# Scope & Sequence

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| Course Name: World Health Research **PEIMS Code:** 13020900 | | | **Course Credit:** 1.0  **Course Requirements:** This course is recommended for students in Grades 11 and 12.  **Prerequisites:** Biology and Chemistry.  **Recommended Prerequisite:** A course from the Health Science Career Cluster. |
| **Course Description:** The World Health Research course is designed to examine major world health problems and emerging technologies as solutions to these medical concerns. It is designed to improve students' understanding of the cultural, infrastructural, political, educational, and technological constraints and inspire ideas for appropriate technological solutions to global medical care issues. | | | |
| **NOTE:** This is a suggested scope and sequence for the course content. This content will work with any textbook or instructional materials. If locally adapted, make sure all TEKS are covered. | | | |
| **Total Number of Periods**  **Total Number of Minutes**  **Total Number of Hours** | 175 Periods  7,875 Minutes  131.25 Hours\* | \*Schedule calculations based on 175/180 calendar days. For 0.5 credit courses, schedule is calculated out of 88/90 days. Scope and sequence allows additional time for guest speakers, student presentations, field trips, remediation, extended learning activities, etc. | |

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| **Unit Number, Title, and Brief Description** | **# of Class Periods\***  (assumes 45-minute periods)  Total minutes per unit | **TEKS Covered**  **130.226 (c) Knowledge and skills** |
| **Unit 1: Meeting Employer Expectations in Health Science**  This unit is designed to inform future Health Science students about industry expectations for employability skills and professional standards. | 10 periods  225 minutes | (1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:  (A) demonstrate verbal and non-verbal communication in a clear, concise, and effective manner; and  (B) exhibit the ability to cooperate, contribute, and collaborate as a member of a team. |
| **Unit 2: Global Health Concerns**  In this unit students look at major human health problems that effect the world today. The history of disease and evolution of technology along with current organizations monitoring global health are discussed. Morbidly and mortality are explained and differences between health in developed and undeveloped countries are identified. | 35 periods  1,125 minutes | (2) The student explores and discusses current major human health problems in the world. The student is expected to:  (A) describe the pathophysiology of the three leading causes of death in developing and developed countries;  (B) discuss history of diseases and the evolution of medical technology over time;  (C) contrast health problems in developing and developed countries;  (D) describe the function of the World Health Organization;  (E) define and calculate incidence, morbidity, and mortality; and  (F) identify and describe the challenges in global health that can have the greatest impact on health in developing nations. |
| **Unit 3: Global Health Care Economics**  Basic health care models are described in this unit along with how different countries fund health care. A history of health care expenditures along with factors contributing to rising prices is illustrated. Students have to identify the causes of increasing health care costs along with possible solutions. | 30 periods  1,125 minutes | (3) The student explains who pays for health care in the world today. The student is expected to:  (A) compare the availability of health care in developing and developed countries;  (B) discuss and contrast the four basic health care system models, including the Beveridge Model, Bismarck Model, National Health Insurance Model, and the Out-of-Pocket Model;  (C) explain how countries such as the United Kingdom, Japan, Germany, Taiwan, Switzerland, and the United States of America pay for health care;  (D) describe how health care expenditures have changed over time; and  (E) identify the major contributors to the rising health science industry costs. |
| **Unit 4: Medical Technologies and Technology Management**  In this unit students outline technologies that support the prevention and treatment of diseases. Chronic diseases like cancer and cardiovascular disease are described along with prevention of infectious disease and vaccines. Students identify how Funding, approval, and dissemination of new technologies is achieved. | 30 periods  1,125 minutes | (4) The student describes the engineering technologies developed to address clinical needs. The student is expected to:  (A) describe technologies that support the prevention and treatment of infectious diseases;  (B) explain the implication of vaccines on the immune system;  (C) investigate technologies used for the early detection of cancer;  (D) investigate technologies used for the treatment of several different types of cancers;  (E) explain the cardiovascular system and the technologies used in the diagnosis and treatment of heart disease; and  (F) describe and discuss technologies developed to support vital organ failure.  (7) The student explains how medical technologies are managed. The student is expected to:  (A) describe how health science research is funded;  (B) explain the role of the U.S. Food and Drug Administration in approving new drugs and medical devices; and  (C) analyze factors that affect the dissemination of new medical technologies. |
| **Unit 5: Clinical Trials and Clinical Ethics**  Students in this unit learn about clinical trials. Ethical concerns surrounding a trial like informed consent, legal and governmental requirements, and ethical guideline about human research are researched. Practical concerns like sample size and how the data is analyzed are also compared. | 25 periods  1,125 minutes | (6) The student recognizes the ethics involved in clinical research. The student is expected to:  (A) define informed consent;  (B) explain who can give informed consent;  (C) identify issues in research that influence the development of ethical principles and legal requirements currently governing research with human subjects; and  (D) explain the ethical guidelines for the conduct of research involving human subjects.  (5) The student explores how human clinical trials are designed, conducted, and evaluated. The student is expected to:  (A) identify types of clinical trials;  (B) define and calculate a sample size; and  (C) analyze quantitative methods used to describe clinical trials. |
| **Unit 6: Culminating Project**  This is an opportunity for students to demonstrate what they have learned. Each student prepares a project to present to the class. The project will clearly show the students ability to communicate experimental results on a complex topic. Extra time is allocated so students can research a major health problem, prepare their presentation, and for each student to present their project to the class. The construction of charts, graphs, and the effective use of technology are also evaluated. | 45 periods  2,025 minutes | (8) The student applies research principles to create a project that addresses a major health problem. The student is expected to:  (A) facilitate data analysis and communicate experimental results clearly and effectively using technology by constructing charts and graphs ; and  (B) present the project to classmates, health professionals, parents, or instructors. |