

## Principles of Allied Health

PEIMS Code: N1302105

Abbreviation: ALLHLTH

Grade Level(s): 9–10

Award of Credit: 1.0

### State Approved Innovative Course

- Districts must have local board approval to implement innovative courses.
- In accordance with Texas Administrative Code (TAC) §74.27, school districts must provide instruction in all essential knowledge and skills identified in this innovative course.
- Innovative courses may only satisfy elective credit toward graduation requirements.
- Please refer to [TAC §74.13](#) for guidance on endorsements.

### Course Description:

*Principles of Allied Health* is designed to provide the basic concepts, knowledge and skills necessary for a health career in an allied health field. This course will focus on concepts associated with the healthcare industry standards, respiratory therapy, physical and occupational therapy, radiological imaging, and pharmaceuticals. This is the foundation course for the medical therapy pathway in the health science cluster. This course is designed for students that are interested in pursuing careers in the allied health fields.

### Essential Knowledge and Skills:

- (a) General Requirements. This course is recommended for students in Grades 9 and 10. Students shall be awarded one credit for successful completion of this course.
- (b) Introduction.
  - (1) Career and technical education instruction provide content aligned with challenging academic standards and relevant technical knowledge and skills for students to further their education and succeed in current or emerging professions.
  - (2) The Health Science Career Cluster focuses on planning, managing, and providing therapeutic services, diagnostic services, health informatics, support services, and biotechnology research and development.
  - (3) Principles of Allied Health is designed to provide the basic concepts, knowledge, and skills necessary for a health career in an allied health field. This course will focus on concepts associated with the healthcare industry standards, respiratory therapy, physical and occupational therapy, radiological imaging, and pharmaceuticals. This is the foundation course for the medical therapy pathway in the health science cluster. This course is designed for students that are interested in pursuing careers in the allied health fields.
  - (4) To pursue a career in the healthcare industry, students should learn to reason, think critically, make decisions, solve problems, and communicate effectively.

Students should recognize that quality health care depends on the ability to work well with others.

- (5) Professional integrity in the health science industry is dependent on acceptance of ethical and legal responsibilities. Students are expected to employ their ethical and legal responsibilities, recognize limitations, and understand the implications of their actions.
- (6) Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other leadership or extracurricular organizations.
- (7) Statements that contain the word “including” reference content that must be mastered, while those containing the phrase “such as” are intended as possible illustrative examples.

(c) Knowledge and Skills.

- (1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:
  - (A) communicate ideas in a clear, concise, and effective manner;
  - (B) demonstrate how to cooperate, contribute, and collaborate as a member of a team; and
  - (C) explain employer expectations such as punctuality, attendance, time management, communication, organizational skills, and productive work habits.
- (2) The student uses verbal and nonverbal communication skills. The student is expected to:
  - (A) identify components of effective and non-effective communication;
  - (B) demonstrate effective communication skills for responding to the needs of individuals in a diverse society;
  - (C) evaluate the effectiveness of conflict resolution techniques in various situations; and
  - (D) accurately interpret, transcribe, and communicate medical vocabulary using appropriate technology.
- (3) The student researches careers and career resources in allied health. The student is expected to:
  - (A) locate and evaluate career options and employment information;
  - (B) explain the impact of career decisions, including the causes and effects of changing employment situations;
  - (C) identify academic preparation and skills necessary for employment as defined by the health science industry; and
  - (D) identify academic requirements for professional advancement such as certifications, licensure, registration, continuing education, and advanced degrees.
- (4) The student demonstrates professional and safety requirements of the allied health workplace. The student is expected to:
  - (A) explain the concept of integrated health care teams;

