

Update on Career & Technical Education Course Equivalencies to the Washington State Board of Education

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EPIC

- Nonprofit center focused on research, policy, and practice related to college and career readiness
- Offices in Eugene and Portland, Oregon



Equivalency Courses

■ Mathematics (10)

- Animation, Technology/Video Graphics and Special Effects
- Applied Math I
- Applied Math II
- Business Statistics
- Computer Programming
- Consumer and Family Resources
- Engineering Design 1*
- Financial Math
- Residential Carpentry
- Video Game Design/Digital Computer Animation for Game Design

■ Science (12)

- Animal Science
- Animation, Technology/Video Graphics and Special Effects
- Biomedical Sciences
- Biotechnology-Body Systems
- Computer Programming
- Food Science, Dietetics, and Nutrition
- Natural Resources
- Natural Resources Management and Policy
- Nursing Assistant
- Plant Science
- Principles of Technology Applied
- Veterinarian Assistant

** Originally identified for science credit equivalency, but Technical Working Group determined better alignment with mathematics standards*

First Round Review

- First Round review conducted by CTE instructors who were a) experienced teaching the course and b) comfortable with content area standards
 - Common Core State Standards
 - Next Generation Science Standards
 - 21st Century Skills
 - Industry Standards
- CTE instructors identified *relevant skills and standards* in each unit based on current practice
- Average of 6 CTE instructors reviewed each course

First Round Results

- Most courses had many relevant math or science standards
- EPIC methodology
 - Default recommendations for inclusion of standard
 - Include if relevant to at least ~70% of Round 1 reviewers
 - Exclude if relevant to ~30% or fewer of Round 1 reviewers
 - No default recommendation if between ~30-70%
 - Recommendations open to override by Round 2 Technical Working Groups

Technical Working Groups

- Composition per Course Group
 - 2 CTE instructors
 - 2 Math or science experts
 - 1 EPIC facilitator

- Charge
 - Come to consensus on relevant standards
 - Use First Round findings on current practice as guidance
 - Increase rigor by adding standards if necessary
 - Identify or draft at least one performance assessment aligned to standards
 - Review draft course equivalent framework

Finalizing the Frameworks

- Breadth vs. depth of standards coverage
- Alignment to academic course titles
- Amount of credit: 0.5 or 1.0 math or science
- Leadership alignment / 21st century skills
- Performance tasks
- Unit descriptions
- *Another round of work sessions led by OSPI on course equivalent frameworks for a few courses*

Example

Are enough of these covered in sufficient depth?
Are too many covered to address the applied nature of the course?

To what extent do these align with Algebra 2?

Common
Core
Algebra
Standards –
11 clusters

9 **Algebra**
clusters
addressed
in one or
more units

Applied
Math 2
Standards

Remaining Work

- Next Generation Science Standards
 - How well do course expectations align with NGSS?
 - What about science topics not addressed in NGSS?

- Biomedical Sciences < > Life Science in NGSS
 - 9 performance expectations addressed of 24 possible
 - Balance breadth and depth of standards coverage
 - Align to an existing academic course?

Results – Draft Frameworks



Biomedical Sciences

Course Title: Biomedical Sciences		Total Framework Hours up to: 161
CIP Code: 260102	<input type="checkbox"/> Exploratory <input type="checkbox"/> Preparatory	Date Last Modified: 3/6/2015
Career Cluster: Health Science		Cluster Pathway: ?
Eligible for Dual Credit in: <input type="checkbox"/> Math <input type="checkbox"/> Science		Total Number of Units: 6

Course Overview

Summary:

This course provides an introduction to the biomedical sciences through exciting hands-on projects and problems. Students investigate the human body systems and various health conditions including heart disease, diabetes, sickle-cell disease, and infectious diseases. They determine the factors that lead to the death of a fictional person and investigate lifestyle choices and medical treatments that might have prolonged the person's life. The activities and project introduce students to human physiology, medicine, research processes and bioinformatics. Key biological concepts (including homeostasis, metabolism, inheritance of traits, and defense against disease) are embedded in the curriculum. Engineering principles such as the relationship of structure to function, feedback loops, and the design process, are also incorporated. This course is designed to provide an overview of all the courses in the Biomedical Sciences program and lay the scientific foundation for subsequent courses.

Unit 1: The Mystery

Total Learning Hours for Unit: 31

Unit Summary (Content and Competencies):

Unit one provides the foundation and develops the theme for the course. Students are engaged by reading about a woman, Anna Garcia, who is found dead in her home. Students investigate the scene, gather evidence and then move to the lab to analyze their findings. Through their examination of key evidence, students learn notebook organization, observation and documentation skills, and well as the fundamentals of experimental design. Students are introduced to the structure of DNA and investigate how basic molecular biology techniques can be used to connect suspects with a crime scene. Students also discuss the bioethics of scientific research and explore the bounds of HIPAA legislation. In each unit of the course, students obtain additional medical history information for Anna as well as details from her autopsy report as they explore the various illnesses she encountered throughout her life. Students will maintain a medical file for Anna Garcia, compile their ideas and findings over the duration of the course, and ultimately determine her cause of death in the final unit.

Lesson 1.1 Investigating the Scene

1. Principles of biomedical science can be used to investigate the circumstances surrounding a mysterious death.
2. Experiments are designed to find answers to testable questions.

Distributing Frameworks

After frameworks are approved . . .

- Sharing with districts
- Instructor professional development
- Review of student performance to validate equivalency

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