MOLECULAR AND CELLULAR PHARMACOLOGY, PH.D.

The molecular and cellular pharmacology (MCP) program, in cooperation with the Center for Training in Pharmacology and Drug Development (CTPDD), offers interdisciplinary graduate training in the field of molecular and cellular pharmacology. The primary emphasis is doctoral training in molecular biology, biochemistry, genetics, and cell biology with a focus on integrating these methodologies with modern pharmacology. Other related degree programs under the direction of program faculty are cellular and molecular biology, environmental toxicology, neuroscience, biomolecular chemistry, and genetics.

The MCP program emphasizes study of the basic molecular and cellular mechanisms involved in the regulation of cellular events and cellular signal transduction mechanisms and the interaction of hormones, drugs, and chemicals with living systems. The faculty provides expertise in such challenging areas as the molecular events related to neurotransmitter receptor G-protein effector signaling; molecular structure of neurotransmitter receptors; genetic approaches to mechanisms for elucidating synaptic transmission; molecular mechanisms of action drugs of abuse and neurotransmitter transporters; phosphoinositide-generated second messengers and their regulation of membrane protein function and cell growth; regulation of tissue-specific gene transcription; molecular mechanisms of erythropoiesis; molecular mechanisms of leukemogenesis; regulation of hormone and neurotransmitter release; mechanism of action of polypeptide hormones; peptide–hormone receptors; control of steroid synthesis; induction of drug-metabolizing enzymes; chemical initiation and prevention of cancer; mechanisms and regulation of antibiotic action and resistance. Aside from providing insight into drug action, studies in pharmacology have led to important advances in our understanding of fundamental biological processes.

FUNDING

Prospective students should see the program website for funding information.

REQUIREMENTS

MINIMUM DEGREE REQUIREMENTS AND SATISFACTORY PROGRESS

To make progress toward a graduate degree, students must meet the Graduate School Minimum Degree Requirements and Satisfactory Progress (http://guide.wisc.edu/graduate/#policiesandrequirementstext) in addition to the requirements of the program.

DOCTORAL DEGREES

MINIMUM GRADUATE DEGREE CREDIT REQUIREMENT

51 credits

MINIMUM GRADUATE RESIDENCE CREDIT REQUIREMENT

32 credits

MINIMUM GRADUATE COURSEWORK (50%) REQUIREMENT

Half of the degree coursework (26 of 51 total credits) must be in graduate-level coursework; courses with the Graduate Level Coursework attribute are identified and searchable in the university’s Course Guide (http://my.wisc.edu/CourseGuideRedirect/BrowseByTitle).

PRIOR COURSEWORK REQUIREMENTS: GRADUATE WORK FROM OTHER INSTITUTIONS

With program approval, students are allowed to count no more than 7 credits of graduate coursework from other institutions. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNDERGRADUATE

No credits from a UW–Madison undergraduate degree are allowed to count toward the degree.

PRIOR COURSEWORK REQUIREMENTS: UW–MADISON UNIVERSITY SPECIAL

With program approval, students are allowed to count no more than 15 credits of coursework numbered 300 or above taken as a UW–Madison Special student. Coursework earned ten years or more prior to admission to a doctoral degree is not allowed to satisfy requirements.

CREDITS PER TERM ALLOWED

15 credits

PROGRAM-SPECIFIC COURSES REQUIRED

Contact the program for information on any additional required courses.

DOCTORAL MINOR/BREADTH REQUIREMENTS

Doctoral students are not required to complete a minor, but may do so if they wish.

OVERALL GRADUATE GPA REQUIREMENT

3.00

OTHER GRADE REQUIREMENTS

The Graduate School requires an average grade of B or better in all coursework (300 or above, not including research credits) taken as a graduate student unless conditions for probationary status require higher grades. Grades of Incomplete are considered to be unsatisfactory if they are not removed during the next enrolled semester.

PROBATION POLICY

The Graduate School regularly reviews the record of any student who earned grades of BC, C, D, F, or Incomplete in a graduate course (300 or above), or grade of U in research credits. This review could result in academic probation with a hold on future enrollment or in being suspended from the Graduate School.

ADVISOR

Every graduate student is required to have an advisor. An advisor is a faculty member, or sometimes a committee, from the major department responsible for providing advice regarding graduate studies. An advisor generally serves as the thesis advisor. In many cases, an advisor is
assigned to incoming students. Students can be suspended from the Graduate School if they do not have an advisor.

To ensure that students are making satisfactory progress toward a degree, the Graduate School expects them to meet with their advisor on a regular basis.

A committee often accomplishes advising for the students in the early stages of their studies.

**ASSESSMENT AND EXAMINATIONS**

Doctoral students are required to take a comprehensive preliminary/oral examination after they have cleared their record of all Incomplete and Progress grades (other than research and thesis). Deposit of the doctoral dissertation in the Graduate School is required.

**TIME CONSTRAINTS**

Doctoral degree students who have been absent for ten or more consecutive years lose all credits that they have earned before their absence. Individual programs may count the coursework students completed prior to their absence for meeting program requirements; that coursework may not count toward Graduate School credit requirements.

A candidate for a doctoral degree who fails to take the final oral examination and deposit the dissertation within five years after passing the preliminary examination may be required to take another preliminary examination and to be admitted to candidacy a second time.

**LANGUAGE REQUIREMENTS**

Contact the program for information on any language requirements.

**ADMISSIONS**

The Graduate School sets minimum requirements for admissions (https://grad.wisc.edu/admissions/requirements). Academic program admission requirements are often more rigorous than those set by the Graduate School. Please check the program website for details.

**LEARNING OUTCOMES**

**KNOWLEDGE AND SKILLS**

- Articulates research problems, potentials, and limits with respect to theory, knowledge, or practice within the field of study.
- Formulates ideas, concepts, designs, and/or techniques beyond the current boundaries of knowledge within the field of study.
- Creates research, scholarship, or performance that makes a substantive contribution.
- Demonstrates breadth within their learning experiences.
- Advances contributions of the field of study to society.
- Communicates complex ideas in a clear and understandable manner.

**PROFESSIONAL CONDUCT**

- Fosters ethical and professional conduct.

**PEOPLE**

**Faculty:** Professors Anderson, Auger, Beebe, Bement, Bresnick, Chapman, Crys, Czajkowski, Denu, Greenspan, Hardin, Hayney, Huttenlocher, Jackson, Jefcoate, Johnson, Kalejta, Kamp, Keck, Keely, Kimble, Kolesar, Kwon, Li, Martin, Miyamoto, Mosher, Murphy, Raines, Rapraeger, Schuler, Sheibani, Swaren, Thomson, Tibbetts, Wassarman, Xu, Yang, Zhang, Zhao; Associate Professors Audhya (director), Baljepalli, Burkard, Buxton, Chanda, Chang, Ge, Hornberger, Jorgensen, Kuo, Kalejta, Lee, Masters, Pagliarini, Roopra, Striker, Tang, Weaver, Wheeler, Xing; Assistant Professors, Blum, Collier, Jiang, Johannsen, M. Kimple, R. Kimple, Kreeger, Lamming, Lou, Rui, Saha, Sherer, Sridharan