# MODULE DESCRIPTION FORM

# نموذج وصف المادة الدراسية

| Module Information<br>معلومات المادة الدراسية | | | | | |
|---|---|---|---|---|---|
| **Module Title** | Immunology | | | **Module Delivery** | |
| **Module Type** | (C ) Core learning activity | | | ☒**Theory**<br>☐**Lecture**<br>☒**Lab**<br>☐**Tutorial**<br>☐**Practical**<br>☐**Seminar** | |
| **Module Code** | UOMU0307051 | | | | |
| **ECTS Credits** | 5.00 | | | | |
| **SWL (hr/sem)** | **125** | | | | |
| **Module Level** | 5 | | **Semester of Delivery** | 1 | |
| **Administering Department** | Department of medical biotechnology | | **College** | College of Sciences | |
| **Module Leader** | **Hussain Mahdi Abid** | | **e-mail** | Hussain.Mahdi.Abid@uomus.edu.iq | |
| **Module Leader's Acad. Title** | | | **Module Leader's Qualification** | **Ph.D.** | |
| **Module Tutor** | Hawraa Aead Ali | | **e-mail** | hawraa.aead.ali@uomus.edu.iq | |
| **Peer Reviewer Name** | Name | | **e-mail** | E-mail | |
| **Scientific Committee Approval Date** | 15/10/2024 | | **Version Number** | 1.0 | |

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

| Module Aims, Learning Outcomes and Indicative Contents<br>أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية | |
|---|---|
| **Module Objectives**<br>أهداف المادة الدراسية | Upon successful completion of the course, the student will:<br>1. Acquire basic knowledge of the essential elements of the immune system.<br>2. Understand the cellular and molecular basis of the innate and adaptive immune systems.<br>3. Appreciate the wide applications of immunology in biotechnology and medicine.<br>4. Experience literary research in the immunological field |
| **Module Learning Outcomes**<br><br>مخرجات التعلم للمادة الدراسية | 1. To describe immunology as biomedical science, the concept of immunity, immune system, and immune response. To explain the phylogenetic relationship between innate and adaptive immunity, their physiological functions, and features.<br>2. To name and explain the classification of adaptive immunity according to the mode of acquisition and executive mechanisms (humoral and cellular immunity).<br>3. To explain forms of immune activity (immune response, immune non-reactivity).<br>4. To describe the morphological, physical, and biological properties of cells of the immune system.<br>5. To describe the anatomy and function of lymphatic tissues (bone marrow, thymus, lymphatic system, lymph nodes, spleen, and regional lymphatic systems).<br>6. To name the subtypes of lymphocytes, primary differentiation markers for individual subtypes of immune cells, and to describe their function.<br>7. To name the subtypes of T and B lymphocytes and to describe their function.<br>8. To describe the principles of migration of neutrophils, monocytes, and T and B lymphocytes. To describe the distribution and recirculation of lymphocytes in the body.<br>9. To describe the function of chemokines, chemokine receptors, and adhesion molecules on leukocytes and. |
| **Indicative Contents**<br>المحتويات الإرشادية | Overview of Immunity. Antigens. Tissue Cells and Organs of the Immune System. Major Histocompatibility Complex Molecules. Immune Recognition. Cellular Immunity. Non-specific Immunity. Complement. Structure of Antibody and Antigen Receptor of Lymphocyte B. Gene Background of Synthesis and Antibody Differences. Humoral Immunity. Immune Response Regulation. Interaction of Immune Cells. Action on Immune Response. Cytokines and Chemokines. Immune Response to Tumor. Immunodeficiency and AIDS. Immunotolerance and Autoimmunity. Immunity to Infections. Tissue and Organ Transplantation. Immunological Hypersensitivity. Mucosal |

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|---|---|
| | Immunity. Vaccination. Laboratory Methods in Clinical Immunology. |

| Learning and Teaching Strategies<br>استراتيجيات التعلم والتعليم | |
|---|---|
| **Strategies** | 1. Lecture<br>2. Suggested readings<br>3. Discussion in class |

| Student Workload (SWL)<br>الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا | | | |
|---|---|---|---|
| **Structured SWL (h/sem)**<br>الحمل الدراسي المنتظم للطالب خلال الفصل | 64 | **Structured SWL (h/w)**<br>الحمل الدراسي المنتظم للطالب أسبوعيا | 4 |
| **Unstructured SWL (h/sem)**<br>الحمل الدراسي غير المنتظم للطالب خلال الفصل | 61 | **Unstructured SWL (h/w)**<br>الحمل الدراسي غير المنتظم للطالب أسبوعيا | 4 |
| **Total SWL (h/sem)**<br>الحمل الدراسي الكلي للطالب خلال الفصل | **125** | | |

