# Wasit University
# جامعة واسط

## First Cycle

## Bachelor of Science in Agriculture – Animal production

بكالوريوس علوم في الزراعة – الإنتاج الحيواني

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## 1. Mission & Vision Statement

### *Vision Statement*

The **Department of Animal Production** strives to acquire the necessary material resources and advanced modern technologies that contribute to serving Iraqi society through its role in solid scientific development and in shaping high academic traditions that reflect the advancement of the academic environment. The department plays a vital role in developing plans to improve animal production projects such as egg production, broiler chicken farming, milk production, lamb production, and in updating and modernizing management and production methods. This is achieved by adopting applied scientific research approaches aimed at enhancing the economic level of society and ensuring sustainable development of the local economy.

### *Mission Statement*

- Provide high-quality education that equips students with the scientific knowledge and practical skills necessary for careers in animal production, research, and public service.
- Advance scientific research in food safety, processing, preservation, nutrition, and biotechnology to meet current and future challenges in food systems.
- Promote collaboration with industry, government, and communities to ensure the development of safe, nutritious, and sustainable animal and food products.
- Foster innovation, critical thinking, and lifelong learning among students and professionals in the field of animal production.

# 2. Program Specification

| | | | |
|---|---|---|---|
| **Program code:** | BSc-AP | **ECTS** | 240 |
| **Duration:** | 4 levels, 8 Semesters | **Method of Attendance:** | Full Time |

Animal production is an important and multidisciplinary field that integrates various sciences. The applied program of the Department of Animal Production focuses on delivering knowledge and skills to students through hands-on learning in fields and laboratories. Students are trained in daily activities within animal facilities, such as feeding, milking, health care, and artificial insemination. The training also includes work in specialized laboratories such as animal anatomy, nutrition physiology, and genetics, where students conduct experiments using modern scientific tools and equipment.

Visual teaching aids such as presentations, videos, and illustrative images are used to support theoretical lessons with practical demonstrations. Field visits to actual animal production projects are organized to connect students with the professional reality. Activities also include completing individual or group practical projects, in addition to mandatory summer training in farms or production institutions. Students are encouraged to give classroom presentations and participate in educational discussions to exchange experiences. The program emphasizes continuous experiential learning and field follow-up to gradually and effectively develop students' practical skills.

# 3. Program Objectives

**First: Enhancing Education and Training:**

1. Provide modern scientific curricula that meet the needs of the labor market.
2. Offer practical training in animal production farms and modern laboratories.

**Second: Promoting Scientific Research:**

1. Conduct applied research that contributes to improving the efficiency of animal production.
2. Develop new technologies in animal nutrition, breeding, and health.

**Third: Serving the Community and Developing the Agricultural Sector:**

1. Provide technical consultations and training courses for farmers and agricultural project owners.
2. Promote the concept of sustainable animal production through awareness and guidance.

**Fourth: Achieving Food Security and Sustainability:**

1. Develop strategies to improve the production of meat, milk, and eggs.
2. Enhance the efficient use of natural resources and reduce environmental waste.

**Fifth: Supporting Entrepreneurship and Innovation:**

1. Encourage students and graduates to establish their own animal production projects.
2. Collaborate with the private sector to develop innovative and vital projects.

# 4. Student Learning Outcomes

**Learning Outcomes of the Animal Production Department – College of Agriculture**

The learning outcomes of the Animal Production Department focus on equipping students with the knowledge and skills necessary to understand and apply animal production concepts, and to analyze and assess the quality and safety of food products. These outcomes are achieved through the following:

### First: Knowledge and Understanding

1. Mastery of the fundamentals of animal sciences such as anatomy, physiology, genetics, nutrition, and health care.
2. Understanding environmental and economic factors affecting animal production.
3. Familiarity with methods of breeding and improving local and international animal breeds.
4. Comprehension of various animal production systems (cattle, sheep, poultry, fish, etc.).
5. Knowledge of the laws and regulations related to the production and handling of animal products.

### Second: Cognitive Skills

1. Ability to analyze production problems and propose appropriate solutions.
2. Linking scientific knowledge to practical applications in animal production.
3. Critical thinking to evaluate breeding, feeding, and animal care techniques.

### Third: Practical and Professional Skills

1. Using modern technologies in animal breeding and productivity improvement.
2. Performing laboratory analyses related to animal health and product quality.
3. Applying basic veterinary care practices.
4. Designing nutrition programs tailored to species and needs.
5. Practicing breeding and artificial reproduction methods such as artificial insemination.

### Fourth: General (Transferable) Skills

1. Teamwork and effective communication within research or field teams.
2. Using computers and digital technologies in production management and data analysis.
3. Time management and decision-making skills.
4. Commitment to ethical and professional values in dealing with animals and colleagues.
5. Ability to prepare technical and scientific reports and deliver presentations.

These learning outcomes prepare students for various careers in animal production, animal science, research and development, and regulatory agencies.

# 5. Academic Staff

| No. | Name | Degree | General Specialization | Specific Specialization | Academic Title | Email | Phone No. |
|---|---|---|---|---|---|---|---|
| 1 | Mohammed Ali Maki Jasim Naji Al-Jallawi | Ph.D. in Agricultural Sciences | Animal Production | Poultry Nutrition | Professor | momaki@uowasit.edu.iq | 7800989417 |
| 2 | Abbas Washial Salman Mohammed Al-Fadhli | Ph.D. in Sciences | Chemistry | Inorganic Chemistry | Professor | aalhamdani@uowasit.edu.iq | 7725653210 |
| 3 | Mohammed Abdul Ameer Rasheed Kadhadh Al-Sarray | Ph.D. in Agricultural Sciences | Animal Production | Reproductive Physiology | Assistant Professor | mohabd@uowasit.edu.iq | 7825557175 |
| 4 | Mohammed Abdullah Khamis Sameen Al-Uqabi | Ph.D. in Agricultural Sciences | Animal Production | Reproductive Physiology | Assistant Professor | moabdalah@uowasit.edu.iq | 7721120784 |
| 5 | Ghassan Mohammed Hassan Jaafar Al-Saadi | Ph.D. in Genetic Engineering | Animal Production | Genetic Engineering and Biotechnology | Lecturer | gmhassan@uowasit.edu.iq | 7816154949 |
| 6 | Ali Iyad Hussein Dawood Al-Sabea | Ph.D. in Agricultural Sciences | Animal Production | Meat Science and Technology | Lecturer | aliayaad@uowasit.edu.iq | 7821469154 |
| 7 | Ahmed Sadiq Shael Sabit Al-Maksoosi | M.Sc. in Veterinary Medical Sciences | Veterinary Medicine | Internal and Preventive Medicine | Lecturer | ahmed_almosoy@uowasit.edu.iq | 7709404965 |
| 8 | Sarah Kadhim Fayyadh Taher Al-Umayri | M.Sc. in Biology | Biology | Animal Ecology | Assistant Lecturer | sarahal@uowasit.edu.iq | 7812829781 |
| 9 | Zeina Abdullah Khamis Sameen Al-Uqabi | M.A. in Arabic Language Education | Literature | Literature | Assistant Lecturer | zenak@uowasit.edu.iq | 7725133654 |
| 10 | Maytham Saad Saleh Hussein Al-Kaki | M.Sc. in Agricultural Sciences | Animal Production | Poultry Physiology | Assistant Lecturer | m.saad@uowasit.edu.iq | 7706906168 |
| 11 | Murtadha Kareem Ali Suher | M.Sc. in Agricultural Sciences | Animal Production | Genetics | Assistant Lecturer | malzrkani@uowasit.edu.iq | 7725046385 |
| 12 | Marwa Kareem Qasim | M.Sc. in Biology | Biology | Animal Physiology | Assistant Lecturer | marwahka@uowasit.edu.iq | 7714303972 |
| 13 | Rasool Hassan Khallati | M.Sc. in Agricultural Sciences | Animal Production | Poultry Physiology | Assistant Lecturer | rahassan@uowasit.edu.iq | 7712008260 |
| 14 | Saja Intisar Abd | M.Sc. in Agricultural Sciences | Animal Production | Animal Nutrition | Assistant Lecturer | saantesar@uowasit.edu.iq | 7730661816 |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **15** | Muhaymen Abbas Abd | M.Sc. in Agricultural Sciences | Animal Production | Dairy Cattle Management | Assistant Lecturer | mohabbass@uowasit.edu.iq | **7722376300** |
| **16** | Safa Jabbar Muthar | M.Sc. in Veterinary Medical Sciences | Veterinary Medicine | General Health | Assistant Lecturer | sajabbar@uowasit.edu.iq | **7726786919** |
| **17** | Hussein Najm Hameed | M.Sc. in Agricultural Sciences | Animal Production | Fish Nutrition | Assistant Lecturer | husain@uowasit.edu.iq | **7841143011** |

# 6. Credits, Grading and GPA

***Credits***

Wasit University is following the Bologna Process with the European Credit Transfer System (ECTS) credit system. The total degree program number of ECTS is 240, 30 ECTS per semester. 1 ECTS is equivalent to 25 hrs. student workload, including structured and unstructured workload.

***Grading***

Before the evaluation, the results are divided into two subgroups: pass and fail. Therefore, the results are independent of the students who failed a course. The grading system is defined as follows:

| **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: | | | | |
| Number 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. | | | | |

***Calculation of the Cumulative Grade Point Average (CGPA)***

1. The CGPA is calculated by the summation of each module score multiplied by its ECTS, all are divided by the program total ECTS.
   **CGPA of a 4-year B.Sc. degree:**

   **CGPA = [ (1st module score x ECTS) + (2nd module score x ECTS) + ……] / 240**

# 7. Curriculum/Modules

**Semester 1 | 30 ECTS | 1 ECTS = 25 hrs**

| Code | Module | SSWL | USSWL | ECTS | Type | Pre-request |
|---|---|---|---|---|---|---|
| WUO2 | English Language | 33 | 17 | 2 | B | None |
| WUO3 | Computer 1 | 74 | 1 | 3 | B | None |
| WUO4 | Democracy and Human Rights | 36 | 14 | 2 | B | None |
| AGR-112 | Fundamentals of General Chemistry | 79 | 121 | 8 | S | None |
| ANP-111 | Principles of Animal Production | 79 | 121 | 8 | C | None |
| AGR-113 | Principles of Plant Protection | 79 | 96 | 7 | C | None |

**Semester 2 | 30 ECTS | 1 ECTS = 25 hrs**

| Code | Module | SSWL | USSWL | ECTS | Type | Pre-request |
|---|---|---|---|---|---|---|
| ANP-123 | Principles of Zoology | 78 | 97 | 7 | C | None |
| WUO1 | Arabic Language | 33 | 17 | 2 | S | None |
| AGR-121 | Economics of Animal Production | 48 | 52 | 4 | S | None |
| AGR-123 | Principles of Field Crops | 79 | 46 | 5 | S | None |
| ANP-121 | Principles of Poultry Science | 79 | 96 | 7 | C | None |
| AGR-122 | Principles of Statistics | 79 | 46 | 5 | B | None |

# 8. Contact

**Program Manager:**
**Dr. Mohammed Abdul Ameer Rasheed**
Ph.D. in Agricultural Sciences / Animal Production
**Academic Title:** Assistant Professor
**Email:** mohabd@uowasit.edu.iq
**Phone Number:** +964 771 408 0026
**Program Coordinator:**
**Asst. Lecturer Saja Intisar Abd**
M.Sc. in Agricultural Sciences / Animal Production
**Academic Title:** Assistant Lecturer
**Email**: saantesar@uowasit.edu.iq
**Phone Number:** +964 773 066 1816

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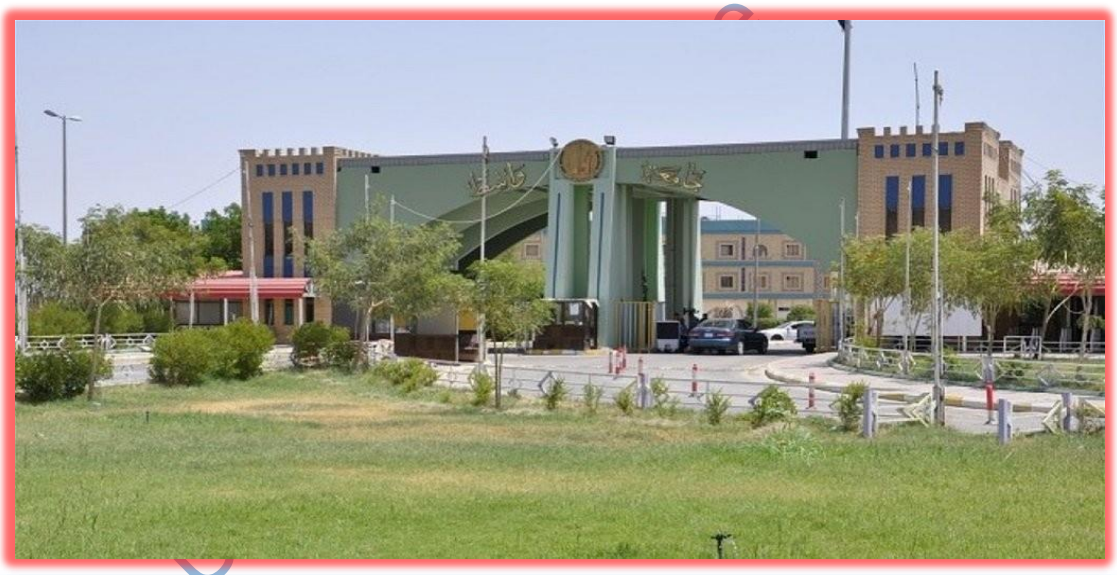
## First Cycle

## Bachelor of Science in Agriculture – Animal production

## بكالوريوس علوم في الزراعة – الإنتاج الحيواني



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# 1. Overview

This catalogue is about the courses (modules) given by the program of animal production to gain the Bachelor of Science degree. The program delivers (48) Modules with (6000) total student workload hours and 240 total ECTS. The module delivery is based on the Bologna Process.

