UC DAVIS
UNIVERSITY OF CALIFORNIA

Program Learning Outcomes
Materials Science and Engineering

Program Educational Objectives

- to prepare graduates for employment in a professional field related to materials science and engineering, or another area of their choosing, that utilizes their skills as identified in the Materials Science and Engineering student outcomes, and/or admission into graduate or professional programs of study;
- to graduate materials scientists and engineers who contribute to their profession and society through engineering practice, research and development, teaching and/or education, or in governmental, regulatory or legal aspects.

Student Outcomes

1. an ability to apply knowledge of mathematics, science, and engineering
2. an ability to design and conduct experiments, as well as to analyze and interpret data
3. an ability to design a system, component, or process to meet desired needs within realistic constraints such as economic, environmental, social, political, ethical, health and safety, manufacturability, and sustainability
4. an ability to function on multidisciplinary teams
5. an ability to identify, formulate, and solve engineering problems
6. an understanding of professional and ethical responsibility
7. an ability to communicate effectively
8. the broad education necessary to understand the impact of engineering solutions in a global, economic, environmental, and societal context
9. a recognition of the need for, and an ability to engage in life-long learning
10. a knowledge of contemporary issues
11. an ability to use the techniques, skills, and modern engineering tools necessary for engineering practice
12. an ability to apply advanced science (such as chemistry and physics) and engineering principles to materials systems
13. an ability to integrate the understanding of the scientific and engineering principles underlying the four major elements of the field (structure, properties, processing, and performance) related to materials systems appropriate to the field
14. an ability to apply and integrate knowledge from the four major elements of the field (structure, properties, processing, and performance) to solve materials selection, and design problems
15. an ability to utilize experimental, statistical and computational methods consistent with the program educational objectives.