Course Specifications

Revised November 2019

Course Title:	**Phycology and its Applications**
Course Code:	**4012252-3**
Program:	**BSc Microbiology**
Department:	**Department of Biology**
College:	**Faculty of Applied Science – Department of Biology**
Institution:	**UM AL – QURA UNIVERSITY**
Revision Date	**November 2019**

Table of Contents

A. Course Identification **3**

6. Mode of Instruction (mark all that apply) 3

B. Course Objectives and Learning Outcomes **4**

1. Course Description 4

2. Course Main Objective 4

3. Course Learning Outcomes 4

C. Course Content **5**

D. Teaching and Assessment **6**

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods 6

2. Assessment Tasks for Students 8

E. Student Academic Counseling and Support **8**

F. Learning Resources and Facilities **9**

1.Learning Resources 9

2. Facilities Required 9

G. Course Quality Evaluation **9**

H. Specification Approval Data **9**

A. Course Identification

1. Credit hours: 3 hours
2. Course type **a.** University ☐ College ☐ Department ☑ Others ☐ **b.** Required ■ Elective ☐
3. Level/year at which this course is offered: 2nd Year / Level 4
4. Pre-requisites for this course (if any): General Biology (4011012-4)
5. Co-requisites for this course (if any)**:**

6. Mode of Instruction (mark all that apply)

No	Mode of Instruction	Contact Hours	Percentage
1	Traditional classroom	30	50 %
2	Blended		-
3	E-learning		-
4	Correspondence		-
5	Other	30	50 %

7. Actual Learning Hours (based on academic semester)

No	Activity	Learning Hours
Contact Hours		
1	Lecture	30
2	Laboratory/Studio	42
3	Tutorial	-
4	Practical/Field work/Internship	6
5	Others (specify)	30
	Total	102
Other Learning Hours*		
1	Study	30
2	Assignments	8
3	Library	15
4	Projects/Research Essays/Theses	10
5	Others (specify)	-
	Total	63

* The length of time that a learner takes to complete learning activities that lead to achievement of course learning outcomes, such as study time, homework assignments, projects, preparing presentations, library times

B. Course Objectives and Learning Outcomes

1. Course Description

The course will cover the description of all algal groups, both fresh water and marine algal species. The topics to be covered include: algal classification, environmental distribution, life cycles. Also economic and environmental of different algal species and their commercial use will be discussed.

2. Course Main Objective

❖ **After completing this course student should be able to:**

- Differentiate between algal groups in fresh and marine waters,
- Describe, identify and taxonomy of Algae
- Aware with the life cycles, and ecology of Algae.
- Familiar with the ecological and economic importance of algae.
- Aware with advantage and disadvantages of Algae in the ecosystem.
- Aware with application and benefits of Algae
- Aware with commercial and industrial use of algae.

3. Course Learning Outcomes

	CLOs	Aligned PLOs
1	**Knowledge:**	
	❖ Upon successful completion of this course The student will be able to: • Identify the distribution of algae in nature. • Aware with the life cycles, and ecology of Algae • List the positive and the negative roles of algae in life. • Discuss the systematic classification of algae • Describe the general characters of algae • Summarize the characters and classification of. Chlorophyta, Euglenophyta, Chromophyta, Rhodophyta. • Discuss with reproduction methods of algae • Differentiate between algal groups in fresh and marine waters, • Describe, identification and taxonomy of Algae • Aware with the life cycles, and ecology of Algae. • Familiar with the ecological and economic importance of algae. • List with advantage and disadvantages of Algae in the ecosystem. • List of benefits, application, commercial and industrial use of algae.	
2	**Skills:**	
2.1	**Cognitive skills to be developed** ❖ Having successfully completed the course students should be able to: • Discuss the systematic classification of algae • Describe the general characters of algae • Explain why Algae could, not living without light • Differentiate between algal groups in fresh and marine waters, • Describe, identification and taxonomy of Algae • Compare between different algae • Diagram some algal genera	

