# Academic Program Description Form

**University Name:** Tikrit University

**Faculty/Institute:** College of Agriculture

**Scientific Department:** Plant Protection Department

**Academic or Professional Program Name:** Bachelor of Agricultural Sciences/ Plant Protection

**Final Certificate Name:** Bachelor of Agricultural Sciences/ Plant Protection

**Academic System:** Season

**Description Preparation Date:** 1/10/2024

**File Completion Date:** 1/10/2024

**Signature:**

**Head of Department Name:**
assistant professor: Khaldoon Faris Saead

**Date: :** 1/10/2024

**Signature:**

**Scientific Associate Name:**
assistant professor Mohammed saleh Mohammed

**Date: :** 1/10/2024

**The file is checked by:**

**Department of Quality Assurance and University Performance**
**Director of the Quality Assurance and University Performance Department:**
Assistant professor Aslam Saud Alwan

**Date: :** 1/10/2024

**Signature:**

**Approval of the Dean**

# Academic staff

| email | Specialization | | S.Name | dgree | Name | ت |
|---|---|---|---|---|---|---|
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| Reema.Rajih@tu.edu.iq | insects | PLANT PROTECTION | A.Lec | MSC | Rwman J. kadhum | .25 |

## Program Vision

Program vision is written here as stated in the university's catalogue and website.

Achieving quantitative and qualitative changes in scientific research to keep pace with the development of plant protectionin the world.

## 2. Program Mission

Program mission is written here as stated in the university's catalogue and website.

Spreading scientific awareness in society and providing it with graduates who are scientifically and practically qualified to manage and develop plant protectionaccording to scientific standards.

## 3. Program Objectives

General statements describing what the program or institution intends to achieve.

The department participates with state and community institutions in developing and solving problems of livestock projects based on scientific research

## 4. Program Accreditation

Does the program have program accreditation? And from which agency?

No

## 5. Other external influences

Is there a sponsor for the program?

## 6 Program Structure

| Program Structure | Number of Courses | Credit hours | Percentage | Reviews• |
|---|---|---|---|---|
| Institution Requirements | **9** | **9** | **% 15.25** | |
| College Requirements | **13** | **31** | **% 22.03** | |
| | **37** | **107** | **% 62.71** | |

| | | | | |
|---|---|---|---|---|
| Department Requirements | | | | |
| Summer Training | | | | |
| Other | | | | |

This can include notes whether the course is basic or optional.

## 7. Program Description

| Year/Level | Course Code | Course Name | Credit Hours | |
|---|---|---|---|---|
| | | | theoretical | Practical |
| 1 | PPD-1101 | Entomology | 2 | 3 |
| | AGR-1102 | Horticulture principles | 2 | 3 |
| | PPD-1103 | General Zoology | 2 | 3 |
| | AGR -1104 | Agricultural economy | 2 | |
| | UNI-1105 | Human Rights and Democracy | 2 | |
| | UNI-1106 | English Language 1 | 2 | |
| | UNI-1107 | Computer Science 1 | 2 | - |
| | AGR-1201 | General Botany | 2 | 3 |
| | AGR-1202 | Non-Organic Chemistry | 2 | 3 |
| | PPD-1203 | Basics of plant protection | 2 | 3 |
| | AGR -1204 | Basics of soil and water resources | 2 | 3 |
| | AGR -1205 | General Mathematics | 2 | |
| | UNI-1206 | Baath Party crimes | 2 | |
| | UNI-1207 | Arbic Language | 2 | |
| 2 | PPD-2301 | Microbiology | 2 | 3 |
| | PPD-2302 | Statistics | 2 | 3 |
| | PPD-2303 | Plant physiology | 2 | 3 |
| | PPD-2304 | Plant Taxonomy | 2 | 3 |
| | AGR2305- | Machines and protective equipment | 2 | 3 |
| | AGR2306- | Agricultural guidance | 2 | |
| | AGR2401- | Principles of field crops | 2 | 3 |
| | PPD-2402 | Plant nutrition | 2 | 3 |
| | PPD-2403 | Classification of insects | 2 | 3 |
| | UNI-2404 | Computer Science 2 | 2 | 3 |
| | PPD-2405 | Analytical chemistry | 2 | 3 |
| | PPD-2406 | Medical and veterinary insects | 2 | 3 |
| | UNI-2407 | English Language 2 | 2 | - |

| | | | | |
|---|---|---|---|---|
| 3 | PPD-3501 | Genetics and plant Breeding | 2 | 3 |
| | PPD-3502 | Design and analysis of experiments | 2 | 3 |
| | PPD-3503 | Insects physiology | 2 | 3 |
| | PPD-3504 | Nematode | 2 | 3 |
| | PPD-3505 | Mycology 1 | 2 | 3 |
| | PPD-3506 | Ecology | 2 | 3 |
| | PPD-3601 | **Plant diseases** | 2 | 3 |
| | PPD-3602 | **Weeds and methods of control them** | 1 | - |
| | PPD-3603 | Biochemistry | 2 | 3 |
| | PPD-3604 | Mycology 2 | 2 | 3 |
| | PPD-3605 | Beekeeping | 2 | 3 |
| | PPD-3606 | Bio Techniques | 2 | 3 |
| 4 | PPD-4701 | **Pesticides** | 2 | 3 |
| | PPD-4702 | **Insects ecology** | 2 | 3 |
| | PPD-4703 | Field crop diseases | 2 | 3 |
| | PPD-4704 | Vegetable crop diseases | 2 | 3 |
| | PPD-4705 | Agriculture Mite | 2 | 3 |
| | PPD-4706 | Field crop insects | 2 | 3 |
| | PPD-4707 | seminars | 1 | |
| | PPD-4801 | Fruit diseases | 2 | 3 |
| | PPD-4802 | Storages pests | 2 | 3 |
| | PPD-4803 | Horticulture Insects | 2 | 3 |
| | PPD-4804 | Biological control | 2 | 3 |
| | PPD-4805 | Integrated pest management | 2 | - |
| | PPD-4806 | Viruses | 2 | 3 |
| | PPD-4807 | Research Project | 1 | - |

## 8. Expected learning outcomes of the program

| | | |
|---|---|---|
| Knowledge Learning Outco | | |
| | | |
| Skills | | |
| | | |
| Ethics | | |
| | | |

## 9. Teaching and Learning Strategies

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## 10.Evaluation methods

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| | | |

| 11. Faculty |
| --- |
| Faculty Members |

| Mentoring new faculty members |
| --- |
| Briefly describes the process used to mentor new, visiting, full—time, and part—time faculty at the institution and department level. |
| Professional development of faculty members |
| Briefly describe the academic and professional development plan and arrangements for faculty such as teaching and learning strategies, assessment of learning outcomes, professional development, etc. |
| |

| 12. Acceptance Criterion |
| --- |
| (Setting regulations related to enrollment in the college or institute, whether central admission or others) |
| Central |

| 13. The most important sources of information about the program |
| --- |
| State briefly the sources of information about the program. |
| 1. The college and university website<br>2. University guide<br>3. Central Library<br>4. The most important books and sources for the department<br>5. Internet |

| 14. Program Development Plan |
| --- |
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| |

| Program Skills Outline | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Required program Learning outcomes | | | | | | | | | | |
| Year/ Level | Course Code | Course Name | Basic or optional | Knowledge | | | | Skills | | | | Ethics | | | |
| | | | | A1 | A2 | A3 | A4 | B1 | B2 | B3 | B4 | C1 | C2 | C3 | C4 |
| 1 | PPD-1101 | Entomology | Basic | * | * | * | * | * | * | * | * | * | * | * | * |
| | AGR-1102 | Horticulture principles | Basic | * | * | * | * | * | * | * | * | * | * | * | * |
| | PPD-1103 | General Zoology | Basic | * | * | * | * | * | * | * | * | * | * | * | * |
| | AGR -1104 | Agricultural economy | Basic | * | * | * | * | * | * | * | * | * | * | * | * |
| | UNI-1105 | Human Rights and Democracy | Basic | * | * | * | * | * | * | * | * | * | * | * | * |
| | UNI-1106 | English Language 1 | Basic | * | * | * | * | * | * | * | * | * | * | * | * |
| | UNI-1107 | Computer Science 1 | Basic | * | * | * | * | * | * | * | * | * | * | * | * |
| | AGR-1201 | General Botany | Basic | * | * | * | * | * | * | * | * | * | * | * | * |
| | AGR-1202 | Non-Organic Chemistry | Basic | * | * | * | * | * | * | * | * | * | * | * | * |
| | PPD-1203 | Basics of plant protection | Basic | * | * | * | * | * | * | * | * | * | * | * | * |
| | AGR -1204 | Basics of soil and water resources | Basic | * | * | * | * | * | * | * | * | * | * | * | * |
| | AGR -1205 | General Mathematics | Basic | * | * | * | * | * | * | * | * | * | * | * | * |
| | UNI-1206 | Baath Party crimes | Basic | * | * | * | * | * | * | * | * | * | * | * | * |
| | UNI-1207 | Arbic Language | Basic | * | * | * | * | * | * | * | * | * | * | * | * |
| | PPD-2301 | Microbiology | Basic | * | * | * | * | * | * | * | * | * | * | * | * |
| | PPD-2302 | Statistics | Basic | * | * | * | * | * | * | * | * | * | * | * | * |
| | PPD-2303 | Plant physiology | Basic | * | * | * | * | * | * | * | * | * | * | * | * |
| | PPD-2304 | Plant Taxonomy | Basic | * | * | * | * | * | * | * | * | * | * | * | * |

| | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | AGR2305- | Machines and protective equipment | Basic | * | * | * | * | * | * | * | * | * | * | * | * |
| | AGR2306- | Agricultural guidance | Basic | * | * | * | * | * | * | * | * | * | * | * | * |
| | AGR2401- | Principles of field crops | Basic | * | * | * | * | * | * | * | * | * | * | * | * |
| | PPD-2402 | Plant nutrition | Basic | * | * | * | * | * | * | * | * | * | * | * | * |
| | PPD-2403 | Classification of insects | Basic | * | * | * | * | * | * | * | * | * | * | * | * |
| | UNI-2404 | Computer Science 2 | Basic | * | * | * | * | * | * | * | * | * | * | * | * |
| | PPD-2405 | Analytical chemistry | Basic | * | * | * | * | * | * | * | * | * | * | * | * |
| | PPD-2406 | Medical and veterinary insects | Basic | * | * | * | * | * | * | * | * | * | * | * | * |
| | UNI-2407 | English Language 2 | Basic | * | * | * | * | * | * | * | * | * | * | * | * |
| 3 | PPD-3501 | Genetics and plant Breeding | Basic | * | * | * | * | * | * | * | * | * | * | * | * |
| | PPD-3502 | Design and analysis of experiments | Basic | * | * | * | * | * | * | * | * | * | * | * | * |
| | PPD-3503 | Insects physiology | Basic | * | * | * | * | * | * | * | * | * | * | * | * |
| | PPD-3504 | Nematode | Basic | * | * | * | * | * | * | * | * | * | * | * | * |
| | PPD-3505 | Mycology 1 | Basic | * | * | * | * | * | * | * | * | * | * | * | * |
| | PPD-3506 | Ecology | Basic | * | * | * | * | * | * | * | * | * | * | * | * |
| | PPD-3601 | **Plant diseases** | Basic | * | * | * | * | * | * | * | * | * | * | * | * |
| | PPD-3602 | **Weeds and methods of control them** | Basic | * | * | * | * | * | * | * | * | * | * | * | * |
| | PPD-3603 | Biochemistry | Basic | * | * | * | * | * | * | * | * | * | * | * | * |
| | PPD-3604 | Mycology 2 | Basic | * | * | * | * | * | * | * | * | * | * | * | * |
| | PPD-3605 | Beekeeping | Basic | * | * | * | * | * | * | * | * | * | * | * | * |
| | PPD-3606 | Bio Techniques | Basic | * | * | * | * | * | * | * | * | * | * | * | * |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | PPD-4701 | **Pesticides** | Basic | * | * | * | * | * | * | * | * | * | * | * | * |
| | PPD-4702 | **Insects ecology** | Basic | * | * | * | * | * | * | * | * | * | * | * | * |
| | PPD-4703 | Field crop diseases | Basic | * | * | * | * | * | * | * | * | * | * | * | * |
| | PPD-4704 | Vegetable crop diseases | Basic | * | * | * | * | * | * | * | * | * | * | * | * |
| | PPD-4705 | Agriculture Mite | Basic | * | * | * | * | * | * | * | * | * | * | * | * |
| 4 | PPD-4706 | Field crop insects | Basic | * | * | * | * | * | * | * | * | * | * | * | * |
| | PPD-4707 | seminars | Basic | * | * | * | * | * | * | * | * | * | * | * | * |
| | PPD-4801 | Fruit diseases | Basic | * | * | * | * | * | * | * | * | * | * | * | * |
| | PPD-4802 | Storages pests | Basic | * | * | * | * | * | * | * | * | * | * | * | * |
| | PPD-4803 | Horticulture Insects | Basic | * | * | * | * | * | * | * | * | * | * | * | * |
| | PPD-4804 | Biological control | Basic | * | * | * | * | * | * | * | * | * | * | * | * |
| | PPD-4805 | Integrated pest management | Basic | * | * | * | * | * | * | * | * | * | * | * | * |
| | PPD-4806 | Viruses | Basic | * | * | * | * | * | * | * | * | * | * | * | * |
| | PPD-4807 | Research Project | Basic | * | * | * | * | * | * | * | * | * | * | * | * |
| | PPD-1101 | Entomology | Basic | * | * | * | * | * | * | * | * | * | * | * | * |
| | AGR-1102 | Horticulture principles | Basic | * | * | * | * | * | * | * | * | * | * | * | * |
| | PPD-1103 | General Zoology | Basic | * | * | * | * | * | * | * | * | * | * | * | * |
| | AGR -1104 | Agricultural economy | Basic | * | * | * | * | * | * | * | * | * | * | * | * |
| | UNI-1105 | Human Rights and Democracy | Basic | * | * | * | * | * | * | * | * | * | * | * | * |
| | UNI-1106 | English Language 1 | Basic | * | * | * | * | * | * | * | * | * | * | * | * |

- **Please tick the boxes corresponding to the individual program learning outcomes under evaluation.**

# نموذج وصف المادة الدراسية

| Module Information<br>معلومات المادة الدراسية | | | | | |
|---|---|---|---|---|---|
| **Module Title** | **Basics of plant protection**<br>**أساسيات وقاية النبات** | | | **Module Delivery** | |
| **Module Type** | **Core** | | | ☒ **Theory**<br>☒ **Lecture**<br>☒ **Lab**<br>☐ **Tutorial**<br>☐ **Practical**<br>☐ **Seminar** | |
| **Module Code** | **PPD-1203** | | | | |
| **ECTS Credits** | **6** | | | | |
| **SWL (hr/sem)** | **150** | | | | |
| **Module Level** | 1 | | **Semester of Delivery** | 2 | |
| **Administering Department** | Plant protection | | **College** | Agriculture | |
| **Module Leader** | Name | | **e-mail** | Awfabd91@tu.edu.iq | |
| **Module Leader's Acad. Title** | Assistante professor | | **Module Leader's Qualification** | Ph.D. | |
| **Module Tutor** | Dr. Awf A.Ahmed | | **e-mail** | | |
| **Peer Reviewer Name** | Aya M.Mohsin | | **e-mail** | | |
| **Scientific Committee Approval Date** | 1/10/2024 | | **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 | Understand the scope and importance of plant pests and their economic damage.<br><br>• To make students open and curious, we do our best to foster and develop scientific |

| | |
|---|---|
| | attitude.<br>• Introducing students to the most important diseases and insect pests spread in Iraq.<br>• Make them skilled in practical work, experiments, laboratory equipment and correct interpretation of biological materials and data<br>Developing students' ability to change society by moving away from non-tactile methods of pest control.<br>• Introducing students to the methods used in pest control.<br>• Critical thinking: It includes creative thinking, innovation, investigation, analysis and evaluation<br>• Synthesis of information |
| **Module Learning Outcomes**<br>مخرجات التعلم للمادة الدراسية | 1. Mention the most important diseases and pests and explain the direct and indirect damage caused by pests<br>2. Description of the most important symptoms and signs of the disease<br>3. Identify the most important diseases and the means of their spread and control<br>4. Knowing the means through which plants can resist pathogens<br>5. Broad outlines of insect science and their most important harms<br>6. Know the most important insect pests, classify them, and control them<br>1. |
| **Indicative Contents**<br>المحتويات الإرشادية | No Indicative Contents available |

| **Learning and Teaching Strategies**<br>استراتيجيات التعلم والتعليم | |
|---|---|
| **Strategies** | The subject is structured around several modes of delivery including a series of illustrated lectures with experts from the field coupled with workshop/tutorial discussions, and individual site visits with practical exercises. Assignment submissions may include verbal presentation and physical documents for the 2 assignments. Feedback will be verbal throughout the semester. It is the student's responsibility to make notes of any feedback given in these sessions. Supplemental written feedback will also be provided for each of the 2 |

| | |
|---|---|
| | assignments with the assessment.<br><br>FEEDBACK:<br><br>The class structure provides several opportunities for feedback:<br><br>1. Throughout the semester verbal feedback will be provided by tutor(s) and peer-peer in the tutorial and workshop sessions for in-class presentations and work sessions. It is the student's responsibility to bring sufficient work for feedback (in line with the required timeline) and to make notes of any feedback given in these sessions.<br><br>2. All assignments are graded in *ReView*, where the tutor(s) will give formal feedback and indicative grades. This site also allows students to self-assess.<br><br>3. The online forum will allow students to engage with the work of their peers and the tutor(s) and can be seen as a further opportunity for informal feedback. |

## Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ أسبوعا

| | | | |
|---|---|---|---|
| **Structured SWL (h/sem)**<br>الحمل الدراسي المنتظم للطالب خلال الفصل | 78 | **Structured SWL (h/w)**<br>الحمل الدراسي المنتظم للطالب أسبوعيا | |
| **Unstructured SWL (h/sem)**<br>الحمل الدراسي غير المنتظم للطالب خلال الفصل | 72 | **Unstructured SWL (h/w)**<br>الحمل الدراسي غير المنتظم للطالب أسبوعيا | |
| **Total SWL (h/sem)**<br>الحمل الدراسي الكلي للطالب خلال الفصل | **150** | | |

## Module Evaluation

تقييم المادة الدراسية

| | | Time/Number | Weight (Marks) | Week Due | Relevant Learning Outcome |
|---|---|---|---|---|---|
| **Formative assessment** | **Quizzes** | 2 | 10% (10) | 5 and 10 | LO #1, #2 and #10, #11 |

| | | | | | |
|---|---|---|---|---|---|
| | **Assignments** | 2 | 10% (10) | 2 and 12 | LO #3, #4 and #6, #7 |
| | **Seminar** | 1 | 10% (10) | Continuous | All |
| | **Report** | 1 | 10% (10) | 13 | LO #5, #8 and #10 |
| **Summative assessment** | **Midterm Exam** | 2hr | 10% (10) | 7 | LO #1 - #7 |
| | **Final Exam** | 3hr | 50% (50) | 16 | All |
| **Total assessment** | | | 100% (100 Marks) | | |

## Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

| | **Material Covered** |
|---|---|
| **Week 1** | **Harmful factors and the damage they cause** |
| **Week 2** | **plant disease symptoms** |
| **Week 3** | **What are plant diseases?** |
| **Week 4** | **Plant pathogens** |
| **Week 5** | **Plant defense** |
| **Week 6** | **Plant disease resistance** |
| **Week 7** | **Special damages and benefits of insect** |
| **Week 8** | **Seminar** |
| **Week 9** | **Anti-environmental agent by pesticide** |
| **Week 10** | **Insect reproduction** |
| **Week 11** | **Anti-feeding in insects** |
| **Week 12** | **Classification of insect** |
| **Week 13** | **Insect control methods** |
| **Week 14** | **Metamorphosis in insect** |
| **Week 15** | **Feed back** |
| **Week 16** | **Preparatory week before the final Exam** |

## Delivery Plan (Weekly Laboratory Syllabus)

المنهاج الأسبوعي للمختبر (العملي)

| | **Material Covered** |
|---|---|

| | |
|---|---|
| **Week 1** | **Harmful factors and the damage they cause** |
| **Week 2** | **plant disease symptoms** |
| **Week 3** | **Define plant diseases?** |
| **Week 4** | **Diagnosis Plant pathogens** |
| **Week 5** | **Plant defense type** |
| **Week 6** | **Plant disease resistance methods** |
| **Week 7** | **Special damages and benefits of insect** |
| **Week 8** | **Seminar** |
| **Week 9** | **Anti-environmental agent by pesticide** |
| **Week 10** | **Insect reproduction** |
| **Week 11** | **Anti-feeding repellent insects** |
| **Week 12** | **Classification of insect** |
| **Week 13** | **Insect control methods** |
| **Week 14** | **Metamorphosis in insect** |
| **Week 15** | **Feed back** |

## Learning and Teaching Resources
مصادر التعلم والتدريس

| | Text | Available in the Library? |
|---|---|---|
| **Required Texts** | Basics of pest control<br>Book on Chemical Pesticides in Plant Protection,<br>Arab Plant Protection Journal | Yes |
| **Websites** | Scientific websites, scientific researcher, research gate | |

## 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 -** | متوسط | 60 - 69 | Fair but with major shortcomings |

| | | | | |
|---|---|---|---|---|
| | Satisfactory | | | |
| | **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.

# نموذج وصف المادة الدراسية

## Module Information
معلومات المادة الدراسية

| | | | |
|---|---|---|---|
| **Module Title** | **Zoology** | **Module Delivery** | |
| **Module Type** | **Core** | ☒ **Theory**<br>☒ **Lecture**<br>☒ **Lab**<br>☐ **Tutorial**<br>☐ **Practical**<br>☐ **Seminar** | |
| **Module Code** | PPD-1103 | | |
| **ECTS Credits** | **6** | | |
| **SWL (hr/sem)** | **79** | | |

| | | | |
|---|---|---|---|
| **Module Level** | 1 | **Semester of Delivery** | 1 |
| **Administering Department** | plant protection | **College** | Agriculture |
| **Module Leader** | Name | **e-mail** | E-mail |
| **Module Leader's Acad. Title** | Professor | **Module Leader's Qualification** | Ph.D. |
| **Module Tutor** | Dr. Waleed Khalid Ahmed | **e-mail** | Waleed.khalid@tu.edu.iq |
| **Peer Reviewer Name** | Name | **e-mail** | E-mail |
| **Scientific Committee Approval Date** | 17/09/2024 | **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**<br>أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية | |
|---|---|
| **Module Objectives**<br>أهداف المادة الدراسية | • Introducing the student to the basics of zoology and its relationship to other sciences such as agricultural sciences and veterinary.<br>• To imbibe love and curiosity towards nature including zoology .<br>• To make students open-minded and curious, we try our best to enhance and develop a scientific attitude.<br>• To make the students exposed to the diverse life forms.<br>• To make them skilled in practical work, experiments, laboratory equipment and to interpret correctly on biological materials and data.<br>• To encourage the students to do research in related disciplines.<br>• To develop the ability of the students to transform the society through their education. • To acquaint the students about the methods used in the maintenance of different natural resources.<br>• Critical Thinking: to include creative thinking, innovation, inquiry and analysis, evaluation<br>• and synthesis of information.<br>• Topics include the study of animal form, function and reproduction, and an overview of animals<br>• diversity including , Vertebrata, Invertebrata, Unicellular, and Multicellular. |
| **Module Learning Outcomes**<br>مخرجات التعلم للمادة الدراسية | 2. list the main steps of the scientific method and explain how science differs from other human endeavors<br>3. describe the functions of a animal cell and its organelles, and summarize the differences between animal and plant cells<br>4. identify and illustrate animal structure, growth and reproduction<br>5. summarize some of the evidence for evolution from fossils and living species, and give several examples of how animal structure relates to its function<br>6. outline the general principles of animal taxonomy by scientist Carl Linnaeus |
| **Indicative Contents**<br>المحتويات الإرشادية | No Indicative Contents available |

| **Learning and Teaching Strategies**<br>استراتيجيات التعلم والتعليم | |
|---|---|
| **Strategies** | The subject is structured around several modes of delivery including a series of illustrated lectures with experts from the field coupled with workshop/tutorial discussions, and individual site visits with practical exercises. Assignment submissions may include verbal presentation and physical documents for the 2 assignments. Feedback will be verbal throughout the semester. It is the student's responsibility to make notes of any feedback given in these sessions. |

| | |
|---|---|
| | Supplemental written feedback will also be provided for each of the 2 assignments with the assessment.<br><br>FEEDBACK:<br><br>The class structure provides several opportunities for feedback:<br><br>1. Throughout the semester verbal feedback will be provided by tutor(s) and peer-peer in the tutorial and workshop sessions for in-class presentations and work sessions. It is the student's responsibility to bring sufficient work for feedback (in line with the required timeline) and to make notes of any feedback given in these sessions.<br><br>2. All assignments are graded in *ReView*, where the tutor(s) will give formal feedback and indicative grades. This site also allows students to self-assess.<br><br>3. The online forum will allow students to engage with the work of their peers and the tutor(s) and can be seen as a further opportunity for informal feedback. |

## Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

| | | | |
|---|---|---|---|
| **Structured SWL (h/sem)**<br>الحمل الدراسي المنتظم للطالب خلال الفصل | | **Structured SWL (h/w)**<br>الحمل الدراسي المنتظم للطالب أسبوعيا | |
| **Unstructured SWL (h/sem)**<br>الحمل الدراسي غير المنتظم للطالب خلال الفصل | | **Unstructured SWL (h/w)**<br>الحمل الدراسي غير المنتظم للطالب أسبوعيا | |
| **Total SWL (h/sem)**<br>الحمل الدراسي الكلي للطالب خلال الفصل | **150** | | |

## Module Evaluation

تقييم المادة الدراسية

| | | Time/Number | Weight (Marks) | Week Due | Relevant Learning Outcome |
|---|---|---|---|---|---|
| **Formative** | **Quizzes** | 2 | 10% (10) | 5 and 10 | LO #1, #2 and #10, |

| | | | | | |
|---|---|---|---|---|---|
| **assessment** | | | | | #11 |
| | **Assignments** | 2 | 10% (10) | 2 and 12 | LO #3, #4 and #6, #7 |
| | **Projects / Lab.** | 1 | 10% (10) | Continuous | All |
| | **Report** | 1 | 10% (10) | 13 | LO #5, #8 and #10 |
| **Summative assessment** | **Midterm Exam** | 2hr | 10% (10) | 7 | LO #1 - #7 |
| | **Final Exam** | 3hr | 50% (50) | 16 | All |
| **Total assessment** | | | 100% (100 Marks) | | |

| **Delivery Plan (Weekly Syllabus)**<br>المنهاج الاسبوعي النظري | |
|---|---|
| | **Material Covered** |
| **Week 1** | **Introduction of zoology** |
| **Week 2** | **Main theories about the origin of life on Earth** |
| **Week 3** | **Animal Kingdom** |
| **Week 4** | **Animal Cells** |
| **Week 5** | **Animal Tissues** |
| **Week 6** | **Cytoplasm** |
| **Week 7** | **Nemathelminthes** |
| **Week 8** | **Protozo** |
| **Week 9** | **Chardata** |
| **Week 10** | **Platyhelminthes** |
| **Week 11** | **Mastigophora:** |
| **Week 12** | **Annelida** |
| **Week 13** | **Preparatory week before the final Exam** |

| **Delivery Plan (Weekly Laboratory Syllabus)**<br>المنهاج الأسبوعي للمختبر (العملي) | |
|---|---|
| | **Material Covered** |
| **Week 1** | **The Optical Microscope, Its Components, and How to Use It.** |
| **Week 2** | **Introduction in Zoology –Terms and concepts.** |
| **Week 3** | **Animal cell** |
| **Week 4** | **Animal Tissues and its Types.** |
| **Week 5** | **Animal cell cycle** |

| | |
|---|---|
| **Week 6** | **Protoplasmic components** |
| **Week 7** | **Non-Protoplasmic components** |
| **Week 8** | **Animal body development** |
| **Week 9** | **Animal Organs** |
| **Week 10** | **Different between animal and plant cells** |
| **Week 11** | **Respiration** |

## Learning and Teaching Resources
مصادر التعلم والتدريس

| | Text | Available in the Library? |
|---|---|---|
| **Required Texts** | Textbook: General Zoology<br>Textbook: Zoology and agricultural animal pests. Dr. Abdel-Alim Saad Suleiman<br><br>ASHOK KUMAR, RASTOGI<br>PUBLICATIONS SHIVAJI ROAD. MEERUT-250 002: INDIA.<br>• An illustrated checklist of the flora of the University of Canterbury Cass Mountain Research Area: | 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.

# MODULE DESCRIPTION FORM
# نموذج وصف المادة الدراسية

| Module Information<br>معلومات المادة الدراسية | | | | | |
|---|---|---|---|---|---|
| **Module Title** | **Microbiology** | | | **Module Delivery** | |
| **Module Type** | **Core** | | | ☒ **Theory**<br>☒ **Lecture**<br>☒ **Lab**<br>☐ **Tutorial**<br>☐ **Practical**<br>☐ **Seminar** | |
| **Module Code** | | | | | |
| **ECTS Credits** | | | | | |
| **SWL (hr/sem)** | **150** | | | | |
| **Module Level** | 1 | | **Semester of Delivery** | 1 | |
| **Administering Department** | Plant Protection | | **College** | Agriculture | |
| **Module Leader** | Dr. Abdullah Abdulkareem Hassan | | **e-mail** | Drabdullah.has67@tu.edu.iq | |
| **Module Leader's Acad. Title** | Professor | | **Module Leader's Qualification** | Ph.D. | |
| **Module Tutor** | Dr. Abdullah Abdulkareem Hassan | | **e-mail** | Drabdullah.has67@tu.edu.iq | |
| **Peer Reviewer Name** | Name | | **e-mail** | E-mail | |
| **Scientific Committee Approval Date** | 01/06/2023 | | **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 | The student learns about all the taxonomic levels of microorganisms and the importance and harms of each one. |

| | |
|---|---|
| **Module Learning Outcomes**<br>مخرجات التعلم للمادة الدراسية | A- Cognitive objectives<br><br>Introduce the student to the development of microbiology and everything related to it<br>Introduce the student to all the taxonomic levels of microorganisms<br>Introduce the student to the importance of microorganisms in terms of harms and benefits and at the environmental level<br>Introduce the student to the importance of studying microorganisms and their relationship to plant diseases<br>Enabling the student to know the methods of controlling microorganisms The relationship of microorganisms to diseases and the genetics of microorganisms<br><br>B- Course specific skill objectives.<br><br>B1 - Training students to study some families and genera<br>B2 - Bacteria Introduce the student to the morphological properties of bacteria<br>B3 - Bacterial dissection<br>B4 - Bacterial growth |
| **Indicative Contents**<br>المحتويات الإرشادية | No Indicative Contents available |

