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**Department of Horticulture**

**College of Agricultural Engineering Science**

**University of Salahaddin**

**Subject: Microbiology**

**Course Book – Second Stage**

**Lecturer's name: Soran Swar Aziz /MSc**

**Academic Year: 2022/2023**

**Course Book**

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| **1. Course name** | **Microbiology** | |
| **2. Lecturer in charge** | **Soran Swar Aziz** | |
| **3. Department/ College** | **Horticulture Department / Agriculture College** | |
| **4. Contact** | **e-mail:** [**Soran.aziz@su.edu.krd**](mailto:Soran.aziz@su.edu.krd) | |
| **5. Time (in hours) per week** | **Practical: 3** | |
| **6. Office hours** | **Monday 9 am to 1 pm/ Thursday 9 am to 1 pm** | |
| **7. Course code** |  | |
| **8. Teacher's academic profile** | **BSc Plant Production, Salahaddin University, 2010**  **MSc Medicinal plants and functional foods, Newcastle University, England, United Kingdom, 2013)** | |
| **9. Keywords** | **Microscope, Bacteria, growth media, Yeast, Type of bacteria, Fungai, type of fungai.** | |
| **10. Course overview:**  ▪ This course comprises studying anatomical and Morphological properties of microorganisms as general.  1-     Deepen and improve their knowledge and skills of microorganism’s science and relation with life.  2-     Learn to anatomical part and how can make slides of each part from bacteria.  3-    Learn about the importance of the microorganisms and it is function.  4-    Gain the abilities for independent and life-long education in the professional and initiating the innovations in the field,  5 - Improve their theoretical and practical professional knowledge gained during the previous years of education. | | |
| **11. Course objective:**  Study the students about of morphological and anatomical microorganisms, and study the important of each part in the plant with related this important with our environmental and human life. | | |
| **12. Student's obligation**  The obligation of the students in this course includes attendance in the lectures and listening teachers carefully, asking about new terms in the class, preparation for the exam by studying the materials, make a report Microbiology and present it for the other students at the class. Preparing and drawing slides. | | |
| **13. Forms of teaching**  The form of teaching is including use of Microsoft PowerPoint at the class to present the lecture, using white board, sing data show, and give the lecture to the students by Microsoft word for each lecture. | | |
| **14. Assessment scheme**  Practical part: two exam 30 mark, quiz 2 mark, notebook 3 mark.  Total: 30+5= 35 mark‌ | | |
| **15. Student learning outcome:**  **The outcomes of this course includes:**  ▪ Understanding in the term of microbiology.  ▪ understanding type and parts of microorganisms.  ▪ Understanding the function and the content within cell and tissue in the plant.  ▪ Understanding of the main part of the microorganisms and their morphological appears.  ▪ Understanding the classification of bacteria.  **The new things are including:**  ▪ Method of slide preparation.  ▪ find out the slides with microscope.  ▪ Using microscope of most of the purposes  ▪ recognize and identify microorganisms. | | |
| **16. Course Reading List and References‌:**  1- Prescott, L.M., 2002. *Microbiology*.  2- Pepper, I.L., Gerba, C.P., Gentry, T.J. and Maier, R.M. eds., 2011. *Environmental microbiology*. Academic press.  3- Willey, J.M., Sherwood, L. and Woolverton, C.J., 2011. *Prescott's microbiology* (Vol. 7). New York: McGraw-Hill.  4- Tortora, G.J., Funke, B.R. and Case, C.L., 2018. *Microbiology: an introduction*. Pearson. | | |
| **17. The Topics:** | | **Soran Swar Aziz** |
| **General Safety Rules and Procedures** | | 3 hours  22/09/2023 |
| Microbiology tools | | 3 hours  29/09/2023 |
| Sterilization, Disinfection , Pasteurization | | 3 hours  6/10/2023 |
| **Mechanisms of action of antimicrobial agents** | | 2 hours  13/10/2023 |
| Exam | | 3 hours  20/10/2023 |
| **Bacterial culture media** | | 3 hours  27/10/2023 |
| Culture media classification | | 3 hours  10/11/2023 |
| Type od microorganisms | | 3 hours  17/11/2023 |
| Classification of bacteria | | 3 hours  24/11/2023 |
| Second exam | | 3 hours  1/12/2023 |
| **Bacterial sating** | | 3 hours  8/12/2023 |
| **Capsule staining** | | 3 hours  15/12/2017 |
| Review & General Discussion ? | | 3 hours  22/12/2017 |
| **19. Examinations:**  **Q1. *Classify Bacteria by Cellular respiration?***  Answer:  **1-** Obligate aerobes- require a constant supply of oxygen in order to live.  2 - Obligate anaerobes- do not require oxygen, must live in the absence of oxygen.  3 - Facultative anaerobes- survive with or without oxygen.  ***Q2. Answer by true (T) and false (F) for the following sentences with correcting the false sentences?***  Phototroph - chemical compounds as an energy source*Answer:*   1. *False, Chemotroph:*.   **Q3/ Select the correct words**  **4- Additional bacterial shapes are** ………………………  **A**/ Polymorphic B/ Monomaorphic C/ The spiral D/ The Bacilli  Answer: **A/ Polymorphic** | | |
| **21. Peer review پێداچوونه‌وه‌ی هاوه‌ڵ** | | |