| Module Evaluation<br>تقييم المادة الدراسية | | | | | |
|---|---|---|---|---|---|
| | | **Time/Number** | **Weight (Marks)** | **Week Due** | **Relevant Learning Outcome** |
| **Formative assessment** | **Quizzes** | 10 min/3 | 10% | 4, 6, 13 | 1 and 2 |
| | **Assignments** | 1 week/ 2 | 10% | 7 and 14 | 1 and 10 |
| | **Projects / Lab.** | 1 | 10% | continuous | All |
| | **Report** | 1 week/ 2 | 10% | 7,15 | 6,7and 8 |
| **Summative assessment** | **Midterm Exam** | 2h/1 | 10% | 7 | All |
| | **Final Exam** | 3h/1 | 50 | 16 | All |
| **Total assessment** | | | 100% (100 Marks) | | |

| Delivery Plan (Weekly Syllabus)<br>المنهاج الاسبوعي النظري | |
|---|---|
| | **Material Covered** |
| **Week 1** | Overview of the Immune System |
| **Week 2** | Cells and Organs of the Immune System |
| **Week 3** | Innate immunity |
| **Week 4** | Adaptive immunity |
| **Week 5** | Immunogens and antigens |
| **Week 6** | Antibody structure and functions . |
| **Week 7** | Mid exam +<br>Antigen–Antibody Interactions, Immune Assays, & Experimental Systems |
| **Week 8** | The Complement System |
| **Week 9** | Cytokines |
| **Week 10** | Role of MHC in Immune Responses |
| **Week 11** | Biology of T cell ,activation and function |
| **Week 12** | Biology of B cell ,activation and function |
| **Week 13** | Normal and abnormal immune responses. |
| **Week 14** | Infection and Immunity. |
| **Week 15** | Tolerance & Autoimmunity |
| **Week 16** | Final exam |

| Delivery Plan (Weekly Lab. Syllabus)<br>المنهاج الاسبوعي للمختبر | |
|---|---|
| | **Material Covered** |
| **Week 1** | Introduction of practical immunology |
| **Week 2** | Dilution, dilution factor and titer |
| **Week 3** | Agglutination Test ( Direct Agglutination ) |
| **Week 4** | Agglutination Test ( Inirect Agglutination ) |
| **Week 5** | Precipitation test (Elek test, Ascoli test and Kahn test) |
| **Week 6** | ELISA ( Types and principle ) |
| **Week 7** | ELISA ( Application ) |
| **Week8** | Immune fixation test |

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| **Week 9** | Immunofluorescent test (IFT) |
| **Week 10** | Immunofluorescent test (IFT) |
| **Week 11** | Immunoluminometric and electroluminescence assay |
| **Week 12** | Skin Test (Part 1) |
| **Week 13** | Skin Test (Part 2) |
| **Week 14** | Immunohistochemistry (IHC) and flow cytometry |
| **Week 15** | Immunohistochemistry (IHC) and flow cytometry |

## Learning and Teaching Resources
مصادر التعلم والتدريس

| | Text | Available in the Library? |
|---|---|---|
| **Required Texts** | Abbas A.K, Lichtman A.H., Pillai S. Basic Immunology. Functions and Disorders of the Immune System. Fifth edition. Elsevier, 2016. 2. Handbook for Practicals in Immunology, Editor: H. Mahmutefendić. The University of Rijeka, Faculty of Medicine, 2014. (e-edition), 2015 (printed edition). | yes |
| **Recommended Texts** | Abbas A.K, Lichtman A.H., Pillai S. Cellular and Molecular Immunology. International Edition. Tenth edition. Elsevier, 2021. or Abbas A.K, Lichtman A.H., Pillai S. Cellular and Molecular Immunology. International Edition. Eighth edition. Elsevier, 2015. 2. Murphy K, Weaver C: Janeway's Immunobiology 9th edition, Garland Science, New York and London, 2017. | yes |
| **Websites** | | |

## Grading Scheme
مخطط الدرجات

| Group | Grade | التقدير | Marks % | Definition |
|---|---|---|---|---|
| **Success Group (50 - 100)** | **A -** Excellent | امتياز | 90 - 100 | Outstanding Performance |
| | **B -** Very Good | جيد جدا | 80 - 89 | Above average with some errors |
| | **C -** Good | جيد | 70 - 79 | Sound work with notable errors |
| | **D -** Satisfactory | متوسط | 60 - 69 | Fair but with major shortcomings |
| | **E -** Sufficient | مقبول | 50 - 59 | Work meets minimum criteria |
| **Fail Group (0 – 49)** | **FX –** Fail | راسب (قيد المعالجة) | (45-49) | More work required but credit awarded |
| | **F –** Fail | راسب | (0-44) | Considerable amount of work required |
| | | | | |

**Note:** 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.