| **Learning and Teaching Strategies**<br>استراتيجيات التعلم والتعليم | |
|---|---|
| **Strategies** | The subject is structured around several modes of delivery including a series of illustrated lectures with experts from the field coupled with workshop/tutorial discussions, and individual site visits with practical exercises. Assignment submissions may include verbal presentation and physical documents for the 2 assignments. Feedback will be verbal throughout the semester. It is the student's responsibility to make notes of any feedback given in these sessions. Supplemental written feedback will also be provided for each of the 2 assignments with the assessment.<br><br>Teaching and learning methods<br><br>• Providing students with the basics and lectures related to the subject.<br><br>• Using point Power presentation methods to convey information well and clearly to the student.<br><br>• Encouraging students to go to the library when they are asked to submit scientific reports on the topics given to them from the study material.<br><br>• Using some software that simulates the shapes and dissection of some types |

| | |
|---|---|
| | of microorganisms<br><br>Evaluation methods<br><br>Daily and monthly tests through questions about the subject of the study material<br><br>Grades on student participation in research and scientific reports<br><br>Student activities through making posters and illustrations about what pertains to the study material.<br><br>C- Emotional and value objectives<br><br>Putting deductive questions to students<br><br>Finding solutions to problems and obstacles that students encounter in the practical part of the subject and finding solutions for them<br><br>Enabling students to conduct the largest possible number of exercises and applications on the topics<br><br>Teaching and learning methods<br><br>Developing teaching programs in coordination with higher departments<br><br>Developing teaching curricula by the department similar to the work environment<br><br>Sending students to departments and directorates for the purpose of conducting summer application<br><br>Assigning students to conduct research and reports<br><br>Assigning students to go to the library and collect sources on the subject<br><br>Evaluation methods<br><br>Conducting daily and monthly tests through questions on the subject of the study material to determine the extent of their comprehension of the subject<br><br>Giving grades for students' participation in scientific research and reports<br><br>Discussing research and reports and presenting them to students and giving |

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| | grades on them<br><br>Writing reports after the end of the application period to determine the extent to which students are able to diagnose problems and how to find solutions for them.<br><br>D- General and transferable qualification skills (other skills related to employability and personal development).<br><br>Training the student on how to use permanent information sources and develop his basic information.<br><br>Developing the student's method of transferring information to the workplace<br><br>Training the student to conduct scientific research to solve problems at work and develop his methods.<br><br>FEEDBACK:<br><br>The class structure provides several opportunities for feedback:<br><br>1. Throughout the semester verbal feedback will be provided by tutor(s) and peer-peer in the tutorial and workshop sessions for in-class presentations and work sessions. It is the student's responsibility to bring sufficient work for feedback (in line with the required timeline) and to make notes of any feedback given in these sessions.<br><br>2. All assignments are graded in *ReView*, where the tutor(s) will give formal feedback and indicative grades. This site also allows students to self-assess.<br><br>3. The online forum will allow students to engage with the work of their peers and the tutor(s) and can be seen as a further opportunity for informal feedback. |

| **Student Workload (SWL)**<br>الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا | | | |
|---|---|---|---|
| **Structured SWL (h/sem)**<br>الحمل الدراسي المنتظم للطالب خلال الفصل | 79 | **Structured SWL (h/w)**<br>الحمل الدراسي المنتظم للطالب أسبوعيا | |
| **Unstructured SWL (h/sem)**<br>الحمل الدراسي غير المنتظم للطالب خلال الفصل | 96 | **Unstructured SWL (h/w)**<br>الحمل الدراسي غير المنتظم للطالب أسبوعيا | |

| | |
|---|---|
| **Total SWL (h/sem)**<br>الحمل الدراسي الكلي للطالب خلال الفصل | **175** |

## Module Evaluation
تقييم المادة الدراسية

| | | Time/Number | Weight (Marks) | Week Due | Relevant Learning Outcome |
|---|---|---|---|---|---|
| **Formative assessment** | **Quizzes** | 2 | 10% (10) | 5 and 10 | LO #1, #2 and #10, #11 |
| | **Assignments** | 2 | 10% (10) | 2 and 12 | LO #3, #4 and #6, #7 |
| | **Projects / Lab.** | 1 | 10% (10) | Continuous | All |
| | **Report** | 1 | 10% (10) | 13 | LO #5, #8 and #10 |
| **Summative assessment** | **Midterm Exam** | 2hr | 10% (10) | 7 | LO #1 - #7 |
| | **Final Exam** | 3hr | 50% (50) | 16 | All |
| **Total assessment** | | | 100% (100 Marks) | | |

## Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

| | Material Covered |
|---|---|
| **Week 1** | Introduction to Microbiology |
| **Week 2** | The position of microorganisms among living organisms (classification) |
| **Week 3** | The structure of bacteria and the functions of their parts |
| **Week 4** | Nutrition of microorganisms. |
| **Week 5** | Growth and reproduction of bacteria. And bacterial enzymes. |
| **Week 6** | Mycoplasma, phytoplasma, rickettsia. |
| **Week 7** | First monthly exam |
| **Week 8** | Genetics of microorganisms. |
| **Week 9** | Viruses, viroids and prions |

| | |
|---|---|
| **Week 10** | Fungi. |
| **Week 11** | Algae |
| **Week 12** | Protozoa |
| **Week 13** | Microorganisms in soil, food and water |
| **Week 14** | -Control of microorganisms. |
| **Week 15** | Introduction to Microbiology |
| **Week 16** | **Preparatory week before the final Exam** |

| **Delivery Plan (Weekly Laboratory Syllabus)**<br>المنهاج الأسبوعي للمختبر (العملي) | |
|---|---|
| | **Material Covered** |
| **Week 1** | General laboratory instructions and identification of laboratory devices and equipment |
| **Week 2** | Cultivation media and how to prepare and sterilize them. |
| **Week 3** | Isolation and purification of microorganisms - isolation methods |
| **Week 4** | Purification of bacteria and study of the characteristics of bacterial colonies |
| **Week 5** | Study of the pathogenicity of microorganisms isolated from infected plants |
| **Week 6** | Staining bacteria |
| **Week 7** | Counting bacteria |
| **Week 8** | First monthly exam |
| **Week 9** | Yeasts and molds |
| **Week 10** | -The effect of some physical factors on the growth of microorganisms |
| **Week 11** | The effect of some chemical pesticides and antibiotics on the growth of microorganisms |
| **Week 12** | -Examination of microorganisms in milk and other processed foods |
| **Week 13** | Continuation of the previous laboratory |
| **Week 14** | Examination of samples of heavy water - Testing for the presence of viruses and bacteria. |
| **Week 15** | Continuation of the previous laboratory |

| Learning and Teaching Resources<br>مصادر التعلم والتدريس | | |
|---|---|---|
| | **Text** | **Available in the Library?** |
| **Required Texts** | Principles of Microbiology<br>Author: Faiz Aziz Al-Ani and Amin Suleiman Badawi - 1990<br>Bacteria / Written by Nizam Al-Haidari and others<br><br>Microbiology, Trtoro et al., 2009 | Yes |
| **Websites** | | |

| Grading Scheme<br>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.

# MODULE DESCRIPTION FORM
# نموذج وصف المادة الدراسية

| Module Information<br>معلومات المادة الدراسية |
|---|

| Module Title | Mycology-1 | Module Delivery |
|---|---|---|
| Module Type | Core | ☒ Theory<br>☒ Lecture<br>☒ Lab<br>☐ Tutorial<br>☐ Practical<br>☐ Seminar |
| Module Code | | |
| ECTS Credits | | |
| SWL (hr/sem) | 150 | |

| | | | |
|---|---|---|---|
| Module Level | 1 | Semester of Delivery | 1 |
| Administering Department | Plant Protection | College | Agriculture |
| Module Leader | Dr. Abdullah Abdulkareem Hassan | e-mail | Drabdullah.has67@tu.edu.iq |
| Module Leader's Acad. Title | Professor | Module Leader's Qualification | Ph.D. |
| Module Tutor | Dr. Abdullah Abdulkareem Hassan | e-mail | Drabdullah.has67@tu.edu.iq |
| Peer Reviewer Name | Name | e-mail | E-mail |
| Scientific Committee Approval Date | 01/06/2023 | 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 Objectives**<br>أهداف المادة الدراسية | The student learns about all the taxonomic levels of fungi and the importance and harms of each one. |
| **Module Learning Outcomes**<br>مخرجات التعلم للمادة الدراسية | A- Cognitive objectives<br><br>Introduce the student to the development of fungi and everything related to it<br>Introduce the student to all the taxonomic levels of fungi<br>Introduce the student to the importance of fungi in terms of harms and benefits and at the environmental level<br>Introduce the student to the importance of studying fungi and their relationship to plant diseases<br>Enabling the student to know the methods of controlling fungi , The |

| | |
|---|---|
| | relationship of fungi to diseases and the genetics of fungi<br><br>B- Course specific skill objectives.<br><br>B1 - Training students to study **part one** of the families and genera<br>B2 - Introduce the student to the morphological properties of fungi<br>B3 - Fungal dissection<br>B4 – fungal growth |
| **Indicative Contents**<br>المحتويات الإرشادية | No Indicative Contents available |

| **Learning and Teaching Strategies**<br>استراتيجيات التعلم والتعليم | |
|---|---|
| **Strategies** | The subject is structured around several modes of delivery including a series of illustrated lectures with experts from the field coupled with workshop/tutorial discussions, and individual site visits with practical exercises. Assignment submissions may include verbal presentation and physical documents for the 2 assignments. Feedback will be verbal throughout the semester. It is the student's responsibility to make notes of any feedback given in these sessions. Supplemental written feedback will also be provided for each of the 2 assignments with the assessment.<br><br>Teaching and learning methods<br><br>• Providing students with the basics and lectures related to the subject.<br><br>• Using point Power presentation methods to convey information well and clearly to the student.<br><br>• Encouraging students to go to the library when they are asked to submit scientific reports on the topics given to them from the study material.<br><br>• Using some software that simulates the shapes and dissection of some types of fungi<br><br>Evaluation methods<br><br>Daily and monthly tests through questions about the subject of the study material<br><br>Grades on student participation in research and scientific reports<br><br>Student activities through making posters and illustrations about what pertains |

