

Online Course Catalog

Pharmacology & Toxicology

Lifelong Education at MSU

Individuals may enroll on a course-by-course basis through Lifelong Education at Michigan State University.

It is possible to transfer up to 10 Lifelong Education credits toward a degree program. Check with your academic adviser or contact the Department of Pharmacology & Toxicology for details.

More information can be found on the Office of the Registrar web site, www.reg.msu.edu.

Innovative and challenging web-based learning

PHM 350 - Introduction to Human Pharmacology

General principles of pharmacology. Drugs affecting central and autonomic nervous systems, heart, kidney, and endocrine systems. Drugs treating bacterial infection and cancer . (3 credits)

PHM 450 - Introduction to Toxicology

Topics include: mammalian toxicology, disposition of chemicals in the body, detoxification, elimination, and mechanisms of toxicity in major organ systems, selected toxic agents; carcinogenicity and reproductive toxicology; effects of pesticides, lead, mercury, and other selected toxic agents. (3 credits)

PHM 813 - Cardiovascular Pharmacology

Effects of drugs on normal and diseased physiological and biochemical process in vascular and cardiac cells. (3 credits)

PHM 819 - Principles of Drug-Tissue Interactions

General principles relevant to the interaction of chemicals with biological systems. Topics include pharmacodynamics, pharmacokinetics, receptors, second messengers, drug design, drug tolerance and dependence. (2 credits)

PHM 858 - Project Management and the Drug Development Process

Overview of project management standards and best practices in the drug development process, including clinical trials. Introduces student to standard project management processes, tools and techniques as applied specifically to the drug development and clinical testing processes. Builds capacity to participate in and lead projects at a higher level. Topics include: risk management in commercial biomedical research; decision-making and problem-solving for drug development projects; managing resources through people skills; portfolio management for prioritizing biotech and life sciences; managing projects at the enterprise level. (3 credits)

The Department of Pharmacology & Toxicology

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The Department of Pharmacology & Toxicology - Online Courses

PHM 829 - Neuropharmacology

Description of targets in the mammalian nervous system of clinically useful drugs and the mechanism of action, clinical use, and side effects of those drugs. Aspects of normal cellular neurophysiology. Drugs targeting dopamine, GABA, opiate, cholinergic, and glutaminergic receptors. Drugs targeting ion channels and transmitters reuptake transporters and metabolism. (2 credits)

PHM 830 - Experimental Design and Data Analysis

Practical application of statistical principles to the design of experiments and analysis of experimental data in pharmacology, toxicology, and related biomedical sciences. Course objectives: to provide students with a practical knowledge of statistical principles applied to the design, analysis and display of experiments in integrative pharmacology and other biomedical research. (3 credits).

PHM 831 - Endocrine Pharmacology

The functioning of the endocrine system and its pharmacology, how it can be applied to hormone therapy, drug development, diagnostics and disease prevention, the organization and functioning of the cells that secrete a particular hormone. Emphasis on increasing student understanding of how failure of secretion or hypersecretion can lead to disease states and how they can be corrected using hormones or other pharmacological agents and mode of action of these agents. (2 credits)

PHM 857 - Project Management

Overview of formal project management culture, principles, knowledge areas, and terminology. Specific tools and techniques including work breakdown structure, earned value analysis, risk management, and quality control for managing scientific research. Students are introduced to work planning; estimating, assigning and integrative resources; risk management and quality management. Course objectives: to enable the immediate practice of project management principles increasingly used in pharmaceutical industries and biomedical research. A sound introduction for those seeking CAPM or PMP certification. (2 credits)

PHM 833 - Gastrointestinal and Liver Pharmacology

Specific drugs and their mechanisms of action in the treatment of gastrointestinal and liver diseases. Toxic effects of drugs and other xenobiotics on the gastrointestinal tract, including the liver. (2 credits)

PHM 834 - Respiratory Pharmacology

Integrative study of drugs, their mechanism of action, and their side effects in the treatment of major diseases and pathologies of the respiratory system. Provides students with an overview of the pharmacology of the respiratory system with emphasis on drug classes used to treat major diseases and pathologies. (2 credits)

Department of

**Pharmacology
& Toxicology**



PHM 851 - Intellectual Property and Patent Law for Biomedical Sciences

Fundamentals of intellectual property and patent law encountered by biomedical scientists, including patent prosecution and enforcement of patents in a litigation setting. This course prepares students to protect possible future

patents through proper documentation and security during development and for litigation and presenting testimony. (2 credits)

PHM 854 - Leadership and Team-Building for Researchers

Evaluation of current leadership methods; practice of specific skills and development of a plan to increase influence and extend learning to the workplace. The course objective is to provide students with insight into current leadership skills and areas needing improvement through 360 degree evaluation and formal temperament assessment. Students are introduced to research-based models of effective supervision practices, guiding group development, and strategic-planning. Other topics include situational leadership, virtual teams, intercultural teams, leading change and managing transitions -- skills the developing manager can apply anywhere. (2 credits)

For more information, visit the Department of Pharmacology & Toxicology web site at www.phmtox.msu.edu or contact our Education Programs Coordinator at (517) 353-9619 or winslow8@msu.edu.