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| https://admin.antalya.edu.tr/files/139/abu-logo-en.jpg | **ECTS Course Description Form** |
| **PART I ( Senate Approval)** |
| **Offering School**  | **Antalya Bilim University** |
| **Offering Department** | **Industrial Engineering** |
| **Program(s) Offered to** | **All engineering** | **Elective** |
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| **Course Code**  | **BIO 102** |
| **Course Name** | **Biology** |
| **Language of Instruction** | **English** |
| **Type of Course** | **Mandatory - Lecture** |
| **Level of Course** | **Undergraduate** |
| **Hours per Week** | **Lecture: 3** | **Laboratory:-** | **Recitation:** - | **Practical: -** | **Studio:**- | **Other:** *-* |
| **ECTS Credit** | **4** |
| **Grading Mode** | **Letter Grade** |
| **Pre-requisites** | **CHEM101** |
| **Co-requisites** | **-** |
| **Registration Restriction** | *-* |
| **Educational Objective** | 1. To familiarize the students with the basic organization of organisms and subsequent building to a living being
2. To impart an understanding about the machinery of the cell functions that is ultimately responsible for various daily activities
3. To provide knowledge about biological problems that require engineering expertise to solve them
 |
| **Course Description** | The BIO-102 covers the fundamental aspects of General Biology. The cell, genetic, evolution, plant and animal biology and the ecology constitute the sub-titles of this course. |
| **Learning Outcomes**  | **LO1** | 1. will be able to improve the matter and energy knowledge in the organisms,
2. will be able to describe the form and function relationship between the cell and the organism,
3. will be able to explain genetic transfer in organism and populations,
4. will be able to explain the types of life forms and their functions,
5. will be able to define the relation between environments of the life forms and ecosystem.
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| **LO2** |
| **LO3** |
| **LO4** |
| **LO5** |
| **LO6** |
| **n..** |
| **PART II ( Faculty Board Approval)** |
| **Basic Outcomes (University-wide)** | **No.** | **Program Outcomes** | **LO1** | **LO2** | **LO3** | **LO4** | **LO5** | **LO6** |
| **PO1** | **Ability** to communicate effectively and write and present a report in Turkish and English.  | **LO1, LO2, LO3, LO4, LO5****LO1, LO2, LO3, LO4, LO5****LO1, LO2, LO3, LO4, LO5****LO1, LO2, LO3, LO4, LO5****LO1, LO2, LO3, LO4, LO5****LO1, LO2, LO3, LO4, LO5****LO1, LO2, LO3, LO4, LO5****LO1, LO2, LO3, LO4, LO5****LO1, LO2, LO3, LO4, LO5****LO1, LO2, LO3, LO4, LO5****LO1, LO2, LO3, LO4, LO5****LO1, LO2, LO3, LO4, LO5** |
| **PO2** | **Ability** to work individually, and in intra-disciplinary and multi-disciplinary teams. |
| **PO3** | **Recognition** of the need for life-long learning and **ability** to access information , follow developments in science and technology, and continually reinvent oneself. |
| **PO4** | **Knowledge** of project management, risk management, innovation and change management, entrepreneurship, and sustainable development. |
| **PO5** | **Awareness** of sectors and **ability** to prepare a business plan. |
| **PO6** | **Understanding** of professional and ethical responsibility and **demonstrating** ethical behavior. |
| **Faculty Specific Outcomes** | **PO7** | Ability to develop, select and use modern techniques and tools necessary for engineering applications and ability to use information technologies effectively. |
| **PO8** | Recognition of the effects of engineering applications on health, environment and safety in the universal and societal dimensions and the problems of the time and awareness of the legal consequences of engineering solutions. |
| **PO9** | Ability to identify, define, formulate and solve complex engineering problems; and electing and applying appropriate analysis and modeling methods for this purpose. |
| **Discipline Specific Outcomes (program)** | **PO10** | Sufficient knowledge in mathematics, science and civil engineering; and the ability to apply theoretical and practical knowledge in these areas to model and solve engineering problems. |
| **PO11** | Ability to design a complex system, process, device or product to meet specific requirements under realistic constraints and conditions of economic, environmental, sustainability, manufacturability, ethics, health, safety, social and political issues; and the ability to apply modern design methods for this purpose. |
| **PO12** | Ability to design experiments, conduct experiments, collect data, analyze and interpret results for the examination of engineering problems. |
| **Specialization Specific Outcomes** | **PO N….** | **-** |
| **PART III ( Department Board Approval)** |
| **Course Subjects, Contribution of Course Subjects to Learning Outcomes, and Methods for Assessing Learning of Course Subjects** | **Subjects** | **Week** |  | **LO1** | **LO2** | **LO3** | **LO4** | **LO5** | **LO6** |
| **S1** | **1-2** | **THE ROLE OF CHEMISTRY IN BIOLOGY** (Biology and Its Themes**,** Atoms and Molecules**,** The Chemistry of Water**,** Carbon: The Basis of Molecular Diversity**,** Biological Macromolecules and Lipids**,** Energy and Life) | A1-A2 | A1-A2 | A1-A2 | A1-A2 | A1-A2 | A1-A2 |
| **S2** | **3-4** | **CELL BIOLOGY** (Cell Structure and Function**,** Cell Membranes**,** Cellular Signalling**,** Cell Respiration**,** Photosynthetic Processes**,** Mitosis) | A1-A2 | A1-A2 | A1-A2 | A1-A2 | A1-A2 | A1-A2 |
| **S3** | **5-6** | **THE GENETIC BASIS OF LIFE** (Sexual Life Cycles and Meiosis **,** Mendelian Genetics, Linkage and Chromosomes**,** Nucleic Acids and Inheritance**,** Expression of Genes**,** Control of Gene Expression**,** DNA Technology,The Evolution of Genomes) | A1-A2 | A1-A2 | A1-A2 | A1-A2 | A1-A2 | A1-A2 |
| **S4** | **7-8** | **EVOLUTION** (How Evolution Works, Phylogenetic Reconstruction, Microevolution, Species and Speciation, Macroevolution) | A1-A2, A1-A2, A1-A2, A1-A2, A1-A2A1-A2, A1-A2, A1-A2, A1-A2, A1-A2A1-A2, A1-A2, A1-A2, A1-A2¸ A1-A2A1-A2, A1-A2, A1-A2, A1-A2, A1-A2 |
| **S5** | **9-10** | **PLANTS: STRUCTURE AND FUNCTION** (Plant Structure and Growth, Transport in Vascular Plants, Plant Nutrition, Reproduction of Flowering Plants, Plant Signals and Behavior) |
| **S6** | **11-12** | **ANIMALS: STRUCTURE AND FUNCTION** (The Animal Body, Chemical Signals in Animals, Animal Digestive Systems, Animal Transport Systems, Animal Excretory Systems, Animal Reproductive Systems, Development in Animals, Animal Defenses Against Infection, Electrical Signals in Animals, Neural Regulation in Animals, Sensation and Movement in Animals) |
| **S7** | **13-14** | **THE ECOLOGY OF LIFE** (An Overview of Ecology, Behavioral Ecology, Populations and Life History Traits, Biodiversity and Communities, Energy Flow and Chemical Cycling in Ecosystems, Conservation and Global Ecology) |
| **Assessment Methods, Weight in Course Grade, Implementation and Make-Up Rules**  | **No.** | **Type** | **Weight** | **Implementation Rule** | **Make-Up Rule** |
| **A1** | **Exam** | **70 %** | No electronic devices are allowed in the examinations except for calculators. | If a student misses an exam and provides an acceptable legitimate document, a make-up exam should be provided for at least one midterm. |
| **A2** | **Homework** | **30 %** | The duration is one week. Assignments are announced to the students at least one week in advance. |  |
| **A3** | **Quiz** |  |  |  |
| **A4** | **Project** |  | - |  |
| **A5** | **Report** |  | - |  |
| **A6** | **Presentation** |  |  |  |
| **A7** | **Attendance/ Interaction** |  |  |  |
| **A8** | **Class/Lab./****Field Work** |  | - |  |
| **A9** | **Other** |  | - |  |
| **TOTAL** | **100 %** |
| **Evidence of Achievement of Learning Outcomes** | Every topic is tested with at least one exam question. In order to pass, a student needs to accumulate certain percentage of points and this percentage is determined by the class mean. |
| **Method for Determining Letter Grade** | The method on which the letter grade is based on will be announced at the beginning of the semester, and this method may be subjected to change depending on the performance of the students.

