

BME109e Introduction to Chemistry and Biochemistry

Level: 1

Credit Units: 5 Credit Units

Language: ENGLISH

Presentation Pattern: EVERY JULY

E-Learning: BLENDED - Learning is done MAINLY online using interactive study materials in Canvas. Students receive guidance and support from online instructors via discussion forums and emails. This is supplemented with SOME face-to-face sessions. If the course has an exam component, this will be administered on-campus.

Synopsis:

BME109 is an introduction to chemistry and biochemistry for students in biomedical engineering. Knowledge of basic chemistry and biochemistry is important for understanding just about any area of biomedical engineering or sciences from the function of cells to the behavior and health of organisms. This course introduces you to key concepts, principles, and the practice of chemistry and biochemistry. The course helps you understand the significant connections among chemistry, health and the treatment of disease. Topics include structure and bonding in inorganic and organic molecules and biomolecules; chemical equations; types of chemical and biological reactions; properties of gases and water in biological systems; enzyme kinetics; and membrane structure and functions.

Topics:

- Atom and Chemical Bonding
- Solutions, Acids and Bases, Energy, Rate and Equilibrium
- Introduction to Organic Chemistry
- Carbohydrates and Lipids
- Protein and Nucleic Acids
- Enzymes

Textbooks:

by Katherine J Denniston, Joseph J Topping and Robert I. Caret,: General, Organic and Biochemistry (eTextbook) 9th edition Mc-Graw Hill
ISBN-13: 9781259675836

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ISBN-13: 9781259675836-AA

Learning Outcome:

- Define the atomic structure and formation of ionic and covalent bonding
- Discuss acids, bases and pH
- Describe what happens during a chemical reaction
- Describe the basic chemical structures of organic compounds, carbohydrates, proteins, lipids, nucleic acids and their general functions and characteristics
- Explain the molecular basis of human growth and disease
- Classify enzymes and explain their general effects and regulation
- Apply the Periodic Table of elements to solve simple chemistry calculations
- Write nomenclature and structure of organic compounds
- Solve simple biochemical problems related to biomolecules and enzymes

Assessment Strategies:

Continuous Assessment Component	Weightage (%)
PRE-CLASS QUIZ	2
PRE-CLASS QUIZ	2
PRE-CLASS QUIZ	2
QUIZ	12
QUIZ	12
Sub-Total	30

Examinable Component	Weightage (%)
Written Exam	70
Sub-Total	70

Weightage Total **100**