Course Title	**Chemistry for Biomedical Sciences**				
Course Code	ABS101				
Course Type	Compulsory				
Level	BSc (Level 1)				
Year / Semester	1st year /1st Semester				
Teacher's Name	Dr Maria Rikkou Kalourkoti, Dr Panagiotis Kouis				
ECTS	6	Lectures / week	3	Laboratories / week	2
Course Objectives	Life is a well orchestrated series of chemical reactions so it is fundamental that graduates of Applied Biomedical Sciences acquire a sound understanding of the subject of Chemistry and its terminologies. The main objectives of the course are: To introduce students to the nomenclature of chemistry, the principles of chemical bonding, the properties of molecules and the types of chemical interactions: To provide students with the principles , theoretical knowledge and practical skills needed to acquire a sound understanding of Organic Chemistry with a focus on its importance for Biomedical sciences. To learn basic practical methods, laboratory analytical techniques and qualitative as well as quantitative chemical analysis. The course will enable students to understand the many interactions between Chemistry and Biology and how these can best be applied in the analysis of Biological samples, in the clinical laboratory				
Learning Outcomes	At the completion of the course the students will be able to: • Recognize and explain the terminology and the basic concepts of Organic /Biological Chemistry. • Describe the classification, nomenclature, identification of organic molecules • Learn the basic building blocks of cells • Identify functional groups • Understand the different types of organic reactions • Identify and classify organic compounds based on their functional groups and relate them to building blocks of biological compounds • Acquire practical skills in organic chemistry and understand the uses of spectroscopy /chromatography and analytical techniques as applied in Biomedical laboratories				
Prerequisites	None	Required	None		
Course Content	*Theory* • Moles, molecular weight, Quantitative Chemistry/Stoichiometry • Atomic/molecular structure				

	• The properties of water and the basis of life • Concentration of solutions/dilutions, pH • Types of bonding, ionic, covalent, electronegativity • Intermolecular forces, Hydrogen bonding • Shapes of molecules • Chemical reactions , balancing equations, equilibrium, reversible reactions/redox reactions • Organic chemistry, homologous series/functional groups, isomers • Chemical energetics • Natural polymers/ proteins/lipids, carbohydrates. Laboratory exercises: • Health and Safety in the Chemistry laboratory • Preparation of solutions/ Measurement of pH • Detection and identification of functional groups • Quantitative and Qualitative analysis • Separation, identification and properties of organic compounds • Use of chromatography and spectroscopy techniques
Teaching Chemistry for Biological Sciences	The teaching of the course includes lectures to help students understand the theoretical background, and laboratory exercises in order to get a better comprehension of the main concepts of Organic Chemistry as applied to Biomedical Sciences. Methods such as discussion, questions/answers, and pros/cons, are used to enhance student's participation. PowerPoint and image-rich material and short animations are used to better understand the principles of Chemistry. The laboratory exercises are conducted in the Chemistry and Pharmaceutical Chemistry laboratory using the appropriate laboratory equipment, under the instructor's supervision. Appropriate preparation and demonstration by the laboratory supervisor precedes each laboratory exercise. Assessment of laboratory exercises includes laboratory reports submitted by each student at the end of each lab exercise.
Bibliography	<u>Textbooks:</u> 1. ISBN9780805395716. An Introduction to Chemistry for Biology Students George I. Sackheim 2. ISBN9780230000117 Chemistry Lewis and Evans Publ. Palgrave Benjamin-Cummings Publishing Company (Publisher) <u>References:</u> A list of recently published articles will be provided for further reading.
Assessment	Course Work 40% • Mid-term Test 20% • Lab reports 20% Final Exam 60% For student evaluation, the overall grade is determined by a written midterm exam (20%), a laboratory grade (20%) and a written final exam (60%). The mid-term exam is carried out between the 6th and 8th week and it mainly includes short answer- questions and problem- solving questions

	and examines specific modules of the course. As far as the laboratory grade is concerned, it comprises of the evaluation of the laboratory reports (60% of the laboratory grade) submitted by the students after every experiment and a final laboratory examination (40% of the laboratory grade) which mainly includes short answer questions and problem-solving questions. In their laboratory reports, students are asked to describe the experimental procedure, to evaluate and analyse their results and to answer specific questions. The following criteria are taken into account when evaluating laboratory reports: (a) experimental data collection (30%), (b) data analysis (40%) and application of theory to draw conclusions (30%). The final exam of the course is carried out during the 14th-16th week of each semester and includes short answer questions, decision questions, and problem-solving questions regarding all course modules. The final assessment of the students is formative and summative and is assured to comply with the subject's expected learning outcomes and the quality of the course.
Language	Greek, English