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| |  | | --- | | **TISHK INTERNATIONAL UNIVERSITY FACULTY OF EDUCATION Department of BIOLOGY EDUCATION, 2020-2021 Fall Course Information for BIO 307 GENERAL MICROBIOLOGY** |  |  |  | | --- | --- | | **Course Name:** | GENERAL MICROBIOLOGY | | |  |  |  |  |  |  | | --- | --- | --- | --- | --- | --- | | **Code** | **Regular Semester** | **Theoretical** | **Practical** | **Credits** | **ECTS** | | BIO 307 | 5 | 2 | 2 | 3 | 5 | | | | **Name of Lecturer(s)-Academic Title:** | Soran Kayfi - | | **Teaching Assistant:** | Yad Sirwan | | **Course Language:** | English | | **Course Type:** | Main | | **Office Hours** | 2 | | **Contact Email:** | soran.kayfi@tiu.edu.iq  Tel:07504302814 | | **Teacher's academic profile:** | MSc | | **Course Objectives:** | To provide a comprehensive survey of microbiology with basic information on bacteria, fungi, protozoa, algae and viruses. Topics include macromolecules, structure, ecology, reproduction, enumeration, physiology, metabolism, genetics, DNA manipulation, and chemical and physical control of microorganisms. | | **Course Description (Course overview):** | Study of the interrelationships among organisms and their environments, addressing where and how organisms live. Adaptation, population growth, species interactions, biodiversity, and ecosystem function are explored for a wide variety of organisms and ecosystems. | | **COURSE CONTENT**   |  |  |  |  | | --- | --- | --- | --- | | **Week** | **Hour** | **Date** | **Topic** | | **1** | 2 | 7-8/10/2020 | introduction | | **2** | 2 | 11-15/10/2020 | The History and Scope of Microbiology | |  |  |  |  | | **3** | 2 | 18-22/10/2020 | The History and Scope of Microbiology | | **4** | 2 | 25-28/10/2020 | Procaryotic Cell Structure and Functions | |  |  |  |  | | **5** | 2 | 1-5/11/2020 | Procaryotic Cell Structure and Functions | | **6** | 2 | 8-12/11/2020 | Microbial Nutrition and growth | |  |  |  |  | | **7** | 2 | 15-19/11/2020 | Midterm Exam | | **8** | 2 | 22-26/11/2020 | Midterm Exam | |  |  |  |  | | **9** | 2 | 29/11-3/12/2020 | Pathogenicity of Microorganisms | | **10** | 2 | 6-10/12/2020 | Antimicrobial Agent | |  |  |  |  | | **11** | 2 | 13-17/12/2020 | Microbial Genetics | | **12** | 2 | 20-24/12/2020 | Gene regulation in Bacteria | |  |  |  |  | | **13** | 2 | 27-31/12/2020 | Applied Microbiology | | **14** | 2 | 3-7/1/2021 | The Archaea | |  |  |  |  | | **15** | 2 | 10-14/1/2021 | Final Exam | | **16** | 2 | 17-21/1/2021 | Final Exam | |  |  |  |  | | | | **COURSE/STUDENT LEARNING OUTCOMES**   |  |  | | --- | --- | |  |  | | **1** | Compare and distinguish the basic groups of microbes, including prokaryotic microbes (Archaea, Bacteria), and Viruses, and eukaryotic microbes. | | **2** | Compare and contrast eukaryotic and prokaryotic genomes, and gene expression in each group. | | **3** | Compare and contrast the acquisition of novel genetic information in microbes via mutations and genetic exchange, specifically conjugation, transformation and transduction, | | **4** | Summarize common features of microbial pathogens, with emphasis on bacterial and viral pathogens. | | **5** | Compare and contrast beneficial and harmful uses of organisms, including applications in biotechnology and Bioterrorism. | | | | **COURSE'S CONTRIBUTION TO PROGRAM OUTCOMES** (Blank : no contribution, I: Introduction, P: Profecient, A: Advanced )   |  |  |  | | --- | --- | --- | |  | **Program Learning Outcomes** | **Cont.