Chemistry

General Chemistry

Chemistry Competence Test (CCT)

This is a diagnostic test developed initially to document proficiencies of first-time entering students to South African universities and has proved to be a versatile instrument for multiple uses.


Chemistry Reasoning Test (CRT)

This instrument was designed to be an easy-to-use tool for measuring conceptual understanding and critical scientific thinking of general chemistry models and theories.


Chemistry Concept Inventory (ChCI)

The ChCI assesses thermochemistry, bonding, intermolecular forces, equilibrium, acids and bases, and electrochemistry. Thirty of the sixty questions for the first semester of a two-semester chemistry course, and the other thirty are for the second semester of the course. Please contact Jim Birk at Arizona State University about this inventory.


Chemistry Concept Inventory (CCI)

The questions are based on common commonly observed student misconceptions about topics generally covered in the first semester of a college chemistry course. The inventory can be found at http://www.jce.divched.org/jcedlib/qbank/collection/CQandChP/CQs/ConceptsInventory/Concepts_Inventory.html.


Solution Chemistry

This two-tier diagnostic instrument is designed to test 16-17 year-old students’ understanding of solution chemistry concepts.


Organic Chemistry

Acid Strength

This instrument is a nine-item multiple-tier, multiple-choice concept inventory to identify alternative conceptions that organic chemistry students hold about acid strength, to determine the prevalence of these conceptions, and to determine how strongly these conceptions bias student reasoning.


Thermodynamics

Thermodynamics Concept Inventory (TCI)

The TCI is intended for use in introductory thermodynamics courses. Please contact Clark Midkiff at the University of Alabama about this inventory.


Introductory Thermal Concept Evaluation (ITCE)
Developed to assess a wide range of beliefs or understandings about thermodynamic concepts in 15-18 year old students. Administered in less than 30 minutes.


**Quantum Mechanics**

**The Quantum Mechanics Visualization Instrument (QMVI)**

The QMVI is designed to assess student’s understanding of core concepts in introductory quantum mechanics. It is available by contacting Richard Robinett at Penn State.

Description of the development of the instrument is found in Erdat Cataloglu’s dissertation ([https://etda.libraries.psu.edu/paper/5937/](https://etda.libraries.psu.edu/paper/5937/)).

**Quantum Mechanics Survey (QMS)**

This survey is designed to evaluate student’s conceptual understanding of quantum mechanics in junior-level courses. It is available after obtaining a password via http://perusersguide.org/items/detail.cfm?ID=11903.


**Quantum Mechanics Conceptual Survey (QMCS)**

This twelve question survey is designed to assess students’ conceptual understanding of quantum mechanics.


**Quantum Mechanics Assessment Tool (QMAT)**

This assessment was developed to (1) reflect faculty learning goals, provide an assessment of student learning difficulties, and act as a tool to help guide faculty efforts at improving QM instruction. Contact Steve Pollack at University of Colorado.