem Cells</b>                                |
| <b>Week 14</b>    | <b>Current Topics and Discussions</b>            |
| <b>Week 15</b>    | <b>Preparatory week before the final Exam</b>    |

| <b>Delivery Plan (Weekly Lab. Syllabus)</b><br>المناهج الاسبوعي للمختبر |   |
|---|---|
|   | <b>Material Covered</b>                           |
| <b>Week 1</b>   | Lab 1: Lab safety and Biomedical Waste Management |
| <b>Week 2 - 3</b>   | Lab 2 - 3: Lab tools and Equipments               |
| <b>Week 4</b>   | Lab 4: Microscope                                 |
| <b>Week 5</b>   | Lab 5: Staining                                   |
| <b>Week 6 - 7</b>   | Lab 6 - 7: Microscopic Examination: Plant Cells   |
| <b>Week 8 - 9</b>   | Lab 8 - 9: Microscopic Examination: Blood Cells   |
| <b>Week 10 - 11</b>   | Lab 10 - 11: DNA extraction from plant samples    |
| <b>Week 12</b>  | Assignment and Presentations                      |
| <b>Week 13</b>  | General Discussions                               |
| <b>Week 14</b>  | Lab 14: Oral exam                                 |

| <b>Learning and Teaching Resources</b><br>مصادر التعلم والتدريس |  |                                  |
|---|--|----------------------------------|
|   | <b>Text</b>  | <b>Available in the Library?</b> |
| <b>Required Texts</b>   | Geoffrey M. Cooper and Robert E. Hausman, "The Cell: A Molecular Approach", Fifth Edition, ASM Press and Sinauer Associates, 2009. | Yes                              |

|                          |   |    |
|--------------------------|---|----|
| <b>Recommended Texts</b> | Channarayappa, "Cell biology", Orient Blackswan, 2010.<br>Rastogi SC, "Cell biology", New Age International, 2005.<br>Cecie Starr, Ralph Taggart "Biology: The Unity and Diversity of life", Brooks/Cole, 11TH EDITION, 2006. | No |
| <b>Websites</b>          |   |    |

| <b>Grading Scheme</b><br>مخطط الدرجات  |                         |                     |           |                                       |
|--|-------------------------|---------------------|-----------|---------------------------------------|
| Group  | Grade                   | التقدير             | Marks (%) | Definition                            |
| <b>Success Group<br/>(50 - 100)</b>  | <b>A</b> - Excellent    | امتياز              | 90 - 100  | Outstanding Performance               |
|  | <b>B</b> - Very Good    | جيد جدا             | 80 - 89   | Above average with some errors        |
|  | <b>C</b> - Good         | جيد                 | 70 - 79   | Sound work with notable errors        |
|  | <b>D</b> - Satisfactory | متوسط               | 60 - 69   | Fair but with major shortcomings      |
|  | <b>E</b> - Sufficient   | مقبول               | 50 - 59   | Work meets minimum criteria           |
| <b>Fail Group<br/>(0 – 49)</b>   | <b>FX</b> – Fail        | راسب (قيد المعالجة) | (45-49)   | More work required but credit awarded |
|  | <b>F</b> – Fail         | راسب                | (0-44)    | Considerable amount of work required  |
|  |                         |                     |           |                                       |
| <b>Note:</b> Marks Decimal places above or below 0.5 will be rounded to the higher or lower full mark (for example a mark of 54.5 will be rounded to 55, whereas a mark of 54.4 will be rounded to 54. The University has a policy NOT to condone "near-pass fails" so the only adjustment to marks awarded by the original marker(s) will be the automatic rounding outlined above. |                         |                     |           |                                       |