**Department:** Molecular & Cell Biology

**Degree:** PHD

**GRADUATE LEARNING GOALS & OUTCOMES**

**GRADUATE OUTCOMES:** Students trained in the MCB PhD program will learn the theoretical foundations and research experience needed to become an independent and original investigator of basic biological phenomena.

**Students graduating with the Ph.D. in Molecular and Cell Biology are expected to:**

- Demonstrate a graduate-level understanding of one of the areas of research represented by the program: molecular biology of the regulation of gene expression; chromosome structure and chromosomal rearrangements; mechanisms of recombination and DNA repair; developmental genetics; behavioral genetics, neural development; biophysics of single nerve cells; learning and memory; regulation of small RNAs; immune cell differentiation and development; cytoskeletal architecture; organization of subcellular structures; structure and function of proteins; mammalian embryogenesis and the biotechnology of DNA diagnostics.
- Explore possible research areas and techniques through four first-year laboratory rotations
- Become confident in reading primary literature, critical thinking, and presentation
- Become proficient in scientific writing and oral defense of original research
- Gain experience teaching students in a teaching assistantship role
- Learn ethical practices in the Sciences
- Complete a significant body of original work that advances the field of Biology

**Department:** Molecular & Cell Biology

**Degree:** MS

**GRADUATE LEARNING GOALS & OUTCOMES**

**GRADUATE OUTCOMES:** The MCB Master’s program will train students to realize their potential as independent scientists, and will foster students’ career development goals toward obtaining a position in research, teaching, or other scientific settings.

**Students graduating with a Master’s degree in Molecular and Cell Biology are expected to:**

- Demonstrate a graduate-level understanding of one of the areas of research represented by the program: molecular biology of the regulation of gene expression; chromosome structure and chromosomal rearrangements; mechanisms of recombination and DNA repair; developmental genetics; behavioral genetics, neural development; biophysics of single nerve cells; learning and memory; regulation of small RNAs;
immune cell differentiation and development; cytoskeletal architecture; organization of subcellular structures; structure and function of proteins; mammalian embryogenesis and the biotechnology of DNA diagnostics.

• Explore possible research areas and techniques through a semester of independent or semi-independent research
• Become confident in reading primary literature, critical thinking, and presentation
• Learn ethical practices in the Sciences