## 2. Undergraduate Courses 2024-2025

### Module 1

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| ANP-111 | Principles of Animal Production | 8 | 1 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/w)** |
| 2 | 3 | 79 | 121 |
| **Description** | | | |
| **This course aims to introduce students to the fundamentals of animal production science, providing them with general concepts related to the breeding and care of farm animals, and their use in the production of food and raw materials.** The course focuses on studying agricultural animal species (such as cattle, sheep, goats, and poultry), their economic importance, and methods of management, nutrition, and reproduction. Students will gain practical experience in farm techniques, data interpretation, error analysis, and the application of analytical methods in real-world contexts such as environmental, agricultural, and industrial analysis. | | | |

# MODULE DESCRIPTION FORM

| Module Information | | | |
|---|---|---|---|
| **Module Title** | **Principles of Animal Production** | **Module Delivery** | |
| **Module Type** | **C** | ☒ **Theory**<br>☒ **Lecture**<br>☒**Lab**<br>☐ **Tutorial**<br>☒ **Practical**<br>☐ **Seminar** | |
| **Module Code** | **ANP-111** | | |
| **ECTS Credits** | **7** | | |
| **SWL (hr/sem)** | **79** | | |
| **Module Level** | 1 | **Semester of Delivery** | 1 |

| | | | |
|---|---|---|---|
| **Administering Department** | Animal production Dept. | **College** | College of Agriculture |
| **Module Leader** | Dr. Mohammed Abdullah Khamees | **e-mail** | moabdalah@uowasit.edu.iq |
| **Module Leader's Acad. Title** | Assist. Professor | **Module Leader's Qualification** | Ph.D. |
| **Module Tutor** | Dr. Mohammed Abdullah Khamees | **e-mail** | moabdalah@uowasit.edu.iq |
| **Peer Reviewer Name** | Dr. Mohammed Abdullah Khamees | **e-mail** | moabdalah@uowasit.edu.iq |
| **Scientific Committee Approval Date** | 10/9/2024 | **Version Number** | 1.0 |

## Relation with other Modules

| | | | |
|---|---|---|---|
| **Prerequisite module** | None | **Semester** | |
| **Co-requisites module** | None | **Semester** | |

## Module Aims, Learning Outcomes and Indicative Contents

| | |
|---|---|
| **Module Objectives** | **1. • Introduce students to the economic importance of livestock and its products.**<br>**2. • Identify the different breeds of cattle, buffalo, sheep, and goats, and their classifications according to production.**<br>**3. • Gain a basic understanding of the basics of reproduction and reproduction in ruminants.**<br>**4. • Provide students with practical skills in calf care and basic ruminant nutrition.**<br>**5. • Identify milk production methods and the factors affecting it.**<br>**6. • Understand the daily, weekly, and seasonal field operations necessary to manage livestock production pens.**<br>7. **• Introduce students to the importance of field records and how to use them to improve production efficiency.** |
| **Module Learning Outcomes** | ● **A- Cognitive Objectives**<br>**1 - Introduce the student to the economic importance of livestock and its role in food security.**<br>**2 - Identify the different breeds of cattle, buffalo, sheep, and goats, and classify them according to their production type.**<br>**3 - Clarify the basic concepts of ruminant animal nutrition.**<br>**4 - Explain the basics of reproduction in cattle and other ruminants.**<br>**5 - Identify the principles and types of animal housing design.**<br>**6 - Explain the field operations and production records used in herd** |

| | |
|---|---|
| | **management.**<br><br>**B - Course Skill Objectives**<br>**1 - Distinguish between different breeds based on morphological and production characteristics.**<br>**2 - Be able to assess the needs of young calves and provide appropriate care for them.**<br>**3 - Analyze production data using field records.**<br>**4 - Apply theoretical concepts to real-life or environmental situations, such as analyzing an animal housing system or feeding plan.** |
| **Indicative Contents** | **1- Explain the economic and productive importance of livestock in supporting food security and agricultural development.**<br>**2- Classify major animal breeds according to their production purpose and identify their general characteristics.**<br>**3- Explain the basic concepts of reproduction, health care, and nutrition for ruminants.**<br>**4- Explain the general principles of animal nutrition, milk production, and the factors affecting it.**<br>**5- Describe daily, weekly, and seasonal field operations and the use of production records.**<br>**6- Identify animal housing types and requirements, and identify the environmental and production characteristics of various animals, such as buffalo, sheep, and goats.** |

| Learning and Teaching Strategies | |
|---|---|
| **Strategies** | **1-Lectures and Presentations**<br>Core theoretical knowledge will be delivered through interactive lectures supported by multimedia presentations, diagrams, and real-life examples from the animal production sector.<br>**2-Field Visits and Practical Demonstrations**<br>Students will participate in scheduled visits to the animal farm (first and second visits), where they will observe and engage in basic field operations, animal handling, housing systems, and feeding practices.<br>**3-Hands-on Training**<br>Direct involvement in animal care tasks such as calf rearing, feed preparation, identifying animal breeds, reproductive health checks, and poultry housing setup to develop applied skills.<br>**4-Group Discussions and Case Studies** |

| | |
|---|---|
| | Group-based learning through analysis of production scenarios, reproductive case studies, and comparative evaluations of different breeds and production systems.<br>**5-Visual Aids and Models**<br>Use of anatomical models, charts, and digital simulations to explain complex biological and physiological concepts such as reproduction, pregnancy, and growth stages.<br>**6-Farm Records and Data Analysis**<br>Students will learn how to record, interpret, and analyze farm data to assess productivity and improve management practices.<br>**7-Student Presentations and Reports**<br>Each student will be encouraged to present short reports or reflections based on field experiences, breed comparisons, or nutrition plans for different species. |

## Student Workload (SWL)

| | | | |
|---|---|---|---|
| **Structured SWL (h/sem)** | 79 | **Structured SWL (h/w)** | 5 |
| **Unstructured SWL (h/sem)** | 121 | **Unstructured SWL (h/w)** | 8 |
| **Total SWL (h/sem)** | **200** | | |

## Module Evaluation

| | | Time/Number | Weight (Marks) | Week Due | Relevant Learning Outcome |
|---|---|---|---|---|---|
| **Formative assessment** | **Tests** | 1 | 10% (10) | 8 | LO #1 - #7 |
| | **Projects** | 1 | 10% (10) | 6 | LO #1 -#5 |
| | **Lab** | 1 | 10% (10) | 9 | LO #1 - #8 |
| | **Reports** | 1 | 10% (10) | 15 | LO #1 - #14 |
| **Summative assessment** | **Mid Exam** | 2hr | 10% (10) | 7 | LO #1 - #6 |
| | **Final Exam** | 3hr | 50% (50) | 16 | All |
| **Total assessment** | | | 100% (100 Marks) | | |

| Delivery Plan (Weekly Syllabus) | |
|---|---|
| | **Material Covered** |
| **Week 1** | Economic Importance of Animal Products |
| **Week 2** | Breeds of Cattle and Buffalo |
| **Week 3** | Types and Breeds of Cattle |
| **Week 4** | Introduction to Reproduction in Cattle |
| **Week 5** | Calf Rearing and Care |
| **Week 6** | Concept of Nutrition in Ruminant Animals |
| **Week 7** | Milk Production from Cattle and Buffalo |
| **Week 8** | Basic Daily, Weekly, and Seasonal Farm Operations |
| **Week 9** | Farm Records and Identification of Productive Information |
| **Week 10** | Animal Housing and Its Types |
| **Week 11** | The Buffalo |
| **Week 12** | Sheep and Goat Rearing |
| **Week 13** | Economic Importance of Sheep and Goat Products |
| **Week 14** | Classification and Methods of Classification |
| **Week 15** | Reproduction in Ruminant Animals |

| Delivery Plan (Weekly Lab. Syllabus) | |
|---|---|
| | **Material Covered** |
| **Week 1** | Field Operations 1 |
| **Week 2** | Field Operations 2 |
| **Week 3** | Field Operations 3 |
| **Week 4** | First Visit to the Animal Farm |
| **Week 5** | Basic Field Operations on Animals |
| **Week 6** | Cattle Breeds – Dairy Type |
| **Week 7** | Cattle Breeds – Beef Type |
| **Week 8** | Cattle Breeds – Dual Purpose Type |
| **Week 9** | Animal Housing |

| | |
|---|---|
| **Week 10** | Reproduction and Sexual Maturity |
| **Week 11** | Pregnancy and Parturition |
| **Week 12** | Feeding of Newborns |
| **Week 13** | Milking, Mammary System, and Types of Milking Machines |
| **Week 14** | Sheep and Goat Breeds |
| **Week 15** | Field Visit |

## Learning and Teaching Resources

| | Text | Available in the Library? |
|---|---|---|
| **Required Texts** | Basics of Sheep and Goat Production by Dr. Jalal Elia Al-Qas | Yes |
| **Recommended Texts** | Principles of Animal Production. Najeeb Tawfiq Ghazal and others 1979 University of Mosul | Yes |
| **Websites** | https://www.fao.org/animal-production/ar | |

## Grading Scheme

| 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 2

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| WOU3 | Computer 1 | 3 | 1 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/w)** |
| 0 | 3 | 74 | 1 |
| **Description** | | | |
| This course introduces students to the **fundamentals of computer programming**, with a focus on developing skills using a program such as **Office**. It covers basic concepts including **data types**, **variables**, **input/output operations**, **control structures** (such as loops and conditionals), **functions**, **arrays**, and **simple data structures**. Students will learn to design, write, test, and debug computer programs.<br>The course aims to build computational thinking skills and demonstrate how programming can be used to solve real-world problems, including applications in **agriculture**, **science**, **data analysis**, and **automation**. | | | |

# MODULE DESCRIPTION FORM

| Module Information | | | |
|---|---|---|---|
| **Module Title** | **Computer1** | **Module Delivery** | |
| **Module Type** | **B** | ☒ **Theory**<br>☒ **Lecture**<br>☒ **Lab**<br>☐ **Tutorial**<br>☐ **Practical**<br>☐ **Seminar** | |
| **Module Code** | **WOU3** | | |
| **ECTS Credits** | **3** | | |
| **SWL (hr/sem)** | **74** | | |
| **Module Level** | 1 | **Semester of Delivery** | 1 |
| **Administering Department** | Type Dept. Code | **College** | Type College Code |
| **Module Leader** | Hoda Lafta Majeed | **e-mail** | hulafta@uowasit.edu.iq |
| **Module Leader's Acad. Title** | Assist. Professor | **Module Leader's Qualification** | Ph.D. |
| **Module Tutor** | Hoda Lafta Majeed | **e-mail** | hulafta@uowasit.edu.iq |
| **Peer Reviewer Name** | Hoda Lafta Majeed | **e-mail** | hulafta@uowasit.edu.iq |

| | | | |
|---|---|---|---|
| **Scientific Committee Approval Date** | 2024-9-10 | **Version Number** | 1.0 |

| **Relation with other Modules** | | | |
|---|---|---|---|
| **Prerequisite module** | None | **Semester** | |
| **Co-requisites module** | None | **Semester** | |

| **Module Aims, Learning Outcomes and Indicative Contents** | |
|---|---|
| **Module Objectives** | dentify the parts of the computer and the function of each part, and identify computer technologies, programs, and applications necessary to work on it and complete work. |
| **Module Learning Outcomes** | Delivering theoretical lectures to deliver information to students through the following methods: (whiteboard, data projector, interactive lecture, educational video presentation).<br>Implementing practical lectures through observations and interaction with field or laboratory aspects. |
| **Indicative Contents** | Conducting daily quick exams.<br>Evaluating students through the submission of academic reports and oral presentations.<br>Conducting monthly exams.<br>Conducting practical exams.<br>Conducting final exams. |

| **Learning and Teaching Strategies** | |
|---|---|
| **Strategies** | Delivering theoretical lectures to deliver information to students through the following methods: (whiteboard, data projector, interactive lecture, educational video presentation).<br><br>Implementing practical lectures through observations and interaction with field or laboratory aspects. |

| **Student Workload (SWL)** | | | |
|---|---|---|---|
| **Structured SWL (h/sem)** | 74 | **Structured SWL (h/w)** | 3 |
| **Unstructured SWL (h/sem)** | 1 | **Unstructured SWL (h/w)** | 1 |
| **Total SWL (h/sem)** | **75** | | |

## Module Evaluation

| | | Time/Number | Weight (Marks) | Week Due | Relevant Learning Outcome |
|---|---|---|---|---|---|
| | **Assignments** | 1 | 10% (10) | Continuous | 1,2,3,4,5,6 |
| | **Projects / Lab.** | 15 | 10% (10) | Continuous | 1,2,3,4,5,6 |
| | **Report** | 1 | 15% (15) | Continuous | 1,2,3,4,5,6,7,8,9,10,11,12,13,14, |
| | **Seminars** | 1 | 5% (5) | Continuous | 1,2,3,4,5,6 |
| **Summative assessment** | **Midterm Exam** | 2hr | 10% (10) | 14 | 1,2,3,4,5,6 |
| | **Final Exam** | 3hr | 50% (50) | 16 | All |
| **Total assessment** | | | 100% (100 Marks) | | |

## Delivery Plan (Weekly Lab. Syllabus)

| | **Material Covered** |
|---|---|
| **Week 1** | What is a computer? / Computer features / Computer components / Types of computers |
| **Week 2** | Main parts of a personal computer |
| **Week 3** | Operating systems and their types |
| **Week 4** | Information Network |
| **Week 5** | Telephone networks and the computer world |
| **Week 6** | Internet |
| **Week 7** | Computers in our daily life |
| **Week 8** | Insurance, Copyright, and Law |
| **Week 9** | Dealing with menus and icons |
| **Week 10** | Desktop Quick Menu |
| **Week 11** | Windows Explorer |
| **Week 12** | Using some add-on programs with Windows |
| **Week 13** | How to improve the appearance of screen lines when using flat panel LCD displays or laptops |
| **Week 13** | What is the Firewall available in Windows XP and how do I activate it? |
| **Week 14** | Dynamic Disk |

| Learning and Teaching Resources | | |
|---|---|---|
| | **Text** | **Available in the Library?** |
| **Required Texts** | Required textbooks: Computer Science textbook<br>Main references (sources): Office software user guide | Yes |
| **Recommended Texts** | Recommended books and references (scientific journals, reports). | Yes |
| **Websites** | No | |

| Grading Scheme | | | | |
|---|---|---|---|---|
| **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 3

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| WU04 | Democracy and human rights | 2 | 1 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/w)** |
| 2 | 0 | 33 | 17 |

**Description**

This course introduces students to the core concepts, principles, and practices of **democracy and human rights** at the national and international levels. It explores the **development of democratic systems**, the **rule of law**, **citizenship**, **civil liberties**, **political participation**, and the **protection of individual and collective rights**. Students will study major human rights declarations and conventions, such as the **Universal Declaration of Human Rights**, and the roles of international organizations in promoting justice and equality.
Through discussions, case studies, and interactive activities, the course aims to strengthen students' awareness of their **rights and responsibilities** as citizens and to encourage **active participation** in democratic processes.

