AC 0102

Practical Biochemistry

About the course …

Biochemistry is the application of chemistry to study biological processes at the cellular and molecular level.

Biochemistry is also concerned with the study of the structure and function of cellular components, such as proteins, carbohydrates and lipids.

Biochemistry is both a life science and a chemical science; it has provided explanations for the causes of many diseases in humans.

About the course …

The practical biochemistry course is designed to introduce students to:

- Chemistry of carbohydrates, lipids and proteins.

Aims and objectives

Aims:

• To provide an introduction to the basic concepts of biochemistry necessary for biochemical and biotechnology studies.

• To provide an understanding of the basic structure and behaviour of biochemicals.

• To introduce students to biochemical structures and the relationship of structure to function.

• To provide an understanding of the structure, function and kinetic properties of enzymes.

• To establish an understanding of the quantitative aspects of biochemical analyses.

• To establish the importance of chemical safety and precautions in the biochemical laboratory.

• To develop basic practical biochemical skills for the handling and analysis of biomolecules.

Learning Objectives:

After successfully completing this course, the student should be able to:

1. Demonstrate an understanding of the properties of biomolecules and be able to predict behavior of molecules from structures.

2. Demonstrate an ability to name and write structures for representative molecules of the major classes of biochemicals

3. Interpret kinetic data and make predictions based on a simple model of enzyme kinetics.

4. Design protocols for biochemical assays.

5. Acquire and interpret data in the laboratory.

6. Understand, select and use buffers

Teaching Room & laboratories

Please, the first bench is reserved for staff.

Practical sessions will start immediately after getting the theoretical background in lab

Laboratory Policies

Attendance

Attendance in the lab is obligatory.

You are allowed to enter the teaching room within the first 10 min of the lab session.

If you miss a lab session, you will NOT be allowed to repeat the missed lab experiment under any circumstances.

Downloads

you are required to download the week's experiment and bring the hard copy to the lab, and no excuses will be accepted if you come to the lab without your own copy.

Downloads (cont.)

After downloading experimental protocols, you are required to study the lab exercise before coming to the lab to avoid any confusion.

At the end of the lab session, a report with completed lab work will be submitted to the lab instructor.

Cleanup

You should cleanup your work area after the lab experiment and return it back the way you found it.

Every student should bring his own soft tissue paper.

The lab instructor will check your work area before you leave the lab.

Waste disposal

There are 3 types of containers in the lab:

- Green (for general waste)
- Violet (for sharp objects)
- Red (for biohazard material)

Safety measures & rules

Always wear your lab coat before entering the lab.

Use goggles & gloves if necessary as directed by your lab instructor.

Safety measures & rules

Behave in a respectable and responsible way allover the lab.

Only take your notebook and pen to the lab area; bags, coats, ...etc should be kept in your locker.

Mobile phones are allowed in condition to be kept on a silent mode.

Safety measures & rules

Tie up long hair to keep it away from flame.

Safety measures & rules

Do not touch anything from the lab equipment unless told to do so by the lab instructor.

Assume all chemicals in the lab are dangerous.

Do not taste any solution or chemical.

Safety measures & rules

Do not pipette any solution by mouth.

Do not carry reagents around the lab.

No food or drink is allowed in the lab.

Safety measures & rules

Note the position of the safety showers in the lab.

Wash your hands thoroughly before leaving the lab.

Thank You