MCIP Curriculum Overview

Basic requirements:

PSL 828: Cellular and Integrative Physiology I
PSL 829: Cellular and Integrative Physiology II
Electives: Any topic – at least 3
PSL 950: Topics in physiology – at least 4

Envisioned Timeline:

Year	Fall	Spring
1	**PSL 829:** Cellular and Integrative Phys II **Elective 1** **BMS Research Forum** **Rotations**	**PSL 828**: Cellular and Integrative Phys I **Elective 2** **BMS Research Forum** **Rotations**
2	**PSL 950:** Topics in Physiology **Elective 3 (in Fall or Spring)** Guidance Committee Selection Dissertation Research TA Requirement in Fall or Spring	**PSL 950:** Topics in Physiology First Guidance Committee Meeting Dissertation Research TA Requirement in Fall or Spring
End of Year 2: Beginning of Year 3	Comprehensive Exam: written proposal, research presentation, committee questions	
3	**PSL 950:** Topics in Physiology Dissertation Research	**PSL 950:** Topics in Physiology Dissertation Research
4 and 5	Dissertation Research	Dissertation Research
Culmination: Dissertation Defense		

See following page for suggestions of electives

Continued Education:

- Graduate School Responsible Conduct of Research (RCR) Seminar Series and refresher each year
- Participation in Physiology Research Forum
- Participation in Department of Physiology Seminars
- Participation in the Annual Physiology Department Retreat

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Popular Electives for MCIP Students

Three elective courses are required for the MCIP PhD program.

The purpose of elective courses is to support the student's specific research training career interests. Students are therefore recommended to confer with their dissertation mentor, guidance committee, and/or the MCIP Graduate Program Director to identify relevant elective courses to facilitate their training goals.

Below is a list of elective course *suggestions*, but students are not confined to these topics or specific choices. Any 3-credit course graduate course can count as an elective.

Biochemistry and Molecular Biology

BMB 801: Molecular Biology (Fall, 3 credits)
BMB 802: Metabolic Regulation and Signal Transduction (Spring, 3 credits)
BMB 805: Protein Structure, Design, and Mechanism (Spring, 3 credits)
BMB 825: Cell Structure and Function (Spring, 3 credits)

Computational Mathematics, Science and Engineering

CMSE 890: Bioinformatics *(Offered in 1 credit modules. Complete 3 modules to fulfill one elective)*

- Module 301: Programming Foundations for Bioinformatics (1 credit)
- Module 302: Statistical Analysis and Visualization of Biological Data (1 credit)
- Module 303: Data Handling: Unix and Python (1 credit)
- Module 304: Intro to Genomics (1 credit)
- Module 305: Transcriptomic Data Analysis (1 credit)
- Module 310: Gaps, Errors and Missteps in Statistical Data Analysis (1 credit)

Microbiology and Molecular Genetics

MMG 851: Immunology (Fall odd years, 3 credits)

Microscopy

NSC 837: Confocal Microscopy (Fall and Spring, 3 credits)

Neuroscience

NEU 801: Molecular, Cellular and Developmental Neuroscience I (Fall, 3 credits)
NEU 802: Systems and Behavioral Neuroscience I (Fall, 3 credits)
NEU 803: Molecular, Cellular and Developmental Neuroscience II (Spring, 3 credits)
NEU 805: Systems and Behavioral Neuroscience II (Spring, 3 credits)
NEU 847: Development of the Nervous System (Fall, 3 credits)

Pathology & Diagnostic Investigation

PDI: 851: Advanced General Pathology (Fall of even years, 3 credits)

Pharmacology

PHM 801: Fundamental Principles of Pharmacology and Toxicology (Fall, 3 credits)
PHM 802: Cellular, Molecular and Integrated Systems Pharmacology (Fall, Spring, 3 credits)
PHM 830: Experimental Design and Data Analysis (Fall or Summer, 3 credits, online, 3 credits)
PHM 827: Physiology and Pharmacology of Excitable Cells (Currently not offered but hopefully returning)

Physiology

PSL 813: Molecular Mechanisms of Human Disease and Targeted Therapies (Fall of odd years, 3 credits)