A- Basic Information

Programme(s) on which the course is given:	MSc of Fish Biology and Aquatic Ecology
Depaetment responsible for offering the course:	Zoology
Depaetment responsible for teaching the course:	Zoology
Academic year:	2012-2013
Course title and code:	**Fish Nutrition Z683**
Contact hours (credit hours):	Lecture: 2 hrs Practical: 2hrs Total: 3 hrs
Course coordinator:	Prof. Alaa Alnenaei

B- Professional Information

The course aim and intended learning outcomes are based on that mentioned in the programme specifications, with more course-related specific details.

1- Overall Aims of Course: By the end of this course, the student should be able to

* Outline the concepts of fish nutrition.
* Identify the principles of digestion, absorption and metabolism of nutrients.
* Demonstrate an interrelationship between nutrients, types of feedstuff, biotechnology in fish nutrition.
* Describe the food chains and webs in the ecosystem.
* Identify the role of nutrition in reducing heat stress and fish feeding.
* Outline the importance of fish nutrition in fish production.
* List the various fish diseases associated with nutrition deficiency.

2- Intended Learning Outcomes of Course (ILOs):

a- Knowledge and Understanding:

a1- Illustrate the principles of fish nutrition.

a2- Explain how the fish nutritional types are adapted to fish habitats.

a3- Define the importance of protein, carbohydrates, fats, minerals and vitamins.

a4- Summarize fish diseases associated with nutrition deficiency.

b- Intellectual Skills:

b1- Classify the different types of fish diets.

b2- Compare between metabolism of proteins, carbohydrates, lipids, vitamins and minerals.

b3- Demonstrate the relationship of nutrient utilization to fish growth and production.

b4- Describe the various fish diseases associated with nutrition difficiency.

c- Professional and Practical Skills:

c1- Distinguish the feeding formulation, feeding regimes and recent approaches in fish nutrition.

c2- Draw different histological and pathological conditions in fishes suffering nutritional diseases.

d- General and Transferable Skills:

d1- Apply the computer to identify different fish diets.

d2- Prepare a collection of fish diseases using the internet for scientific research.

3- Teaching and Learning Methods

- Lectures.
- Research assignment**.**
- Lab sessions.

4- Student Assessment Methods

- Written Exams.
- Oral exams
- Reports.

Assessment schedule

Assessment 1	Assignment report	Weekly
Assessment 2	Mid-term exams	Week 7
Assessment 3	Oral exams	Week 10
Assessment 4	Final term exams	Week 14

Weighting of assessments

Mid-term examination	20%
Final-term examination	40%
Oral examination	10%
Practical examination	20%
Semester work	10%
Total	100%

6- List of references

0. **Course Notes**

   Notes on fish nutrition.

1. **Essential Books (Text books):**

   General Ichthyology.

   Basics of fish nutrition.

2. **Internet web sites.**

7- Facilities required for teaching and learning

* Data show.
* Slide and over-head projector.
* Librarian facilities.
* Computers with internet Access**.**
* ***** Student lab provided with preserved samples.

Course coordinator: Prof. Alaa Alnenaei
Head of Department: Prof. Saber Sakr
Date:January / 2013