Depending on the training needs and research interests, students need to receive passing grades in a selection of 2-4 of the following **recommended didactic course (Note: CiT faculty either lecture in or direct all of these courses)**:

* **PHCO 701: Introduction to Molecular Pharmacology** (2 credits; fall term); a first-year course outlining the basics of molecular biology, drug/receptor interactions, receptors and ion channels, regulation of second messengers and drug metabolism.
* **PHCO/TOXC 702: Principles of Pharmacology and Toxicology** (3 credits; spring term); introduces students to major areas of pharmacology and toxicology and serves as a basis for more advanced courses.
* **PATH 713/PATH 714L: Disease Mechanisms** (3 and 2 credits; fall term); lecture and laboratory courses on cell injury and pathogenesis of disease with emphasis on basic mechanisms at the molecular, cellular, and organism levels.
* **PATH 715/PATH 716L: Systemic Pathology**, (3 and 2 credits; spring term); lecture and laboratory courses on the pathology and physiology of human disease with emphasis on molecular and cellular mechanisms of disease in major organ systems.
* **GNET 621: Principles of Genetic Analysis (**3 credits; fall term**); i**ntensive introduction to modern genetic analysis based on classical and contemporary paradigms, drawing on examples from a wide range of model organisms.
* **BIOL 631: Advanced Molecular Biology I and II (**3 credits each; fall/spring term**);** DNA structure, function, and interactions in prokaryotic and eukaryotic systems, including chromosome structure, replication, recombination, repair, and genome fluidity, RNA structure, function, and processing in biological systems including transcription, gene regulation, translation, protein and RNA transport.
* **MCRO 614 Immunobiology (**3 credits, fall term**);** introduces students to the basic concepts of immunology including immunochemistry; genetic mechanisms, and development of cells and cell interactions; hypersensitivity, autoimmunity, resistance to infection.
* **ENVR 470 Environmental Risk Assessment** (3 credits, spring term);Use of mathematical models and computer simulation tools to estimate the human health impacts of exposure to environmental pollutants.
* **ENVR 601 Epidemiology for Environmental Scientists and Engineers** (3 credits, spring term); discussion of basic epidemiologic concepts and measures of disease occurrence in populations, explaining epidemiological study designs for studying associations between risk factors or exposures in populations, evaluating epidemiologic evidence, and comprehending basic ethical principles.
* **ENVR 630 Systems Biology in Environmental Health** (3 credits; fall term);Environmental systems biology examines how environmental stressors influence the components of a biological system, and how the interactions between these components result in changes in the function and behavior of that system.