



Course Specification of Fish Breeding and Diseases

| I. Course Identification and General Information: | | | | | | |
|---|---|--|-----------|----------|---------|-------|
| 1 | Course Title: | Fish Breeding and Diseases | | | | |
| 2 | Course Number & Code: | PA575 | | | | |
| 3 | Credit hours: | C.H | | | | Total |
| | | Theoretical | Practical | Training | Seminar | |
| | | 2 | 1 | | | |
| 4 | Study level/ semester at which this course is offered: | <i>fifth year / first semester</i> | | | | |
| 5 | Pre –requisite (if any): | MI351, MI353, MI355, MI357 | | | | |
| 6 | Co –requisite (if any): | <i>Non</i> | | | | |
| 7 | Program (s) in which the course is offered: | Bachelor of Veterinary medicine | | | | |
| 8 | Language of teaching the course: | <i>English / Arabic</i> | | | | |
| 9 | Location of teaching the course: | Faculty of Veterinary medicine | | | | |
| 10 | Prepared by: | <i>Professor. Dr. Fawzi El sagheer</i> | | | | |
| 11 | Date of approval: | | | | | |

II. Course description:

This course aims to provide the student with basic knowledge, concepts and information about infectious and non-infectious diseases in fish and the different and modern methods and their diagnosis, as well as identifying the natural composition of the fish body and the external characteristics and internal anatomy of fish species and identifying ways to care for fish in fish farming systems in ponds as well as the development and care of fish Decorations

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III. Intended learning outcomes (ILOs) of the course:

(A) Knowledge and Understanding:

Alignment of Course Intended Learning Outcomes (CILOs) to Program Intended Learning Outcomes (PILOs) in: Knowledge and Understanding.

| Program Intended Learning Outcomes (Sub-PILOs) in: Knowledge and Understanding | | Course Intended Learning Outcomes (CILOs) in: Knowledge and Understanding | |
|--|---|---|--|
| After completing this program, students will be able to: | | After completing this course, students will be able to: | |
| A3- | Identifies various causes of animal diseases, animal epidemics and how they can be diagnosed; including common and life-threatening diseases of animals, poultry and fish. | a1 | Explain the stress factors that cause infection in fish , understanding of different symptoms of fish and learn about fish diseases diagnosis and how to treat it. |
| A4 | Describes the foundations and procedural steps for treating all diseases that affect different animals, highlighting the medical conditions that need surgical interventions. | a2 | Discusses the principles and systems of fish culture and fish the care of aquarium |

Teaching And Assessment Methods For Achieving Learning Outcomes:

Alignment of Learning Outcomes of Knowledge and Understanding to Teaching and Assessment Methods:

| Course Intended Learning Outcomes (CILOs) in Knowledge and Understanding | | Teaching strategies/methods to be used | Methods of assessment |
|--|--|---|--|
| completing this course, students will be able to: | | <ul style="list-style-type: none"> ▪ Lectures using board, data shows and multimedia aids ▪ Dialogue ▪ Discussion ▪ Brainstorming | <ul style="list-style-type: none"> ▪ Written exam ▪ Quizzes ▪ Practical exam ▪ Report Assignment |
| a1- | Explain the stress factors that cause infection in fish , understanding of different symptoms of fish and learn about fish diseases diagnosis and how to treat it. | | |
| a2- | Discusses the principles and systems of fish culture and fish the care of aquarium | | |

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(B) Intellectual Skills:

| Alignment of Course Intended Learning Outcomes (CILOs) to Program Intended Learning Outcomes (PILOs) in: Intellectual skills | | | |
|---|---|--|---|
| Program Intended Learning Outcomes (Sub-PILOs) in Intellectual skills | | Course Intended Learning Outcomes (CILOs) of Intellectual Skills | |
| After completing this program, students will be able to: | | After completing this course, students will be able to: | |
| B1- | Competently practices analytical and critical thinking skills in studying and assessing health problems and reading the results of animal medical examinations that is related to sciences. | b1- | Competently practices analytical and compares similar diseases in fish. |
| B2- | Predicts an appropriate medical diagnosis for the most common disease states through analysis of clinical story data and the results of medical examinations of a sick animal. | b2- | Predicts an appropriate medical diagnosis for the most common disease states through analysis of clinical story data and the results of medical examinations of a sick fish |

