Texas A&M University **Marketable Skills**

Program:	Chemistry
Degree:	BS
Department:	Chemistry
Contact Name:	Holly Gaede
Contact Phone:	97-845-0520

Outcome	**Master the depth of knowledge required for a degree**
Marketable Skills	• Foundational knowledge of five subdisciplines of chemistry[1] • Knowledge of the chemical composition, structure, and properties of substances and of the chemical processes and transformations that they undergo. This includes uses of chemicals and their interactions, danger signs, production techniques, and disposal methods. • Ability to analyze organic or inorganic compounds to determine chemical or physical properties, composition, structure, relationships, or reactions, using chromatography, spectroscopy, or spectrophotometry techniques. • Prepare test solutions, compounds, or reagents for laboratory personnel to conduct tests • Ability to induce changes in composition of substances by introducing heat, light, energy, or chemical catalysts for quantitative or qualitative analysis • Ability to maintain laboratory instruments to ensure proper working order and troubleshoot malfunctions when needed.

Outcome	**Demonstrate critical thinking**
Marketable Skills	• **Analyzing Data or Information** — Identifying the underlying principles, reasons, or facts of information by breaking down information or data into separate parts. • **Processing Information** — Compiling, coding, categorizing, calculating, tabulating, auditing, or verifying information or data. • Using logic and reasoning to identify the strengths and weaknesses of alternative solutions, conclusions or approaches to problems. • Using scientific rules and methods to solve problems • **Deductive Reasoning** — The ability to apply general rules to specific problems to produce answers that make sense • **Inductive Reasoning** — The ability to combine pieces of information to form general rules or conclusions (includes finding a relationship among seemingly unrelated events). • **Define problems clearly**[1] • Develop testable hypotheses[1] • Design and execute experiments[1] • Analyze data using appropriate statistical methods[1] • Understand the fundamental uncertainties is experimental measurements[1] • Draw appropriate conclusions[1]

Outcome	**Communicate effectively**
Marketable Skills	• Ability to present information in a clear and organized manner, write well-organized and concise reports in a scientifically appropriate style, and use relevant technology in their communications. [1] • Evaluate technical articles critically[1] • **Documenting/Recording Information** — Entering, transcribing, recording, storing, or maintaining information in written or electronic/magnetic form. • **Interacting With Computers** — Using computers and computer systems (including hardware and software) to program, write software, set up functions, enter data, or process information. • **Communicating with Supervisors, Peers, or Subordinates** — Providing information to supervisors, co-workers, and subordinates by telephone, in written form, e-mail, or in person.

Outcome	**Practice personal and social responsibility**
Marketable Skills	• Demonstrate and apply safe laboratory practice[1] • Carry out responsible waste disposal techniques[1] • Understand the categories of hazards associated with chemicals[1] • Treat data responsibly[1] • Cite others work properly[1]

Outcome	**Demonstrate social, cultural, and global competence**
Marketable Skills	• Giving full attention to what other people are saying, taking time to understand the points being made, asking questions as appropriate, and not interrupting at inappropriate times. • Retrieve information by searching the chemical literature[1] • Knowledge of sustainability and green chemistry[1]

Outcome	**Prepare to engage in lifelong learning**
Marketable Skills	• Retrieve information by searching the chemical literature[1]

Outcome	**Work collaboratively**
Marketable Skills	• Ability to work in multidisciplinary teams[1] • Interact effectively in a group to solve problems • Work productively with a diverse group of peeers • Develop leadership and team skills

1. From Undergraduate Professional Education in Chemistry ACS Guidelines and Evaluation Procedures for Bachelor's Degree Programs **https://www.acs.org/content/dam/acsorg/about/governance/committees/training/2015-acs-guidelines-for-bachelors-degree-programs.pdf**

2. O*NET OnLine Summary Report for Chemists
   https://www.onetonline.org/link/summary/19-2031.00

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2. O*NET OnLine Summary Report for Chemists **https://www.onetonline.org/link/summary/19-2031.00**