COURSE OUTLINE: CHEM1150 - BIOCHEMISTRY

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Course Code: Title	CHEM1150: BIOCHEMISTRY
Program Number: Name	3401: HONOURS BSCN
Department:	BSCN - NURSING
Academic Year:	2024-2025
Course Description:	Biochemistry is the study of the chemical processes that drive biological systems. This course explores the basic principles of biochemistry and develops the student`s appreciation and understanding of biological networks. Because the field of biochemistry is continually evolving and touches many areas of cell biology, this course also includes an elementary introduction to the study of molecular biology. Students will be introduced to general biochemical concepts that will provide a basis for understanding the biological and chemical principles underlying human physiology and disease.
Total Credits:	3
Hours/Week:	3
Total Hours:	36
Prerequisites:	There are no pre-requisites for this course.
Corequisites:	There are no co-requisites for this course.
This course is a pre-requisite for:	NUTR2150, NUTR3150
Essential Employability Skills (EES) addressed in this course:	EES 2 Respond to written, spoken, or visual messages in a manner that ensures effective communication. EES 3 Execute mathematical operations accurately. EES 4 Apply a systematic approach to solve problems. EES 5 Use a variety of thinking skills to anticipate and solve problems. EES 10 Manage the use of time and other resources to complete projects. EES 11 Take responsibility for ones own actions, decisions, and consequences.
General Education Themes:	Science and Technology
Course Evaluation:	Passing Grade: 65%, C A minimum program GPA of 2.0 or higher where program specific standards exist is required for graduation.
Books and Required	No materials required by TBA

Resources:

Ends in View and Processes:

Ends in View	Process
1. Gain an understanding of the foundations the exist for all living things	1.1 Discuss why water is the molecule that supports all life 1.2 Explain why carbon is considered to be the backbone of life 1.3 Discuss how pH & buffers impact living organisms 1.4 Determine acid - base imbalances & how they can be compensated
Ends in View	**Process**
2. Identify the structure and function of macromolecules in the cell.	2.1 List the major categories of organic molecules in the human body. 2.2 Describe the structure and function of the major macromolecules.
Ends in View	**Process**
3. Develop an appreciation for how an organism`s metabolism transforms matter and energy - The Energy of Life	3.1 Describe the fundamentals of cellular energetics including the laws of thermodynamics 3.2 Discuss how the free-energy change of a reaction can tells us whether or not a reaction occurs spontaneously 3.3 Describe ATP`s role in powering cellular work by coupling exergonic reactions to endergonic reactions 3.4 Identify how enzymes speed up metabolic reactions by lowering energy barriers 3.5 Describe how regulation of enzyme activity helps control metabolism
Ends in View	**Process**
4. Metabolic pathways	4.1 Describe glycolysis, including cellular location, substrates, products, and regulation 4.2 Describe the tricarboxylic acid cycle including cellular location, substrates, products, and regulation 4.3 Describe the electron transport chain including the cellular location, electron carriers, and final products
Ends in View	**Process**
5. Identify the structure and function of the cell membrane	5.1 Describe the fluid mosaic model of the cell membrane 5.2 Identify and describe the different types of transport mechanisms that move molecules across the cell membrane 5.3 Explain how external signals are converted to responses within the cell
Ends in View	**Process**
6. Examine specific examples of laboratory methods and the function of selected medications	6.1 Describe basic methodologies used in laboratory diagnostics 6.2 Describe basic diagnostic terms such as sensitivity & specificity in regards to laboratory tests 6.2 Discuss the mechanism of action of selected medications

Evaluation Process and

Evaluation Type	Evaluation Weight

Grading System:	

5 Unit Quizzes	65%
Final Exam	25%
In Class Activities	10%

Date:	November 26, 2024
Addendum:	Please refer to the course outline addendum on the Learning Management System for further information.