- (B) evaluate the role of professional organizations in the preparation and governance of credentialing and certification;
  - (C) discuss the importance of using appropriate medical terminology in delivering quality healthcare;
  - (D) explain how using principles of infection control improve quality health outcomes;
  - (E) identify and explain health care workplace safety procedures based on Occupational Safety and Health Administration (OSHA) and the Centers for Disease Control (CDC);
  - (F) identify and demonstrate the use of personal protective equipment (PPE);
  - (G) identify industry safety standards such as standard precautions, fire prevention and safety practices, and appropriate actions to emergency situations; and
  - (H) explain and demonstrate procedures for measuring and recording vital signs, including normal values (temperature, pulse, blood pressure, respirations, and pain).
- (5) The student researches medical laws and ethics associated with allied healthcare. The student is expected to:
- (A) describe and discuss the standards for safety, privacy and confidentiality of health information, including Health Insurance Portability and Accountability Act (HIPAA);
  - (B) compare published professional codes of ethics and scope of practice;
  - (C) explain principles of ethical behavior and confidentiality, including the consequences of breach of confidentiality;
  - (D) describe ethical issues related to health care, including implications of technological advances;
  - (E) research and summarize issues related to malpractice, negligence, and liability;
  - (F) analyze the impact of local, state, and national government on the health science industry; and
  - (G) identify and explain diversity and cultural practices influencing contemporary aspects of health care.
- (6) The student investigates the structure and function of the human body. The student is expected to:
- (A) analyze the levels of organization in biological systems and relate the levels of each to the whole system;
  - (B) identify the body planes, directional and regional terms, quadrants, and cavities;
  - (C) define anatomical position;
  - (D) analyze the basic structure and function of the human body systems, including skeletal, muscular, respiratory, circulatory, nervous, endocrine, urinary, digestive, immune/lymphatic, and integumentary systems; and

- (E) identify and explain diseases and disorders associated with the human body, such as asthma, pneumonia, cystic fibrosis, or fractures, including etiology, signs/symptoms, risk factors, complications, prevention, and treatments.
- (7) The student researches and evaluates the skills required in respiratory therapy occupations. The student is expected to:
- (A) identify normal and abnormal respiratory effort;
  - (B) demonstrate the proper usage of pulse oximeter for measurement of oxygen saturation and recognize the difference between normal and abnormal readings;
  - (C) identify and explain the usage of respiratory management devices such as nasal cannula, simple oxygen mask, Venturi mask, non-rebreather, nasopharyngeal airway (NPA), oropharyngeal airway (OPA), endotracheal tube and tracheostomy;
  - (D) demonstrate proper technique and use of bag mask ventilation (AMBU) on a manikin; and
  - (E) explain the disease process for common respiratory diseases and injuries such as asthma, bronchitis, pneumonia, restrictive lung disease, cystic fibrosis, and traumatic lung injury.
- (8) The student researches and evaluates the skills required in radiological imaging occupations. The student is expected to:
- (A) differentiate between and explain the types and functions of diagnostic imaging techniques, including Computer-Assisted Tomography (CAT), Magnetic Resonance Imaging (MRI), Positron Emissions Tomography (PET), ultrasound imaging, X-rays, arrhythmia monitoring, pulmonary monitoring, obstetrical/neonatal monitoring, and nuclear imaging;
  - (B) examine the types of medical information and records each diagnostic imaging technique generates, including Computer-Assisted Tomography (CAT), Magnetic Resonance Imaging (MRI), Positron Emissions Tomography (PET), ultrasound imaging, X-rays, arrhythmia monitoring, pulmonary monitoring, obstetrical/neonatal monitoring, and nuclear imaging; and
  - (C) explain the impact of new technology on diagnostic imaging techniques and treatments.
- (9) The student researches and evaluates the skills required in rehabilitation occupations. The student is expected to:
- (A) identify and explain types of synovial joints and joint movement;
  - (B) determine joint mobility and muscle strength, including range of motion;
  - (C) differentiate between active, passive, assistive, and resistive range of motion of joints;
  - (D) describe types of immobilization devices;
  - (E) demonstrate proper use of rehabilitation devices such as transfer belt, cane, crutches, and walker;
  - (F) explain the care and use of prosthetic and orthotic devices;

