Emerging Trends in the Two-Year College Landscape

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SOCED Task Force on ACS Guidelines for Chemistry in Two-Year College Programs

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Overview

1. Dual enrollment
2. Distance learning
3. Alignment with four-year guidelines
4. Undergraduate research
5. Infrastructure requirements
Dual Enrollment

- High school students taking college level classes and receiving credit at both institutions
- College responsible for quality control of the course
  - Instructor qualifications
  - Course structure and equivalence to regular on campus course

Lots of ways to do it—teach on-campus, teach at high school campus, teach at community center, use two-year college chemistry faculty, use other two-year college faculty, use high school teachers

Popular for engaging students and reducing tuition costs
Instructor must be qualified to teach at the community college

Syllabus, lab experience, exams and grading must be equivalent to regular on campus course to ensure that the credits will be transferable
Distance learning is also gaining popularity
Useful for isolated and/or working students
Commonly thought to be a way to reach more students with less work (Not true for a well-done course)
In the 2014 Two-Year College Chemistry Landscape survey, 18.8% of 346 responding campuses reported offering at least one distance ed chemistry course that was transferable to a four-year program.
ACS requires that online courses be as effective at teaching requisite skills and knowledge as their face-to-face equivalents.
Yield at least the same student skills development
If credit is given for labs, these must be hands-on; computer simulations can be used to supplement the lab experience, but cannot replace hands-on work.
   Ability to use electronic balances, volumetric glassware, pH meters, spectrophotometers, and prepare solutions
   Appropriate safety instruction and measures
So two-year college chemistry faculty must work with faculty at transfer institutions to ensure curricular alignment.

The general chemistry requirements for the two- and four-year guidelines are aligned, but here’s what the four-year guidelines say, just in case:

General Chemistry basic lab skills

Ability to use electronic balances, volumetric glassware, pH meters, spectrophotometers, and prepare solutions

Appropriate safety instruction and measures
Keeping a laboratory notebook
Data analysis
Report writing
In the 2014 Two-Year College Chemistry Landscape survey, 39 out of 148 responding campuses reported offering research opportunities.

In the 2013 Two-Year College Chemistry Landscape survey, 21.2% of 552 responding faculty reported doing research, and 15.0% more reported that support for research was available, even though they didn’t do it.

In the revised Guidelines, we included extra guidance on structuring beneficial research programs. Effective research requires

**Defined topic with achievable goals**

**Access to chemical literature and equipment**

**Appropriate methodologies and safety practices**

**Supervision by experienced chemist**
Written report at conclusion
Can be carried out as a group project
Research experience helpful for transfer students
Infrastructure Requirements

- Computing facilities and software for data acquisition and analysis
  - Including interactive simulation and computational chemistry
  - Scientific word processing and illustration capability
- Chemical information resources
  - Journals and databases, can be online or available through interlibrary loan
  - ACS open access options
    http://pubs.acs.org/page/4authors/authorchoice/index.html
Comments?
Questions? Comments?

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• Joan Sabourin
  Member, 2014-2015
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More two-year information

- Strategies Promoting Success of Two-Year College Students
  
  Mon, 8:30-12, Manchester Grand Hyatt, Promenade B
  
  Tues, 8:30-11:40, Manchester Grand Hyatt, Promenade B

Thank You!