MASSBAY COMMUNITY COLLEGE

Division of Science, Technology, Engineering and Mathematics

Associate in Science in Environmental Sciences and Safety

This program focuses on environmental science issues such as air and water testing and analysis, industrial waste treatment, municipal wastewater treatment, and environmental law. In obtaining an understanding of the complex interrelationships that exist at the earth's surface, students learn how to interpret environmental stresses, such as ground and surface water contamination, pesticide, degradation, and solid waste disposal. Students also apply this knowledge to occupational safety and protection. Students graduating from the Associate in Science in Environmental Sciences and Safety program will achieve proficiency in the college-wide learning outcomes.

Successful graduates of the program will be able to:

1. Apply environmental ethics and law to biodiversity and conservation;
2. Identify species interactions at all levels of terrestrial, fresh, and marine ecological systems;
3. Identify the anatomy and physiology of environmental and medical microbes such as viruses, bacteria, fungi, protozoa, and helminthes;
4. Qualitatively and quantitatively evaluate normal chemical values for air, water, and soil;
5. Describe how the toxicological effect of pollutants can alter the ecosystem;
6. Explain how the human body's immune system deals with pollutants;
7. Describe and distinguish among the effects of severe poisons such as lead, asbestos, and radiation;
8. Communicate using scientific language how human health is at risk from altered ecosystems;
9. Explain how the composition of air and how fossil fuels and other activities affect global warming;
10. Research the development of new energy systems including their management, while critically evaluating their implications, considering different world regions;
11. Describe the process of waste management and sustainability;
12. Perform library and laboratory research in environmental science using appropriate technology.