Leveraging OER in Workforce Certifications & Applied Sciences

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• Introductions
• Community Colleges & CCCOER
• Career Technical Education & STEM
• Water Systems Technology
• Geo-Sciences Program
• Q & A
Presenters

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Community College Consortium for OER

Members in 28 U.S. States, 11 statewide memberships representing hundreds of colleges

http://cccoer.org/Member
Community Colleges

• Career development
• Transfer degree to university
• College preparation


Image: Community College of Allegheny County
Average age 22-39 years: 39%
Employed while attending full-time: > 60%
Percent of total undergraduates: 41%

Source: American Association of Community Colleges Fast Facts (March 2018)
https://www.aacc.nche.edu/research-trends/fast-facts/

Image: Community College of Allegheny County
Female: 56%
Single Parents: 17%
Receive Financial Aid: 58%
First in Family: 36%
STEAM

SCIENCE  TECHNOLOGY  ENGINEERING
ARTS  MATHEMATICS

CTE = Success

Image from: Ellsworth Public Library

Image from: Fulton Schools
STEM is CTE

50% of all Science, Technology, Engineering and Mathematics (STEM) jobs are open to workers with less than a bachelor's degree.

30% of today's STEM intensive jobs are in occupations such as installation, maintenance and repair; construction; manufacturing; and health care support.

CTE is...

SCIENCE

61% of CTE students interested in a science career report that their CTE courses provide them with skills for the workforce.

18% job growth is projected for environmental engineering technicians by 2022. These jobs typically require an associate's degree and pay more than $45,000 per year.

TECHNOLOGY

CTE is...

IT employees can earn more than 2x the national average, and IT is one of the best-paying Career Clusters for those with middle-level skills.

45% of CTE students interested in a math career report that their CTE courses help them attain higher math and/or science skills.

ENGINEERING

CTE is...

MATHEMATICS

References for this research can be found at www.acteonline.org or by contacting coperstore@acteonline.org.

Revised May 2014.
● Students mostly working adults
● 71% of students are 25 or older
● 92% of students are part-time
Operator Certifications

- Drinking Water Treatment
- Water Distribution
- Wastewater Treatment & Disposal

- Minimum Qualifications to take exams
  - Coursework (5 Intro Courses, 2 Specialization Courses)
  - Work experience
Courses Converted to OER

- Introduction to Water System Technology
- Waterworks Mathematics I & II
- Water Quality
- Water Supply
- Water Treatment Processes
- Waste Water Treatment & Disposal
- Water Distribution I & II
Feedback

- Download PDF to laptop for easy access & search
- Mobile device access
- No cost
- Able to provide feedback
- Edits available quickly

- Able to answer questions about the text easily
- Can edit the text when students don’t understand something which is not possible with a traditional textbook
Leveraging Open Access to Government Resource

NASA archives all science mission data products to ensure long-term usability and to promote widespread usage by scientists, educators, decision-makers, and the general public.

- Provide Students with open resources such as data, websites, and/or activities from government funded sources.
- Have students leverage open resources to create their own resources and help them to become STEAM communicators.
Leveraging Open Access to Government Resource

Government Funded Activities for Lab

Quickmap Orbital Data
Open resources as part of NASA funded missions

Government Funded Resources for Textbook

https://solarsystem.nasa.gov/

Students as STEAM Communicators
Questions