# MOLECULAR BIOLOGY - DOCTOR OF PHILOSOPHY

## Phase I Core Courses
- **MOLB 520** Molecular Cell Biology 3
- **MOLB 542** Biochemistry I 3
- **MOLB 545** Molecular and Biochemical Genetics 3

## Molecular Biology Tier II Courses
Select at least 9 credits from the following: 9

- **AGRO 506** Plant Genetics
- **AGRO 516** Molecular Analysis of Complex Traits
- **ANSC 602** Advanced Reproductive Physiology (fo)
- **ANSC 602 L** Molecular Techniques in Reproductive Physiology (fo)
- **ANSC 621** Metabolic Functions and Dysfunctions (fe)
- **BCHE 494** Biochemical Genetics Laboratory
- **BCHE 546** Biochemistry II
- **BCHE 645** Nucleic Acid Metabolism
- **BCHE 647** Physical Biochemistry
- **BIOL 451** Physiology of Microorganisms
- **BIOL 470** Developmental Biology
- **BIOL 474** Immunology
- **BIOL 475** Virology
- **BIOL 477** Applied and Environmental Microbiology
- **BIOL 478** Molecular Biology of Microorganisms
- **BIOL 490** Neurobiology
- **BIOL 541** Professional Development Seminar
- **BIOL 550** Special Topics
- **BIOL 577** Advanced Topics in Environmental Microbiology
- **BIOL 590** Advanced Neurobiology
- **BIOL 698** Selected Topics
- **CHEM 516** Physical Organic Chemistry
- **CHEM 517** Synthetic Organic Chemistry
- **EPWS 486** Plant Virology
- **MOLB 546** Biochemistry II
- **MOLB 550** Topics in Molecular Biology
- **MOLB 650** Advanced Topics in Molecular Biology
- **TOX 461** Toxicology I

### Other Course Requirements
- **A ST 505** Statistical Inference I (or equivalent course) 4
- **MOLB 590** Discussions in Molecular Biology 1
- **MOLB 597** Laboratory Rotations/Research Discussions 1-3
- **MOLB 599** Master’s Thesis 1
- **PHIL 540** Science and Ethics (or equivalent course) 1-3

**Total Credits** 31-35

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1. MS candidates must enroll for 6 credits MOLB 599 Master’s Thesis. May register for additional credits to maintain full-time status.

The Molecular Biology program also offers formal minors in molecular biology or bioinformatics.