# MODULE DESCRIPTION FORM



| Module Information | | | |
|---|---|---|---|
| **Module Title** | **Democracy and human rights** | **Module Delivery** | |
| **Module Type** | **B** | ☒ **Theory**<br>☒ **Lecture**<br>☐ **Lab**<br>☐ **Tutorial**<br>☒ **Practical**<br>☐ **Seminar** | |
| **Module Code** | **WUO4** | | |
| **ECTS Credits** | **2** | | |
| **SWL (hr/sem)** | **50** | | |
| **Module Level** | 1 | **Semester of Delivery** | 1 |
| **Administering Department** | Animal production Dept. | **College** | College of Agriculture |
| **Module Leader** | Dr. AMER KAREEM HADHAL | **e-mail** | ahadhal@uowasit.edu.iq |
| **Module Leader's Acad. Title** | Assist. Professor | **Module Leader's Qualification** | Ph.D. |
| **Module Tutor** | Dr. AMER KAREEM HADHAL | **e-mail** | ahadhal@uowasit.edu.iq |
| **Peer Reviewer Name** | Dr. AMER K.HADHAL | **e-mail** | ahadhal@uowasit.edu.iq |
| **Scientific Committee Approval Date** | 10/9/2024 | **Version Number** | 1.0 |

| Relation with other Modules | | | |
|---|---|---|---|
| **Prerequisite module** | None | **Semester** | |
| **Co-requisites module** | None | **Semester** | |

| Module Aims, Learning Outcomes and Indicative Contents | |
|---|---|
| **Module Objectives** | **1. • Introduce students to the economic importance of livestock and its products.**<br>**2. • Identify the different breeds of cattle, buffalo, sheep, and goats, and their classifications according to production.**<br>**3. • Gain a basic understanding of the basics of reproduction and reproduction in ruminants.**<br>**4. • Provide students with practical skills in calf care and basic ruminant nutrition.**<br>**5. • Identify milk production methods and the factors affecting it.**<br>**6. • Understand the daily, weekly, and seasonal field operations necessary to manage livestock production pens.**<br>7. **• Introduce students to the importance of field records and how to use them to improve production efficiency.** |
| **Module Learning Outcomes** | ● **A- Cognitive Objectives**<br>**1 - Introduce the student to the economic importance of livestock and its role in food security.**<br>**2 - Identify the different breeds of cattle, buffalo, sheep, and goats, and classify them according to their production type.**<br>**3 - Clarify the basic concepts of ruminant animal nutrition.**<br>**4 - Explain the basics of reproduction in cattle and other ruminants.**<br>**5 - Identify the principles and types of animal housing design.**<br>**6 - Explain the field operations and production records used in herd management.**<br>**B - Course Skill Objectives**<br>**1 - Distinguish between different breeds based on morphological and production characteristics.**<br>**2 - Be able to assess the needs of young calves and provide appropriate care for them.**<br>**3 - Analyze production data using field records.**<br>**4 - Apply theoretical concepts to real-life or environmental situations, such as analyzing an animal housing system or feeding plan.** |
| **Indicative Contents** | **1- Explain the economic and productive importance of livestock in supporting food security and agricultural development.**<br>**2- Classify major animal breeds according to their production purpose and identify their general characteristics.**<br>**3- Explain the basic concepts of reproduction, health care, and nutrition for ruminants.** |

| | |
|---|---|
| | **4- Explain the general principles of animal nutrition, milk production, and the factors affecting it.**<br>**5- Describe daily, weekly, and seasonal field operations and the use of production records.**<br>**6- Identify animal housing types and requirements, and identify the environmental and production characteristics of various animals, such as buffalo, sheep, and goats.** |

## Learning and Teaching Strategies

| | |
|---|---|
| **Strategies** | Savious thinking<br>Gohden storm |

## Student Workload (SWL)

| | | | |
|---|---|---|---|
| **Structured SWL (h/sem)** | 33 | **Structured SWL (h/w)** | 2 |
| **Unstructured SWL (h/sem)** | 17 | **Unstructured SWL (h/w)** | 1 |
| **Total SWL (h/sem)** | **50** | | |

## Module Evaluation

| | | Time/Number | Weight (Marks) | Week Due | Relevant Learning Outcome |
|---|---|---|---|---|---|
| **Formative assessment** | **Tests** | 1 | 10% (10) | 8 | LO #1 - #7 |
| | **Projects** | 1 | 10% (10) | 6 | LO #1 -#5 |
| | **Lab** | 1 | 10% (10) | 9 | LO #1 - #8 |
| | **Reports** | 1 | 10% (10) | 15 | LO #1 - #14 |
| **Summative assessment** | **Mid Exam** | 2hr | 10% (10) | 7 | LO #1 - #6 |
| | **Final Exam** | 3hr | 50% (50) | 16 | All |
| **Total assessment** | | | 100% (100 Marks) | | |

## Delivery Plan (Weekly Syllabus)

| | Material Covered |
|---|---|
| **Week 1** | Types of Rights |
| **Week 2** | Mesopotamian Civilization |
| **Week 3** | Tel Valley Civilization |

| | |
|---|---|
| **Week 4** | Roman Civilization |
| **Week 5** | Ancient Civilizations |
| **Week 6** | Rights in Islamic Religions |
| **Week 7** | Hammurabi's Code |
| **Week 8** | Economic Rights |
| **Week 9** | Women's Rights in Islam |
| **Week 10** | Renaissance Thinkers |
| **Week 11** | Freedom in the Eyes of Modern Thinkers |
| **Week 12** | Citizenship |
| **Week 13** | Final Exam |
| **Week 14** | Types of Rights |
| **Week 15** | Mesopotamian Civilization |

| **Learning and Teaching Resources** | | |
|---|---|---|
| | **Text** | **Available in the Library?** |
| **Required Texts** | Human rights book | Yes |
| **Recommended Texts** | External lectures | Yes |
| **Websites** | https://www.fao.org/animal-production/ar | |

| **Grading Scheme** | | | | |
|---|---|---|---|---|
| **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 |
| | | | | |

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## Module 4

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| WU02 | Academic English Language 1 | 2 | 1 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/w)** |
| 2 | 0 | 33 | 17 |
| **Description** | | | |
| This course is designed to develop students' **academic English language skills**, with a focus on enhancing their **reading, writing, listening, and speaking** abilities in an academic context. Emphasis is placed on **vocabulary development**, **grammar accuracy**, **sentence and paragraph structure**, and **basic academic writing techniques**. Students will engage with a variety of texts and practice language skills through structured activities that build confidence in understanding and using English in university and professional settings.<br>The course prepares students for future academic success by strengthening their ability to comprehend lectures, write assignments, participate in discussions, and read academic materials effectively. | | | |

# MODULE DESCRIPTION FORM



| Module Information | | | |
|---|---|---|---|
| **Module Title** | **English1** | **Module Delivery** | |
| **Module Type** | **U** | ☐ **L Theory**<br>☒ **Lecture**<br>☐ **Lab**<br>☐ **Tutorial**<br>☐ **L Practical**<br>☐ **Seminar** | |
| **Module Code** | **WUO2** | | |
| **ECTS Credits** | **2** | | |
| **SWL (hr/sem)** | **50** | | |
| **Module Level** | 1 | **Semester of Delivery** | 1 |
| **Administering Department** | Animal production Dept. | **College** | College of Agriculture |
| **Module Leader** | Dr. Mohammed Abdulah Khamees | **e-mail** | moabdalah@uowasit.edu.iq |
| **Module Leader's Acad. Title** | Assist. Professor | **Module Leader's Qualification** | Ph.D. |
| **Module Tutor** | Dr. Mohammed Abdulah Khamees | **e-mail** | moabdalah@uowasit.edu.iq |
| **Peer Reviewer Name** | MohammedA.Khamees | **e-mail** | moabdalah@uowasit.edu.iq |
| **Scientific Committee Approval Date** | 10/9/2024 | **Version Number** | 1.0 |

| Relation with other Modules | | | |
|---|---|---|---|
| **Prerequisite module** | None | **Semester** | |
| **Co-requisites module** | None | **Semester** | |

| Module Aims, Learning Outcomes and Indicative Contents | |
|---|---|
| **Module Objectives** | 1. Develop students' understanding of key grammatical structures, including the passive voice, negative forms, and conditional (if-clause) sentences.<br>2. Familiarize students with different types of sentence structures (simple, compound, and complex) and their appropriate usage.<br>3. Enhance the students' ability to use correct prepositions in various sentence contexts.<br>4. Improve comprehension and correct usage of singular and plural forms in both spoken and written English.<br>5. Strengthen students' practical communication skills through the use of everyday sentences and expressions.<br>6. Enable students to recognize and properly use "so" and "neither" in affirmative and negative agreements.<br>7. Provide clear understanding of English question forms and effective strategies to answer them.<br>8. Teach students the correct formation and use of numbers, including Roman numerals, in writing.<br>9. Reinforce the correct use of the verb "to be" in different tenses and sentence structures. |
| **Module Learning Outcomes** | 1- Identify and correctly use common English prepositions in written and spoken communication.<br>2- Form and apply the **passive voice** appropriately in various sentence structures.<br>3- Construct grammatically correct **negative sentences** across different tenses.<br>4- Understand and accurately use **conditional sentences (if-clauses)** in real-life contexts.<br>5- Distinguish between **simple**, **compound**, and **complex** sentence types and apply them effectively.<br>6- Use expressions with **"so" and "neither"** to express agreement in affirmative and negative statements.<br>7- Differentiate between **singular and plural** forms and apply the correct usage in grammar and vocabulary.<br>8- Answer different types of questions clearly and grammatically, both orally and in writing.<br>9- Recognize and use **numbers and Roman numerals** correctly in written English.<br>10- Apply **everyday English expressions** to communicate effectively in daily situations.<br>11- Use the verb **"to be"** accurately in various forms and tenses. |

| | |
|---|---|
| **Indicative Contents** | **Prepositions**: Types and usage in everyday sentences.<br>**1- The Passive Voice**: Formation and application in different tenses.<br>**2- Negative Sentences**: Creating negative forms in present, past, and future tenses.<br>**3- Conditional Sentences (If-Clauses)**: Zero, first, second, and third conditionals.<br>**4- Types of Sentences**:<br>*Simple Tense Sentences*<br>*Compound Tense Sentences*<br>*Complex Tense Sentences*<br>**5-Agreement Using "So" and "Neither"**: Rules and usage in conversations.<br>**6- Singular and Plural Nouns**: Regular and irregular forms.<br>**7- Question Forms and Responses**: How to answer different types of questions (yes/no and WH- questions).<br>**8- Numbers and Roman Numerals**: Writing and reading both forms correctly.<br>**9- Everyday English Sentences**: Common phrases and expressions used in daily life.<br>**10- The Verb "To Be"**: Usage in present, past, and future contexts. |

| Learning and Teaching Strategies | |
|---|---|
| **Strategies** | **1-Interactive Lectures**: Explanation of grammar rules and sentence structures using real-life examples.<br>**2-Class Discussions**: Encouraging student participation to practice speaking and apply language rules in conversation.<br>**3-Guided Practice**: Step-by-step exercises conducted in class to reinforce understanding of topics such as prepositions, passive voice, and conditional sentences.<br>**4-Pair and Group Work**: Cooperative learning activities to enhance communication and peer learning.<br>**5-Use of Visual Aids**: Charts, flashcards, and multimedia presentations to support visual learners.<br>**6-Worksheets and Quizzes**: Frequent short assessments to review and reinforce grammatical concepts.<br>**7-Homework Assignments**: Practice tasks to promote independent learning and language reinforcement outside the classroom. |

| | |
|---|---|
| | **8-Role-play and Dialogue Practice**: To simulate real-life situations and improve spoken fluency.<br>**9-Corrective Feedback**: Ongoing feedback from the instructor to help students correct mistakes and improve language accuracy. |

| Student Workload (SWL) | | | |
|---|---|---|---|
| **Structured SWL (h/sem)** | 33 | **Structured SWL (h/w)** | 2 |
| **Unstructured SWL (h/sem)** | 17 | **Unstructured SWL (h/w)** | 1 |
| **Total SWL (h/sem)** | **50** | | |

## Module Evaluation

| | | Time/Number | Weight (Marks) | Week Due | Relevant Learning Outcome |
|---|---|---|---|---|---|
| **Formative assessment** | **Tests** | 1 | 10% (10) | 8 | LO #1 - #7 |
| | **Projects** | 1 | 10% (10) | 6 | LO #1 -#5 |
| | **Online assignments** | 1 | 10% (10) | 9 | LO #1 - #8 |
| | **Reports** | 1 | 10% (10) | 15 | LO #1 - #14 |
| **Summative assessment** | **Mid Exam** | 2hr | 10% (10) | 7 | LO #1 - #6 |
| | **Final Exam** | 3hr | 50% (50) | 16 | All |
| **Total assessment** | | | 100% (100 Marks) | | |

## Delivery Plan (Weekly Syllabus)

| | Material Covered |
|---|---|
| **Week 1** | English preposition |
| **Week 2** | Passive voice |
| **Week 3** | Negative |
| **Week 4** | If clause ( conditional) sentences |
| **Week 5** | Kinds of sentences |
| **Week 6** | A- Simple tense |

| | |
|---|---|
| **Week 7** | B-compound tense |
| **Week 8** | c- complex tense |
| **Week 9** | The use of so 'and neither' |
| **Week 10** | Singular |
| **Week 11** | plural |
| **Week 12** | How to answer causations |
| **Week 13** | Number + Roman Numerals |
| **Week 14** | Every day sentences |
| **Week 15** | The verb to be |

