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**Department of: Biology**

**College of: Education**

**University of: Salahadin**

**Subject: Phycology**

**Course Book – 3rd Year**

**Lecturer's name Tara Mohammed Hassan**

**Academic Year: 2022/2023**

**Course Book**

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| **1. Course name** | **Phycology** |
| **2. Lecturer in charge** | **Tara Mohammed Hassan** |
| **3. Department/ College** | **Biology/ Education** |
| **4. Contact** | **e-mail:** **tara.hassan @su.edu.krd** |
| **5. Time (in hours) per week**  |  **4** |
| **6. Office hours** | **Thursday 08:30 – 10:30 and 12.30-2.30** |
| **7. Course code** | **Phycology** |
| **8. Teacher's academic profile**  | **B.Sc. in Biology at Biology Department, Education College, University of Salahadin (2006). M.Sc. in Plant Physiology at Biology Department, Education College, University of Salahadin (2011). Now Ph.D. student in Ecology of invertebrate at Biology Department, Education College, University of Salahadin.**  |
| **9. Keywords** | **Biology Dept., Education College, 3rd stage, Phycology, Salahadin University, Erbil, Kurdistan Region of Iraq.** |
| **10. Course overview:** This course covers aspects of the introduction to the algae, habit and habitat, nutrition, cellular organization, reproduction and life cycles, alternation of generation in algae, economic importance of algae, biochemical features used in an algae classification and cytological features used in algal classification and classification of algae to its groups. |
| **11. Course objective:**This should not be less than 100 words |
| **12. Student's obligation**Students are expected to keep up with the course schedule and read the chapters before coming to class and be prepared to engage in classroom discussions. Although classroom discussions are expected to be an integral part of this semester, the direction of each conversation is under the total direction of the instructor. Attendance and completion of all exams is mandatory. Students are accountable for all class assignments, class announcements, handouts, and information provided in lecture. If you must miss an exam,, then you must contact me as quickly as possible. Additionally, please do not ask to postpone an exam on the day of the exam. If you have other exams on the same day, bring it to my attention before the exam date.  |
| **13. Forms of teaching**Different forms of teaching will be used to reach the objectives of the course: definitions, discussions and conclusions, plates and shapes by using Data-show (in power point) as well as using the white board to illustrate the lecture or sides of the lecture for the students..  |
| **14. Assessment scheme**The students are required to do two theoretical exams at different periods of the semester (15% Theory plus 35% Practical). Final examination has (50% Theory). ‌ |
| **15. Student learning outcome:**It is expected that after completion of this course the student will be able to understand and discuss many areas of Phycology specially their importance and identification in addition to their classification in major divisions. They will be able to classify each division into classes, orders, families and genera according to the modern classification of algae. Besides that, they will be able to understanding the groups of algae that cause harm to our aquatic ecosystems through Eutrophication and Harmful Algal Blooms HABs. Students are expected to be very specific and exacting when answering questions concerning the specific topics in this course.  |
| **16. Course Reading List and References‌:**1.Barsanti, L and Gualtieri, P (1996). Algae. Press. Taylor and Francis Group PP.301. New York, USA.2.Becker, E.W.(1994). Microalgae. Cambridge Univ. 3.Bold, H.C and Wynne, M. J.(1985). Intoduction to the Algae . Second Ed. Printer Hall, Inc New York U.S.A .PP.291.4.Bell, P.R. and Hemesley. A. (2002). Green Plants. Cambridge University Press U.K. . PP331.5.Bilgrami, K.S. and Saha, L.C. (2004). A Text Book of Algae. Darya Ganj. New Delhi, India.6.Kumar, A. (2003). Aquatic Environment and Toxicology, Daya Publishing House. New Delhi, India.7.Laura, B. and Gualtieri, P. (2006) Algae Anatomy, Biochemistry and Biotechnology. Taylor& Francis Group. Boca Raton, London, UK. 8.Lee, R.E. (1999). Phycology. 3rd edition. Cambridge University. |

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| **17. The Topics:** | **Lecturer's name** |
| Week 1 | Algae- Definition of the algae.- General characteristics.- Algal origin.- Evolution of plant organisms- Algal diversity and classification | Dr. Tara Mohammed HassanDr. Trifa Dhahir Saber |
| Week 2 | - Occurrence of Algae- Algal forms- Algal reproduction- Algal alternation of generation- Algal habitats |
| Week 3 | Cyanophyta-Cell structure and composition-Occurrence and habitats  |
| Week 4 | -Nutrition of Cyanophyta-Reproduction-Classification |
| Week 5 | Chlorophyta- General characteristics- Occurrence and habitats- Classification- Morphology and cytology- Range of vegetative structure- Reproduction and Lifecycle - Representative species |
| Week 6 | - Representative species of Chlorophyta |
| Week 7 | Charophyta- General characteristics- Representative species- Reproduction and Lifecycle |
| Week 8 | Euglenophyta- Euglenophyta- Cellular organization- General Characteristics- life cycle and reproduction- Nutrition- Movement- Key to the genera-Representative species |
| Week 9 | Cryptophyta- Cryptophyta- Occurrence and Habitats- Representative species |
| Week 10 | Chrysophyceae, Bacillariophyceae- Cellular organization- General Characteristics- life cycle and reproduction- Nutrition- Movement-Representative species |
| Week 11 | Phaeophyta- General characteristics- Representative species- Reproduction and Lifecycle |
| Week 12 | Importance of Algae |

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| **18. Practical Topics**  |  |
| The practical laboratories covered through a separate coursebook (Practical Phycology Coursebook) prepared Mr. Sarbaz Najmaddin. | Mr. Tara Mohammed Hassan |
| **19. Examinations:*****1. Compositional:*** Q1/What are the general characteristics of Chlorophyta in relation to growth forms.Q2/ What are the general characteristics of Chlorophyta in relation to cell wall.Q3/ What are the general characteristics of Chlorophyta in relation to reproduction. Q4/ In algae the nitrogen fixation occurs by several means, explain it. Q5/ Explain the Diplontic or Gametic Life Cycle in algae.***2.******True or false type of exams:***Q1/ Check the following statements if True or False, then correct the false ones. 1-Sexual reproduction in Spirogyra is isogamous type which occurs by the conjugation of flagellated gametes.2-Most desmids are unicellular, many species grow as long filamentous colonies. 3-In Tolypella, Oogonial crown cells 10 in a double tier.4-Each Mougeotia cell has one or two reticulate chloroplasts that can rotate to minimize light levels.5-Mougeotia differs from Spirogyra and Zygnema in Sexual reproduction through conjugation process because the zygote forms inside one of the two parallel filaments.***3. Multiple choices:***1.The more common method of Desmids reproduction is multiplying by dividing, usually at …………….A. cell wall. B. isthmus. C. semicell. D. flagella.2. There are about ……… species of Cladophora in both fresh and salt water.A. 2 B.5 C. 7 D.8 |
| **20. Extra notes:** |
| **21. Peer review**   |