- (G) demonstrate techniques for applying hot and cold treatments;
  - (H) explain the principles of body mechanics and how these are used to prevent injury;
  - (I) determine the appropriate equipment for transportation and transfer of a patient;
  - (J) describe techniques to enhance muscle strength, endurance, and flexibility;
  - (K) demonstrate the use of protective taping, wrapping, padding and protective equipment to upper and lower extremities;
  - (L) differentiate between therapeutic modalities including cryotherapy, thermotherapy, hydrotherapy, light therapy and electrotherapy;
  - (M) explain the impact of typical development and aging on occupational performance, health, and wellness across the life span; and
  - (N) create a rehabilitation plan for a patient including physical and occupational therapy interventions.
- (10) The student analyzes strategies for the prevention of disease. The student is expected to:
- (A) research and summarize wellness strategies, such as stretching, basic hygiene, and sanitary behaviors, for the prevention of disease and injury;
  - (B) evaluate positive and negative effects of relationships on physical and emotional health;
  - (C) explain the benefits of positive relationships among community health professionals in promoting a healthy community;
  - (D) research, analyze, and summarize the effects of access to quality health care; and
  - (E) research and summarize alternative health practices and therapies.
- (11) The student describes the principles and role of pharmacology in allied health occupations. The student is expected to:
- (A) define terms related to drugs and pharmacology;
  - (B) identify and interpret elements of a prescription;
  - (C) define the various drug types such as analgesics, sedatives, narcotics, statins, antipyretics, antipsychotics, mood stabilizers, opioids, barbiturates, antibiotics, antifungals, and antiseptics;
  - (D) identify the mechanisms of action of drugs;
  - (E) explain how drugs are grouped into therapeutic classes;
  - (F) explain the advantages and disadvantages of different routes of drug administration;
  - (G) describe the four major processes of pharmacokinetics;
  - (H) convert units within and among the metric-household and apothecaries' systems;
  - (I) calculate basic medication dosages; and

- (J) identify brand and generic names of prescription medications and over-the-counter drugs.

#### Recommended Resources and Materials:

- Carlton, R. R., Adler, A. M. K., & Frank, E. D. (2020). Principles of radiographic imaging: an art and a science. Boston, MA: Cengage.
- Fulcher, E. M., Fulcher, R. M., & Soto, C. D. (2012). Pharmacology: principles and applications. St. Louis, MO: Elsevier/Saunders.
- Kacmarek, R. M., Stoller, J. K., Heuer, A. J., Chatburn, R. L., & Kallet, R. H. (2017). Egan's fundamentals of respiratory care. St. Louis, MO: Elsevier.
- Kisner, C., & Colby, L. A. (2012). Therapeutic exercise foundations and techniques. Philadelphia: F.A. Davis.
- Moini, J. (2016). The pharmacy technician: a comprehensive approach. Boston, MA: Cengage Learning.
- OSullivan, S. B., Schmitz, T. J., Fulk, G. D., & OSullivan, S. B. (2019). Physical rehabilitation. Philadelphia: F.A. Davis.
- Simmers, L., Simmers-Nartker, K., & Simmers-Kobelak, S. (2014). Simmers Dho health science. Stamford, CT: Cengage Learning.

#### Recommended Course Activities:

- Whiteford, R. (2020, January 16). CTE Online. Vital Signs Activity. Retrieved from <https://www.cteonline.org/curriculum/lessonplan/vital-signs/pnaWNJ>
- HIPAA Certification—<https://www.hipaatraining.com/>
- Disease Profiles—Document, Video, Brochure, etc (etiology, signs/symptoms, risk factors, complications, treatments)
- X-Ray Analysis (Broken Bones X-Rays; Ward's Science #470039-516)
- Practice measuring range of motion using a goniometer on a partner.
- Analyze Prescriptions - provide students with an example prescription and have them analyze it using pharmaceutical abbreviations and medication requirements

#### Suggested methods for evaluating student outcomes:

- Patient Rehabilitation Plan Project—create patient files and have students create physical and occupational therapy rehabilitation plans to help improve outcomes for the patient (Summative)
- Range of Motion Assessment—students perform a full range of motion assessment on another individual (Formative)
- Properly tape and wrap a partner's "wound"—students demonstrate to teachers how to properly tape/wrap a wound on another individual (Formative)
- Demonstrate proper handwashing—students can demonstrate proper handwashing technique and GloGerm can be used to simulate bacteria and germs (Formative)
- Simon Says Anatomical Regions (Formative)

**Teacher qualifications:**

An assignment for Principles of Allied Health is allowed with one of the following certificates:

- Health Science 6-12.
- Health Science Technology Education 8-12.
- Vocational Health Occupations.
- Vocational Health Science Technology.

**Additional information:**