

**Module title: Phycology**

**Lecturer:** A. Einali (Associate prof.)

**Assessments:** 30% mid-term exam-1  
30% mid-term exam-2  
35% final exam  
5% Quiz

**References:**

- 1. Algae: anatomy, biochemistry, and biotechnology, 2006, Taylor & Francis.**  
Laura Barsanti and Paolo Gualtieri
- 2. Phycology, Fourth edition, 2008, Cambridge University Press.**  
Robert Edward Lee

## **Module subjects:**

### **1. General overview**

1st week: Introduction, Basic characteristics of the algae, Occurance and distribution of algae

2nd week: Structure of thallus, Nutrition, Reproduction, Vegetative and asexual reproduction, Sexual reproduction

3rd week: Gene sequencing and algal systematics, Endosymbiosis and origin of eukaryotic algae

4th week: Cytomorphology and ultrastructure- outside of the cell, Scales, Frustule

### **2. Anatomy**

5th week: Cell wall, lorica, skeleton, Flagella structure, *mid-term exam-1*

6th week: Plastid structure, eyespot, pigments, Phycobilisomes, Storage products, contractile vacuoles

### **3. The prokaryotic algae**

7th week: Cyanobacteria: Morphology, Pigments and photosynthesis, Nitrogen fixation,

8th week: Cyanobacteria: growth and metabolism, Freshwater environment, Classification, *mid-term exam-2*

### **4. Evolution of the chloroplast**

9th week: Glaucophyta, Rhodophyta: Iridescence, sexual reproduction

10th week: Rhodophyta: Fertilization, Classification

11th week: Chlorophyta: Morphology, Charophyceae: Klebsormidiales, Zygnematales

12th week: Charophyceae: Charales, Ulvophyceae: Ulotrichales, Ulvales, Cladophorales, Dasycladales, Caulerpales, Siphonocladales

13th week: Chlorophyceae: Volvocales, Tetrasporales, Chlorellales, Trebouxiales, Sphaeropleales, Chlorosarcinales, Chaetophorales, Oedogoniales

14th week: Euglenophyta, Dinophyta

15th week: Cryptophyta, Heterokontophyta: Chrysophyceae, Synurophyceae, Bacillariophyceae

16th week: Heterokontophyta: Xanthophyceae, Phaeophyceae, *Preparation for final exam*