| | |
|---|---|
| | to the study material.<br><br>C- Emotional and value objectives<br><br>Putting deductive questions to students<br><br>Finding solutions to problems and obstacles that students encounter in the practical part of the subject and finding solutions for them<br><br>Enabling students to conduct the largest possible number of exercises and applications on the topics<br><br>Teaching and learning methods<br><br>Developing teaching programs in coordination with higher departments<br><br>Developing teaching curricula by the department similar to the work environment<br><br>Sending students to departments and directorates for the purpose of conducting summer application<br><br>Assigning students to conduct research and reports<br><br>Assigning students to go to the library and collect sources on the subject<br><br>Evaluation methods<br><br>Conducting daily and monthly tests through questions on the subject of the study material to determine the extent of their comprehension of the subject<br><br>Giving grades for students' participation in scientific research and reports<br><br>Discussing research and reports and presenting them to students and giving grades on them<br><br>Writing reports after the end of the application period to determine the extent to which students are able to diagnose problems and how to find solutions for them.<br><br>D- General and transferable qualification skills (other skills related to employability and personal development).<br><br>Training the student on how to use permanent information sources and develop |

| | |
|---|---|
| | his basic information.<br><br>Developing the student's method of transferring information to the workplace<br><br>Training the student to conduct scientific research to solve problems at work and develop his methods.<br><br>FEEDBACK:<br><br>The class structure provides several opportunities for feedback:<br><br>1. Throughout the semester verbal feedback will be provided by tutor(s) and peer-peer in the tutorial and workshop sessions for in-class presentations and work sessions. It is the student's responsibility to bring sufficient work for feedback (in line with the required timeline) and to make notes of any feedback given in these sessions.<br><br>2. All assignments are graded in *ReView*, where the tutor(s) will give formal feedback and indicative grades. This site also allows students to self-assess.<br><br>3. The online forum will allow students to engage with the work of their peers and the tutor(s) and can be seen as a further opportunity for informal feedback. |

| **Student Workload (SWL)**<br>الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا | | | |
|---|---|---|---|
| **Structured SWL (h/sem)**<br>الحمل الدراسي المنتظم للطالب خلال الفصل | 79 | **Structured SWL (h/w)**<br>الحمل الدراسي المنتظم للطالب أسبوعيا | |
| **Unstructured SWL (h/sem)**<br>الحمل الدراسي غير المنتظم للطالب خلال الفصل | 96 | **Unstructured SWL (h/w)**<br>الحمل الدراسي غير المنتظم للطالب أسبوعيا | |
| **Total SWL (h/sem)**<br>الحمل الدراسي الكلي للطالب خلال الفصل | **175** | | |

## Module Evaluation
تقييم المادة الدراسية

| | | Time/Number | Weight (Marks) | Week Due | Relevant Learning Outcome |
|---|---|---|---|---|---|
| Formative assessment | Quizzes | 2 | 10% (10) | 5 and 10 | LO #1, #2 and #10, #11 |
| | Assignments | 2 | 10% (10) | 2 and 12 | LO #3, #4 and #6, #7 |
| | Projects / Lab. | 1 | 10% (10) | Continuous | All |
| | Report | 1 | 10% (10) | 13 | LO #5, #8 and #10 |
| Summative assessment | Midterm Exam | 2hr | 10% (10) | 7 | LO #1 - #7 |
| | Final Exam | 3hr | 50% (50) | 16 | All |
| Total assessment | | | 100% (100 Marks) | | |

## Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

| | Material Covered |
|---|---|
| Week 1 | Introduction to Mycology |
| Week 2 | Definitions and Terminology |
| Week 3 | Historical Overview of the Development of this Science + Importance of Studying Mycology |
| Week 4 | The Foundations Relied upon in Modern Classification Based on Molecular Genetic Evolutionary Origin |
| Week 5 | The Position of Fungi Among Living Organisms, the Foundations Relied upon in Traditional Classification |
| Week 6 | Fungal Nutrition Levels |
| Week 7 | Fungal Body Structure |
| Week 8 | Growth in Fungi |
| Week 9 | Methods of Reproduction |
| Week 10 | |
| Week 11 | Division of Naked Fungi: Classification, Structure, Importance, Life Cycle |
| Week 12 | Study Under the Sections of Acrasiogymnomycotina |
| Week 13 | |

| | |
|---|---|
| **Week 14** | Division of Naked Fungi: Classification, Structure, Importance, Life Cycle |
| **Week 15** | Study Under the Sections of |
| **Week 16** | **Preparatory week before the final Exam** |

## Delivery Plan (Weekly Laboratory Syllabus)

المنهاج الأسبوعي للمختبر (العملي)

| | **Material Covered** |
|---|---|
| **Week 1** | Explanation of laboratory instructions and scientific equipment for the study of fungi |
| **Week 2** | Laboratory instructions, nutritional media (environments): their types and preparation |
| **Week 3** | Laboratory instructions, nutritional media (environments): their types and preparation |
| **Week 4** | Isolation of fungi from soil, air, infected plants and water |
| **Week 5** | Isolation of fungi from soil, air, infected plants and water |
| **Week 6** | Purification of colonies, |
| **Week 7** | Counting colonies, |
| **Week 8** | Growth estimation |
| **Week 9** | Preparation of slides and use of the microscope |
| **Week 10** | Study of models available from the Department of Gymnosperms |
| **Week 11** | Study of models available from the Department of Gymnosperms |
| **Week 12** | Study of models available from the Department of Flagellated Fungi such as Chytridiomycota |
| **Week 13** | Study of models available from the Department of Flagellated Fungi such as Chytridiomycota |
| **Week 14** | Study of models available from the Department of Flagellated Fungi such as Oomycota |
| **Week 15** | Study of models available from the Department of Flagellated Fungi such as Oomycota |

## Learning and Teaching Resources

مصادر التعلم والتدريس

| | **Text** | **Available in the Library?** |
|---|---|---|
| **Required Texts** | Introductory mycology. By Axopoulus,C. J., Mims,C. W. | Yes |

| | | |
|---|---|---|
| | and Blackwell,M. 1996.<br>Introduction to fungi by Webster,J. and Weber, R. 2000 | |
| **Websites** | | |

| **Grading Scheme**<br>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.

# MODULE DESCRIPTION FORM
# نموذج وصف المادة الدراسية

| **Module Information**<br>معلومات المادة الدراسية | | | |
|---|---|---|---|
| **Module Title** | **Mycology-2** | **Module Delivery** | |
| **Module Type** | **Core** | ☒ **Theory**<br>☒ **Lecture**<br>☒ **Lab**<br>☐ **Tutorial**<br>☐ **Practical**<br>☐ **Seminar** | |
| **Module Code** | | | |
| **ECTS Credits** | | | |
| **SWL (hr/sem)** | **150** | | |
| **Module Level** | 1 | **Semester of Delivery** | 1 |

| | | | |
|---|---|---|---|
| **Administering Department** | Plant Protection | **College** | Agriculture |
| **Module Leader** | Dr. Abdullah Abdulkareem Hassan | **e-mail** | Drabdullah.has67@tu.edu.iq |
| **Module Leader's Acad. Title** | Professor | **Module Leader's Qualification** | Ph.D. |
| **Module Tutor** | Dr. Abdullah Abdulkareem Hassan | **e-mail** | Drabdullah.has67@tu.edu.iq |
| **Peer Reviewer Name** | Name | **e-mail** | E-mail |
| **Scientific Committee Approval Date** | 01/06/2023 | **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 Objectives**<br>أهداف المادة الدراسية | The student learns about all the taxonomic levels of fungi and the importance and harms of each one. |
| **Module Learning Outcomes**<br>مخرجات التعلم للمادة الدراسية | A- Cognitive objectives<br><br>Introduce the student to the development of fungi and everything related to it<br>Introduce the student to all the taxonomic levels of fungi<br>Introduce the student to the importance of fungi in terms of harms and benefits and at the environmental level<br>Introduce the student to the importance of studying fungi and their relationship to plant diseases<br>Enabling the student to know the methods of controlling fungi , The relationship of fungi to diseases and the genetics of fungi<br><br>B- Course specific skill objectives.<br><br>B1 - Training students to study **part two** of the families and genera<br>B2 - Introduce the student to the morphological properties of fungi<br>B3 - Fungal dissection<br>B4 – fungal growth |
| **Indicative Contents** | No Indicative Contents available |

| | |
|---|---|
| المحتويات الإرشادية | |

| Learning and Teaching Strategies<br>استراتيجيات التعلم والتعليم | |
|---|---|
| **Strategies** | The subject is structured around several modes of delivery including a series of illustrated lectures with experts from the field coupled with workshop/tutorial discussions, and individual site visits with practical exercises. Assignment submissions may include verbal presentation and physical documents for the 2 assignments. Feedback will be verbal throughout the semester. It is the student's responsibility to make notes of any feedback given in these sessions. Supplemental written feedback will also be provided for each of the 2 assignments with the assessment.<br><br>Teaching and learning methods<br><br>• Providing students with the basics and lectures related to the subject.<br><br>• Using point Power presentation methods to convey information well and clearly to the student.<br><br>• Encouraging students to go to the library when they are asked to submit scientific reports on the topics given to them from the study material.<br><br>• Using some software that simulates the shapes and dissection of some types of fungi<br><br>Evaluation methods<br><br>Daily and monthly tests through questions about the subject of the study material<br><br>Grades on student participation in research and scientific reports<br><br>Student activities through making posters and illustrations about what pertains to the study material.<br><br>C- Emotional and value objectives<br><br>Putting deductive questions to students<br><br>Finding solutions to problems and obstacles that students encounter in the practical part of the subject and finding solutions for them |

| | |
|---|---|
| | Enabling students to conduct the largest possible number of exercises and applications on the topics<br><br>Teaching and learning methods<br><br>Developing teaching programs in coordination with higher departments<br><br>Developing teaching curricula by the department similar to the work environment<br><br>Sending students to departments and directorates for the purpose of conducting summer application<br><br>Assigning students to conduct research and reports<br><br>Assigning students to go to the library and collect sources on the subject<br><br>Evaluation methods<br><br>Conducting daily and monthly tests through questions on the subject of the study material to determine the extent of their comprehension of the subject<br><br>Giving grades for students' participation in scientific research and reports<br><br>Discussing research and reports and presenting them to students and giving grades on them<br><br>Writing reports after the end of the application period to determine the extent to which students are able to diagnose problems and how to find solutions for them.<br><br>D- General and transferable qualification skills (other skills related to employability and personal development).<br><br>Training the student on how to use permanent information sources and develop his basic information.<br><br>Developing the student’s method of transferring information to the workplace<br><br>Training the student to conduct scientific research to solve problems at work and develop his methods.<br><br>FEEDBACK: |

| | |
|---|---|
| | The class structure provides several opportunities for feedback:<br><br>1. Throughout the semester verbal feedback will be provided by tutor(s) and peer-peer in the tutorial and workshop sessions for in-class presentations and work sessions. It is the student's responsibility to bring sufficient work for feedback (in line with the required timeline) and to make notes of any feedback given in these sessions.<br><br>2. All assignments are graded in *ReView*, where the tutor(s) will give formal feedback and indicative grades. This site also allows students to self-assess.<br><br>3. The online forum will allow students to engage with the work of their peers and the tutor(s) and can be seen as a further opportunity for informal feedback. |

## Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

| | | | |
|---|---|---|---|
| **Structured SWL (h/sem)**<br>الحمل الدراسي المنتظم للطالب خلال الفصل | 79 | **Structured SWL (h/w)**<br>الحمل الدراسي المنتظم للطالب أسبوعيا | |
| **Unstructured SWL (h/sem)**<br>الحمل الدراسي غير المنتظم للطالب خلال الفصل | 96 | **Unstructured SWL (h/w)**<br>الحمل الدراسي غير المنتظم للطالب أسبوعيا | |
| **Total SWL (h/sem)**<br>الحمل الدراسي الكلي للطالب خلال الفصل | **175** | | |

## Module Evaluation

تقييم المادة الدراسية

| | | Time/Number | Weight (Marks) | Week Due | Relevant Learning Outcome |
|---|---|---|---|---|---|
| **Formative assessment** | **Quizzes** | 2 | 10% (10) | 5 and 10 | LO #1, #2 and #10, #11 |
| | **Assignments** | 2 | 10% (10) | 2 and 12 | LO #3, #4 and #6, #7 |
| | **Projects / Lab.** | 1 | 10% (10) | Continuous | All |
| | **Report** | 1 | 10% (10) | 13 | LO #5, #8 and #10 |
| **Summative assessment** | **Midterm Exam** | 2hr | 10% (10) | 7 | LO #1 - #7 |
| | **Final Exam** | 3hr | 50% (50) | 16 | All |
| **Total assessment** | | | 100% (100 | | |

| | | | |
|---|---|---|---|
| | Marks) | | |

| Delivery Plan (Weekly Syllabus)<br>المنهاج الاسبوعي النظري | |
|---|---|
| | **Material Covered** |
| **Week 1** | Non-flagellated fungi division: classification, structure, importance, life cycle |
| **Week 2** | Study under the division |
| **Week 3** | Zygomycotina |
| **Week 4** | Non-flagellated fungi division: study under the division |
| **Week 5** | Ascomycotina |
| **Week 6** | Class:Ascomycetes |
| **Week 7** | Non-flagellated fungi division: study under the division |
| **Week 8** | Ascomycotina |
| **Week 9** | Class:Ascomycetes |
| **Week 10** | Subclass:Hemiascomyceti |
| **Week 11** | Non-flagellated fungi division: study under the division |
| **Week 12** | Ascomycotina |
| **Week 13** | Class:Ascomycetes |
| **Week 14** | Subclass:Plectomycetidae |
| **Week 15** | Non-flagellated fungi division: study under the division |
| **Week 16** | **Preparatory week before the final Exam** |

| Delivery Plan (Weekly Laboratory Syllabus)<br>المنهاج الأسبوعي للمختبر (العملي) | |
|---|---|
| | **Material Covered** |
| **Week 1** | Study of the available models from the fungal division of the zygotic fungi |
| **Week 2** | Study of the available models from the non-flagellated fungi division such as fungi that do not form a fruiting body such as yeasts |
| **Week 3** | Study of the available models from the non-flagellated fungi division such as fungi that do not form a fruiting body such as yeasts and those that form a closed fruiting body |
| **Week 4** | Study of the available models from the non-flagellated fungi division of the fungi that form |

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| | fruiting bodies |
| **Week 5** | Study of the available models from the non-flagellated fungi division of the fungi that form flask fruiting bodies |
| **Week 6** | Study of the available models from the non-flagellated fungi division of the fungi that form flask fruiting bodies |
| **Week 7** | Study of the available models from the non-flagellated fungi division of the basidiomycete fungi that form fruiting bodies such as truffles and truffles |
| **Week 8** | Study of the available models from the non-flagellated fungi division of Basidiomycetes that do not form fruiting bodies (echoes) |
| **Week 9** | Study of the available models of the non-flagellated fungi section of basidiomycetes that do not form fruiting bodies (and smuts) |
| **Week 10** | Study of the available models of imperfect fungi |
| **Week 11** | Study of the available models of imperfect fungi |
| **Week 12** | Study of the models of mycorrhizae |
| **Week 13** | Study of the models of lichens |
| **Week 14** | Study of the available models from the fungal division of the zygotic fungi |
| **Week 15** | Study of the available models from the non-flagellated fungi division such as fungi that do not form a fruiting body such as yeasts |

## Learning and Teaching Resources
مصادر التعلم والتدريس

| | **Text** | **Available in the Library?** |
|---|---|---|
| **Required Texts** | Introductory mycology. By Axopoulus,C. J., Mims,C. W. and Blackwell,M. 1996.<br>Introduction to fungi by Webster,J. and Weber, R. 2000 | 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.

# MODULE DESCRIPTION FORM
# نموذج وصف المادة الدراسية

## Module Information
معلومات المادة الدراسية

| | | | | |
|---|---|---|---|---|
| **Module Title** | **Agriculture mites (phytophagous mites)** | | | **Module Delivery** |
| **Module Type** | **Core** | | | ☒ **Theory**<br>☒ **Lecture**<br>☒ **Lab**<br>☐ **Tutorial**<br>☐ **Practical**<br>☐ **Seminar** |
| **Module Code** | PPD-4705 | | | |
| **ECTS Credits** | **5** | | | |
| **SWL (hr/sem)** | **75** | | | |
| **Module Level** | 4 | **Semester of Delivery** | 7 | |
| **Administering Department** | Plant Protection | **College** | Agriculture | |
| **Module Leader** | Name | **e-mail** | E-mail | |
| **Module Leader's Acad. Title** | Assistant professor | **Module Leader's Qualification** | Ph.D. | |
| **Module Tutor** | Dr. Ziyad Sh. Ahmed | **e-mail** | zayidsh@tu.edu.iq | |
| **Peer Reviewer Name** | Name | **e-mail** | E-mail | |
| **Scientific Committee Approval Date** | 1/09/2024 | **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**<br>أهداف المادة الدراسية ونتائج التعلم والمحتويات الإرشادية | |
|---|---|
| **Module Objectives**<br>أهداف المادة الدراسية | 1-Know the economic importance of arthropod pests for crop production<br>2- Recognize the major morphological features of insect and mite pests<br>3- Define the different species of plant-damaging insects and mites<br>4- Recognize the biology and metmorphosis of different insects and mites<br>5- Describe the type of damage caused by plant-damaging insects and mites<br>6- Detect the infestation of insects and mites on different crops in Egypt<br>7- Manage the orchards or field against these pests before their outbreaks<br>8- Review different approaches to control and minimize their impact on yield<br>9- Determine the basic principles of Integrated Pest Management (IPM) |
| **Module Learning Outcomes**<br>مخرجات التعلم للمادة الدراسية | Knowledge and Understanding On successful completion of this course, the student should be able to<br>1. Mention the different species of insects and mites and their host plants<br>2. Understand the development and life cycle of insects and mite pests<br>3. Know the behavior and feeding habits of these pests<br>4. Recognize the damage types caused by these pests on different crops<br>5. Lists the different methods used to manage these pests<br>- Intellectual Skills By the end of this course, the student should be able to<br>1. Conclude the factors affecting the population status of insect and mite pests<br>2. Evaluate the appreciate conditions for the factors causing infestation with different insect and mites on agricultural crops<br>3. Employs the information on life cycles of these pests in how to combat each species<br>4. Assess the using of integrated pest control program<br>-Practical and Professional Skills By the end of this course, the student should be able to<br>1. Distinguish between the symptoms of various insect pests and determine the time of their occurrence<br>2. Determine the seasons of outbreak of pests and how to reduce their damage<br>3. Utilize standard laboratory procedures and techniques in experimental applications in applied entomology and acarology<br>4. Plans programs to manage insect and mite pests on agricultural crops |
| **Indicative Contents** | No Indicative Contents available |

| | |
|---|---|
| المحتويات الإرشادية | |

## Learning and Teaching Strategies
استراتيجيات التعلم والتعليم

| | |
|---|---|
| **Strategies** | The subject is structured around several modes of delivery including a series of illustrated lectures with experts from the field coupled with workshop/tutorial discussions, and individual site visits with practical exercises. Assignment submissions may include verbal presentation and physical documents for the 2 assignments. Feedback will be verbal throughout the semester. It is the student's responsibility to make notes of any feedback given in these sessions. Supplemental written feedback will also be provided for each of the 2 assignments with the assessment.<br><br>FEEDBACK:<br><br>The class structure provides several opportunities for feedback:<br><br>1. Throughout the semester verbal feedback will be provided by tutor(s) and peer-peer in the tutorial and workshop sessions for in-class presentations and work sessions. It is the student's responsibility to bring sufficient work for feedback (in line with the required timeline) and to make notes of any feedback given in these sessions.<br><br>2. All assignments are graded in *ReView*, where the tutor(s) will give formal feedback and indicative grades. This site also allows students to self-assess.<br><br>3. The online forum will allow students to engage with the work of their peers and the tutor(s) and can be seen as a further opportunity for informal feedback. |

## Student Workload (SWL)
الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

| | | | |
|---|---|---|---|
| **Structured SWL (h/sem)**<br>الحمل الدراسي المنتظم للطالب خلال الفصل | 79 | **Structured SWL (h/w)**<br>الحمل الدراسي المنتظم للطالب أسبوعيا | |
| **Unstructured SWL (h/sem)**<br>الحمل الدراسي غير المنتظم للطالب خلال الفصل | 96 | **Unstructured SWL (h/w)**<br>الحمل الدراسي غير المنتظم للطالب أسبوعيا | |
| **Total SWL (h/sem)**<br>الحمل الدراسي الكلي للطالب خلال الفصل | **175** | | |