Teaching And Assessment Methods For Achieving Learning Outcomes:

| Alignment of Learning Outcomes of Intellectual Skills to Teaching Methods and Assessment Methods: | | | |
|---|---|---|--|
| Course Intended Learning Outcomes (CILOs) in Intellectual Skills. | | Teaching strategies/methods to be used | Methods of assessment |
| After completing this course, students will be able to: | | <ul style="list-style-type: none"> ▪ Multimedia aids ▪ Costs ▪ Solving problems ▪ Clinical and small group sessions ▪ Brainstorm | <ul style="list-style-type: none"> -Written exam - Practical exam -Oral exam - Quizzes - Report assignment - Performance evaluation -Discussion |
| b1- | Competently practices analytical and compares similar diseases in fish. | | |
| b2- | Predicts an appropriate medical diagnosis for the most common disease states through analysis of clinical story data and the results of medical examinations of a sick fish | | |

(C) Professional and Practical Skills:

Alignment of Course Intended Learning Outcomes (CILOs) to Program Intended Learning Outcomes (PILOs) in: **Professional and**

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| Practical Skills | | | |
|---|---|---|--|
| Program Intended Learning Outcomes (Sub-PILOs) in Professional and Practical Skills | | Course Intended Learning Outcomes (CILOs) in Professional and Practical Skills | |
| After completing this program, students will be able to: | | After completing this course, students will be able to: | |
| C1- | Accurately records a comprehensive pathological story of a sick animal including information on healthy behavior and the necessary checks. | c1- | Determines the pathogens on fish and It collects infected fish samples from ponds |
| C4- | Treat animal patients safely and effectively considering the evaluation of the results, the appropriate modification of the treatment plan and the accurate description of the appropriate medications. | c2- | Choose the right treatment type, and it measures the quality of water for fish farming |
| Teaching And Assessment Methods For Achieving Learning Outcomes: | | | |
| Alignment of Learning Outcomes of Professional and Practical Skills to Teaching and Assessment Methods: | | | |
| Course Intended Learning Outcomes (CILOs) in Professional and Practical Skills | | Teaching strategies/methods to be used | Methods of assessment |
| After completing this course, students will be able to: | | - Practical training on examples Field visits - Projects, tasks and costs | -Written exam - Practical exam -Oral exam - Quizzes - Report assignment - Performance evaluation -Discussion |
| c1- | Determines the pathogens on fish and It collects infected fish samples from ponds | | |
| c2- | Choose the right treatment type, and it measures the quality of water for fish farming | | |

(D) General / Transferable Skills:

Alignment of Course Intended Learning Outcomes (CILOs) to Program Intended Learning Outcomes (PILOs) in: **General and Transferable skills**

| Program Intended Learning Outcomes (PILOs) in General / Transferable skills | Course Intended Learning Outcomes (CILOs) in General / Transferable skills |
|---|--|
|---|--|

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| After completing this program, students will be able to: | | After completing this course, students will be able to: | |
|--|--|---|--|
| D1- | Communicates effectively with Professional colleagues and animal owners and expresses his ideas clearly and objectively. | d1- | Communicates effectively with Professional colleagues and animal owners and expresses his ideas clearly and objectively. |
| D2- | Develops his scientific, professional and research capabilities and follow what is emerging in his field of specialization and using computer applications and information and communication technology. | d2 | Works in normal conditions, crises and epidemics, alone and effectively within a medical team |

Teaching And Assessment Methods For Achieving Learning Outcomes:

Alignment of Learning Outcomes of General and Transferable skills to Teaching and Assessment Methods:

| Course Intended Learning Outcomes (CILOs) in General and Transferable Skills | | Teaching strategies/methods to be used | Methods of assessment |
|--|--|--|--|
| After completing this course, students will be able to: | | -Self learning by preparing essay and presentations (computer and faculty library) -Scientific visits -Discussions -Assignments | - Achievement file -Evaluating student presentation -Practical exam - Report assignments - Discussion - note performance - |
| d1- | Communicates effectively with Professional colleagues and animal owners and expresses his ideas clearly and objectively. | | |
| d2- | Works in normal conditions, crises and epidemics, alone and effectively within a medical team | | |

IV. Course Content:

1 – Course Topics/Items:

a – Theoretical Aspect

| Order | Topic List / Units | CILOs (symbols) | Sub-topic List | Number of weeks | Contact hours |
|-------|--------------------------|--------------------|---|-----------------|---------------|
| 1 | Introduction to diseases | a1,a2,b1,b2,c1,,c2 | Definition of diseases and pathogens and definition of stress | 1 | 2 |
| 2 | Bacterial diseases | a1,a2,b1,b2,c1,,c2 | Flexibacter columnaris, | 1 | 2 |

