Texas CTE

Pharmacology

General 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. Students shall be awarded one credit for successful completion of this course. P.A

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Introduction. P.B

1 **Career and technical education instruction provides 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.** P.B.1

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.** P.B.2

3 **The Pharmacology course is designed to study how natural and synthetic chemical agents such as drugs affect biological systems. Knowledge of the properties of therapeutic agents is vital in providing quality health care. It is an ever-changing, growing body of information that continually demands greater amounts of time and education from health care workers.** P.B.3

4 **Students are encouraged to participate in extended learning experiences such as career and technical student organizations and other leadership or extracurricular organizations.** P.B.4

5 **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.** P.B.5

Knowledge and skills P.C

1 **The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:** P.C.1

- a demonstrate verbal and non-verbal communication in a clear, concise, and effective manner; P.C.1.
- b demonstrate adaptability skills such as problem solving and creative thinking; P.C.1.B
- c develop a career plan; P.C.1.
- d employ teamwork; P.C.1.D
- e create a job-specific resume; P.C.1.E
- f appraise the characteristics desired by employers. P.C.1.F

2 **The student explores the field of pharmacology and foundation of pharmacology. The student is expected to:** P.C.2

- a define pharmacology and its major subdivisions, including pharmacodynamics, pharmacokinetics, and pharmacotherapeutics; P.C.2.A
- b explain the difference between therapeutic effects, side effects, and toxic effects; P.C.2.B
- c identify a drug receptor in the human body; P.C.2.C
- d trace the interaction and antagonist receptors; P.C.2.D
- e explain the relationship among drug dosage, drug response, and time; P.C.2.E
- f explain drug safety and therapeutic index; P.C.2.F
- g describe three names by which drugs are known; P.C.2.G
- h list two common drug reference books. P.C.2.H

3 **The student identifies individuals and careers associated with manufacturing, dispensing, and administering pharmaceuticals. The student is expected to:** P.C.3

- a identify career pathways related to pharmacology; P.C.3.A
- b define the role of the pharmacy team; P.C.3.B
- c research and describe emerging pharmacy career opportunities; P.C.3.C
- d analyze the impact of pharmaceuticals on the costs of health care; P.C.3.D
- e evaluate the impact of pharmaceuticals on the costs of society. P.C.3.E

4 **The student explains the ethical and legal responsibilities of pharmacists and pharmacy technicians. The student is expected to:** P.C.4

- a describe the legal terms and consequences associated with prescription errors; P.C.4.A
- b differentiate between negligence, product liability, contributory negligence, and regulatory law; P.C.4.B
- c evaluate the effect of medication errors related to the pharmacy and the industry; P.C.4.C
- d discuss the elements of a lawsuit; P.C.4.D
- e define professional liability. P.C.4.E

5 **The student uses a comprehensive medical vocabulary in order to communicate effectively with other health care professionals. The student is expected to:** P.C.5

- a identify the various routes of drug medication; P.C.5.
- b differentiate among the various classes of drugs; P.C.5.B
- c properly use common terms associated with pharmacology; P.C.5.
- d analyze unfamiliar terms using the knowledge of word roots, suffixes, and prefixes P.C.5.D

6 **The student demonstrates mathematical knowledge and skills to solve problems with systems of measurement used in the pharmacy. The student is expected to:** P.C.6

- a analyze medication calculations, including metric, apothecary, and household systems; P.C.6.A
- b convert a measurement expressed in one standard unit within a system to a measurement expressed in another unit within the same system; P.C.6.B
- c convert a measurement expressed in one system to a unit of the same measurement in a different system P.C.6.C

7 **The student recognizes the effectiveness of a pharmaceutical agent, its form, and its route of administration. The student is expected to:** P.C.7

- a differentiate between solid, semi-solid, and liquid dosage forms; P.C.7.A
- b name forms in which drugs are manufactured, including their subcategories; P.C.7.B
- c list examples of drugs in each dosage form; P.C.7.
- d define medical terms associated with drug forms. P.C.7.D

8 **The student must be able to select appropriate equipment and instruments and use technology for specific tasks. The student is expected to:** P.C.8

- a identify technology components used in the pharmacy; P.C.8.
- b describe how technology applications improve efficiency in the pharmacy; P.C.8.B
- c analyze the use of technology in the pharmacy. P.C.8.C

9 **The student is expected to practice safety in dispensing and administering pharmaceutical agents and prevent personal and client illness or injury. The student is expected to:** P.C.9

- a employ safety standards; P.C.9.A
- b interpret rules associated with pharmacy standards; P.C.9.B
- c examine unsafe practices; P.C.9.C
- d observe safe procedures in the administration of client care; P.C.9.D
- e demonstrate these safe procedures in the clinical setting. P.C.9.E