

MASTER OF SCIENCE IN ENVIRONMENTAL HEALTH, OCCUPATIONAL ERGONOMICS AND SAFETY SPECIALIZATION, PLAN A

The Master of Science in Environmental Health, Occupational Ergonomics and Safety Specialization, Plan A, is based on a multidisciplinary group of faculty and courses aimed at enhancing the workplace in terms of safety, process, and product quality, and the quality of work life. The foundation of the program is driven by the utilization of a systems approach in human-centered design and in the most current safety theories and practice. The program integrates a multidisciplinary approach from psychology, engineering, the health sciences, and safety to better understand and optimize human well-being and overall system performance in the workplace.

Graduates from this master's program are typically employed as health and safety managers, ergonomic consultants, safety specialists, human factor specialists, and risk analysts. Companies hiring our graduates often include manufacturing companies, consulting firms, municipalities, universities, medical device companies, and insurance companies.

Learn more about the Occupational Ergonomics and Safety Specialization on the Department of Environmental and Health Sciences website. (<https://vetmedbiosci.colostate.edu/degree-programs/graduate/ms-environmental-health/ergonomics/>)

[Students interested in graduate work should refer to the Graduate and Professional Bulletin.](#)

Learning Objectives

Upon successful completion, students will be able to:

1. Discuss the historical contributions related to modern work processes.
2. Utilize a systems approach to conduct work-site ergonomic and safety risk assessments of specific job tasks.
3. Discuss how workstation organization and layout, equipment, and work processes influence the risk of illnesses and injuries and how to prevent them through human-centered design.
4. Analyze workplace design using the principles of anthropometry, occupational biomechanics, work physiology, occupational psychology, and epidemiology.
5. Interpret and apply anthropometry tables for evaluation and design criteria.
6. Identify and design solutions to improve production efficiency and reduce the risk of work-related injuries and illnesses injuries.
7. Determine the association or causation between occupational and non-occupational risk factors and occupational injuries and illnesses.
8. Apply ergonomic and safety principles to office workstations and design the office layout to reduce the negative health effects of prolonged sitting.
9. Discuss how occupational health psychology issues such as work stress, social support, telepressure, shift work influence job performance and personal health.
10. Implement an ergonomics and safety problem-solving process to develop successful solutions specific to the needs of the workplace environment.
11. Conduct cost-benefit analyses and return on investment (ROI) calculations to justify proposed ergonomic and safety solutions.
12. Successfully participate in occupational ergonomics and safety research.
13. Describe, analyze and interpret the results of ergonomics and safety research in written form.