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| | | | | | |
|--|--|--------------------|--|-----------|-----------|
| | | | Pseudomonas fluorescens ,Pseudomonas spp | | |
| 3 | Bacterial diseases | a1,a2,b1,b2,c1,,c2 | Entrwarsiella trade ,Vibrio anguillarum ,Aeromonas hydrophila ,Aeromonas salmonicida | 1 | 2 |
| 4 | Viral diseases | a1,a2,b1,b2,c1,,c2 | Infectious Pancreatic Necrosis(IPN), Spring Viraemia of carp, Channel catfish virus diseases | 1 | 2 |
| 5 | Parasitic diseases | a1,a2,b1,b2,c1,,c2 | Protozoan diseases, Fish worms, Crustacean parasites | 1 | 2 |
| 6 | Fungal diseases | a1,a2,b1,b2,c1,,c2 | Piscine mycoses, Saprolegnia, Aspergillomycosis | 1 | 2 |
| 7 | Non- infectious diseases | a1,a2,b1,b2,c1,,c2 | Definition non- infectious diseases | 1 | 2 |
| 8 | Nutrition diseases | a1,a2,b1,b2,c1,,c2 | Protein deficiency,Amino acid deficiency, fat deficiency | 1 | 2 |
| 9 | Nutrition diseases | a1,a2,b1,b2,c1,,c2 | Vitamins deficiencies | 1 | 2 |
| 10 | Environmental diseases | a1,a2,b1,b2,c1,,c2 | Water quality, Dissolved oxygen ,Ammonia toxicity | 1 | 2 |
| 11 | Pollution Diseases | a1,a2,b1,b2,c1,,c2 | Degrdatable wastes, non-degrdatable wastes, Recovery zone | 1 | 2 |
| 12 | Prophylaxis and Therapy | a1,a2,b1,b2,c1,,c2 | Exclusion, principles of Prophylaxis | 1 | 2 |
| 13 | System of Fish culture in Arab Countries | a1,a2,b1,b2,c1,,c2 | Extensive fish culture,semi--intensive fish culture, Intensive fish culture | 1 | 2 |
| 14 | Fish classification | a1,a2,b1,b2,c1,,c2 | Types of fish culture in pond | 1 | 2 |
| Number of Weeks /and Units Per Semester | | | | 14 | 28 |

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| Order | Training Tasks | CILOs (symbols) | Number of weeks | Contact hours |
|--|--|--------------------|-----------------|---------------|
| 1 | Fish Anatomy | a1,a2,b1,b2,c1,,c2 | 1 | 2 |
| 2 | Fish Classification | a1,a2,b1,b2,c1,,c2 | 2 | 4 |
| 3 | Methods of taking and storing fish samples | a1,a2,b1,b2,c1,,c2 | 1 | 2 |
| 4 | Apparent examination of fish | a1,a2,b1,b2,c1,,c2 | 1 | 2 |
| 5 | Diagnosis of injuries to fish | a1,a2,b1,b2,c1,,c2 | 1 | 2 |
| 6 | Medicines and common compounds for fish treatment and methods of use | a1,a2,b1,b2,c1,,c2 | 1 | 2 |
| 7 | Fish culture | a1,a2,b1,b2,c1,,c2 | 2 | 4 |
| 8 | Water analysis in fish ponds | a1,a2,b1,b2,c1,,c2 | 1 | 2 |
| 9 | visit to a fish farm | a1,a2,b1,b2,c1,,c2 | 2 | 4 |
| 10 | Visit to the fish port | a1,a2,b1,b2,c1,,c2 | 1 | 2 |
| 11 | Aquariums ornamental fish | a1,a2,b1,b2,c1,,c2 | 1 | 2 |
| Number of Weeks /and Units Per Semester | | | 14 | 28 |

V. Teaching strategies of the course:

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Lectures
discussion
Brainstorming
Problem solving
Simulation Method Practical presentations &
(Lab works) Practical in computer Lab
projects
Self-learning
Cooperative Learning
Share experiences between colleagues

3-Assessment Methods:

VI. Schedule of Assessment Tasks for Students During the Semester:

| No. | Assessment Method | Week Due | Mark | Proportion of Final Assessment | Aligned Course Learning Outcomes (CILOs symbols) |
|--------------|---------------------------|----------|------------|--------------------------------|--|
| 1 | Participation and quizzes | 1-12 | 10 | 10% | a1,a2,b1,b2,c1,,c2 |
| 2 | Assignments | 4-12 | 10 | 10% | a1,a2,b1,b2,c1,,c2 |
| 3 | Mid-semester exam | 8 | 20 | 20% | a1,a2,b1,b2,c1,,c2 |
| 4 | Final Exam | 16 | 60 | 60% | a1,a2,b1,b2,c1,,c2 |
| Total | | | 100 | 100% | |

