

MASTER OF SCIENCE IN TOXICOLOGY, PLAN B

Toxicology is the study of the effects of chemicals and other potentially harmful agents on biological systems. The field draws upon the sciences of biology, chemistry, biochemistry, physiology, cell and molecular biology, neuroscience, and pathology. The core curriculum provides a comprehensive background in toxicology, enhanced by elective offerings in the department and the many basic and health science courses available at CSU.

The non-thesis M.S. in Toxicology, Plan B transitions graduates into MD, DVM, PharmD, and other professional programs, and prepares students for research careers in industry, government, and academia. Graduates can also find professional employment in public and private sector positions such as environmental protection, risk assessment, or product safety evaluation.

[Learn more about the Master of Science in Toxicology on the Department of Environmental and Radiological Health Sciences website.](#)

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

Learning Objectives

[Students successfully completing this degree will be able to:](#)

1. Analyze and interpret dose-response information in both qualitative and quantitative terms.
2. Describe the fundamental processes of absorption, distribution, metabolism and elimination and the implications of these processes and interpret data related to them.
3. Describe toxic responses affecting organs, physiological systems, cells and biomolecules and interpret related toxicological data.
4. Explain molecular, cellular and physiological mechanisms of toxicity and critically evaluate research results providing evidence for these mechanisms.
5. Describe xenobiotic biotransformation pathways that lead to bioactivation and detoxification.
6. Correctly interpret pathological changes due to toxicant exposure.
7. Analyze and interpret toxicological data.

Requirements Effective Fall 2022

Code	Title	Credits
Core Courses		
ERHS 502	Fundamentals of Toxicology	3
ERHS 601	Metabolism and Disposition of Toxic Agents	3
ERHS 602	Toxicological Mechanisms	3
ERHS 603	Toxicological Pathology	3
ERHS 693C	Research Seminar: Toxicology	1
Toxicology Courses ^{1,2}		
Select at least 9 credits from the following:		9
BMS 450	Pharmacology	
ERHS 446	Environmental Toxicology	

ERHS 448	Environmental Contaminants	
ERHS 504	Occupational and Environmental Toxicology	
ERHS 507A	Toxicology Toolbox: Fundamentals	
ERHS 507B	Toxicology Toolbox: Metabolism and Disposition	
ERHS 546	Environmental Exposure Assessment	
ERHS 547	Equipment and Instrumentation	
ERHS 549	Environmental Health Risk Assessment	
ERHS 565	Chemical and Biological Warfare Agents	
ERHS 566	Forensic Toxicology	
ERHS 567	Cell and Molecular Toxicology Techniques	
ERHS 568	Pharmaceutical and Regulatory Toxicology	
ERHS 569	Immunotoxicology	
ERHS 733	Environmental Carcinogenesis	
Other Requirements		
Electives	^{1,2,3}	10
Program Total Credits:		32

A minimum of 32 credits are required to complete this program.

¹ Courses selected in consultation with advisor and graduate committee.

² A maximum of 7 credits below the 500-level may be included in the program.

³ No more than a total of 6 credits of Internship, Independent Study, Group Study, and Research courses may be included in the program.

Successful completion of a comprehensive examination is required.

OR with the consent of the major advisor and program coordinator, preparation of a professional paper under the direction of a Toxicology faculty member may be completed in place of the comprehensive examination. For this option, the student must register for ERHS 695C.

Requirements for All Graduate Degrees

For more information, please visit Requirements for All Graduate Degrees (<http://catalog.colostate.edu/general-catalog/graduate-bulletin/graduate-study/procedures-requirements-all-degrees/>) in the Graduate and Professional Bulletin (<http://catalog.colostate.edu/general-catalog/graduate-bulletin/>).

Summary of Procedures for the Master's and Doctoral Degrees

NOTE: Each semester the Graduate School publishes a schedule of deadlines. Deadlines are available on the Graduate School website (<https://graduateschool.colostate.edu/deadline-dates/>). Students should consult this schedule whenever they approach important steps in their careers.

Forms (<https://graduateschool.colostate.edu/forms/>) are available online.

Step	Due Date
1. Application for admission (online)	Six months before first registration
2. Diagnostic examination when required	Before first registration
3. Appointment of advisor	Before first registration

4. Selection of graduate committee	Before the time of fourth regular semester registration
5. Filing of program of study (GS Form 6)	Before the time of fourth regular semester registration
6. Preliminary examination (Ph.D. and PD)	Two terms prior to final examination
7. Report of preliminary examination (GS Form 16) - (Ph.D. and PD)	Within two working days after results are known
8. Changes in committee (GS Form 9A)	When change is made
9. Application for Graduation (GS Form 25)	Refer to published deadlines from the Graduate School Website
9a. Reapplication for Graduation (online)	Failure to graduate requires Reapplication for Graduation (online) for the next time term for which you are applying
10. Submit thesis or dissertation to committee	At least two weeks prior to the examination or at the discretion of the graduate committee
11. Final examination	Refer to published deadlines from the Graduate School Website
12. Report of final examination (GS Form 24)	Within two working days after results are known; refer to published deadlines from the Graduate School website
13. Submit a signed Thesis/ Dissertation Submission Form (GS Form 30) to the Graduate School and Submit the Survey of Earned Doctorates (Ph.D. only) prior to submitting the electronic thesis/ dissertation	Refer to published deadlines from the Graduate School website.
14. Submit the thesis/dissertation electronically	Refer to published deadlines from the Graduate School website
15. Graduation	Ceremony information is available from the Graduate School website