## Learning and Teaching Resources

| | Text | Available in the Library? |
|---|---|---|
| **Required Texts** | English Language Curriculum Book | Yes |
| **Recommended Texts** | Writing Academic English, Level 1 by Alice Oshima | Yes |
| **Websites** | BBC Learning English | |

## Grading Scheme

| 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 |
| | | | | |

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## Module 5

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| AGR-112 | general chemistry | 8 | 1 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/w)** |
| 2 | 3 | 79 | 121 |
| **Description** | | | |
| **The General Chemistry course aims to provide students with the fundamental principles and key concepts of chemistry, which form the foundation for understanding chemical reactions and the physical properties of matter.** The course includes the study of atoms, elements, compounds, molecular structures, various chemical reactions, as well as gas laws, acids and bases, and chemical bonding. | | | |

# MODULE DESCRIPTION FORM



| Module Information | | | |
|---|---|---|---|
| **Module Title** | **Fundamentals of general chemistry** | **Module Delivery** | |
| **Module Type** | **S** | ☒ **Theory**<br>☒ **Lecture**<br>☐ **Lab**<br>☐ **Tutorial**<br>☒ **Practical**<br>☐ **Seminar** | |
| **Module Code** | **AGR-112** | | |
| **ECTS Credits** | **8** | | |
| **SWL (hr/sem)** | **200** | | |
| **Module Level** | 1 | **Semester of Delivery** | 1 |
| **Administering Department** | Animal production Dept. | **College** | College of Agriculture |
| **Module Leader** | Abbas washel Salman | **e-mail** | aalhamdani@uowasit.edu.iq |
| **Module Leader's Acad. Title** | Professor | **Module Leader's Qualification** | Ph.D. |
| **Module Tutor** | Hamed wafi-q Ibrahim | **e-mail** | hamidwafeeq@uowasit.edu.iq |
| **Peer Reviewer Name** | Abbas washel Salman | **e-mail** | aalhamdani@uowasit.edu.iq |
| **Scientific Committee Approval Date** | 10/9/2024 | **Version Number** | 1.0 |

| Relation with other Modules | | | |
|---|---|---|---|
| **Prerequisite module** | None | **Semester** | |
| **Co-requisites module** | None | **Semester** | |

| Module Aims, Learning Outcomes and Indicative Contents | |
|---|---|
| **Module Objectives** | 1. concept of the atom.<br>2. Familiarizing students with the branches of chemistry, with a focus on analytical and organic chemistry.<br>3. Teaching students how to use methods of expressing concentrations and their applications.<br>4. Introducing students to acids and bases according to various classifications, as well as salts, their types, and electrolytic solutions.<br>5. Introducing students to organic chemistry, its origin and development, in addition to its classification based on functional groups and types of organic reactions.<br>6. Reviewing various classes of organic compounds in terms of structure, nomenclature, important reactions, methods of preparation, and significance. |
| **Module Learning Outcomes** | cognitive Learning Outcomes for Teaching General Chemistry to First-Year Students in Colleges of Agriculture:<br>1. The student identifies the fundamental principles of chemistry.<br>2. The student becomes familiar with basic laboratory techniques in chemistry.<br>3. The student is able to apply mathematical laws used in preparing various types of concentrations.<br>4. The student understands certain properties of solutions, particularly those related to pH and its calculation methods.<br>5. The student learns how to distinguish between different classes of organic compounds based on their functional groups.<br>6. The student realizes the importance of organic compounds, especially regarding their applications. |
| **Indicative Contents** | **The guided contents of the General Chemistry course for Agriculture College students include the following topics:**<br>1. Explanation of the basic concepts of the atom and atomic structure.<br>2. Introduction to the branches of chemistry and their various applications.<br>3. Introduction to analytical chemistry and its importance.<br>4. Clarification of the significance of analytical chemistry for other disciplines.<br>5. Introduction to methods of preparing solutions and studying their properties.<br>6. Introduction to organic chemistry and the types of organic compounds. |

| Learning and Teaching Strategies | |
|---|---|
| | 1. **Lectures and Presentations**<br>The lecture, which includes the fundamental theoretical knowledge, is delivered through a multimedia presentation, accompanied by explanations and examples.<br>2. **Practical Laboratory**<br>Students are initially introduced to laboratory equipment and safety rules. |

| | |
|---|---|
| **Strategies** | They are then practically trained on methods for preparing solutions at different concentrations, in addition to conducting some experiments.<br>3. **Student Reports**<br>Each student, or groups of students, are assigned to prepare reports on specific topics closely related to the course material. |

## Student Workload (SWL)

| | | | |
|---|---|---|---|
| **Structured SWL (h/sem)** | 79 | **Structured SWL (h/w)** | 5 |
| **Unstructured SWL (h/sem)** | 121 | **Unstructured SWL (h/w)** | 8 |
| **Total SWL (h/sem)** | **200** | | |

## Module Evaluation

| | | Time/Number | Weight (Marks) | Week Due | Relevant Learning Outcome |
|---|---|---|---|---|---|
| **Formative assessment** | **Tests** | 1 | 10% (10) | 8 | LO #1 - #7 |
| | **Projects** | 1 | 10% (10) | 6 | LO #1 -#5 |
| | **Lab** | 1 | 10% (10) | 9 | LO #1 - #7 |
| | **Reports** | 1 | 10% (10) | 15 | LO #1 - #4 |
| **Summative assessment** | **Mid Exam** | 2hr | 10% (10) | 7 | LO #1 - #6 |
| | **Final Exam** | 3hr | 50% (50) | 16 | All |
| **Total assessment** | | | 100% (100 Marks) | | |

## Delivery Plan (Weekly Syllabus)

| | Material Covered |
|---|---|
| **Week 1** | General Introduction to the Subject and Atomic Structure |
| **Week 2** | Introduction to Analytical Chemistry |
| **Week 3** | Volumetric Analysis and Standard Solutions |
| **Week 4** | Methods of Expressing Concentrations – Part 1 |
| **Week 5** | Methods of Expressing Concentrations – Part 2 |

| | |
|---|---|
| **Week 6** | Acids, Bases, Salts, and the pH Scale |
| **Week 7** | Precipitation Titrations |
| **Week 8** | Gravimetric Analysis – Part 1 |
| **Week 9** | Gravimetric Analysis – Part 2 |
| **Week 10** | Introduction to Spectroscopic Analysis |
| **Week 11** | Introduction to Organic Chemistry and Types of Organic Reactions |
| **Week 12** | Alkanes |
| **Week 13** | Alkenes |
| **Week 14** | Alkynes |
| **Week 15** | Alcohols and Phenols |

| **Delivery Plan (Weekly Lab. Syllabus)** | |
|---|---|
| | **Material Covered** |
| **Week 1** | General Introduction to Laboratory Tools, Equipment, Glassware, and Chemicals |
| **Week 2** | Volumetric Analysis |
| **Week 3** | Standard Solutions and Preparation of a Standard Solution from Sodium Carbonate ($Na_2CO_3$) |
| **Week 4** | Preparation of a Non-Standard Hydrochloric Acid (HCl) Solution and Its Titration with Sodium Carbonate |
| **Week 5** | Preparation of a Non-Standard Sodium Hydroxide (NaOH) Solution and Its Titration with Hydrochloric Acid |
| **Week 6** | Determination of the Normality of Sodium Carbonate and Sodium Hydroxide in a Mixture |
| **Week 7** | Determination of the Normality of Sodium Carbonate and Sodium Bicarbonate in a Mixture |
| **Week 8** | Determination of the Melting Point of Chemical Compounds |
| **Week 9** | Sublimation |
| **Week 10** | Boiling Point |
| **Week 11** | Solubility |
| **Week 12** | Detection of Single Bonds (Alkanes) |
| **Week 13** | Detection of Double Bonds (Alkenes) |
| **Week 14** | Detection of the Carboxyl Group (COOH) |
| **Week 15** | Detection of the Hydroxyl Group (OH) |

| Learning and Teaching Resources | | |
|---|---|---|
| | **Text** | **Available in the Library?** |
| **Required Texts** | **General Chemistry for Agriculture Students**<br>*Dr. Sami Abdul Ali, Dr. Salem Hamed, Dr. Moath Abdullah Al-Hijjar* | Yes |
| **Recommended Texts** | **Fundamentals of Analytical Chemistry**<br>*Dr. Thabet Saeed Al-Ghabsha, Dr. Moayad Al-Obaiji* | Yes |
| **Websites** | https://www.khanacademy.org/science/chemistry | |

| Grading Scheme | | | | |
|---|---|---|---|---|
| **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 |
| | | | | |

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## Module 6

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| AGR-113 | Principle of plant protection | 7 | 1 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/w)** |
| 2 | 3 | 79 | 96 |
| **Description** | | | |
| **The Principles of Plant Protection course aims to introduce students to the basics of protecting plants from various agricultural pests.** The course includes the study of harmful insects, plant diseases, and weeds, as well as scientifically studied methods of prevention. It focuses on understanding the relationship between pests, plants, and the environment, emphasizing the importance of integrated pest management and reducing reliance on chemical pesticides to safeguard human health and the environment. | | | |

# MODULE DESCRIPTION FORM

| Module Information | | | | | |
|---|---|---|---|---|---|
| **Module Title** | **Principle of plant protection** | | | **Module Delivery** | |
| **Module Type** | **C** | | | ☒ **Theory**<br>☒ **Lecture**<br>☐ **Lab**<br>☐ **Tutorial**<br>☒ **Practical**<br>☑**Seminar** | |
| **Module Code** | **AGR-113** | | | | |
| **ECTS Credits** | **7** | | | | |
| **SWL (hr/sem)** | **175** | | | | |
| **Module Level** | 1 | | **Semester of Delivery** | | **Module Level** |
| **Administering Department** | Animal production Dept. | | **College** | **Administering Department** | |
| **Module Leader** | **Qais murri labosi** | | **e-mail** | **Module Leader** | |
| **Module Leader's Acad. Title** | Assist. Professor | | **Module Leader's Qualification** | | **Module Leader's Acad. Title** |
| **Module Tutor** | **Saja Intisar Abd Hish** | | **e-mail** | **Module Tutor** | |
| **Qais murri labosi** | **Qais murri labosi** | | **e-mail** | **Peer Reviewer Name** | |
| **Scientific Committee Approval Date** | 10/9/2024 | | **Version Number** | | **Scientific Committee Approval Date** |

| Relation with other Modules | | | |
|---|---|---|---|
| **Prerequisite module** | None | **Semester** | |
| **Co-requisites module** | None | **Semester** | |

| Module Aims, Learning Outcomes and Indicative Contents | |
|---|---|
| **Module Objectives** | **1.** The learner should be capable of defining the concept of disease and<br>2. identifying the necessary information for understanding disease history.<br>3. Selecting the appropriateness of factors influencing the disease and determining its spreading capacity.<br>4. Differentiating between types of pathogenic agents and understanding their respective classifications.<br>5. Comprehending modern planning fundamentals for developing programs that illustrate forms and patterns of plant diseases.<br>6. Distinguishing between fungal classes and their divisions according to each type's characteristics.<br>7. Acquiring comprehensive knowledge of required information for instructors and what's available for mastering their work.<br>8. Identifying plant diseases, their symptoms, and pathological signs, along with considerations for differentiation between them, and conducting comprehensive studies on diagnostic methods for each disease while examining various control types and determining necessary regulations and conditions to be observed |
| **Module Learning Outcomes** | Enable students to acquire knowledge and understanding of the theoretical and applied framework of plant virology in general. Enable students to acquire knowledge and understanding of the requirements of plant virology principles according to international standards.<br>Familiarize students with modern techniques in plant virology principles through the presentation of films, scientific research, and methods of diagnosing plant viruses |
| **Indicative Contents** | 1. Introduction to Plant Protection<br>Concept of plant protection and its importance in sustainable agriculture<br>o Damage caused by plant pests and diseases.<br>o Historical development of pest and disease control.<br>2. Agricultural Pests (Insects - Rodents - Birds - Weeds)<br>o Classification and types of pests.<br>o Life cycles of pests and their impact on crops.<br>o Methods for early detection and monitoring of pests.<br>3. Agricultural Pests (Insects - Rodents - Birds - Weeds)<br>o Classification and types of pests.<br>o Life cycles of pests and their impact on crops.<br>o Methods for early detection and monitoring of pests.<br>4. Integrated Pest and Disease Management Methods (IPM) |

| | |
|---|---|
| | ○ Agricultural control (preventive agricultural practices).<br>○ Biological control (use of natural enemies).<br>○ Chemical control (types of pesticides and their safe use).<br>○ Physical and mechanical control.<br>○ Legislative control (agricultural quarantine).<br>5. Practical Cases and Field Studies<br>○ Analysis of pest and disease outbreak cases.<br>○ Field visits to experimental farms or plant protection laboratories.<br>Laboratory applications in disease **and pest diagnosis.** |

| Learning and Teaching Strategies | |
|---|---|
| **Strategies** | **1.Theoretical Lectures (Lectures)**<br>• Presenting fundamental concepts and scientific theories through PowerPoint presentations and interactive explanations.<br>• Using visual aids (images, videos, illustrations) to explain the life cycles of pests and plant diseases.<br>• Discussing real case studies to demonstrate plant protection applications.<br>**2. Active Learning (Active Learning)**<br>• Group discussions about Integrated Pest Management (IPM) methods and evaluating their effectiveness.<br>• Brainstorming sessions to solve agricultural problems related to pests and diseases.<br>• Individual and group exercises such as analyzing data about the spread of specific pests.<br>• Using real or simulated agricultural data to apply concepts.<br>**3. Project-Based Learning (Project-Based Learning)**<br>• Preparing small research projects on diagnosing common plant pests or diseases in the region.<br>• Designing preventive plans for a virtual farm using integrated management strategies.<br>**4. Experiential Learning (Experiential Learning)**<br>• Field visits to agricultural farms or plant protection laboratories to observe practical applications.<br>• Laboratory experiments such as:<br>o Diagnosing plant diseases under microscopes. |

