

## Guided Curricula in Translational Research

Many students desire a PhD that will prepare them for a career in applied biology; for example, in the pharmaceutical industry or government institutions such as the Food and Drug Administration (FDA) or Centers for Disease Control and Prevention (CDC). This guided curriculum will augment the MBGC requirements with courses relevant to such translational work.

This guided curricula suggests specific **elective** courses for consideration for students with these interests in addition to MBGC requirements.

PATH N5209 The Business of Science: Drug Development Discovery to Market. 3 cr.

The goals of this course are to survey the basic concepts and strategies for drug discovery and development, with an emphasis on practical applications rather than theory; provide in-depth consideration of the key phases of pre-clinical drug discovery; examine the impact of rapidly changing disruptive technologies on the processes of drug discovery; study the basic design and conduct of phase 1-4 clinical trials; provide a forum for discussion of practical considerations of careers in drug discovery/development; and provide an opportunity for practical application of concepts.

PATH5070 Laboratory Animal Science 3 cr. Spring

This is an introductory course dealing with the care and use of animals in biomedical research. The course covers history of animal research, ethics and animal rights, Federal Regulations, the IACUC, and search for alternatives, animal models and research use. Also discussed are the husbandry, care and use of and common diseases and procedures in rats, mice and rabbits. The laboratory sessions provide the student with hands-on experience in handling the above species and an opportunity to practice the procedures as described. This 3-credit course is given as 11 one-hour didactic sessions each followed by a two-hour laboratory session. A midterm and a final exam are included.

GSND N5310 Clinical Trials Overview: Methodology and Practice. 3cr. Spring

This course is designed to teach researchers at all levels (investigator, study coordinator, study monitor, study staff) the fundamentals of a good clinical trial in the evaluation of a new drug or device, be it sponsored by an industry, federal or philanthropic organization. Whether the ultimate purpose is to create a clinical protocol, or to carry out or monitor a protocol, understanding the options and reasons for a clinical trial design impacts the daily conduct and success of the trial. Discussion starts with the evaluation process leading up to human volunteer trials, through elements in designing a trial, writing the scientific protocol, considering regulatory issues and human subjects protection, through elements in protocol development/implementation, sample size determination and analytic strategy.

PHPY5020 Principles of Pharmacology 3 Credits Dose effect relationships, drug antagonism and specificity of drugs for effector systems.