	CLOs	Aligned PLOs
2.2.	**Psychomotor Skills** ❖ Upon successful completion of this course, the student is expected to be able to: • Perform the laboratory experiments precisely • Ability of using laboratory equipments • Ability of using microscope • Ability of drawing samples • Ability to identify of algae • Ability to describe, measuring, evaluating the different environments of different algal species	
3	**Competence:**	
3.1	❖ Upon successful completion of this course, the student is expected to be able to: • Developing oral presentations. • Communicating personal ideas and thoughts. • Work independently and as part of a team to finish some assignments. • Communicate results of work to others. • Use of needed precautions when dealing with pathogen microorganisms • Demonstrate professional attitudes and behaviors towards others. • Propose the smart questions • Understand and dissecting the problem so that it is fully solved understood. • Demonstrate the assertiveness for his decision. • Demonstrate his capability for the responsibility and Accountability • Show Effective verbal communication with clarity and must be characterize with the following interpersonal attributes; (verbal communication, non-verbal communication**,** good listening for the others, questioning, good manners, problem solving, social awareness, self-management, responsibility and accountability). • Enhancing the ability of students to use computers and internet. • Interpret the laboratory data • Know how to write a report.	

C. Course Content

1 Topics to be Covered

Topic	No of Weeks	Contact hours
❖ **Introduction to Phycology:** Importance of their study – Habitats – structure of algal cells, algal forms, general notes about reproduction – Classification	**2**	**4**
❖ **Economic Importance of Algae** The commercial use of algae and its products	**1**	**2**

❖ **Division: Chlorophyta, Euglenophyta, Chromophyta, Rhodophyta** general characters – systematic characteristics of classes, orders and families with examples of most dominant genera, including their habits, habitats, structure and life cycle.	**4**	**8**
❖ **Division: Euglenophyta** general characters – systematic characteristics of classes, orders and families with examples of most dominant genera, including their habits, habitats, structure and life cycle.	**1**	**2**
❖ **Division: Chromophyta** general characters – systematic characteristics of classes, orders and families with examples of most dominant genera, including their habits, habitats, structure and life cycle.	**4**	**8**
❖ **Division: Rhodophyta** general characters – systematic characteristics of classes, orders and families with examples of most dominant genera, including their habits, habitats, structure and life cycle.	**2**	**4**
	14 weeks	**28hrs**

D. Teaching and Assessment

1. Alignment of Course Learning Outcomes with Teaching Strategies and Assessment Methods

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
1.0	**Knowledge**		
1.1	❖ Upon successful completion of this course The student will be able to: • Identify the distribution of algae in nature. • Aware with the life cycles, and ecology of Algae • List the positive and the negative roles of algae in life. • Discuss the systematic classification of algae • Describe the general characters of algae • Summarize the characters and classification of. Chlorophyta, Euglenophyta, Chromophyta, Rhodophyta. • Discuss with reproduction methods of algae • Differentiate between algal groups in fresh and marine waters, • Describe, identification and taxonomy of Algae • Aware with the life cycles, and ecology of Algae. • Familiar with the ecological and	• The methodology includes a combination of lectures by the lecturer, seminar presentation by the students and web-interactions. • At the end of the programme, students will be divided into groups for seminar presentation on important areas of the course to assess their understanding and comprehension of the course. • All students will be involved in on-line learning process and each student is required to create an E-mail address to facilitate student web interactions. • Using images and	• Periodical exam and reports 10% • Mid- term theoretical exam 20% • Mid-term practical exam 5% • Final practical exam 15% • Final exam 50%

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
	economic importance of algae. • List with advantage and disadvantages of Algae in the ecosystem. • List of benefits, application, commercial and industrial use of algae	movies • Encouraging students to collect the new information about what the new in water and wastewater microbiology. Availability of the reference books and scientific sites concerning water and wastewater microbiology	
2.0	**Skills**		
2.1	**Cognitive skills** ❖ Having successfully completed the course students should be able to: • Discuss the systematic classification of algae • Describe the general characters of algae • Explain why Algae could, not living without light • Differentiate between algal groups in fresh and marine waters, • Describe, identification and taxonomy of Algae • Compare between different algae Diagram some algal genera	• Lectures. • Brain storming. • Discussion.	• Exam must contain questions that can measure these skills. • Quiz and exams. • Discussions after the lecture.
2.2	**Psychomotor Skills** ❖ Upon successful completion of this course, the student is expected to be able to: • Perform the laboratory experiments precisely • Ability of using laboratory equipments • Ability of using microscope • Ability of drawing samples • Ability to identify of algae • Ability to describe, measuring, evaluating the different environments of different algal species.	- Follow up students the students in lab and during carryout all the laboratory experiments	-Giving additional marks for the students they have accurate laboratory results and good seminar presentation -Practical exam.
3.0	**Competence**		
3.1	❖ Upon successful completion of this course, the student is expected to be able to: • Developing oral presentations. • Communicating personal ideas and thoughts. • Work independently and as part of a	• Lab work • Case Study • Active learning • Small group discussion • Homework (preparing a report	• Oral exams. • Evaluate the efforts of each student in preparing the report. • Evaluate the

