



Department of Fish Res. And aquatic animals

College of Agriculture

Salahaddin University-Erbil

Subject: Molluscs and Crustacean Culture

Course Book – (Year: 4th)

Lecturer's name: Asst Prof. Dr. Samir J. Bilal

Academic Year: 2017/2018

Course Book

1. Course name	Molluscs and Crustacean Culture
2. Lecturer in charge	Asst Prof. Dr. Samir J. Bilal
3. Department/ College	Department of Fish Res. And aquatic animals/ College of Agriculture
4. Contact	samir.bilal@su.edu.krd
5. Time (in hours) per week	Theoretical 2 hr + Practical: 3 hrs
6. Office hours	12hrs
7. Course code	
8. Teacher's academic profile	<p>Dr. Samir J. Bilal Lecturer in Fish Parasitology Profile</p> <ol style="list-style-type: none"> 1- B. Sc. at Biology Department, College of Education, Salahaddin University-Erbil, Kurdistan-Iraq. 2000-2001 2- M.Sc. at Biology Department, College of Education, Salahaddin University-Erbil, Kurdistan-Iraq. 2006. 3- Ph.D. at Biology Department, College of Education, Salahaddin University-Erbil, Kurdistan-Iraq. 2013. <p>Career Lecturer in 8/7/2013. 23 published papers. 10 internal conferences participation. 2 international conferences participation. Describing of 2 new species of fish parasites. New records for 7 parasite species in Iraq.</p>
9. Keywords	Parasitology, Biology, Education.
10. Course overview:	<p>This course provides a comparative examination of selected crustacean fishes to illustrate the influence of aquacultures, behavioral patterns, physiological responses, population biology and community structure.</p> <p>The use of niche, habitat and ecotop concepts in defining the role of fishes in representative types of aquatic ecosystems will be examined.</p> <p>This course also provides a practical experience in the study of aquacultures for non-fined fishes.</p>
11. Course objective (Intended Learning Outcomes)	<ol style="list-style-type: none"> 1. Have an increased understanding of the culture and production 2. Have a greater understanding of the differences of fish physiology compared to other

animals.

3. Gain an understanding of the various 'modes' of reproduction in fishes.
4. Have knowledge of how abiotic factors influence adaptive capabilities in fishes.
5. Have greater insight into how growth is regulated in these fishes.

12. Student's obligation

Students must attend at the lectures. At the beginning of each lecture, they are done a quiz about last lecture. At the end of each lecture, I will ask one or two question/s about the present lecture. For the next lecture, students must bring their own answers. Each student must make one assignment about a group of fishes.

13. Forms of teaching

Different forms of teaching will be applied to reach the objectives of the course: power point presentations for the head titles, definitions and description images, summary of conclusions, classification of materials and any other illustrations, besides worksheet will be designed to let the chance for practicing on several aspects of the course in the classroom, furthermore students will be asked to prepare fortnightly reports about selective topics.

14. Assessment scheme

The students are required to do one closed book exam at the mid of the semester besides other assignments including daily activities, quizzes, and experimental results and precise. The exam includes 10 marks, classroom activities; quizzes and precise works regard as an additive scales. There will be a final exam on 100 marks.

15. Student learning outcome:

After this term students should be able to...

- I. Obtain general information about fish biology and their different groups.
- II. Explain the traits of fish body structures.
- III. Identify the genera of different families and make a difference between them
- IV. Describe the properties of fish groups and studying of their life cycle.
- V. Diagnose the different types of fish adaptations which found in our country.
- VI. Make the difference between the different fishes and inform their biology variations.

16. Course Reading List and References:

Book:

1. Balon, E.K., D.L.G. Noakes, R. Danzmann & m.T. Rush-Smyth. 2016. Ichthyology Primer. 2016. Editor: marie Thérèse Rush-Smyth. Department of Integrative Biology, College of Biological Science, University of Guelph, Guelph, Ontario, Canada.
2. Paul J.B. Hart and John D. R. (2005). Handbook of Fish Biology and Fisheries, FISH Physiology. Blackwell Publ., 451pp.
3. Barton, M. 2007. Bond's Biology of Fishes, 3rd edition. Brooks/Cole.
4. Bond, C. 1996. Biology of fishes, 2nd ed. Saunders College Publishing, Orlando, FL.
- 5 Bone, Q., N.B. Marshall, and J.H.S. Blaxter. 1995. Biology of fishes, 2nd ed. Blackie Academic and Professional, Glasgow (Chapman and Hall, New York).

Useful internet references

- a. <http://lss.at.ufl.edu>
- b. virginias@usca.edu
- c. <https://www.uoguelph.ca/registrar/calendars/undergraduate/current/index.shtml>

17. The Topics:		Lecturer's name
		ex: (3 hrs) ex: 14/9/2016
Weeks	Lectures	Lecturer's name Didar Othman
1.	Introduction	ex: (3hrs) ex: / /2016
2.	Site selection.	
3.	BIOLOGICAL factors	
4.	Chemical factors	
5	1st Exam	
6	Physical factors	
7	Essential co-related factors (Direct and Indirect)	
8	Abalone Culture	
9	Calms and Bivalves	
10	Factors affecting Calm Cultures	
11	Shrimp Culture	
12	Gulf and Fresh water Shrimp Identification	
13	Enemies of Bivalve and crustaceans in aquaculture	
14	2nd exam	
18. Practical Topics (If there is any)		

19. Examinations:

- 1- Essay.
- 2- Multiple choice.
- 4- Fill blanks.
- 5- True and False.

20. Extra notes:

21. Peer review