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| **Assessment** | Midterm | Final | Homeworks | TOTAL |
| **Points** | 30 | 40 | 30 | 100 |

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| **Total Points** | 100-95 | 94-85 | 84-80 | 79-75 | 74-65 | 64-60 | 59-55 | 54-50 | 49-45 | 44-40 | 39-0 |
| **Letter Grade** | A | A- | B+ | B | B- | C+ | C | C- | D+ | D | F |

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| **Teaching Methods, Student Work Load** | **No** | **Method** | **Explanation** | **Hours** |
| ***Time applied by instructor*** |
| **1** | **Lecture** |  | *3x14=42* |
| **2** | **Interactive Lecture** |  |  |
| **3** | **Recitation** |  |  |
| **4** | **Laboratory** |  |  |
| **5** | **Practical** |  |  |
| **6** | **Field Work** |  |  |
| ***Time expected to be allocated by student*** |
| **7** | **Project** |  |  |
| **8** | **Homework** | Homework and Preparations | *12* |
| **9** | **Pre-class Learning of Course Material**  | Pre-class/after class individual study | *42* |
| **10** | **Review of Course Material** | Review of course materials pre-class/ after class | *42* |
| **11** | **Studio** |  |  |
| **12** | **Office Hour** |  |  |
| **TOTAL** | *1 ECTS means an average of 30 hours of work.* |
| **IV. PART** |
| **Instructor** | **Name** | Prof. Dr. Eşref DEMİR |
| **E-mail** | esref.demir@antalya.edu.tr |
| **Phone Number** | +902422450088Ext.: 2386 |
| **Office Number** | A2-84 |
| **Office Hours** |  |
| **Course Materials** | **Mandatory** | Authors: Campbell N.A., Urry L.A, Cain M.L, Wasserman S.A, Minorsky P.V, Reece J.B. 2018. Biology, A Global Approach. Eleventh Edition, Pearson, 1342 pages. |
| **Recommended** |  |
| **Other** | **Scholastic Honesty** | Violations of scholastic honesty include, but are not limited to cheating, plagiarizing, fabricating information or citations, facilitating acts of dishonesty by others, having unauthorized possession of examinations, submitting work of another person or work previously used without informing the instructor, or tampering with the academic work of other students. Any for of scholastic dishonesty is a serious academic violation and will result in a disciplinary action. |
| **Students with Disabilities** | Reasonable accommodations will be made for students with verifiable disabilities. |
| **Safety Issues**  | The handling of the course does not require any special safety requirements. |
| **Flexibility** | Circumstances may arise during the course that prevents the instructor from fulfilling each and every component of this syllabus; therefore, the syllabus is subject to change.  Students will be notified prior to any changes.  |