PRE-MEDICAL STUDIES CERTIFICATE

The Pre-Medical Studies Certificate comprises a set of courses that have been identified as providing the knowledge that is critical for success on the MCAT and also identified as required by most medical schools for admission. Students who complete the certificate should be well prepared to successfully compete for admission to medical schools, and the certificate provides evidence that the student has successfully completed the foundational pre-medical courses. This certificate is especially useful for post-baccalaureate students who have an existing BS or BA degree and are returning to the University to complete pre-medical requirements prior to applying to medical school.

Code	Title	Hours
BIOL 2170	Fundamentals of Life Science: Biomolecules, Cells, and Inheritance	4
BIOL 2180	Fundamentals of Life Science Laboratory: Biomolecules, Cells, and Inheritance	1
BIOL 2150	Fundamentals Of Life Science: Diversity Of Life, Evolution And Adaptation	4
BIOL 2160	Fundamentals Of Life Science Laboratory: Diversity Of Life, Evolution And Adaptation	1
CHEM 1230	General Chemistry I	4
CHEM 1280	General Chemistry Lab I	1
CHEM 1240	General Chemistry II	4
CHEM 1290	General Chemistry Lab II	1
CHEM 2410	Organic Chemistry I	3
CHEM 2460	Organic Chemistry Laboratory I for Non-Majors	1
or CHEM 2480	Organic Chemistry Laboratory I for Majors: Separations and Elementary Synthesis	
CHEM 2420	Organic Chemistry II	3
CHEM 2470	Organic Chemistry Laboratory II for Non-Majors	1
or CHEM 2490	Organic Chemistry Laboratory II for Majors: Synthesis and Identification	
CHEM 3510	Biochemistry I	3
Take one of the following sets:		5
PHYS 2070 & PHYS 2075	General Physics I and General Physics I - Lab	
PHYS 2130 & PHYS 2135	Physics For Science And Engineering Majors I and Physics for Science and Engineering Majors I - Lab	
Take one of the following set:		5
PHYS 2080 & PHYS 2085	General Physics II and General Physics II - Lab	
PHYS 2140 & PHYS 2145	Physics For Science And Engineering Majors II and Physics for Science and Engineering Majors II - Lab	
MATH 1750	Calculus For The Life Sciences With Applications I	4
or MATH 1850	Single Variable Calculus I	
MATH 2600	Introduction To Statistics	3
PSY 1010	Principles Of Psychology	3
SOC 1010	Introduction To Sociology	3
Total Hours		**54**

- Students will be able to define and explain how biomolecules have unique properties that determine how they contribute to the structure and function of cells and how they participate in the processes necessary to maintain life, including the genetic control of heritable information between generations, and the principles of bioenergetics and energy metabolism.
- Students will be able to define and explain how organized assemblies of molecules, cells, and organs interact to carry out the functions of living organisms, including cell division, differentiation and specialization, organismal physiology
- Students will be able to define and explain the physiological processes through which multicellular organisms sense the internal and external environment, and through integrated functioning, maintain a stable internal environment within an ever-changing external environment, including the structure and integrative functions of the main organ systems, and the nervous and endocrine coordination of these organ systems.
- Students will be able to define and explain how living organisms transport materials, sense their environment, process signals, and respond to changes in terms of chemical and physical properties, including translational motion, forces, work, energy, and equilibria, electrochemistry and electrical circuits, how light and sound interact with matter, of fluids as applied to the circulatory system, gas movement and gas exchange, and atomic structure and chemical behavior.
- Students will be able to define and explain the principles that govern chemical interactions and reactions that form the basis of the molecular interactions and dynamics of living systems, including the unique properties of water and its solutions, the nature of intermolecular interactions, structure, function, and reactivity of biologically relevant molecules, chemical thermodynamics and kinetics, and separation and purification methods.
- Students will be able to define and explain how biological, psychological, and sociocultural factors influence the ways that individuals perceive, think about, and react to the world.
- Students will be able to define and explain how biological, psychological, and sociocultural factors influence behavior and behavioral change including individual and social influences on human behavior, attitude and behavior change.
- Students will be able to define and explain the psychological, sociocultural, and biological factors that influence the way we think about ourselves and others, as well as how we interact with others, including self identity and social interactions.
- . Students will be able to define and explain the how cultural, social differences, social stratification and access to resources influence well-being, including te impacts of demography and social inequality on well-being.
- Students will be able to analyze and evaluate scientific explanations and predictions
- Students will be able to analyze and evaluate the design and execution of research experiments including essential components of the experiment and ethical issues

- Students will be able to interpret patterns in data presented in tables, figures, and graphs and explain the conclusions that can be supported by the data.