| | |
|---|---|
| | o Preparing fungal or bacterial cultures.<br>o Testing the effectiveness of certain pesticides or biological control methods.<br>**5. Digital Learning (E-Learning)**<br>• Using e-learning platforms (such as Moodle or Blackboard) to deliver lectures and quizzes.<br>• Sharing educational videos about pest and disease diagnosis.<br>• Online discussion forums for students to exchange experiences.<br>**6. Student Learning Assessment (Assessment Strategies)**<br>• Short theoretical tests and final exams.<br>• Practical reports on laboratory experiments and field visits.<br>• Student project presentations.<br>• Evaluating student participation in group discussions and problem-solving.<br>**7. Self-Directed Learning (Self-Directed Learning)**<br>• Guiding students to review recent research in plant protection.<br>• Encouraging them to follow relevant scientific conferences and seminars |

| Student Workload (SWL) | | | |
|---|---|---|---|
| **Structured SWL (h/sem)** | 79 | **Structured SWL (h/w)** | 5 |
| **Unstructured SWL (h/sem)** | 96 | **Unstructured SWL (h/w)** | 7 |
| **Total SWL (h/sem)** | **175** | | |

| Module Evaluation | | | | | |
|---|---|---|---|---|---|
| | | **Time/Number** | **Weight (Marks)** | **Week Due** | **Relevant Learning Outcome** |
| **Formative assessment** | **Tests** | 1 | 10% (10) | 8 | LO #1 - #7 |
| | **Projects** | 1 | 10% (10) | 6 | LO #1 -#5 |
| | **Lab** | 1 | 10% (10) | 9 | LO #1 - #8 |
| | **Reports** | 1 | 10% (10) | 15 | LO #1 - #8 |
| **Summative assessment** | **Mid Exam** | 2hr | 10% (10) | 7 | LO #1 - #6 |
| | **Final Exam** | 3hr | 50% (50) | 16 | All |
| **Total assessment** | | | 100% (100 Marks) | | |

| Delivery Plan (Weekly Syllabus) | |
|---|---|
| | **Material Covered** |
| **Week 1** | Introduction to Principles of Plant Protection |
| **Week 2** | Introduction to Entomology / Insect Classification and Survival Factors |
| **Week 3** | Medical and Veterinary Importance of Insects |
| **Week 4** | Environmental Factors Affecting Insect Life and Activity |
| **Week 5** | Methods for Controlling Harmful Insects |
| **Week 6** | Biology and Damage of Non-Insect Pests (Rodents, Birds) and Control Methods |
| **Week 7** | First Monthly Exam |
| **Week 8** | Causes of Plant Diseases: Parasitic (Biotic) |
| **Week 9** | Causes of Plant Diseases: Non-Parasitic (Abiotic) |
| **Week 10** | Transmission Methods of Biotic Plant Pathogens |
| **Week 11** | Insect Reproduction Methods |
| **Week 12** | Types of Mouthparts in Parasitic Insects |
| **Week 13** | Medical Importance of Tick Parasites |
| **Week 14** | Babesia |
| **Week 15** | Second Monthly Exam |

| Delivery Plan (Weekly Lab. Syllabus) | |
|---|---|
| | **Material Covered** |
| **Week 1** | Phylum Arthropoda - Characteristics and Classes |
| **Week 2** | Insect Body Wall - Head and Appendages (Eyes, Antennae, Mouthparts) |
| **Week 3** | Thorax and Abdomen with Appendages |
| **Week 4** | Insect Metamorphosis: |
| **Week 5** | Egg forms and coloration |
| **Week 6** | Larval types |
| **Week 7** | Pupal varieties |
| **Week 8** | Nymph stages |
| **Week 9** | Reproduction methods |
| **Week 10** | Insect Collection, Killing, Preservation and Classification |
| **Week 11** | Lice - Characteristics and Types |

| | |
|---|---|
| **Week 12** | Laboratory Exam |
| **Week 13** | Cockroaches - Types and Identification |
| **Week 14** | Bed Bugs and Fleas |
| **Week 15** | Disease Diagnosis - Disease Triangle Concept |

| **Learning and Teaching Resources** | | |
|---|---|---|
| | **Text** | **Available in the Library?** |
| **Required Texts** | Fundamentals of Plant Protection by Dr. Laith Mahmoud Abdullah and Dr. Ali Hussein Majbas. University of Baghdad. 1992<br>Medical and Veterinary Entomology in Iraq: Theoretical Part by Dr. Jalil Abu Al-Hub. 1979<br>Practical Medical Entomology by Dr. Abdul Latif Molan and Dr. Abbas Faraj. 201 | Yes |
| **Recommended Texts** | **Reliable Scientific Journals, Scientific Reports** | yes |
| **Websites** | | |

| **Grading Scheme** | | | | |
|---|---|---|---|---|
| **Group** | **Grade** | **Grading Scale:** | **Marks %** | **Definition** |
| **Success Group (50 - 100)** | **A** - Excellent | Excellent | 90 - 100 | Outstanding Performance |
| | **B** - Very Good | Very Good | 80 - 89 | Above average with some errors |
| | **C** - Good | Good | 70 - 79 | Sound work with notable errors |
| | **D** - Satisfactory | Satisfactory | 60 - 69 | Fair but with major shortcomings |
| | **E** - Sufficient | Pass | 50 - 59 | Work meets minimum criteria |
| **Fail Group (0 – 49)** | **FX** – Fail | Fail (Remedial) | (45-49) | More work required but credit awarded |
| | **F** – Fail | Fail | (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 7

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| AGR122 | Statistics | 5 | 2 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/w)** |
| 2 | 3 | 79 | 46 |

**Description**

This course introduces the **basic principles of statistics** and their applications in scientific research, particularly in agriculture, biology, and related fields. It covers topics such as **data collection**, **organization**, **presentation**, **measures of central tendency and dispersion**, **probability distributions**, **hypothesis testing**, **correlation**, **regression**, and **analysis of variance (ANOVA)**.
Students will learn to use statistical tools and software to analyze and interpret data, supporting scientific conclusions and decision-making. Emphasis is placed on **practical applications**, problem-solving, and understanding the role of statistics in research and industry.

# MODULE DESCRIPTION FORM

| Module Information | | | |
|---|---|---|---|
| **Module Title** | **Principles of Statistics** | **Module Delivery** | |
| **Module Type** | **B** | ☒ **Theory**<br>☒ **Lecture**<br>☐ **Lab**<br>☐ **Tutorial**<br>☒ **Practical**<br>☑ **Seminar** | |
| **Module Code** | **AGR-122** | | |
| **ECTS Credits** | **5** | | |
| **SWL (hr/sem)** | **125** | | |
| **Module Level** | 1 | **Semester of Delivery** | 1 |
| **Administering Department** | Animal Production Department | **College** | College of Agriculture |
| **Module Leader** | Hakeem Sultan Abd | **e-mail** | hsultan@uowasit.edu.iq |
| **Module Leader's Acad. Title** | Assist. Professor | **Module Leader's Qualification** | PhD |
| **Module Tutor** | Rasool Hassan Khalati | **e-mail** | rahassan@uowasit.edu.iq |
| **Peer Reviewer Name** | Name | **e-mail** | E-mail |
| **Scientific Committee Approval Date** | 10/9/2024 | **Version Number** | 1.0 |

| Relation with other Modules | | | |
|---|---|---|---|
| **Prerequisite module** | None | **Semester** | |
| **Co-requisites module** | None | **Semester** | |

| Module Aims, Learning Outcomes and Indicative Contents | |
|---|---|
| **Module Objectives** | 1. Providing students with theoretical and practical scientific knowledge in the field of statistics.<br>2. The ability to collect and classify data.<br>3. The ability to measure the degree of relationship between variables.<br>4. Providing students with the skills required in field management and its impact on field work. |
| **Module Learning Outcomes** | Learning outcomes for teaching the principles of statistics to first-year students in colleges of agriculture include:<br>1. Basic Concepts:<br>* Definition of statistics and its importance in agriculture.<br>* Understanding data types (quantitative, qualitative) and their sources.<br>2. Data Analysis:<br>* Organizing and presenting data using tables and graphs.<br>* Calculating statistical measures such as mean, median, and standard deviation.<br>3. Probability Distributions:<br>* Understanding normal distributions and statistical inference.<br>* Applying probability in analyzing agricultural data.<br>4. Statistical Inference:<br>* Understanding statistical hypotheses and their tests (such as the t-test, chi-square test).<br>* Interpreting statistical results and making decisions based on them.<br>5. Agricultural Applications:<br>* Using statistics to analyze crop and livestock experiments.<br>* Applying statistical methods to improve agricultural production. |
| **Indicative Contents** | The syllabus for the Principles of Statistics course for students in colleges of agriculture includes the following topics:<br>1. Introduction to Statistics:<br>• Definition of statistics and its importance in agriculture.<br>• Types of data (quantitative, qualitative) and their sources.<br>• Levels of measurement (nominal, ordinal, interval, relative).<br>2. Data Presentation and Analysis:<br>• Organizing data in frequency tables.<br>• Representing data graphically (histograms, columns, circles, lines).<br>• Calculating descriptive measures (mean, median, mode, range, variance, standard deviation).<br>3. Probability:<br>• Introduction to probability theory.<br>• Probability distributions (normal distribution, binomial distribution).<br>• Applications of probability in agriculture.<br>4. Statistical Distributions: The normal distribution and its properties.<br>• Other distributions relevant to agriculture (such as the Poisson distribution).<br>5. Statistical inference:<br>• Estimating parameters (point estimate, confidence intervals). |

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|---|---|
| | • Statistical hypothesis testing (t-test, Z-test, chi-square test).<br>• Analysis of variance (ANOVA).<br>6. Correlation and regression:<br>• Analyzing the correlation between variables.<br>• The simple linear regression model and its applications in agriculture |

| Learning and Teaching Strategies | |
|---|---|
| **Strategies** | 1. Scaffolded Learning:<br>• Breaking down statistical concepts into small, sequential steps.<br>• Starting with basic concepts (such as mean and variance) and progressing to more complex concepts (such as regression and analysis of variance).<br>• Presenting simple examples initially and gradually increasing complexity.<br>2. Intensive Hands-On Practice:<br>• Allocating a significant portion of lecture time to solving statistical exercises step-by-step.<br>• Assigning students to complete large sets of homework exercises to reinforce understanding.<br>• Using real or quasi-real data from the agricultural field to apply concepts.<br>3. Problem-Based Learning:<br>• Presenting realistic statistical problems that require the application of mathematical and statistical concepts.<br>• Encouraging students to work individually or in groups to find solutions.<br>• Discussing solutions in class and pointing out common mistakes.<br>4. Visual and Graphical Learning:<br>• Use graphs and charts to illustrate abstract concepts (such as normal distribution and correlation).<br>• Teach students how to create graphs manually and using software.<br>• Demonstrate how to interpret graphs in an agricultural context.<br>5. Repetition and Practice:<br>• Repeat key concepts periodically to ensure they are consolidated.<br>• Provide a wide variety of exercises (theoretical and practical).<br>• Encourage students to complete additional exercises outside of class.<br>6. Example-Based Learning:<br>• Provide detailed practical examples of each statistical concept.<br>• Demonstrate how each concept is applied in an agricultural context (such as crop or livestock data analysis).<br>• Encourage students to analyze additional examples on their own.<br>7. Collaborative Learning:<br>• Divide students into small groups to complete complex exercises.<br>• Encourage students to explain concepts to each other.<br>• Organize group study sessions outside of class.<br>8. Continuous Formative Assessment: |

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| | • Periodic quizzes to assess students' understanding of concepts.<br>• Weekly assignments that include solving statistical exercises.<br>• Progress reports on student progress.<br>9. Real-Data Learning:<br>• Use real data from agricultural experiments or scientific research.<br>• Teach students how to clean and analyze data.<br>• Demonstrate how to interpret results in an agricultural context. |

## Student Workload (SWL)

| | | | |
|---|---|---|---|
| **Structured SWL (h/sem)** | 79 | **Structured SWL (h/w)** | 5 |
| **Unstructured SWL (h/sem)** | 46 | **Unstructured SWL (h/w)** | 3 |
| **Total SWL (h/sem)** | 125 | | |

## Module Evaluation

| | | Time/Number | Weight (Marks) | Week Due | Relevant Learning Outcome |
|---|---|---|---|---|---|
| **Formative assessment** | **Quizzes** | 1 | 10% (10) | 15 | LO #1 - #4 |
| | **Assignments** | 1 | 10% (10) | 6 | LO #1 - #4 |
| | **Projects / Lab.** | 1 | 10% (10) | 7 | LO #1 - #4 |
| | **Report** | 1 | 10% | 14 | LO #1 - #4 |
| **Summative assessment** | **Midterm Exam** | 2hr | 10% (10) | 8 | LO #1 - #3 |
| | **Final Exam** | 3hr | 50% (50) | 16 | All |
| **Total assessment** | | | 100% (100 Marks) | | |

## Delivery Plan (Weekly Syllabus)

| | Material Covered |
|---|---|
| **Week 1** | Introduction to Statistics |
| **Week 2** | Statistical Symbols |
| **Week 3** | Data Presentation and Summarization |
| **Week 4** | Frequency Distribution of Tables and Data |

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|---|---|
| **Week 5** | Measures of Centering |
| **Week 6** | Measures of Dispersion |
| **Week 7** | Hypothesis Testing |
| **Week 8** | Normal Distribution |
| **Week 9** | t-Test |
| **Week 10** | Z-Test |
| **Week 11** | F-Test |
| **Week 12** | Simple Linear Correlation |
| **Week 13** | Simple Linear Regression |
| **Week 14** | Probability Theory |
| **Week 15** | Midterm Exam |
| **Week 16** | Final Exam |

| **Delivery Plan (Weekly Lab. Syllabus)** | |
|---|---|
| | **Material Covered** |
| **Week 1** | Applications of descriptive and quantitative measures |
| **Week 2** | Applications of statistical symbols |
| **Week 3** | Exercises of frequency tables and graphic representation |
| **Week 4** | Exercises of measures of centering |
| **Week 5** | Exercises of dispersion |
| **Week 6** | Applications of normal graphic distributions |
| **Week 7** | Exercises of t-tests |
| **Week 8** | Exercises of z-tests |
| **Week 9** | Exercises of the F-test |
| **Week 10** | Exercises of correlation |
| **Week 11** | Exercises of linear regression |
| **Week 12** | Exercises of probability |
| **Week 13** | Data collection and analysis |
| **Week 14** | ANOVA test |
| **Week 15** | Interval test |

| Learning and Teaching Resources | | |
|---|---|---|
| | **Text** | **Available in the Library?** |
| **Required Texts** | Introduction to Statistics, written by Dr. Khashe Mahmoud Al-Rawi, College of Agriculture and Forestry, University of Mosul, 1989 | Yes |
| **Recommended Texts** | (Reliable scientific journals, scientific reports). | No |
| **Websites** | | |

| Grading Scheme | | | | |
|---|---|---|---|---|
| **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 8