## Module Evaluation

تقييم المادة الدراسية

| | | Time/Number | Weight (Marks) | Week Due | Relevant Learning Outcome |
|---|---|---|---|---|---|
| Formative assessment | Quizzes | 2 | 10% (10) | 5 and 10 | LO #1, #2 and #10, #11 |
| | Assignments | 2 | 10% (10) | 2 and 12 | LO #3, #4 and #6, #7 |
| | Projects / Lab. | 1 | 10% (10) | Continuous | All |
| | Report | 1 | 10% (10) | 13 | LO #5, #8 and #10 |
| Summative assessment | Midterm Exam | 2hr | 10% (10) | 7 | LO #1 - #7 |
| | Final Exam | 3hr | 50% (50) | 16 | All |
| Total assessment | | | 100% (100 Marks) | | |

## Delivery Plan (Weekly Syllabus)

المنهاج الاسبوعي النظري

| | Material Covered |
|---|---|
| Week 1 | What is Acarology, Working subjects, Acarology in the World, Acarology through Plant Protection and Encountered İmportant Problems, Literature ragarding to Acarology. |
| Week 2 | Arthropoda Phylum, Acarina, Discriminating Features Between Mites and Insects, General Morphological Features and Mounting Slides. |
| Week 3 | Respiration, Digestion, Circulatory, Nervous and Reproductive Systems of Acari. |
| Week 4 | General Knowledge About Opilioacariformes, Parasitiformes and Acariformes |
| Week 5 | **EXAM 1** |
| Week 6 | Recognizing Important Mite Groups at Family Level for Plant Protection with the Aid of Key.<br>Some Economical and Biological Aspects of Tetranychidae |
| Week 7 | Biology and Damage Types of Important Species in Tetranychidae Family. |
| Week 8 | Biology and Damage Types of Important Species in Tenuipalpidae family. |
| Week 9 | Biology and Damage Types of Important Species in Eriophyidae Family |

| | |
|---|---|
| **Week 10** | **EXAM 2** |
| **Week 11** | Acaricides |
| **Week 12** | Biology and Damage Types of Important Species in Tarsonemidae Family. |
| **Week 13** | Biology and Damage Types of Important Species in Acaridae Family. |
| **Week 14** | Biology of the Important Species of the Phytoseiidae Family (Predatoy Mites) and Examples Regarding Their Usage As Biological Control Agent. |
| **Week 15** | Succesfull Examples About Biological Control Applications Used Against Mites in Field and Greenhouse Conditions II |
| **Week 16** | **EXAM 3** |

| **Delivery Plan (Weekly Laboratory Syllabus)**<br>المنهاج الأسبوعي للمختبر (العملي) | |
|---|---|
| | **Material Covered** |
| **Week 1** | Identify the similarities and differences between insects and Mites |
| **Week 2** | General characteristics of the class of arachnids, mites and ticks, |
| **Week 3** | Body areas Agricultural mites, members Sensation in a mite. |
| **Week 4** | respiratory system, Digestive, reproductive, circulation, fecal, glandular, Nervous system, reproduction and stages, The growth and development of a mite. |
| **Week 5** | EXAM 1 |
| **Week 6** | The Taxonomic position of a Mites |
| **Week 7** | Types of Reproduction in Mites |
| **Week 8** | Damage Types of Important Species in Tetranychidae Family, The most important ways to controal it |
| **Week 9** | Damage Types of Important Species in Tenuipalpidae Family, The most important ways to controal it |
| **Week 10** | EXAM 2 |
| **Week 11** | Damage Types of Important Species in Eriophyidae Family, The most important ways to controal it |
| **Week 12** | Phytoseiidae family, Life cycle, habits Nutrition, needs Food and its sources for Mite predator. |
| **Week 13** | Damage Types of Important Species in Tarsonemidae Family, The most important ways to controal it |
| **Week 14** | Beetle mite, life cycle The Mite, the importance Economics of the beetle Mite. |
| **Week 15** | Damage Types of Important Species in Acaridae Family, The most important |

| | |
|---|---|
| | ways to controal it |

| Learning and Teaching Resources<br>مصادر التعلم والتدريس | | |
|---|---|---|
| | **Text** | **Available in the Library?** |
| **Required Texts** | - Wylie, F. R., & Speight, M. R. (2012). Insect pests in tropical forestry. CABI.<br>2- Paull, R. E., & Armstrong, J. W. (1994). Insect pests and fresh horticultural products. Treatments and responses.<br>3- Horowitz, A. R., & Ishaaya, I. (2004). Insect pest management: field and protected crops. Springer Science & Business Media. | |
| **Websites** | agro-lib.site/2019/12/blog-post_855.html | |

| Grading Scheme<br>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.

# MODULE DESCRIPTION FORM
# نموذج وصف المادة الدراسية

| Module Information<br>معلومات المادة الدراسية | | | | | |
|---|---|---|---|---|---|
| **Module Title** | **Physiology of insects** | | | **Module Delivery** | |
| **Module Type** | **Core** | | | ☒ **Theory**<br>☒ **Lecture**<br>☒ **Lab**<br>☐ **Tutorial**<br>☐ **Practical**<br>☐ **Seminar** | |
| **Module Code** | PPD- 3503 | | | | |
| **ECTS Credits** | 75 | | | | |
| **SWL (hr/sem)** | 50 | | | | |
| **Module Level** | 3 | | **Semester of Delivery** | 1 | |
| **Administering Department** | plant protection | | **College** | Science | |
| **Module Leader** | Name | | **e-mail** | E-mail | |
| **Module Leader's Acad. Title** | Assistant Professor | | **Module Leader's Qualification** | Ph.D. | |
| **Module Tutor** | Dr. Mohammed shaker mansor | | **e-mail** | mshmansor@tu.edu.iq | |
| **Peer Reviewer Name** | Name | | **e-mail** | E-mail | |
| **Scientific Committee Approval Date** | 20/09/2024 | | **Version Number** | | |

| 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 | The main objective of this course is to provide students with knowledge related to (insect physiology). Internal and external anatomy, identification of all |

| | |
|---|---|
| | organs of the insect's body, determination of the function of each vital part or organ inside the insect's body. Through the following.<br>● Knowledge of the nutritional needs of the insect and explanation of the resistance of some plant species to pests.<br>● Interpretation of some of the results obtained from environmental, life, behavioral and other studies, where the interpretation is often related to the available physiological information about the insect studied.<br>● Develop students ' ability to know how pesticides affect ( mode of action), especially on the nervous systems.<br>● The study of the organs of sense organs led to their use in chemical and optical traps.<br>● The study of insect hormones led to the development of a new generation of pesticides (IGR )and the determination of the methods of their impact on pests.<br>● The study of insect hormones led to the development of a new generation of pesticides (IGR )and the determination of the methods of their impact on pests. |
| **Module Learning Outcomes**<br>مخرجات التعلم للمادة الدراسية | ● Knowledge and understanding.<br>● Identify the functions of insect organs.<br>● Identification of the structure of organs.<br>● Find out which means are flexible, easy, least expensive and effortless in the fight against insects .<br>● Tests of the methods by which chemical resistance methods affect the life of insect pests .<br>● Knowledge of the use of tools or devices that are used in the anatomy of insects.<br>● Training the student on insect anatomy and the use of anatomy tools.<br>● Identification of the internal organs of the insect for the purpose of conducting comparative tests between natural And affected.<br>● Preparation of reports on the results of the autopsy. |
| **Indicative Contents**<br>المحتويات الإرشادية | No Indicative Contents available |

| **Learning and Teaching Strategies**<br>استراتيجيات التعلم والتعليم | |
|---|---|
| **Strategies** | The main strategy that will be adopted in the presentation of this course is to encourage students ' participation in the exercises and at the same time expand and improve the skills of insect anatomy as well as collecting samples of insect species that are of interest to the student in conducting experiments . |

| | |
|---|---|
| | Train the student on how to use information sources to sustain and develop their basic information and gain confidence to express and put forward solutions to the problems posed,while developing the student's method of transferring the information and experience gained to the work Center.And train the student to conduct scientific research to solve the problems faced at work, develop his methods and exploit the available possibilities to come up with appropriate solutions.<br><br>Feedback:<br><br>The class structure provides several opportunities for feedback:<br><br>1. Throughout the semester verbal feedback will be provided by tutor(s) and peer-peer in the tutorial and workshop sessions for in-class presentations and work sessions. It is the student's responsibility to bring sufficient work for feedback (in line with the required timeline) and to make notes of any feedback given in these sessions.<br><br>2. All assignments are graded in *ReView*, where the tutor(s) will give formal feedback and indicative grades. This site also allows students to self-assess.<br><br>3. The online forum will allow students to engage with the work of their peers and the tutor(s) and can be seen as a further opportunity for informal feedback. |

## Student Workload (SWL)

الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا

| | | | |
|---|---|---|---|
| **Structured SWL (h/sem)**<br>الحمل الدراسي المنتظم للطالب خلال الفصل | 75 | **Structured SWL (h/w)**<br>الحمل الدراسي المنتظم للطالب أسبوعيا | 5 |
| **Unstructured SWL (h/sem)**<br>الحمل الدراسي غير المنتظم للطالب خلال الفصل | | **Unstructured SWL (h/w)**<br>الحمل الدراسي غير المنتظم للطالب أسبوعيا | |
| **Total SWL (h/sem)**<br>الحمل الدراسي الكلي للطالب خلال الفصل | | | |

