

## ASSESSMENT PLAN

**Program / Department:** Prehealth Professions Programs/Department of Biology

**Mission** (Our mission statement is under review)

The vision of the Department of Biological Sciences is to provide a challenging and rewarding education in a range of disciplines ranging from Environmental to Molecular Biology to Secondary Teaching. We focus on addressing the needs of a diverse population of part and full time, undergraduate and graduate students. Through small class sizes, regular interaction with faculty from diverse cultures and multiple research experiences, we aim to prepare our graduates to achieve success as in all careers encompassed by the Biological Sciences.

### Program Objectives

1. To assist students in their quest to become health professionals
2. To ensure the CSU Pre-Health curriculum is best suited for optimization of admission into health professional schools
3. To provide our students with the skills needed to enroll in professional or graduate level degree granting programs

### Learning Outcomes

1. Students will validate their knowledge of the science fields (biology, chemistry and physics) represented on professional field exams
2. Students shall articulate knowledge and understanding of two pre-health courses: Biology 1710 (Introduction to Biology) and Physiology 4330 (Physiological Control Mechanisms)
3. Students will integrate concepts from various scientific fields necessary to enter into medical/dental school as their chosen profession as based upon the pre-health course matrix (attached)

### Assessments

<u>Assessment</u>	<u>Learning Outcome</u>	<u>Criteria</u>
1. Field Exams Instrument	1, 3	Evaluation of scores
2. Biology 1710 Course	2	Greater Post-test score than Pre-Test
3. Physiology 4330 Course	2	Greater Post-test score than Pre-Test
4. Health School Survey	1,3	70% or Greater Acceptances

### **Criteria for Assessment Instruments**

1. Each pre-health student will be requested to participate in a mock exam prior to sitting for the official exam. Therefore, we will offer mock exams for the MCAT, PCAT or DAT each year. We will determine skill level on the exam based on the student's scores. Test scores from the Medical College Admission Test and the Dental Admission Test will be evaluated for those students that release their scores to their undergraduate institution. Note: This is a new assessment tool. More formalized criteria will be created after the first year.
2. We will assess a freshman level course (Biology 1710) to determine students' abilities to succeed in the pre-health professions program. Students are expected to show improvement in the course as assessed by the Biology 1710 Pre-Test and Post-Test assessment tool.
3. We will assess a senior level course (Physiology 4330) to determine students' abilities to succeed in the pre-health professions program. Students are expected to show improvement in the course as assessed by the Physiology 4330 Pre-Test and Post-Test assessment tool.
4. The program monitors students' progress while applying to health professional school programs. Once students have submitted a complete application to an application service, PharmCAS, AMCAS or AADSAS for pharmacy school, medical school and dental school, respectively; students will complete the Health Professional School Application Survey. The survey will request the number and names of schools the students have applied to, schools of acceptance, test scores, selections, etc.

## Pre-Health Matrix\*

1. Students should understand electronic structure and the periodic table of the elements.  
Courses: Chem 1550, Chem 1560, Biol 1710
2. Students should understand the principles of bonding, phases and phase equilibria, stoichiometry, thermodynamics and thermochemistry, and kinetics and equilibrium.  
Courses: Chem 1560, Phys 1510, Phys 1520
3. Students should have knowledge of solution chemistry, acids and bases, and electrochemistry.  
Courses: Chem 1550, Biol 1710, Phys 1510
4. Students should understand covalent bonds, molecular structure and spectra, separations and purifications, hydrocarbons, oxygen-containing compounds, amines, and biological molecules.  
Courses: Chem 2500, Chem 2510, Biol 1710, Biol 3050
5. Students should understand enzymes and metabolism, DNA, RNA and protein syntheses, eukaryotes, prokaryotes and the hierarchy of life.  
Courses: Biol 1710, Zool 2040, Biol 3040, Biol 3050, Psly 2040, Psly 4330
6. Students should have knowledge of microbiology, the eukaryotic cells and tissues, nervous and endocrine systems, circulatory, lymphatic, and immune systems, digestive and excretory systems, muscle and skeletal systems, respiratory system, skin system, reproductive system and development.  
Courses: Zool 2040, Zool 2050, Biol 3050, Psly 2040, Psly 4035, Psly 4330
7. Students should understand genetics and evolution.  
Courses: Biol 1710, Biol 3040, Biol 3050
8. Students should have the ability to interpret and analyze data found in figures, graphs and tables.  
Courses: Psly 4035, Psly 4330
9. Students should understand how to recognize meaningful experimental results; arithmetic mean; standard deviation; concepts of statistical association  
Courses: Biol 1710, Biol 4520, Chem 1550, Chem 1560, Math 1200
10. Students should have the ability to perform arithmetic calculations involving probability, proportion, ratio, percentage, square-root estimations  
Courses: Math 1200
11. Students should have a general understanding of exponentials, logarithms, scientific notation, solving simultaneous equations, trigonometry concepts, vector addition and subtraction, and right-hand rule  
Courses: Math 1200, Math 1210

\*Concepts listed in the Pre-Health Matrix section are taken from *The Official Guide to the MCAT Exam*, 2<sup>nd</sup> edition, 2011, published by The Association of American Medical Colleges.