

Course specifications

Programme(s) on which the course is given : M.Sc. Microbiology

Major or minor element of programmes: Major

Department offering the programme : Botany

Department offering the course : Botany

Academic year/Level : One year

Date of specification approval : 1 /2012

A – Basic Information

Title : Microbial Ecology

Code : B 681

Credit Hours : 3 Lecture : 2

Tutorial : 0.0 Practical : 2 Total : 3

Teaching staff : Dr/Mohamed Tawfiek Shaaban

B – Professional Information

1 – Overall aims of course

To study the interactions among microbial populations, between microbes and different biotic and abiotic components in the environment of the microorganisms.

2 – Intended learning outcomes of course (ILOs)

a - Knowledge and understanding :

- a.1- Understanding the components of microbial environments.
- a.2- Have knowledge about intra-&inter populations interactions.
- a.3- Studying the relationships between the microbe, living&non living components in the ecosystem.

b - Intellectual skills :

- b.1- Differentiation between different types for inter-actions among microbial populations.
- b.2- Evaluation of the roles played by the microbes in their environments.
- b.3- Description of microbial requists to live and grow in a certain environment.

c- Professional and practical skills :

- c.1- Isolation of microorganisms from different habitats.
- c.2- To evaluate contamination of different specimens.

d- General and transferable skills

- d1- Writing and speaking in a scientific manner.
- d2- Scientific tabulation of experimental results.
- d3- Correct dealing with specimens.

3- Contents

Topic	No. of Hours	Lecture	Tutorial/Practical
Measurement of microbial numbers, biomass and activities (General)	4	2	2
Sample collection, sample processing	4	2	2
Determination of microbial numbers (different methods)	4	2	2
Determination of microbial biomass and biochemical assays	4	2	2
Measurement of microbial metabolism	4	2	2
Effects of abiotic factors and Env. Extremes on microorganisms (General)	4	2	2
Environmental physical determinants	8	4	4
Environmental chemical determinants	4	2	2
Microorganisms in their natural habitats (General)	4	2	2
The atmosphere as a habitat and medium for microbes	4	2	2
The hydro-ecosphere&litho-ecosphere	4	2	2

4- Teaching and learning methods

- 4.1- Lectures.
- 4.2- Oral discussion.
- 4.3- Practical demonstration.

5- Student Assessment methods

- 5.1- Mid term written exam to assess understanding competencies.
- 5.2- Mid term practical exams to assess laboratory performance.
- 5.3- semester short exams to assess understanding&experience.
- 5.4- Final written exam to assess performance and comprehension.
- 5.5- Final written exam to assess experience and professionalism.

Assessment schedule

Assessment 1 Mid term	week	7
Assessment 2 Semester activities	week	4 and 10
Assessment 3 Final term practical exam	week	13
Assessment 4 Final term written exam	week	14

Weighting of Assessments

Mid-Term Examination (written+ practical)	20%
Final-Term Examination (Written+Practical)	60%
Oral Examination	10%

Semester Short exams	10%
Total	100

6- List of references

6.1- Course Notes

Lectures in (Microbial Ecology) Botany Department.

6.2- Essential Books (Text Books)

Microbial Ecology Text Books

6.3- Recommended Books

Microbial Ecology

6.4- Periodicals, Web Sites,etc

7- Facilities Required for Teaching and Learning

Lab. Equipments e.g microscopes, incubators, Laminar flow hood,
glassware, Chemicals.

Course Coordinator : Dr. Mohamed Tawfik Shaaban

Head of Department : Prof. Dr. Mohamed Ali Afifi

Date: /1/2012.