## Module Evaluation

تقييم المادة الدراسية

| | | Time/Number | Weight (Marks) | Week Due | Relevant Learning Outcome |
|---|---|---|---|---|---|
| **Formative assessment** | **Quizzes** | 2 | 10% (10) | 5 and 10 | LO #1, #2 and #10, #11 |
| | **Assignments** | 2 | 10% (10) | 2 and 12 | LO #3, #4 and #6, #7 |
| | **Projects / Lab.** | 1 | 10% (10) | Continuous | All |
| | **Report** | 1 | 10% (10) | 13 | LO #5, #8 and #10 |
| **Summative assessment** | **Midterm Exam** | 2hr | 10% (10) | 7 | LO #1 - #7 |
| | **Final Exam** | 3hr | 50% (50) | 16 | All |
| **Total assessment** | | | 100% (100 | | |

| | | | |
|---|---|---|---|
| | Marks) | | |

| Delivery Plan (Weekly Syllabus)<br>المنهاج الاسبوعي النظري | |
|---|---|
| | **Material Covered** |
| **Week 1** | **The Integument (Exoskeleton)** |
| **Week 2** | **Digestive System/" Alimentary Canal"** |
| **Week 3** | **Physiology of digestion & absorption** |
| **Week 4** | **Development & Endocrine Glands** |
| **Week 5** | **The Nervous System & Sense Organs** |
| **Week 6** | **Sympathetic or Visceral Nervous System** |
| **Week 7** | **First month exam** |
| **Week 8** | **The Sensory organs** |
| **Week 9** | **Excretion and Excretory Organs** |
| **Week 10** | **Tracheal System** |
| **Week 11** | **Circulatory System** |
| **Week 12** | **The Female Reproductive System** |
| **Week 13** | **Second month exam** |
| **Week 14** | **The male Reproductive System** |
| **Week 15** | **The Muscles** |
| **Week 16** | **Preparatory week before the final Exam** |

| Delivery Plan (Weekly Laboratory Syllabus)<br>المنهاج الأسبوعي للمختبر (العملي) | |
|---|---|
| | **Material Covered** |
| **Week 1** | **Instructions and directions for the laboratory** |
| **Week 2** | **The parts and appendages that connect to the wall of the insect's** |

| | |
|---|---|
| | **body (exoskeleton)** |
| **Week 3** | **Specimen collection and anatomy of the American cockroach** |
| **Week 4** | **Anatomy of the American cockroach and training on the detection of the gastrointestinal tract.** |
| **Week 5** | **Detection of enzymes.** |
| **Week 6** | **First month exam** |
| **Week 7** | **Anatomy and detection of the nervous system " abdominal nerve cord: for the American cockroach** |
| **Week 8** | **Train students on the anatomy of the American cockroach to extract the "abdominal nerve cord" and distinguish nerve nodes and axons .** |
| **Week 9** | **Anatomy of the circulatory system** |
| **Week 10** | **Anatomy and Identification of the female reproductive system** |
| **Week 11** | **Anatomy and identification of the male reproductive system** |
| **Week 12** | **Second month exam** |
| **Week 13** | **Calculation of the number of heartbeats** |
| **Week 14** | **The effect of damaging the brain and nerve nodes** |
| **Week 15** | **Preparatory week before the final Exam** |

## Learning and Teaching Resources
مصادر التعلم والتدريس

| | Text | Available in the Library? |
|---|---|---|
| **Required Texts** | Textbook: The Dirksli Thabet (1990), a book on Insect Physiology | Yes |
| **Websites** | https://www.sciencedirect.com/journal/journal-of-insect-physiology<br>https://link.springer.com/book/10.1007/978-94-009-5973-6 | |

| | |
|---|---|

| Grading Scheme<br>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.

# MODULE DESCRIPTION FORM
# نموذج وصف المادة الدراسية

| Module Information<br>معلومات المادة الدراسية | | | | | |
|---|---|---|---|---|---|
| **Module Title** | **Plant physiology** | | | **Module Delivery** | |
| **Module Type** | **Core** | | | ☒ **Theory**<br>☒ **Lecture**<br>☒ **Lab**<br>☐ **Tutorial**<br>☐ **Practical**<br>☐ **Seminar** | |
| **Module Code** | PPD-2303 | | | | |
| **ECTS Credits** | **5** | | | | |
| **SWL (hr/sem)** | **75** | | | | |
| **Module Level** | 2 | | **Semester of Delivery** | 3 | |
| **Administering Department** | Plant Protection | | **College** | Agriculture | |
| **Module Leader** | Name | | **e-mail** | E-mail | |
| **Module Leader's Acad. Title** | Assistant professor | | **Module Leader's Qualification** | Ph.D. | |
| **Module Tutor** | Dr. Ziyad Sh. Ahmed | | **e-mail** | zayidsh@tu.edu.iq | |
| **Peer Reviewer Name** | Name | | **e-mail** | E-mail | |

| Scientific Committee Approval Date | 01/09/204 | 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 | w1: The student knows and understands the physiological processes taking place at the level of the cell, organ and the whole plant, and recognizes the influence of environmental factors on the functioning of plant organisms.<br>W2: Student knows and understands professional terms and terminology used in natural sciences and uses them together with mathematical and statistical methods to describe and interpret physiological processes.<br>W3: Student knows and understands the relationship of plant physiology with other natural sciences, and gives examples of modification of physiological processes with the use of biotechnological tools. |
| **Module Learning Outcomes**<br>مخرجات التعلم للمادة الدراسية | 7. Basic issues related to water management: water intake, transport, transpiration.<br>8. Mineral nutrition: the role of macro- and microelements, element uptake and short- and longdistance transport, mechanism of nitrogen fixation and<br>assimilative reduction of nitrates, examples of symbiosis in the uptake of mineral substances by plants.<br>9. Photosynthesis: photosynthetic pigments, light and dark phases reactions, assimilation of CO2 in C3 and C4, CAM plants.<br>10. Respiration: stages of aerobic respiration and their course, mechanism of oxidative and substrate phosphorylation.<br>11. Plant growth and development: growth phases, growth location, development stages, seed dormancy, germination, vegetative and generative development, flowering induction, role of phytochrome in physiological processes.<br>12. Plant hormones, activators and inhibitors, their roles.<br>13. Plant movements, types, mechanisms, examples. |
| **Indicative Contents**<br>المحتويات الإرشادية | No Indicative Contents available |

| Learning and Teaching Strategies<br>استراتيجيات التعلم والتعليم | |
|---|---|
| **Strategies** | The subject is structured around several modes of delivery including a series of illustrated lectures with experts from the field coupled with workshop/tutorial discussions, and individual site visits with practical exercises. Assignment submissions may include verbal presentation and physical documents for the 2 assignments. Feedback will be verbal throughout the semester. It is the student's responsibility to make notes of any feedback given in these sessions. Supplemental written feedback will also be provided for each of the 2 assignments with the assessment.<br><br>FEEDBACK:<br><br>The class structure provides several opportunities for feedback:<br><br>1. Throughout the semester verbal feedback will be provided by tutor(s) and peer-peer in the tutorial and workshop sessions for in-class presentations and work sessions. It is the student's responsibility to bring sufficient work for feedback (in line with the required timeline) and to make notes of any feedback given in these sessions.<br><br>2. All assignments are graded in *ReView*, where the tutor(s) will give formal feedback and indicative grades. This site also allows students to self-assess.<br><br>3. The online forum will allow students to engage with the work of their peers and the tutor(s) and can be seen as a further opportunity for informal feedback. |

| Student Workload (SWL)<br>الحمل الدراسي للطالب محسوب لـ ١٥ اسبوعا | | | |
|---|---|---|---|
| **Structured SWL (h/sem)**<br>الحمل الدراسي المنتظم للطالب خلال الفصل | 79 | **Structured SWL (h/w)**<br>الحمل الدراسي المنتظم للطالب أسبوعيا | |
| **Unstructured SWL (h/sem)**<br>الحمل الدراسي غير المنتظم للطالب خلال الفصل | 96 | **Unstructured SWL (h/w)**<br>الحمل الدراسي غير المنتظم للطالب أسبوعيا | |
| **Total SWL (h/sem)**<br>الحمل الدراسي الكلي للطالب خلال الفصل | **175** | | |

## Module Evaluation
تقييم المادة الدراسية

| | | Time/Number | Weight (Marks) | Week Due | Relevant Learning Outcome |
|---|---|---|---|---|---|
| Formative assessment | Quizzes | 2 | 10% (10) | 5 and 10 | LO #1, #2 and #10, #11 |
| | Assignments | 2 | 10% (10) | 2 and 12 | LO #3, #4 and #6, #7 |
| | Projects / Lab. | 1 | 10% (10) | Continuous | All |
| | Report | 1 | 10% (10) | 13 | LO #5, #8 and #10 |
| Summative assessment | Midterm Exam | 2hr | 10% (10) | 7 | LO #1 - #7 |
| | Final Exam | 3hr | 50% (50) | 16 | All |
| Total assessment | | | 100% (100 Marks) | | |

## Delivery Plan (Weekly Syllabus)
المنهاج الاسبوعي النظري

| | Material Covered |
|---|---|
| Week 1 | What is Plant Physiology? Botany Review |
| Week 2 | Water Potential, Water Balance and Transport in Plants |
| Week 3 | Membrane Potential and Solute Transport |
| Week 4 | Loss of Water, Transpiration, Guttation, secretion, bleeding |
| Week 5 | EXAM 1 |
| Week 6 | Water Absorption, Xylem Transport |
| Week 7 | Photosynthesis: The light reactions |
| Week 8 | Photosynthesis: The light reactions |
| Week 9 | Biochemistry and Metabolism, Respiration |
| Week 10 | EXAM 2 |
| Week 11 | Phloem Transport |

| | |
|---|---|
| Week 12 | Hormones Auxins, Gibberellins, Cytokinins, Ethylene, Abscisic Acid, Phytochrome |
| Week 13 | Mineral Nutrition |
| Week 14 | Growth and Development, Growth, development, and differentiation |
| Week 15 | Plant movements, types, mechanisms, examples. |
| Week 16 | EXAM 3 |

| Delivery Plan (Weekly Laboratory Syllabus)<br>المنهاج الأسبوعي للمختبر (العملي) | |
|---|---|
| | Material Covered |
| Week 1 | Lab Introduction; Plant Propagation. |
| Week 2 | Plant Water Potential Plant Pressure Bomb; Transpiration. |
| Week 3 | Amylase induction during Seed Germination |
| Week 4 | Analysis of α-amylase by glucose accumulation |
| Week 5 | EXAM 1 |
| Week 6 | Learn about theories Water Absorption, Xylem Transport |
| Week 7 | Measurement and characterization of Photosynthesis |
| Week 8 | Measurement of the CO2 dependence of photosynthesis |
| Week 9 | Measurement of Photorespiration in C3 and C4 plants. |
| Week 10 | EXAM 2 |
| Week 11 | Learn about theories Phloem Transport |
| Week 12 | Analysis of Mineral Nutrition and Hormonal induction during seed germination or independent lab. |
| Week 13 | Start Mineral Nutrition; discuss and design independent projects,<br>Mineral Nutrition |
| Week 14 | SDS-PAGE and Electroblotting of proteins |
| Week 15 | EXAM 3 |

## Learning and Teaching Resources
مصادر التعلم والتدريس

| | Text | Available in the Library? |
|---|---|---|
| **Required Texts** | -Jain, V. K. (2017). Fundamentals of plant physiology. S. Chand Publishing.<br>- Bhatla, S. C., & Lal, M. A. (2018). Plant physiology, development and metabolism. Springer.<br>- Clemens, S. (Ed.). (2019). Plant physiology and function. Springer New York. | |
| **Websites** | https://academic.oup.com/plphys?utm_campaign =14218855676719861 24&utm_source=google%2 0&utm_medium=ppc&utm_content=text+only&u tm_term= | |

## 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.