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| WU01 | Arabic Language | 2 | 2 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/w)** |
| 2 | 0 | 33 | 17 |
| **Description** | | | |
| This course aims to strengthen students' skills in the **Arabic language**, focusing on improving their abilities in **reading, writing, grammar, and comprehension**. It provides a foundation in **classical and modern standard Arabic**, with attention to **sentence structure, correct usage, punctuation**, and **writing techniques**. The course also introduces students to selected texts from **Arabic literature, culture, and heritage**, enhancing their appreciation for the richness and depth of the Arabic language.<br>Students will practice writing essays, analyzing texts, and applying grammatical rules accurately, enabling them to communicate effectively in academic and professional contexts. | | | |

# MODULE DESCRIPTION FORM

| Module Information | | | |
|---|---|---|---|
| **Module Title** | **Arabic language** | **Module Delivery** | |
| **Module Type** | **U** | ☐ **Theory**<br>☒ **Lecture**<br>☐ **Lab**<br>☐ **Tutorial**<br>☐ **Practical**<br>☐ **Seminar** | |
| **Module Code** | **WUO1** | | |
| **ECTS Credits** | **3** | | |
| **SWL (hr/sem)** | **50** | | |
| **Module Level** | 1 | **Semester of Delivery** | 2 |
| **Administering Department** | Animal production Dept. | **College** | College of Agriculture |
| **Module Leader** | Zena Abdullah Khamees | **e-mail** | zenak@uowasit.edu.iq |
| **Module Leader's Acad. Title** | Teacher | **Module Leader's Qualification** | M.A |
| **Module Tutor** | Zena Abdullah Khamees | **e-mail** | zenak@uowasit.edu.iq |
| **Peer Reviewer Name** | Zena Abdullah Khamees | **e-mail** | zenak@uowasit.edu.iq |
| **Scientific Committee Approval Date** | 10/9/2024 | **Version Number** | 1.0 |

| Relation with other Modules | | | |
|---|---|---|---|
| **Prerequisite module** | None | **Semester** | |
| **Co-requisites module** | None | **Semester** | |

| Module Aims, Learning Outcomes and Indicative Contents | |
|---|---|
| **Module Objectives** | 1. Introduce students to the historical development of the Arabic language and its main linguistic branches.<br>2. Develop students' understanding of Arabic grammar, including the nominatives, accusatives, and prepositions.<br>3. Enable students to identify and apply grammatical concepts such as subjects, predicates, verbs, and complements in practical contexts.<br>4. Improve students' command of complex grammatical structures including exceptions, vocatives, appositives, and numerals.<br>5. Strengthen students' morphological skills by exploring verb patterns, root and augmented forms, and verb conjugation.<br>6. Equip students with spelling and punctuation rules, including the correct usage of hamza, ta marbuta, and punctuation marks, to enhance academic writing.<br>7. Encourage student participation through practical exercises, question-based learning, and collaborative group work to reinforce grammatical concepts. |
| **Module Learning Outcomes** | 1. Describe the historical development and branches of the Arabic language.<br>2. Identify and correctly apply major grammatical rules, including nominatives (subjects, predicates), and accusatives (objects, adverbials, and exceptions).<br>3. Analyze and construct grammatically correct sentences using structures such as the vocative, specification, and appositives (adjective, emphasis, substitution, and coordination).<br>4. Demonstrate understanding of prepositional phrases and genitive constructions in written and spoken Arabic.<br>5. Apply morphological analysis using the standard Arabic morphological scale (al-mīzān al-ṣarfī).<br>6. Differentiate between sound and weak verbs, and correctly conjugate verbs in different forms (root and augmented).<br>7. Use punctuation marks appropriately in formal writing and apply accurate spelling rules for hamza and final ta'.<br>8. Communicate using correct grammatical and orthographic forms in both academic and everyday contexts. |
| | *1. History and Branches of the Arabic Language*<br>• Historical background and evolution of Arabic |

| | |
|---|---|
| **Indicative Contents** | • Overview of major branches: Grammar (Nahw), Morphology (Sarf), and Orthography (Imla’)<br>*2. Grammar (Nahw)*<br>• **Nominatives (Al-Marfu‘āt)**: Subject (Mubtada’), Predicate (Khabar), Subject and Predicate of “Kana” and its sisters, the Agent (Fa‘il), and the Passive Agent (Na’ib al-Fa‘il)<br>• **Accusatives (Al-Mansūbāt)**: Direct object (Maf‘ūl bihi), Absolute object (Maf‘ūl muṭlaq), Adverbial of time/place (Maf‘ūl fīh), Purpose (Maf‘ūl li’ajlihi), Accompaniment (Maf‘ūl ma‘ahu)<br>• **Special Structures**: Circumstantial accusative (Al-Ḥāl), Exception (Al-Istithnā’), Specification (Al-Tamyīz), and Vocative (Al-Munādā)<br>• **Prepositions and Genitive Case (Al-Majrūrāt)**: Prepositional phrases and annexation (iḍāfa)<br>• **Appositives (Al-Tawābi‘)**: Adjective (Na‘t), Emphasis (Tawkīd), Substitution (Badal), Coordination (Atf al-Nasaq)<br>• **Numerals and Grammar Rules** related to numbers<br>*3. Morphology (Sarf)*<br>• Introduction to morphological structure and the Arabic root system<br>• Morphological scale (Al-Mīzān al-Ṣarfī)<br>• Sound and weak verbs (Ṣaḥīḥ and Mu‘tal)<br>• Root and augmented verbs (Mujarrad and Mazīd)<br>• Verb conjugation and inflection (Isnād al-Fi‘l)<br>*4. Orthography (Imlā’)*<br>• Rules of Arabic punctuation marks and their importance in academic writing<br>• Spelling rules for Hamza<br>• Writing of Ta’ Marbuta (ة) and Ta’ Maftūḥa (ت)<br>• Practical application through exercises and writing tasks |

| Learning and Teaching Strategies | |
|---|---|
| | ☐ **Lectures and Presentations**<br>• Structured lectures supported by visual aids to introduce key grammatical, morphological, and orthographic concepts.<br>• Use of real-life and academic examples to enhance contextual understanding.<br>☐ **Interactive Discussions** |

| | |
|---|---|
| **Strategies** | • Encouraging student participation through guided questions and open-ended discussions to reinforce grammatical analysis and reasoning.<br>• Promoting peer-to-peer learning and collaborative exploration of language structures.<br>☐ **Practical Exercises and Drills**<br>• Application of rules through written exercises, sentence construction, and correction activities.<br>• Group and individual practice sessions focused on applying grammar and morphology in writing and speech.<br>☐ **Problem-Based Learning**<br>• Engaging students in solving grammar and morphology problems to develop critical thinking and application skills.<br>• Analyzing authentic Arabic texts to identify and explain language patterns.<br>☐ **Use of Educational Technology**<br>• Utilizing digital resources such as language learning apps, interactive quizzes, and online grammar tools to enhance learning outside the classroom.<br>☐ **Feedback and Revision Sessions**<br>• Providing continuous formative feedback on exercises and assignments.<br>• Organizing review sessions before assessments to consolidate understanding.<br>☐ **Role-play and Daily Language Use**<br>• Incorporating real-life scenarios and conversational Arabic to practice correct grammar usage in communication.<br>• Encouraging the use of correct spelling and punctuation in academic writing. |



| Student Workload (SWL) | | | |
|---|---|---|---|
| **Structured SWL (h/sem)** | 33 | **Structured SWL (h/w)** | 2 |
| **Unstructured SWL (h/sem)** | 17 | **Unstructured SWL (h/w)** | 1 |
| **Total SWL (h/sem)** | **50** | | |

| Module Evaluation | | | | | |
|---|---|---|---|---|---|
| | | **Time/Number** | **Weight (Marks)** | **Week Due** | **Relevant Learning Outcome** |
| | **Tests** | 1 | 10% (10) | 8 | LO #1 - #7 |

| | | | | | |
|---|---|---|---|---|---|
| **Formative assessment** | **Projects** | 1 | 10% (10) | 6 | LO #1 -#5 |
| | **Online assignments** | 1 | 10% (10) | 9 | LO #1 - #8 |
| | **Reports** | 1 | 10% (10) | 15 | LO #1 - #14 |
| **Summative assessment** | **Mid Exam** | 2hr | 10% (10) | 7 | LO #1 - #6 |
| | **Final Exam** | 3hr | 50% (50) | 16 | All |
| **Total assessment** | | | 100% (100 Marks) | | |

| **Delivery Plan (Weekly Syllabus)** | |
|---|---|
| | **Material Covered** |
| **Week 1** | Getting acquainted with the history of the Arabic language , and its sections: first: grammar: explaining the payments from the Beginner, the news, the name of Kan and her sisters, and the participation of students in applying it |
| **Week 2** | Complete the explanation of the payments from the news of Kan, her sisters and the actor The actor's deputy will activate the practical application |
| **Week 3** | Explanation of the postulates of the effect and absolute effect |
| **Week 4** | Complete the explanation of the positions of effect and effect For him and for him |
| **Week 5** | The use of competition and the spirit of the group in explaining the subject of the case and raising some questions about the subject of the exception |
| **Week 6** | Using the question and answer method by presenting the topic of discrimination and continuing to present the subject of the caller |
| **Week 7** | Getting into the topic of prepositions : explaining the importance of prepositions from the genitive by preposition and genitive by annexation |
| **Week 8** | Explanation of the topic of minions , from participle, emphasis and substitution |
| **Week 9** | Complete the explanation of the Minions of the kindness of the pattern |
| **Week 10** | Entering a new topic, namely the number, and knowing its provisions |
| **Week 11** | Second: to identify the exchange science and the exchange balance by applying it in practice |
| **Week 12** | Explain the subject of the correct verb and the difference between it and the verb The sufferer |
| **Week 13** | Touch on the subject of abstract verbs and more, explain the subject of verb attribution |
| **Week 14** | Third: spelling: explain the topic of punctuation marks and find out their importance in writing research and University theses |
| **Week 15** | Recognize the importance of drawing the Hamza, writing the TA and applying |

| Learning and Teaching Resources | | |
|---|---|---|
| | **Text** | **Available in the Library?** |
| **Required Texts** | Arabic Language Book: Dr. Rafid Sabah Al-Tamimi, Taghreed Fadel Abbas | Yes |
| **Recommended Texts** | **Explanations of Arabic language Book** | Yes |
| **Websites** | https://www.istartarabic.com/ar/ | |

| Grading Scheme | | | | |
|---|---|---|---|---|
| **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 9

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| ANP-123 | Arabic Language | 7 | 2 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/w)** |
| 2 | 3 | 78 | 97 |
| **Description** | | | |
| This course aims to provide students with fundamental knowledge about the classification, structure, and functions of animals, with a focus on morphological, physiological, and reproductive aspects of various animal groups. The course also covers animal diversity, general characteristics of each animal phylum, and the relationship between animal structure and the environment. This serves as a foundation for understanding other biological disciplines such as physiology, genetics, and animal protection. | | | |

# MODULE DESCRIPTION FORM



| Module Information | | | | | |
|---|---|---|---|---|---|
| **Module Title** | **Principles of Zoology** | | | **Module Delivery** | |
| **Module Type** | **U** | | | ☐ **L Theory**<br>☒ **Lecture**<br>☐ **Lab**<br>☐ **Tutorial**<br>☐ **L Practical**<br>☐ **Seminar** | |
| **Module Code** | **ANP-123** | | | | |
| **ECTS Credits** | **3** | | | | |
| **SWL (hr/sem)** | **79** | | | | |
| **Module Level** | 1 | | **Semester of Delivery** | 1 | |
| **Administering Department** | Animal production Dept. | | **College** | College of Agriculture | |
| **Module Leader** | Sara Gatea Fayyadh Al-Omairi | | **e-mail** | sarahal@uowasit.edu.iq | |
| **Module Leader's Acad. Title** | Assistant Lecturer | | **Module Leader's Qualification** | M.Sc. | |
| **Module Tutor** | Sara Gatea Fayyadh Al-Omairi | | **e-mail** | sarahal@uowasit.edu.iq | |
| **Peer Reviewer Name** | Sara Gatea Fayyadh Al-Omairi | | **e-mail** | sarahal@uowasit.edu.iq | |
| **Scientific Committee Approval Date** | 10/9/2024 | | **Version Number** | 1.0 | |

| Relation with other Modules | | | |
|---|---|---|---|
| **Prerequisite module** | None | **Semester** | |
| **Co-requisites module** | None | **Semester** | |

| Module Aims, Learning Outcomes and Indicative Contents | |
|---|---|
| **Module Objectives** | 1. 1. To provide a general introduction to animal science and its relation to other scientific disciplines.<br>2. 2. To explain the scientific research methodology, principles of classification, and scientific nomenclature.<br>3. 3. To study different cell types, their structures, and causes of their division.<br>4. 4. To learn how to market eggs and grade them based on weight and cleanliness.<br>5. 5. To explore Protozoa and Ciliophora (Protists and Ciliates).<br>6. 6. To study the types and classification of eggs in living organisms. |
| **Module Learning Outcomes** | 1. The student will recognize the field of animal science and its interrelation with other sciences.<br>2. The student will understand enzymes and their roles in living organisms.<br>3. The student will identify the coordination between different biological systems in living organisms.<br>4. The student will learn about the principles of biological diversity. |
| **Indicative Contents** | • Conducting daily quick quizzes.<br>• Student evaluation through the submission of academic reports and oral presentations.<br>• Conducting monthly exams.<br>• Conducting practical exams.<br>• Conducting final exams. |

| Learning and Teaching Strategies | |
|---|---|
| **Strategies** | **• Delivering theoretical lectures to convey information to students using the following tools: whiteboard, data projector, interactive lecture techniques, and educational video presentations.**<br>**• Conducting practical sessions through observation and engagement with biological or laboratory specimens** |

