

University: Damanhour
Department: Animal Husbandry and Animal
Wealth Development

Faculty: Veterinary Medicine

Fish Breeding and Production Course Specifications (2010 - 2011)

Program(s) on which the course is given: BVSc
Department offering the program: ---
Department offering the course: Fish Breeding and Production
Major or Minor element of programs: Major
Academic year /Level: 2nd Year 2nd semester
Date of specification approval:

A. BASIC INFORMATION

Title: Fish Breeding and Production **Code:** 2BFPRO
Hours:

Lectures	2 hrs/week	Practical	2 hrs/week	Total	60 hrs
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B. PROFESSIONAL INFORMATION

1. Overall aims of the course: Help the student to understand

- Principles of Aquaculture and fish farming
- Role of aquaculture.
- Requirements for fish farming.
- Fish farm construction.
- Fish biology and major farmed species.
- Culture systems and their requirements.
- Hatchery management and operations.

2. Intended Learning Outcomes (ILOs) of the Course:

a. Knowledge and Understanding:

- a1** Principles and practices of commercial freshwater fish production.
- a2** Principles and practices of fish reproduction, and environmental management.
- a3** Principles and practices of local marine species reproduction, production and environmental management.

b. Intellectual Skills:

- b1** Standup thinking for how to deal with field problems.
- b2** Solving unexpected problems in fish farms and hatcheries.
- b3** Applications of modern techniques in aquaculture.
- b4** Train students to fish breeding and different methods of propagation.

c. Professional and Practical Skills:

- c1** Performing survey observations, analyzing results and poultry production quality assessment.
- c2** Ability to manage fish ponds and water quality.
- c3** Ability to detect environmental problems and reasons of lower productivity.
- c4** Avoiding inbreeding depression and encourage heterosis.

d. General and Transferable Skills:

- d1** Experience in team work and critical analyses in relation to fish breeding and production.
- d2** Hatchery management and operations.
- d3** Pond layout and construction.
- d4** Water quality analysis and management.
- d5** Internet Searching

3. Contents:

2nd Semester			
Topic	No. of hours	Lectures	Practical
A. Introduction			
▪ Scope and definition.	4	2	2
▪ Biological and technological basis.			
▪ History of aquaculture and its present state			
B. Guidelines for Site selection for aquaculture			
▪ General considerations.	6	3	3
▪ Land-based farms.			
▪ Open-water farms			
▪ Water quantity and quality.			
C-Selection of species for culture			
▪ Biological characteristics of fish species.	6	3	3
▪ Economic and market considerations.			
▪ Common aquaculture species.			
▪ Origin and biology of aquaculture species			
▪ Fish classification.			
▪ Fish biology.			
D. Culture Systems			
▪ Extensive culture.	12	6	6
▪ Semi-intensive culture.			
▪ Intensive culture.			
▪ Super intensive culture.			
▪ Pond preparation and management.			
▪ Harvesting methods			
E. Water quality criteria			
▪ Light	12	6	6
▪ Nutrients and metabolites.			
▪ Plankton activity.			
▪ Water temperature.			
▪ Dissolved oxygen.			
▪ Alkalinity and hardness.			
▪ Ammonia.			
▪ Others.			
F. Water quality management			
▪ Principals of pond fertilization.	12	6	6
▪ Fertilization effects on water quality.			
▪ Control of low dissolved oxygen contents.			
▪ Control of high ammonia contents.			
▪ Control of clay turbidity.			
▪ Aquatic weed control			
▪ Water quality analysis			
G. Fish hatcheries			
▪ Hatchery designs and types of fish hatcheries.	8	4	4
▪ Methods of fish propagation.			
▪ Nursery phase of fish			
Total	60	30	30

4. Teaching and Learning Methods:

- 4.1 Lectures with the help of data show and power point slide show.
- 4.2 Discussions and Class activities.
- 4.3 Internet data collection.
- 4.4 Seminars.

Exam		
5.1	Class test (1)	To assess understanding
5.2	Class test (2)	To assess understanding and follow up the under score of the first test.
5.3	Written Mid-term	To assess student understanding of the taught topics and practical application in solving problems
5.4	Written Final-term	To assess student understanding of the taught topics and practical application in solving problems concerning the whole term studied materials.
5.5	Practical Final-term	To assess student skills in practical applications.
5.6	Oral Final-term	To assess both theoretical and practical knowledge.

Assessment Schedule:

	Exam	Week
Assessment 1	Class test (1)	2 nd
Assessment 2	Class test (2)	4 th
Assessment 3	Written Mid-term	8 th
Assessment 4	Written Final-term	16 th
Assessment 5	Practical Final-term	16 th
Assessment 6	Oral Final-term	16 th

Weighing of assessments (in each semester):

	Exam	Per Semester (%)	Total (%)
Assessment 1	Class test (1)	5	5
Assessment 2	Class test (2)	5	5
Assessment 3	Written Mid-term	10	10
Assessment 4	Written Final-term	50	50
Assessment 5	Practical Final-term	20	20
Assessment 6	Oral Final-term	10	10
	Total	100	100

6. List of References:

6.1. Course Notes:

- Fish Production (Lectures and Practice) By Dr. W. El- Hawarry.

6.2. Essential Books:

- Aquaculture Technical Manual, Vol. 1, An introduction to commercial fish farming (NAADS) 2005.
- Tilapia fish farming in Pacific Island countries. Vol1, Tilapia Hatchery Operation, 2004. Satya Nandlal and Timothy Pickering.
- Tilapia fish farming in Pacific Island countries Vol2, Tilapia Grow-Out 2004.
- Satya Nandlal and Timothy Pickering.
- Ohio Pond Management Hand Book, 1996. Milton Austin et al.
- Pond Management Guide, 1999. North Carolina Cooperative Extension Service R.L. Noble

6.3. Recommended Books:

- Dynamics of Pond Aquaculture 1997. Hillary S. Egna & Claude E. Boyd
- Water Quality in Warm Water fish ponds 1990. Claude E. Boyd

6.4. Periodicals, websites, etc

- Aquaculture
- Aquaculture Research
- Journal of World Aquaculture Society

7. Facilities Required for Teaching and Learning

- Small group of students.
- Up-to-date references in library.
- Well equipped laboratory.
- Hatching units.

Course Coordinator: Dr/ Waleed Nader El-Hawary

Head of Department: Prof. Dr. Usama El-Sayed Mahrous

Date: