| FBA 202 General Biology II | | | | | | | | DEPARTMENT OF PRIMARY-EDUCATION (SCIENCE EDUCATION) | |
|---|---|---|---|---|---|---|---|---|---|
| **Semester** | **Teaching Methods** | | | | | | | **Credits** | |
| **2/2** | **Lecture** | **Recite** | **Lab.** | | | **Other** | **Total** | **Credit** | **ECTS Credit** |
| | **56** | **-** | | | | | **56** | **4** | 6 |
| **Language** | Turkish | | | | | | | | |
| **Compulsory / Elective** | Compulsory | | | | | | | | |
| **Prerequisites** | No | | | | | | | | |
| **Course contents** | Energy flow among bioses and in nature, energy flow in other bio-systems: examination of how cell respiration takes place and where the energy obtained by respiration is used. Comparison of photosynthesis in plants with respiration in animals. Tissues in animals and properties of animal tissues: types, functions and working properties of tissue. Reproduction, fertilization and development in animals: significance of reproduction, types of fertilization, embryonic development phases, development processes in different animal species. Feeding and digestion in animals: classification of animals by their way of feeding and examination of their environment they live in, differences in digestive systems by their way of feeding. Respiration in animals: types of respiration, comparison of animals by their respiration properties and examination of their environment they live in. extretory system in animals: development phases of extretory organs, differences among them and comparison of extretory products. Circulatory system in animals: examination of heart, vein and blood structures, comparison of animals having open and closed circulatory systems. Nervous system in animals: examination of structures making up nervous system, comparison of differences among them by animal classes. Homeostasis (internal balance): physiological and morphological examination of structures serving the internal balance against various external stimuli and serving the compatibility of body with external environment. | | | | | | | | |
| **Course Objectives** | Giving the basic byological knowledge | | | | | | | | |
| **Learning Outcomes and Competences** | Learning the basic byological knowledge | | | | | | | | |
| **Textbook and /or References** | Tanyolaç J., Tanyolaç T., Genel Zooloji, Hatipoğlu Yayınevi, 1985.<br>Bozcuk S., Genel Botanik, Hatipoğlu Yayınevi, 1998 | | | | | | | | |

| **Assessment Criteria** | | **If any,mark as (X)** | **Percent (%)** |
|---|---|---|---|
| | **Midterm Exams** | X | 40 |
| | **Quizzes** | - | - |
| | **Homeworks** | - | - |
| | **Projects** | - | - |
| | **Term Paper** | - | - |
| | **Laboratory Work** | - | - |
| | **Other** | - | - |
| | **Final Exam** | X | 60 |

| Instructors | Yrd.Doç.Dr. Sefa PEKOL, spekol@kastamonu.edu.tr |
|---|---|
| **Week** | |
| 1 | Energy flow among bioses and in nature, energy flow in other bio-systems: |
| 2 | Examination of how cell respiration takes place and where the energy obtained by respiration is used |
| 3 | Comparison of photosynthesis in plants with respiration in animals |
| 4 | Tissues in animals and properties of animal tissues: types, functions and working properties of tissue |
| 5 | Reproduction, fertilization and development in animals: significance of reproduction, types of fertilization |
| 6 | Embryonic development phases, development processes in different animal species |
| 7 | Feeding and digestion in animals: classification of animals by their way of feeding and examination of their environment they live in |
| 8 | Feeding and digestion in animals, differences in digestive systems by their way of feeding |
| 9 | Respiration in animals: types of respiration, comparison of animals by their respiration properties and examination of their environment they live in |
| 10 | Extretory system in animals: development phases of extretory organs, differences among them and comparison of extretory products |
| 11 | Circulatory system in animals, examination of heart, vein and blood structures |
| 12 | Circulatory system in animals, comparison of animals having open and closed circulatory systems |
| 13 | Nervous system in animals: examination of structures making up nervous system, comparison of differences among them by animal classes |
| 14 | Homeostasis (internal balance): physiological and morphological examination of structures serving the internal balance against various external stimuli and serving the compatibility of body with external environment |

| FBA 204 General Biology Laboratory II | | | | | | DEPARTMENT OF PRIMARY-EDUCATION (SCIENCE EDUCATION) | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Semester** | **Teaching Methods** | | | | | | | **Credits** | |
| **2/2** | **Lecture** | **Recite** | **Lab.** | | | **Other** | **Total** | **Credit** | **ECTS Credit** |
| | **-** | **-** | **28** | | | | **28** | **1** | 2 |
| **Language** | Turkish | | | | | | | | |
| **Compulsory / Elective** | Compulsory | | | | | | | | |
| **Prerequisites** | No | | | | | | | | |
| **Course contents** | Examination of photosynthesis in plants, factors affecting photosynthesis, protists and tissues, comparison of different tissue samples. Raising of bioses in laboratory environment, examination of embryonic development phases of bioses (frogs, chicks). Observation of respiration in animals, examination blood cells, identification of blood types. Identification of carbonhydrate, fat and protein in nutrients. | | | | | | | | |
| **Course Objectives** | Giving the basic byological skill | | | | | | | | |
| **Learning Outcomes and Competences** | Learning the basic byological skill | | | | | | | | |

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| **Textbook and /or References** | Prof.Dr. Eşref Erdeniz, Tıbbi Biyoloji Laboratuar Uygulamaları, Palme Yayınları, 1992. Doç.Dr Gönül Algan, Doç.Dr. Cihat Toker, Bitki Hüvresi ve Morfolojisi Laboratuar Kitabı, A.Ü. Fen Fak Yayınları 1984. | | |
| **Assessment Criteria** | | **If any,mark as (X)** | **Percent (%)** |
| | **Midterm Exams** | X | 40 |
| | **Quizzes** | - | - |
| | **Homeworks** | - | - |
| | **Projects** | - | - |
| | **Term Paper** | - | - |
| | **Laboratory Work** | - | - |
| | **Other** | - | - |
| | **Final Exam** | X | 60 |
| **Instructors** | **Yrd.Doç.Dr. Sefa PEKOL, spekol@kastamonu.edu.tr** | | |
| **Week** | | | |
| **1** | Examination of photosynthesis in plants | | |
| **2** | Factors affecting photosynthesis | | |
| **3** | Structure of leaf | | |
| **4** | Observation of protists | | |
| **5** | Raising of bioses in laboratory environment | | |
| **6** | Raising of plant | | |
| **7** | Examination of embryonic development phases of bioses (chicks) | | |
| **8** | Observation of respiration in animals | | |
| **9** | Observation of respiration in plant | | |
| **10** | Tissues, comparison of different tissue samples | | |
| **11** | Examination blood cells | | |
| **12** | Identification of blood types | | |
| **13** | Identification of carbonhydrate | | |
| **14** | Identification of fat and protein in nutrients | | |

| FBA 206 **Introduction to Modern Physics** | | | | **DEPARTMENT OF PRIMARY EDUCATION (SCIENCE EDUCATION)** | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Semester** | **Teaching Methods** | | | | | | | **Credits** | |
| | **Lecture** | **Recite** | **Lab.** | | | **Other** | **Total** | **Credit** | **ECTS Credit** |
| 2/2 | 28 | - | - | - | - | | 28 | 2 | 4 |

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|---|---|---|---|
| **Language** | Turkish | | |
| **Compulsory / Elective** | Compulsory | | |
| **Prerequisites** | No | | |
| **Course Contents** | Structure of atom: atom models, energy levels of atoms, atomic and molecular spectrums. Relativity: relativity in time, dimension and mass. Photons: kuant concept, radiation of black substance, photoelectric and Compton event. Quantum Mechanics: wave – particle dilemma, De Broglie waves, indefiniteness principle, Schrödiger wave. | | |
| **Course Objectives** | To teach the basic concepts and priciples of modern physics<br>Modern Fiziğin temel kavram ve ilkelerini öğretmektir. | | |
| **Learning Outcomes and Competences** | To learn the basic concepts and priciples of modern physics | | |
| **Textbook and /or References** | **1-MODERN FİZİĞİN KAVRAMLARI**, Arthur Beiser Çeviri: Gülsen Önengüt, McGraw-Hill-Akademi ortak yayını<br>**2-FEN VE FİZİK İLKELERİ 1**,Frederick Bueche, David A. Jerde, Çeviri : Prof.Dr.Kemal Çolakoğlu, Palme Yayıncılık<br>**3-TEMEL FİZİK Cilt II**, Fishbane, Gasiorowicz, Thornton, Çeviri Prof.Dr.Cengiz YALÇIN, Arkadaş Yayınevi<br>**4- FİZİK 3(Fen Ve Mühendislik İçin)**, Serway, Beichner, Çeviri : Prof.Dr.Kemal Çolakoğlu, Palme Yayıncılık<br>**5-MODERN ÜNİVERSİTE FİZİĞİ Cilt 3(Optik ve Modern fizik),** Richards-Sears-Wehr-Zemansky, Çeviri:F. Domaniç, Çağlayan Kitabevi<br>**6- MODERN ÜNİVERSİTE FİZİĞİ Cilt 3(Optik ve Modern Fizik Problemleri)**, Richards-Sears-Wehr-Zemansky, Çözümler: prof.Dr.Fahri Domaniç,Doç.Dr.Salih DİNÇER, Çağlayan Kitabevi | | |
| **Assessment Criteria** | | **If any,mark *as (X)*** | **Percent (%)** |
| | *Midterm Exams* | | |
| | **Quizzes** | | |
| | **Homeworks** | | |
| | **Projects** | | |
| | **Term Paper** | | |
| | **Laboratory Work** | | |
| | **Other** | | |
| | **Final Exam** | | |
| **Instructors** | Doç.Dr.Sezai YALÇIN, syalcin@kastamonu.edu.tr | | |
| **Week** | **Subject** | | |
| **1** | Structure of atom | | |
| **2** | Atom models | | |
| **3** | atomic and molecular spectrums | | |

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| **4** | energy levels |
| **5** | relativity in time |
| **6** | Relativity in dimension and mass |
| **7** | Photons: kuant concept |
| **8** | radiation of black substance |
| **9** | photoelectric and Compton event |
| **10** | Quantum Mechanics |
| **11** | wave – particle dilemma |
| **12** | De Broglie waves |
| **13** | indefiniteness principle |
| **14** | Schrödiger wave |

| **FBA 209 General Chemistry IV (Organic Chemistry)** | | | | | | | | **DEPARTMENT OF PRIMARY EDUCATION (SCIENCE EDUCATION)** | |
|---|---|---|---|---|---|---|---|---|---|
| **Semester** | **Teaching Methods** | | | | | | | **Semester** | |
| | **Recite** | **Lab.** | | | | | **Other** | **Total** | **Credit** | **ECTS Credit** |
| | 28 | | | | | | | 28 | 2 | 3 |
| **Language** | Turkish | | | | | | | | | |
| **Compulsory / Elective** | Compulsory | | | | | | | | | |
| **Prerequisites** | No | | | | | | | | | |
| **Course contents** | Introduction to Organic Chemistry: atomic orbitals, chemical bonds, bond energies, lengths of bond, electronegativity and dipoles. Basic concepts in organic chemistry: molecule formula, structural formula, isomery, radical concept, organic molecules: writing and estimation of molecule formulas. Alkanes: molecule structures, labelling, properties and reactions of alkanes. Alkanes – alkynes: molecule structures, labelling, propeties and reactions of alkanes and alkynes. Aromatic compounds: molecule structures, labelling, properties and reactions of aromatic compounds. Aldehydes and Ketones: molecule structures, labelling, properties and reactions. Carboxylic acids: molecule structures, labelling, properties and reactions of carboxylic acids. Amines: molecule structures, labelling, properties and reactions of amines. Fats, proteins, DNA structure, polymers. | | | | | | | | | |
| **Course Objectives** | To learn the relation of organic chemistry with human life and environment To understand the variaty and the reasons for this variaty of organic compounds.. To understand the mechanizms of and the conversion of this compounds to each other. | | | | | | | | | |
| **Learning Outcomes and Competences** | To learn the genal formulas and properties of organic compounds. To show the basic chemical reaction mechanisms. To understand the concept of isomer. | | | | | | | | | |

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| **Textbook and /or References** | - Petrucci, H., R., Harwood, W., S., and Herring, F., G., Genel Kimya Çev. Edit. Uyar, T. Ve Aksoy, S., palme yayıncılık, Ankara, 2002.<br>- Raymond Chang, Genel Kimya Temel Kavramlar, Palme Yayıncılık, Ankara, 2006<br>- Organic Chemistry, Graham Solomons, JOHN WİLLEY & SONS, New York, 2002 | | |
| **Assessment Criteria** | | **If any,mark as (X)** | **Percent (%)** |
| | *Midterm Exams* | X | 40 |
| | **Quizzes** | - | - |
| | **Homeworks** | - | - |
| | **Projects** | - | - |
| | **Term Paper** | - | - |
| | **Laboratory Work** | - | - |
| | **Other** | - | - |
| | **Final exam** | X | 60 |
| **Instructors** | Yrd.Doç.Dr. Atila ÇAĞLAR acaglar@kastamonu.edu.tr<br>Yrd.Doç.Dr. Zekeriya YERLİKAYA zekeriya@ kastamonu.edu.tr<br>Yrd.Doç.Dr. Bahattin AYDINLI baydinli@ kastamonu.edu.tr | | |
| **Week** | **Subjects** | | |
| **1** | Introduction to Organic Chemistry | | |
| **2** | atomic and hybrid orbitals | | |
| **3** | chemical bonds, bond energies, lengths of bond, electronegativity and dipoles. | | |
| **4** | Basic concepts in organic chemistry: molecule formula, structural formula, | | |
| **5** | isomery, radical concept | | |
| **6** | organic molecules: writing and estimation of molecule formulas. Alkanes: molecule structures, labelling, properties and reactions of alkanes. | | |
| **7** | Alkanes – alkynes: molecule structures, labelling, propeties and reactions of alkanes and alkynes | | |
| **8** | Aromatic compounds: molecule structures, labelling, properties and reactions of aromatic compounds. | | |
| **9** | Aldehydes and Ketones: molecule structures, labelling, properties and reactions. | | |
| **10** | Carboxylic acids: molecule structures, labelling, properties and reactions of carboxylic acids. | | |

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| **11** | Amines: molecule structures, labelling, properties and reactions of amines. |
| **12** | Fats, proteins |
| **13** | DNA structure |
| **14** | polymers |