VII. Learning Resource (MLA style or APA style)S:

1- Required Textbook(s) (maximum two)

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| | |
|--|---|
| | <ul style="list-style-type: none"> • دكتور عبد الحميد محمد عبد الحميد (1994) الاسس العلمية لانتاج الاسماك ورعايتها – دار النشر للجامعات المصرية – مكتبة الوفاء – المنصورة – مصر • Stephen.A.Smith (2019) Fish Diseases and Medicine . CRC Press |
| 2- Recommended Readings and Reference Materials | |
| | اسس الاستزراع المائي 2004 تاليف د.جيمس دايليو افولت ترجمة د. فيصل بخاري طبع في امريكا شركة ايه في ايه للطباعة والنشر |
| 3- Essential References | |
| 4- Electronic Materials and Web Sites etc. | |
| 5- Other Learning Material: | |
| - | |

X. Course Policies:

| | |
|----------|---|
| 1 | Class Attendance: MANDATORY TO ATTEND ALL COURSE LECTURES |
| 2 | Tardy: Not allowed at all. Students must be in class 10 minutes prior to the beginning of lectures. |
| 3 | Exam Attendance/Punctuality: Attendance is mandatory; absence is accepted with valid excuse. |
| 4 | Assignments & Projects: All assignments and projects are to be submitted on their due date. Any assignment turned in after the due date will not be accepted without valid and reasonable excuse. |
| 5 | Cheating: Not tolerated and may lead to EXPELLING the student from the program |
| 6 | Plagiarism: Not tolerated AT ALL and may lead to EXPELLING the student from the program |
| 7 | Other policies: 1. All devices must be on silent or at least on vibration during lectures/labs. |

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- | | |
|--|---|
| | <p>2. Before any exam (written, practical, oral) student's identity will be checked (student's card, ID, passport). Without any of these documents, the student will not be allowed in the exam room.</p> <p>3. Any of type/ form of cheating is not allowed no matter what.</p> <p>4. Maintain silence during lectures and disturbance is not allowed.</p> |
|--|---|

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Course Plan of Fish Breeding and Diseases.

| X. - Information about Faculty Member Responsible for the Course: | | | | | | | |
|---|--|--------------|-----|-------|-----|-----|-----|
| Name of Faculty Member | Fawzi Hamood Mohammed Elsagheer | Office Hours | | | | | |
| Location & Telephone No. | Sanaa, 00967770665323 | SAT | SUN | MON | TUE | WED | THU |
| E-mail | Fawzielsagheer@gmail.com | | | 10-11 | | | |

| XI. Course Identification and General Information: | | | | | | |
|--|---|---------------------------------|---------|-----|--------|-------|
| 1- | Course Title: | Fish Breeding and Diseases | | | | |
| 2- | Course Number & Code: | PA575 | | | | |
| 3- | Credit hours: | C.H | | | | Total |
| | | Th. | Seminar | Pr. | F. Tr. | |
| | | 2 | - | - | 1 | 3 |
| 4- | Study level/year at which this course is offered: | Level 5 / first semester | | | | |
| 5- | Pre –requisite (if any): | MI351, MI353, MI355, MI357 | | | | |
| 6- | Co –requisite (if any): | Non | | | | |
| 7- | Program (s) in which the course is offered | Veterinary medicine | | | | |
| 8- | Language of teaching the course: | English / Arabic | | | | |
| 9- | System of Study: | Two semesters / Year | | | | |
| 10- | Mode of delivery: | Professor. Phd. Fawzi Elsagheer | | | | |
| 11- | Location of teaching the course: | | | | | |

II. Course Description:

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This course aims to provide the student with basic knowledge, concepts and information about infectious and non-infectious diseases in fish and the different and modern methods and their diagnosis, as well as identifying the natural composition of the fish body and the external characteristics and internal anatomy of fish species and identifying ways to care for fish in fish farming systems in ponds as well as the development and care of fish Decorations

II. Intended learning outcomes (ILOs) of the course:

After completing this course, students will be able to:

- a1- Explain the stress factors that cause infection in fish , understanding of different symptoms of fish and learn about fish diseases diagnosis and how to treat it.
- a2- Discusses the principles and systems of fish culture and fish the care of aquarium
- b1- Competently practices analytical and compares similar diseases in fish.
- b2- Predicts an appropriate medical diagnosis for the most common disease states through analysis of clinical story data and the results of medical examinations of a sick fish
- c1- Determines the pathogens on fish and It collects infected fish samples from ponds
- c2- Choose the right treatment type, and it measures the quality of water for fish farming
- d1- Communicates effectively with Professional colleagues and animal owners and expresses his ideas clearly and objectively.
- d2- Works in normal conditions, crises and epidemics, alone and effectively within a medical team

