Course Specification

University: Menoufiya Faculty: Science

Course Specifications:

Program(s) on Which the Course is Given: M.Sc. Zoology (protozoa and invertebrates)

Major or Minor Element of Program: major

Department Offering the Program: zoology

Department Offering the Course: zoology

Academic Year/ Level: postgraduate

Date of Specification Approval: 2012

A- Basic Information

Title: freshwater invertebrates Code: Z6318

Credit Hours: 3 Lecture: 2

Tutorial: 0 Practical: 2

Total: 3

B- Professional Information

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

* identify and study the characters of the different freshwater bodies.

* Understand the principles of freshwater invertebrates' way of adaptation to freshwater habitats.

* List the different characters of the freshwater invertebrates.

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

a- Knowledge and Understanding:

A1- Recognize the significance of freshwater invertebrates.

A2- Distinguish between the different freshwater bodies.

A3- Understand the mechanisms of freshwater invertebrates adaptation to the freshwater habitats.

A4- Study the interaction between the freshwater invertebrates and their habitats.

A6- Identify the freshwater invertebrates used as a biomonitor of pollution.

b-Intellectual Skills:

b1- Measure the student capability to differentiate between the freshwater invertebrates

B2- Define the different characters of the freshwater invertebrates.

B3- Differentiate between the different freshwater bodies.

B4- Identify the pollution detection models.

c- Professional and Practical Skills:

c1- Demonstrate skills in identification, characterization of freshwater bodies.

C2- Distinguish between different freshwater invertebrates.

C3- Able to collect water and invertebrate samples from the field to study them in the lab.

d- General and Transferable Skills:

d1- Measure the scientific writing ability.

D2- Utilize the oral communication skills.

D3- Use appropriate lab equipment.

D4- Use the appropriate technology such as (internet) for scientific research.

D5- Use statistical analysis programs for data analysis.

3- Contents:

Topic	No. of Hours	Lecture	Tutorial/ Practical
Freshwater habitat (introduction)	3	1	1
Freshwater bodies	6	2	2
Examples of freshwater invertebrates	13	4	7
Adaptation to freshwater habitats	6	3	0
freshwater invertebrates as a biomonitor of pollution	3	2	2

4- Teaching and Learning Methods:

4.1-Lectures.
4.2-Research assignment.
4.3-Oral presentation.
4.4- Practical demonstration
4.5- field trips

5- Student Assessment Methods:

5.1-Reports to assess collection of course material.
5.2- Practical and Report oral exam to assess practical skills.
5.3-Mid-term exam to assess Mid- term performance.
5.4-Final term exam to assess end of course performance.

Assessment Schedule:

Assessment 1	Mid- term Week
Assessment 2	semester activities weeks 5 and 8.
Assessment 3	final term practical exam Week 13
Assessment 4	final term exam Week 14

Weighting of Assessment

Mid-Term Examination	20 %
Final-Term Examination	40%
Oral Examination	10%
Practical Examination	20%
Semester Work	10%
Other Types of Assessment	0%
Total	100%

6- List of References:

6.1- Course notes:

* lecture notes

6.2- Essential books (text books)

* Freshwater invertebrates

6.2- Recommended Books

* Text book of invertebrates

6.3- Periodicals, Web Sites, …etc

* Aquatic Living Recourses
*Journal of Invertebrate Pathology
* Marine and Freshwater Behavior and Physiology.
* Wikipedia

7- Facilities Required for Teaching and Learning:

* Lecture room with a white board
* Dark room with data show
* Lab with suitable equipments
* Microscopes

Course coordinator: Dr. Sherin K. Sheir

Head of Department: Prof. Dr. Saber Sakr