| Student Workload (SWL) | | | |
|---|---|---|---|
| **Structured SWL (h/sem)** | 78 | **Structured SWL (h/w)** | 5 |
| **Unstructured SWL (h/sem)** | 97 | **Unstructured SWL (h/w)** | 6 |
| **Total SWL (h/sem)** | **175** | | |

| Module Evaluation | | | | | |
|---|---|---|---|---|---|
| | | **Time/Number** | **Weight (Marks)** | **Week Due** | **Relevant Learning Outcome** |
| **Formative assessment** | **Tests** | 1 | 10% (10) | 8 | LO #1 - #7 |
| | **Projects** | 1 | 10% (10) | 6 | LO #1 -#5 |
| | **Online assignments** | 1 | 10% (10) | 9 | LO #1 - #8 |
| | **Reports** | 1 | 10% (10) | 15 | LO #1 - #14 |
| **Summative assessment** | **Mid Exam** | 2hr | 10% (10) | 7 | LO #1 - #6 |
| | **Final Exam** | 3hr | 50% (50) | 16 | All |
| **Total assessment** | | | 100% (100 Marks) | | |

| Delivery Plan (Weekly Syllabus) | |
|---|---|
| | **Material Covered** |
| **Week 1** | General introduction to animal science and its relationship with other sciences |
| **Week 2** | Scientific research methodology – principles of classification and scientific nomenclature |
| **Week 3** | The cell: types, structures, and causes of cell division |
| **Week 4** | Protozoa and Ciliophora |
| **Week 5** | Types of eggs and their classification |
| **Week 6** | Enzymes and their roles in the life of living organisms |
| **Week 7** | Introduction to using laboratory equipment |
| **Week 8** | Functional coordination in living organisms |
| **Week 9** | Biological chains – general introduction |
| **Week 10** | Maintenance of biological diversity |
| **Week 11** | Embryonic development |
| **Week 12** | Environment and its role in the life of living organisms |
| **Week 13** | Nutrition: sources of nutrients |
| **Week 14** | Dissection project |
| **Week 15** | Zoology |

| Learning and Teaching Resources | | |
|---|---|---|
| | **Text** | **Available in the Library?** |
| **Required Texts** | General Animal Science – Mueid Ammar Al-Rawi<br>Fathi Al-Rawi & Murad Baba Murad<br>Genetics – Dr. Kawakib Al-Mukhtar | Yes |
| **Recommended Texts** | Iraqi Academic Scientific Journals<br>International journals available via Scopus | Yes |
| **Websites** | BBC Learning English | |

| Grading Scheme | | | | |
|---|---|---|---|---|
| **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 10

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| AGR-121 | Animal production economics | 4 | 2 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/w)** |
| 3 | 0 | 48 | 52 |
| **Description** | | | |
| The **"Animal Production Economics"** course aims to introduce students to the basic economic concepts related to livestock production and to analyze the economic factors affecting the efficiency and sustainability of animal production projects. The course focuses on studying costs and returns, calculating productivity, pricing animal products, and applying methods for economic feasibility analysis of both small- and large-scale animal production projects. The goal is to enable students to make sound economic decisions in managing animal production units. | | | |

# MODULE DESCRIPTION FORM

| Module Information | | | |
|---|---|---|---|
| **Module Title** | **Animal production economics** | **Module Delivery** | |
| **Module Type** | **S** | ☒ **Theory**<br>☒ **Lecture**<br>☐ **Lab**<br>☐ **Tutorial**<br>☐ **Practical**<br>☐ **Seminar** | |
| **Module Code** | **AGR-121** | | |
| **ECTS Credits** | **4** | | |
| **SWL (hr/sem)** | **48** | | |
| **Module Level** | 1 | **Semester of Delivery** | 1 |
| **Administering Department** | Type Dept. Code | **College** | Type College Code |
| **Module Leader** | Hussien Njem Hameed | **e-mail** | husain@uowasit.edu.iq |
| **Module Leader's Acad. Title** | Assistant teacher | **Module Leader's Qualification** | Msc |
| **Module Tutor** | Hussien Njem Hameed | **e-mail** | husain@uowasit.edu.iq |
| **Peer Reviewer Name** | Hussien Njem Hameed | **e-mail** | husain@uowasit.edu.iq |
| **Scientific Committee Approval Date** | 10/9/2024 | **Version Number** | 1.0 |

| Relation with other Modules | | | |
|---|---|---|---|
| **Prerequisite module** | None | **Semester** | |
| **Co-requisites module** | None | **Semester** | |

| Module Aims, Learning Outcomes and Indicative Contents | |
|---|---|
| **Module Objectives** | 1. learn about the economics of animal production and its great importance on the commercial<br>2. - know how to trade between different animal production commodities. |
| **Module Learning Outcomes** | Delivering theoretical lectures to deliver information to students through the following methods: (whiteboard, data projector, interactive lecture, educational video presentation). Implementing practical lectures through observations and interaction with field or laboratory aspects. |
| **Indicative Contents** | Conducting daily quick exams.<br>Evaluating students through the submission of academic reports and oral presentations.<br>Conducting monthly exams.<br>Conducting practical exams.<br>Conducting final exams. |

| Learning and Teaching Strategies | |
|---|---|
| **Strategies** | Delivering theoretical lectures to deliver information to students through the following methods: (whiteboard, data projector, interactive lecture, educational video presentation).<br>Implementing practical lectures through observations and interaction with field or laboratory aspects. |

| Student Workload (SWL) | | | |
|---|---|---|---|
| **Structured SWL (h/sem)** | 48 | **Structured SWL (h/w)** | 3 |
| **Unstructured SWL (h/sem)** | 52 | **Unstructured SWL (h/w)** | 3 |
| **Total SWL (h/sem)** | **100** | | |

| Module Evaluation | | | | | |
|---|---|---|---|---|---|
| | | **Time/Number** | **Weight (Marks)** | **Week Due** | **Relevant Learning Outcome** |
| **Formative assessment** | **Assignments** | 1 | 10% (10) | Continuous | 1 |
| | **Projects / Lab.** | 15 | 10% (10) | Continuous | 1,2 |
| | **Report** | 1 | 15% (15) | Continuous | 1,2 |
| | **Seminars** | 1 | 5% (5) | Continuous | 1,2 |
| **Summative assessment** | **Midterm Exam** | 2hr | 10% (10) | 14 | 1,2 |
| | **Final Exam** | 3hr | 50% (50) | 16 | All |
| **Total assessment** | | | 100% (100 Marks) | | |

| Delivery Plan (Weekly Lab. Syllabus) |
|---|

| | Material Covered |
|---|---|
| **Week 1** | Introductory Topics in Economics |
| **Week 2** | Production |
| **Week 3** | Relationships between resources and agricultural production |
| **Week 4** | Price relationships and selection indicators |
| **Week 5** | Production relations in the case of using more than one production element |
| **Week 6** | Optimal pivot combination and cost reduction |
| **Week 7** | Distribution of resources among different production projects |
| **Week 8** | Production costs of animal production projects |
| **Week 9** | Agricultural costs and maximum profits for livestock production projects |
| **Week 10** | Agricultural cost curves |
| **Week 11** | Statistical estimation of agricultural costs |
| **Week 12** | Economics of fodder and natural pastures |
| **Week 13** | Measures of economic efficiency |
| **Week 13** | Marketing of animal products |
| **Week 14** | review |

## Learning and Teaching Resources

| | Text | Available in the Library? |
|---|---|---|
| **Required Texts** | Required textbooks: Computer Science textbook<br>Main references (sources): Office software user guide | Yes |
| **Recommended Texts** | Recommended books and references (scientific journals, reports). | Yes |
| **Websites** | No | |

## 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 11

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| AGR-123 | Principles of Crop Sciences | 5 | 2 |
| **Class (hr/w)** | **Lect/Lab./Prac./Tutor** | **SSWL (hr/sem)** | **USWL (hr/w)** |
| 2 | 3 | 79 | 46 |
| **Description** | | | |
| The **"Principles of Field Crops"** course aims to introduce students to the scientific foundations of cultivating and producing various field crops by studying their environment, climate, and soil requirements, as well as the key agricultural practices associated with them. The course focuses on the classification of crops and the study of major strategic crops such as cereals, legumes, and forages. It covers their life cycles, production requirements, growth stages, and the factors affecting their productivity, with the goal of equipping students with a solid understanding of the general principles of field crop production management. | | | |

# MODULE DESCRIPTION FORM

| Module Information | | | |
|---|---|---|---|
| **Module Title** | **Principles of Crop Sciences** | **Module Delivery** | |
| **Module Type** | **S** | ☒ **Theory**<br>☒ **Lecture**<br>☒ **Lab**<br>☐ **Tutorial**<br>☒ **Practical**<br>☐ **Seminar** | |
| **Module Code** | **AGR-123** | | |
| **ECTS Credits** | **5** | | |
| **SWL (hr/sem)** | **125** | | |
| **Module Level** | 1 | **Semester of Delivery** | 2 |
| **Administering Department** | Field Crop Sciences Dep. | **College** | Agriculture |
| **Module Leader** | Dr. hakeem sultan abd | **e-mail** | hsultan@uowasit.edu.iq |
| **Module Leader's Acad. Title** | Assist.prof | **Module Leader's Qualification** | PhD |
| **Module Tutor** | Important Abbas Abd | **e-mail** | @uowasit.edu.iq |
| **Peer Reviewer Name** | Dr .hakeem sultan abd | **e-mail** | hsultan@uowasit.edu.iq |
| **Scientific Committee Approval Date** | 10/9/2024 | **Version Number** | 1.0 |

| Relation with other Modules | | | |
|---|---|---|---|
| **Prerequisite module** | None | **Semester** | |
| **Co-requisites module** | None | **Semester** | |

| Module Aims, Learning Outcomes and Indicative Contents | |
|---|---|
| **Module Objectives** | 1- Course description: study of Agronomy and its branches, descript field crop characteristics, report of origin of cultivated plants, classification and importance.<br>2- Field crop classification according to field utilization, Botanical classification, Date of planting, Duration...<br>3- Botanical description of major field crop families.<br>4- Environmental factors and its relationship with field crops growth: Light (effected factors in light intensity, photoperiodism, effect of the light on the plants and plant adaptation for light factor).<br>5- Temperature (The effect of temperature on field crops, damage of high temperature on field crops, World Thermal area, and the. relations between temperature and light).<br>6- Water (division plants according to water availability, water use efficiency, effect of water deficit, tolerance to drought).<br>7- Soil (compounds, soil salinity and its damage on. crops), study of weeds, classification of weeds according to life cycle and methods of weed control).<br>8- Crop rotation (conditions of crop rotation design, stages of design crop rotation with examples). Field crops.<br>9- breeding (objectives of plant breeders, variety, adaptation, methods of field crops breeding |
| **Module Learning Outcomes** | The learning outcomes for the course on Principles of Field Crops can include the following points:<br>1- Understanding the basics of crop science: becoming acquainted individuals with the fundamental principles of crop science, including genetics, ecology, and soil science.<br>2- Knowledge of crop types: distinguishing between food crops, fodder crops, and industrial crops, and understanding the characteristics of each type.<br>3- Agricultural methods: Understanding different farming methods, including traditional farming, organic farming, and sustainable farming practices.<br>4- Crop Management: Developing crop management skills, including planning, scheduling, monitoring, and analyzing agricultural data.<br>5- Modern technologies: Familiarizing with modern technologies in crop cultivation, such as precision agriculture and biotechnology.<br>6- Pest and disease control: Understanding strategies for controlling pests and diseases that affect crops, including chemical and biological methods.<br>7- Productivity assessment: the ability to evaluate productivity and crop quality, and use appropriate performance indicators. |

| | |
|---|---|
| | 8 - Environmental impacts: Understanding the environmental impacts of crop cultivation, including sustainable resource use and climate change.<br>9 - Agricultural Research: Enhancing research skills and analyzing information related to crops and the latest developments in this field. |
| **Indicative Contents** | Introduction to Crop Science:<br>• Definition of Crop Science and its Importance.<br>• The history of agriculture and its development.<br>Types of crops:<br>• Food crops (grains, vegetables, fruits).<br>• Fodder crops.<br>• Industrial crops (such as cotton, tobacco).<br>Soil Science:<br>• Soil composition and types.<br>• The effect of soil on crop growth.<br>Agricultural ecology:<br>• Climatic factors and their impact on crops.<br>• The relationships between crops and the surrounding environment.<br>Farming methods:<br>• Traditional farming methods.<br>• Organic farming and sustainable agriculture.<br>• Precision agriculture.<br>Crop management:<br>• Crop planting planning.<br>• Scheduling planting and crop care.<br>• Monitoring crops and assessing productivity.<br>Pest and disease control:<br>• Identifying common pests and diseases.<br>• Pest control strategies (chemical and biological).<br>Modern agricultural technologies: |

| Learning and Teaching Strategies | |
|---|---|
| **Strategies** | 1. Learning based on the theoretical understanding of the subject matter: Learning based on the theoretical understanding of the subject matter:<br>Teaching the student to attempt to understand the theoretical aspect of the subject or idea and to anticipate the outcome before practical application.<br>- Employing scientific and knowledge-based foundations in the correct theoretical understanding in the field of field crops.<br>2. Experiential learning: Experiential learning:<br>- Conducting practical experiments to study the germination and growth of field crops.<br>3. Learning based on the collaborative application of ideas: Learning based on the collaborative application of ideas:<br>- Assigning students in groups to implement a specific idea of field crop cultivation.<br>- Encouraging students to research and work within research groups. |

| | |
|---|---|
| | 4. Learning based on the exchange of ideas and innovative solutions in problem-solving: Learning based on the exchange of ideas and innovative solutions in problem-solving:<br>Learn how to face the challenge with an idea and then an effective solution to solve the problem in the least time, cost, and safely.<br>- Exchanging ideas with others and utilizing them in the service of scientific research in the field of crop production management.<br>5. Multimedia-supported education: Multimedia-supported education:<br>- Using educational videos and simulations to explain various processes.<br>- Displaying video clips to illustrate the physiological processes occurring in the plant.<br>6. Self-directed and independent learning: Self-directed and independent learning: Encouraging students to engage in research and self-study using scientific references and specialized articles.<br>7. Learning based on the results of previous scientific research: Learning based on the results of previous scientific research. |