V. Course Content:

A – Theoretical Aspect:

| Order | Topics List | Week Due | Contact Hours |
|-------|--------------------------|----------|---------------|
| 1 | Introduction to diseases | 1 | 2 |
| 2 | Bacterial diseases | 2 | 2 |
| 3 | Bacterial diseases | 3 | 2 |
| 4 | Viral diseases | 4 | 2 |

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| | | | |
|---|--|----|----|
| 5 | Parasitic diseases | 5 | 2 |
| 6 | Fungal diseases | 6 | 2 |
| 7 | Non- infectious diseases | 7 | 2 |
| 8 | Mid-term exam | 8 | 2 |
| 9 | Nutrition diseases | 9 | 2 |
| 10 | Nutrition diseases | 10 | 2 |
| 11 | Environmental diseases | 11 | 2 |
| 12 | Pollution Diseases | 12 | 2 |
| 13 | Prophylaxis and Therapy | 13 | 2 |
| 14 | System of Fish culture in Arab Countries | 14 | 2 |
| 15 | Fish classification | 15 | 2 |
| 16 | Final exam | 16 | 2 |
| Number of Weeks /and Units Per Semester | | 16 | 32 |

b- Training Aspect:

| Order | Training Tasks | Week Due | Contact hours |
|-------|--|----------|---------------|
| 1 | Fish Anatomy | 1 | 2 |
| 2 | Fish Classification | 2,3 | 4 |
| 3 | Methods of taking and storing fish samples | 4 | 2 |
| 4 | Apparent examination of fish | 5 | 2 |
| 5 | Diagnosis of injuries to fish | 6 | 2 |
| 6 | Medicines and common compounds for fish treatment and methods of use | 7 | 2 |
| 7 | Mid-Term Exam | 8 | 2 |
| 8 | Fish culture | 9,10 | 2 |

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| | | | |
|---|------------------------------|-------|----|
| 9 | Water analysis in fish ponds | 11 | 2 |
| 10 | visit to a fish farm | 12,13 | 2 |
| 11 | Visit to the fish port | 14 | 2 |
| 12 | Aquariums ornamental fish | 15 | 2 |
| 13 | Final Exam | 16 | 2 |
| Number of Weeks /and Units Per Semester | | 16 | 32 |

V. Teaching strategies of the course:

Lectures
 discussion
 Brainstorming
 Problem solving
 Simulation Method Practical presentations &
 (Lab works) Practical in computer Lab
 projects
 Self-learning
 Cooperative Learning
 Share experiences between colleagues

VI. Assessment Methods:

| No. | Type of Assessment Tasks | Week Due | Mark | Proportion of Final Assessment |
|-----|--------------------------|----------|------|--------------------------------|
| 1 | Present/Absent | All | 10 | 10% |
| 2 | Class activities | All | 10 | 10% |

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| | | | | |
|---|--------------------------|------------------|------------|-------------|
| 3 | Midterm written Exam | 7 th | 20 | 20% |
| 4 | Final Exam (theoretical) | 16 th | 60 | 60% |
| 5 | Total | | 100 | 100% |

II. Learning Resources:

1- Required Textbook(s) (maximum two).

- دكتور عبد الحميد محمد عبد الحميد (1994) الاسس العلمية لانتاج الاسماك ورعايتها - دار النشر للجامعات المصرية - مكتبة الوفاء - المنصورة - مصر

Stephen.A.Smith (2019) Fish Diseases and Medicine . CRC Press

2- Essential References.

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3- Electronic Materials and Web Sites etc.

I. Course Policies:

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| 5 | Cheating: Not tolerated and may lead to EXPELLING the student from the program |
| 6 | Plagiarism: |

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Rector of Sana'a University
Prof. Dr. Al-Qassim Mohammed Abbas



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| | Not tolerated AT ALL and may lead to EXPELLING the student from the program |
| 7 | Other policies: 5. All devices must be on silent or at least on vibration during lectures/labs. 6. Before any exam (written, practical, oral) student's identity will be checked (student's card, ID, passport). Without any of these documents, the student will not be allowed in the exam room. 7. Any of type/ form of cheating is not allowed no matter what. 8. Maintain silence during lectures and disturbance is not allowed. |

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