Code	Course Learning Outcomes	Teaching Strategies	Assessment Methods
	team to finish some assignments. • Communicate results of work to others. • Demonstrate professional attitudes and behaviors towards others. • Propose the smart questions • Understand and dissecting the problem so that it is fully solved understood. • Demonstrate the assertiveness for his decision. • Demonstrate his capability for the responsibility and accountability • Show effective verbal communication with clarity and must be characterize with the following interpersonal attributes; (verbal communication, non-verbal communication, good listening for the others, questioning, good manners, problem solving, social awareness, self-management, responsibility and accountability). • Enhancing the ability of students to use computers and internet. • Interpret the laboratory data • Know how to write a report	on some topics related to the course depending on web sites). • Seminars presentation • Practical during carryout the experiments in the lab.	scientific values of reports. • Evaluate the work in team • Evaluation of the role of each student in lab group assignment • Evaluation of students presentations

2. Assessment Tasks for Students

#	Assessment task*	Week Due	Percentage of Total Assessment Score
1	**Periodical Exam(s)**	**4**	**10%**
2	**Mid Term Exam (Theoretic)**	**8**	**20%**
3	**Mid Term Exam (practical)**	**9**	**10%**
4	**Reports and essay**	**11**	**5%**
5	**Final Practical Exam**	**15**	**15%**
6	**Final Exam**	**16**	**40%**
7			
8	**Total**		**100%**

***Assessment task** (i.e., written test, oral test, oral presentation, group project, essay, etc.)

E. Student Academic Counseling and Support

Arrangements for availability of faculty and teaching staff for individual student consultations and academic advice :

Office hours: 10hrs.

F. Learning Resources and Facilities

1.Learning Resources

Required Textbooks	• Algae (2000). Abdel Aziz Kablan, Idris Monir Turky, Mohamed Mohamed Alhoseny (Eds.). Abo-Azzma Books Library. • The Algae (1973). V. J. Chapman, D. J. Chapman (Eds.). Macmillan and Co LTD.
Essential References Materials	
Electronic Materials	
Other Learning Materials	**PPT prepared by Prof. Ali Gab-Alla**

2. Facilities Required

Item	Resources
Accommodation (Classrooms, laboratories, demonstration rooms/labs, etc.)	• Class room is already provided with data show • The area of class room is suitable concerning the number of enrolled students (68) and air conditioned
Technology Resources (AV, data show, Smart Board, software, etc.)	• Digital lab containing 15 computers.
Other Resources (Specify, e.g. if specific laboratory equipment is required, list requirements or attach a list)	• Incubators, autoclaves, measuring equipment, water bath, digital balances, pH meters, safety facilities. • Availability of some reference Algae strains and slides. • Different media • All chemicals and reagents that needed

G. Course Quality Evaluation

Evaluation areas (e.g., Effectiveness of teaching and assessment, Extent of achievement of course learning outcomes, Quality of learning resources, etc.)
Evaluators (Students, Faculty, Program Leaders, Peer Reviewer, Others (specify)
Assessment Methods (Direct, Indirect)

H. Specification Approval Data

Prepared by faculty staff: 1. Prof. Ali Gab-Alla	**Signature:**
Date Report Completed November /2019	
Revised by:	**Signature:**

1. Dr. Khaled Elbanna 2. Dr. Hussein H. Abulreesh 3. Dr. Shady Elshahawy	
Date: November 2019	
Program Chair Dr. Hussein H. Abulreesh	**Signature:**
Dean	**Signature:**
Date:	