

CURRICULUM FOR PRE-HEALTH SCIENCES

Certificate (1 Year - 2 Semesters)

PROGRAM OVERVIEW

This program is designed to provide students with the core knowledge, skills and abilities fundamental to academic success in health sciences and other high affinity programs at the diploma, advanced diploma or degree level. It is structured to prepare students to do extremely well in their SHS final exams and the WASSCE exams.

Pre-health science is especially for non-science students, mature students or students doing remedial classes and hoping to pursue such careers as general nursing, midwifery, medical laboratory science, medicine, etc. Students will develop their knowledge and skills in communication, mathematics, human anatomy, biology, physics and organic/inorganic chemistry so they are well prepared for the rigours of their next academic program.

In addition, the program provides students with the opportunity to learn about potential careers in the health sciences and to identify other programs focusing on that will enable them to achieve their career objectives which they do not know before. This is a one-year (two-semester certificate-level program).

PROGRAM OUTCOMES

Graduate has to reliably demonstrate the ability to:

- 1. Analyze biological concepts such as homeostasis and apply them to the study of human anatomy and physiology.**
- 2. Analyze key concepts and principles of general and organic chemistry, and explain the impact of Chemical reactions and biochemistry on the human body.**
- 3. Analyze appropriate mathematical concepts to solve typical health-field-related calculations and apply concepts of probability, descriptive and inferential statistics to interpret health and Science-related data.**
- 4. Communicate clearly, concisely, and correctly in written, spoken, and visual form using language and terminology appropriate and relevant to health and other science-related fields.**
- 5. Analyze the fundamental laws of physics and discuss how they apply to human health and wellness.**
- 6. Investigate future careers in health sciences and other high affinity fields and identify appropriate Postsecondary programs to prepare for chosen career.**
- 7. Discuss strategies for ongoing personal and professional development.**

CAREER PATHS AND EDUCATIONAL PATHS

Upon successful completion of the program, the student will be eligible to apply for admission to our diploma or certificate program in Medical laboratory technology or any health /science-related advanced diploma or degree programs at universities.

The curriculum has been designed to meet subject specific entrance requirements.

Pre-Health Sciences PROGRAM DETAILS

SEMESTER 1

BIO190- Biology I

CHM190- Chemistry 1

CMM110- College Communication Skills

COM102- Computers in Human Services

MTH190-Math

SEMESTER 2

BIO191- Biology II

CHM191-Chemistry II

MED111-Medical Terminology

MTH191- Math II

PHS130- Introduction to Ghanaian Health

Course Descriptions

Semester 1

Biology I

This course will enable the learner to develop a foundation in the fundamental concepts of Biological Sciences and application to the systematic study of the human body. The student will study and explore the following areas: cell biology, Mendelian genetics, evolution, and human anatomy & physiology for a variety of body systems, including the integumentary, the skeletal (including articulations), and the muscular. The learner will apply these concepts with a systemic approach to the study of the human body. In the context of the study of the various organ systems, the learner will be introduced to common pathologies with examples taken from current scientific research. The emphasis will be on understanding the underlying concepts and principles, and applying them to the diversity of body systems

Chemistry I

Chemistry I for PADD will enable students to deepen their understanding of chemistry through the study of atomic and molecular structure, chemical systems and equilibrium, electrochemistry, energy changes and rates of reactions, and organic chemistry. These topics will have a strong health science emphasis and will provide students with a chemistry perspective of health and the human body. Course work will include examples and problems that relate to health and the human body. Topics in this course include physical and chemical properties of matter, chemical bonding, atomic and molecular structure, chemical nomenclature, chemical equations, chemical quantities, stoichiometry, the gas laws, and solutions and solubility. Laboratory investigations in this course will focus on safety, measurement, and common practices and procedures. The purpose of the lab work is to develop practical skills while gaining a better understanding of the theoretical concepts and calculations.

College Communication Skills

This course is designed to help students develop the skills necessary to communicate effectively in their programs and at the college level. Students will think critically to capture the meaning of messages and respond appropriately; produce coherent, clear paragraphs and essays; and purposefully research and responsibly integrate credible sources into their own writing. Emphasis is placed on the

writing process, from planning to revising, while providing opportunities to explore various modes of communication.

Computers in Human Services.

This course is designed to provide students with the level of computer literacy needed to function in today's workplace. Utilizing a hands-on approach, general computer concepts, and the concepts of microcomputer operating systems, Internet, and word processing applications will be introduced. A personal E-mail account will be introduced and used throughout the course to facilitate good communications between students and faculty and simulate the modern work environment.

Math I

By the end of this course, students will have demonstrated the ability to evaluate a variety of arithmetic and algebraic expressions and apply these principles to typical problems that arise in the health care fields. Concepts studied include numeracy fundamentals; systems of measurement and dimensional analysis; and algebra, with an emphasis on analytical techniques. Students will develop essential critical thinking and problem-solving skills through exposure to application problems, including dosage calculations, solution dilutions, and concentrations.

Semester 2 Biology II

This course will enable the learner to continue to develop a foundation in the fundamental concepts of Biological Sciences and application to the systematic study of the human body. The learner will study and explore the following areas: molecular genetics, human anatomy & physiology for a variety of systems, including the nervous, endocrine, cardiovascular, respiratory, digestive, urinary, reproductive, lymphatic and immune systems, and an introduction to infectious organisms and the processes of infectious diseases. The learner will apply these concepts with a systemic approach to the study of the human body. In the context of the study of the various organ systems, the learner will be introduced to common pathologies with examples taken from current scientific research. The emphasis will be on understanding the underlying concepts and principles, and applying them to a diversity of body systems.

Chemistry II

In this course, students will apply fundamental concepts and skills from CHM190 to further examine chemical reactions and systems. This course approaches chemistry from a health and human body perspective and includes topics in organic chemistry, redox reactions, energy changes in chemical and physical processes, chemical kinetics, equilibrium systems, and acids and bases.

Laboratory work in this course will focus on applying the scientific method to investigations in chemistry, the human body, and health. The purpose of the lab work is to develop investigative and research skills while gaining a better understanding of the theoretical concepts.

Medical Terminology (MED111) (3 credits)

This basic course will focus on the anatomical structure and function of the human body and related terminology used to describe body parts, structure and function. Related terminology will also include general or symptomatic terms, diagnostic terms, surgical procedures and abbreviations.

Math II

By the end of this course, students will have demonstrated the ability to graph, describe, and evaluate linear, quadratic, exponential, and logarithmic functions. Critical thinking and problem-solving skills will continue to develop through exposure to application problems including exponential growth, radioactive decay, and pH. Students will use numerical methods along with graphs, charts, and tables to effectively describe data, calculate the empirical and theoretical probability of simple events using key rules of probability, and apply descriptive and inferential statistics to applications from the health care fields. Students will develop essential critical thinking and problem-solving skills through exposure to application problems, including dosage calculations, solution dilutions, concentrations and pH. Students will use numerical methods to calculate measures of center and variation. Students will distinguish between discrete and continuous probability distributions and describe key features of the standard normal distribution. Students will calculate probabilities and values using the standard normal distribution, and calculate confidence intervals for means and proportions and apply descriptive and inferential statistics to the health care field.

Introduction to Ghanaian Health Care

This course introduces students to Ghanaian health care providers involved in the circle of care. It Promotes an understanding of the diversity of roles and inter-professional relationships of various health professionals. Students explore the roles of professional associations and the regulatory bodies. Models of health care delivery and key elements of inter-professional health care teams are discussed.