** | | **1** | Write accurately and clearly about biology topics that conform to the scientific conventions of that field. | I | | **2** | Describe the molecular components of living things, their heredity transformations and the main concerns in these biological process | I | | **3** | Identify and analyze the microorganisms including bacteria, fungi and virus and their roles in nature. | I | | **4** | Characterize the features of plant organs/tissues/cells/organelles involved in cellular respiration, photosynthesis, reproduction and growth. | P | | **5** | Describe the micro and macro anatomy of the living systems and recognize the relationship between structure and function at all biological systems and levels. | P | | **6** | Apply safety and proper techniques in the laboratory, and report the results of conducted experiments. | P | | **7** | Use appropriate methods and techniques to improve their students’ critical thinking, creative thinking and problem-solving skills. | A | | **8** | Effectively organize and manage classrooms. | A | | **9** | Use required methods and techniques for student-centered teaching by considering individual and cultural differences of students. | A | | **10** | Develop research studies that applies quantitative or qualitative research methods that address research questions in the field. | A | | | | **Prerequisites (Course Reading List and References):** | Submission of the course | | **Student's obligation (Special Requirements):** | Textbook Class attendance at every session and full participation Satisfactory completion of five examinations, (including the Mid-Term and Final Exam), quizzes, and assignments Lab. Coats for every lab. | | **Weekly Laboratory/Practice Plan:** | |  |  |  |  | | --- | --- | --- | --- | | **Week** | **Hour** | **Date** | **Topics** | | 1 | 2 | 7-8/10/2020 |  | | 2 | 2 | 11-15/10/2020 | Microscopy and Lab equipment | |  |  |  |  | | 3 | 2 | 18-22/10/2020 | Slide Preparation | | 4 | 2 | 25-28/10/2020 | Culture Media types | |  |  |  |  | | 5 | 2 | 1-5/11/2020 | Preparation of Culture Media | | 6 | 2 | 8-12/11/2020 | Isolation of Bacteria | |  |  |  |  | | 7 | 2 | 15-19/11/2020 | Sampling | | 8 | 2 | 22-26/11/2020 | Cultivation | |  |  |  |  | | 9 | 2 | 29/11-3/12/2020 | Isolation of Pure Cultures | | 10 | 2 | 6-10/12/2020 | Preparation of Specimens | |  |  |  |  | | 11 | 2 | 13-17/12/2020 | Staining of Specimens | | 12 | 2 | 20-24/12/2020 | Staining of Specimens | |  |  |  |  | | 13 | 2 | 27-31/12/2020 | Bacterial Identification | | 14 | 2 | 3-7/1/2021 | Antibiogram | |  |  |  |  | | 15 | 2 | 10-14/1/2021 | Antibiogram Resulting | | 16 | 2 | 17-21/1/2021 | Final Exam | |  |  |  |  | | | **Course Book/Textbook:** | Microbiology - An Introduction | | **Other Course Materials/References:** | PPT’s, Lab. manual and course notes | | **Teaching Methods (Forms of Teaching):** | Lectures, Practical Sessions, Excersises, Presentation | | **COURSE EVALUATION CRITERIA**   |  |  |  | | --- | --- | --- | | **Method** | **Quantity** | **Percentage (%)** | | Participation | 1 | 5 | | Quiz | 3 | 3 | | Homework | 2 | 2 | | Midterm Exam(s) | 1 | 17 | | Laboratory | 1 | 25 | | Final Exam | 1 | 40 | | **Total** | | **100** | | **Examinations:**Essay Questions, True-False, Fill in the Blanks, Multiple Choices, Short Answers, Matching |  |  | | | | **Extra Notes:** | | | **ECTS (ALLOCATED BASED ON STUDENT) WORKLOAD**   |  |  |  |  | | --- | --- | --- | --- | | **Activities** | **Quantity** | **Workload Hours for 1 quantity\*** | **Total Workload** | | Theoretical Hours | 16 | 2 | 32 | | Practical Hours | 16 | 2 | 16 | | Final Exam | 1 | 13 | 13 | | Participation | 1 | 10 | 10 | | Quiz | 3 | 9 | 27 | | Homework | 2 | 3 | 6 | | Midterm Exam(s) | 1 | 9 | 9 | | Laboratory | 1 | 12 | 12 | | **Total Workload** | | | **125** | | **ECTS Credit (Total workload/25)** | | | **5** | | |   **Peer review**   |  |  |  | | --- | --- | --- | | Signature: | Signature: | Signature: | | Name: | Name: | Name: | | Lecturer | Head of Department | Dean | |