## Student Workload (SWL)

| | | | |
|---|---|---|---|
| **Structured SWL (h/sem)** | 79 | **Structured SWL (h/w)** | 5 |
| **Unstructured SWL (h/sem)** | 46 | **Unstructured SWL (h/w)** | 3 |
| **Total SWL (h/sem)** | **125** | | |

## Module Evaluation

| | | Time/Number | Weight (Marks) | Week Due | Relevant Learning Outcome |
|---|---|---|---|---|---|
| **Formative assessment** | **Quizzes** | 3 | 15% ( 5) | 15 | LO #1 - #1,2 |
| | **Assignments** | 3 | 15% (5) | 6 | LO #1 - #5 |
| | **Lab.** | 2 | 10% (5) | 7,8 | LO #1 - #8,9 |
| **Summative assessment** | **Midterm Exam** | 2hr | 10% (10) | 8 | LO #1 - #7 |
| | **Final Exam** | 3hr | 50% (50) | 16 | All |
| **Total assessment** | | | 100% (100 Marks) | | |

| Delivery Plan (Weekly Syllabus) | |
|---|---|
| | **Material Covered** |
| **Week 1** | **Introduction about field crops, development and origin** |
| **Week 2** | **Classification of crops depending on (Botanical, Sowing Date, live cycle …. Etc . )** |
| **Week 3** | **Ecological factors and their relationship with growth, Light. , Photoperiodism** |
| **Week 4** | **Temperature**, Maximum, minimum and optimum temp. and its effects of crops |
| **Week 5** | **Soil Factors Structure, Texture, Soil Reaction, Saline Soil** |
| **Week 6** | **1st Exam.** |
| **Week 7** | **Water and its role. For plant including : 1- Hydrophytes. 2 : - Mesophytes. 3 : - xerophytes. 4 : - field Capacity** |
| **Week 8** | **Weed and its Control. Methods of Weed Control.** |
| **Week 9** | **Grain Grading** |
| **Week 10** | **Crop Rotation** |
| **Week 11** | **2nd exam plus drought** |
| **Week 12** | **Irrigation Methods** |
| **Week 13** | **Crop Management & Soil Management)** |
| **Week 14** | **Breeding and Improving Field Crops** |
| **Week 15** | **Effect of biological Factors on Crop Production** |
| **Week 16** | **Preparatory week before the final Exam** |

| Delivery Plan (Weekly Lab. Syllabus) | |
|---|---|
| | **Material Covered** |
| **Week 1** | Diagnosis of field crop seeds based on external appearance: size, shape, color, luster, taste, etc. etc. |
| **Week 2** | Seed diagnosis based on physiological traits, diagnosis based on chemical specifications. |
| **Week 3** | Germination tests: Soil germination. Laboratory germination types of seed beds (seedling trays). How to calculate the germination rate |
| **Week 4** | Calculating germination rate / germination speed |
| **Week 5** | Comparison between field germination and laboratory germination |
| **Week 6** | Calculating the amount of seeds per unit area |
| **Week 7** | Practical exam / Cultivation of several crops using different methods |
| **Week 8** | Types of fertilizers and methods for calculating fertilizer quantities based on their concentrations |

| | |
|---|---|
| **Week 9** | Methods of adding fertilizers. Fertilizer application schedules |
| **Week 10** | Practical training for grading seed samples |
| **Week 11** | Cleanliness and purity tests. And preparing the forms |
| **Week 12** | Field visit to nearby crop fields to learn about the plants |
| **Week 13** | Watching soil preparation equipment and crop service operations |
| **Week 14** | Diagnosis of common weeds in crop fields, training on hybridization and selection techniques |
| **Week 15** | Allelopathy / symbiosis / Competition |

## Learning and Teaching Resources

| | Text | Available in the Library? |
|---|---|---|
| **Required Texts** | 1: -Principles of Field Crops, Dr .M . h .Al – Ansary etal.1980. Ministry of Highter Education, book house . Iraq.<br>2 : - Field Crop Production and Improving , M . H . Al – Ansary 1981.Iraq – book house press – Mousil ..<br>3 : - Understanding crop production , H . J . Atea and K . M . Wehaib. 1991 .Ministry of Higher Education and Secientific Research . Iraq ..<br>4 : - Cereals and Legumes crops , K . L . Al – Khfagy . 2011 . Baghdad University. | yes |
| **Recommended Texts** | Crop Research, Crop Physiology | yes |
| **Websites** | | |

## Grading Scheme

| 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 12

| Code | Course/Module Title | ECTS | Semester |
|---|---|---|---|
| ANP-121 | Principles of Poultry | 7 | 2 |
| Class (hr/w) | Lect/Lab./Prac./Tutor | SSWL (hr/sem) | USWL (hr/w) |
| 2 | 3 | 79 | 96 |
| Description | | | |
| The **"Principles of Poultry Science"** course aims to introduce students to the fundamental concepts related to the breeding and production of poultry, with a focus on economically important poultry species such as broilers, layers, and turkeys. The course covers the scientific principles of poultry production, including nutrition, housing, reproduction, and health care, in addition to production and marketing aspects. The course aims to build a knowledge base that prepares students for understanding advanced specialized subjects in the field of poultry science. | | | |

# MODULE DESCRIPTION FORM

| Module Information | | | | | |
|---|---|---|---|---|---|
| **Module Title** | **Principles of Poultry** | | | **Module Delivery** | |
| **Module Type** | **C** | | | ☒ **Theory**<br>☒ **Lecture**<br>☐ **Lab**<br>☐ **Tutorial**<br>☒ **Practical**<br>☐ **Seminar** | |
| **Module Code** | **ANP-121** | | | | |
| **ECTS Credits** | **7** | | | | |
| **SWL (hr/sem)** | **79** | | | | |
| **Module Level** | 1 | | **Semester of Delivery** | 2 | |
| **Administering Department** | Animal production Dept. | | **College** | College of Agriculture | |
| **Module Leader** | Prof. Dr. Mohammed Ali Makki Jassim | | **e-mail** | momaki@uowasit.edu.iq | |
| **Module Leader's Acad. Title** | Professor | | **Module Leader's Qualification** | Ph.D. | |
| **Module Tutor** | Prof. Dr. Mohammed Ali Makki Jassim | | **e-mail** | momaki@uowasit.edu.iq | |
| **Peer Reviewer Name** | Prof. Dr. Mohammed Ali Makki Jassim | | **e-mail** | momaki@uowasit.edu.iq | |
| **Scientific Committee Approval Date** | 10/9/2024 | | **Version Number** | 1.0 | |

| Relation with other Modules | | | |
|---|---|---|---|
| **Prerequisite module** | None | **Semester** | |
| **Co-requisites module** | None | **Semester** | |

| Module Aims, Learning Outcomes and Indicative Contents | |
|---|---|
| **Module Objectives** | 1. **• The student learns the basic principles of poultry science through a brief knowledge of :**<br>2. **• Structure of organs and functions of vital systems of poultry, poultry genetics, poultry diseases .**<br>3. **• Poultry housing, broiler, layer, turkey farming, and biosecurity** |
| **Module Learning Outcomes** | 1. **Knowledge and Understanding:Poultry Production Systems:**<br>2. **Understand the different types of poultry production systems (e.g., broiler, layer, breeder) and their characteristics.**<br>3. **Poultry Anatomy and Physiology:Demonstrate knowledge of poultry anatomy, physiology, and reproductive systems.**<br>4. **Breeding and Husbandry Principles:Explain the principles of poultry breeding, selection, and husbandry practices.**<br>5. **Management Practices:Describe the basic management practices used in various poultry production systems, including feeding, housing, and health management.**<br>6. **Biosecurity:Define and understand the importance of biosecurity in poultry production.**<br>7. **Production Efficiency:Evaluate methods and strategies for optimizing production efficiency in poultry.**<br>8. **Poultry Welfare:Discuss the importance of poultry welfare and acceptable husbandry practices.**<br>9. **Environmental Issues:Understand the environmental impact of poultry production and potential solutions.** |
| **Indicative Contents** | **1. Introduction to Poultry:**<br>• Definition of poultry and its importance as a complete nutritional source.<br>• Nutritional value of poultry and its role in human nutrition.<br>**2. Chemical Composition of Poultry:**<br>• Main components of poultry: proteins, fats, lactose, vitamins, and minerals.<br>• Chemical composition of poultry and its impact on quality and flavor.<br>**3. Preservation and Processing Techniques:**<br>• Methods of preserving poultry, such as cooling.<br>• Thermal treatments and their effect on shelf life and quality.<br>**5. Poultry Quality and Safety:**<br>• Poultry quality standards and principles of testing.<br>**6. Poultry By-products:** |

| | |
|---|---|
| | • Introduction to by-products<br>**7. Issues and Challenges in the Poultry Industry:**<br>• Discussion of challenges such as biological and chemical contamination.<br>• Reviewing techniques for improving quality and extending shelf life.<br>**8. References and Scientific Resources:**<br>• Providing a list of useful books, articles, and references to support students' learning in the field of poultry science. |

| Learning and Teaching Strategies | |
|---|---|
| **Strategies** | **1. Experiential Learning:**<br>• Conduct experiments on poultry rearing and processing techniques.<br>**2. Project-Based Learning:**<br>• Assign student projects focused on the production of poultry products, including product selection, manufacturing methods, and quality evaluation.<br>• Encourage research on the uses of poultry by-products and prepare reports on their nutritional and economic impacts.<br>**3. Collaborative Learning:**<br>• Organize small groups to explore different aspects of the poultry industry, such as sensory evaluation, preservation methods, and processing techniques.<br>• Promote the exchange of ideas and experiences to foster critical thinking and teamwork.<br>**4. Problem-Based Learning:**<br>• Analyze problems such as contamination and industry challenges, training students in analytical thinking to derive solutions.<br>**5. Multimedia-Supported Instruction:**<br>• Use educational videos and simulations to explain various poultry processing operations, such as pasteurization and fermentation.<br>**6. Self-Directed and Independent Learning:**<br>• Encourage students to conduct independent research using scientific references and specialized articles.<br>• Guide students in preparing summaries or presentations on poultry components, preservation methods, and the role of poultry in nutrition.<br>**7. Formative Assessment and Feedback:**<br>• Conduct short quizzes after each learning unit to assess student understanding and provide constructive feedback.<br>• Use practical assessments to evaluate students' ability to perform laboratory analyses accurately.<br>**8. Sensory-Based Learning:**<br>• Train students in sensory evaluation of poultry products to develop tasting skills, including assessment of flavor and texture.<br>• Allocate regular tasting sessions to teach students how to conduct sensory evaluations and compare product quality. |

| | |
|---|---|
| | **9. Academic Advising and Guidance:**<br>• Provide individual support for students needing extra help understanding chemical and technological processes in poultry science.<br>• Offer advisory lectures focused on the importance of poultry products in nutrition and public health. |

## Student Workload (SWL)

| | | | |
|---|---|---|---|
| **Structured SWL (h/sem)** | 78 | **Structured SWL (h/w)** | 5 |
| **Unstructured SWL (h/sem)** | 97 | **Unstructured SWL (h/w)** | 6 |
| **Total SWL (h/sem)** | **175** | | |

## Module Evaluation

| | | Time/Number | Weight (Marks) | Week Due | Relevant Learning Outcome |
|---|---|---|---|---|---|
| **Formative assessment** | **Tests** | 1 | 10% (10) | 8 | LO #1 - #7 |
| | **Projects** | 1 | 10% (10) | 6 | LO #1 -#5 |
| | **Lab** | 1 | 10% (10) | 9 | LO #1 - #8 |
| | **Reports** | 1 | 10% (10) | 15 | LO #1 - #14 |
| **Summative assessment** | **Mid Exam** | 2hr | 10% (10) | 7 | LO #1 - #6 |
| | **Final Exam** | 3hr | 50% (50) | 16 | All |
| **Total assessment** | | | 100% (100 Marks) | | |

## Delivery Plan (Weekly Syllabus)

| | **Material Covered** |
|---|---|
| **Week 1** | Introduction to the poultry industry in Iraq and the world |
| **Week 2** | Installation of biological organs and systems in |
| **Week 3** | Chicken and its vital functions |
| **Week 4** | genetics in birds |
| **Week 5** | Hatchery and hatchery management |
| **Week 6** | exam |
| **Week 7** | Broiler farming |

| | |
|---|---|
| **Week 8** | Raising laying hens |
| **Week 9** | Principles of bird nutrition |
| **Week 10** | poultry housing |
| **Week 11** | exam |
| **Week 12** | Poultry diseases |
| **Week 13** | Biosecurity - to prevent |
| **Week 14** | Disease incidence |
| **Week 15** | Turkey farming and waterfowl |

| **Delivery Plan (Weekly Lab. Syllabus)** | |
|---|---|
| | **Material Covered** |
| **Week 1** | Learn about the introduction to the poultry industry in the world and around the world. |
| **Week 2** | Identify the organs and biological systems in chickens and their functions. |
| **Week 3** | Vitality |
| **Week 4** | Learn about genetics in birds |
| **Week 5** | Learn about hatching and management |
| **Week 6** | Hatcheries |
| **Week 7** | Learn about raising broiler chickens |
| **Week 8** | Learn about raising laying hens |
| **Week 9** | Learn the principles of bird nutrition |
| **Week 10** | Identify poultry housing |
| **Week 11** | exam |
| **Week 12** | Identify nutritional deficiency diseases |
| **Week 13** | Learn about biosecurity - to prevent disease |
| **Week 14** | Learn about raising a Turkey and waterfowl |
| **Week 15** | Get to know the magazine |



| **Learning and Teaching Resources** | | |
|---|---|---|
| | **Text** | **Available in the Library?** |
| **Required Texts** | Theory and practical lectures | Yes |
| **Recommended Texts** | Poultry principles Book | Yes |
| **Websites** | | |

| Grading Scheme | | | | |
|---|---|---|---|---|
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| **Success Group (50 - 100)** | **A** - Excellent | امتياز | 90 - 100 | Outstanding Performance |
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# 3.Contact

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