

INTEGRATED BIOMEDICAL SCIENCES (IBMS)

Courses

IBMS 5000. Fundamentals Of Biomedical Sciences. 8 Credit Hours.

This core course covers the fundamentals of biochemistry, molecular biology, cell biology, organismal and systems biology, and microbiology and immunology. The course is designed for first-year graduate students matriculating into the Integrated Biomedical Sciences Program (IBMS).

IBMS 5008. Lab Rotations. 1-3 Credit Hours.

This course provides an opportunity for students to participate in research activities in the laboratories of faculty members in different disciplines to learn laboratory skills and to gain an introduction to the research fields of faculty members.

IBMS 6090. Seminar. 1.5 Credit Hour.

This course is required of all students in the IBMS program, except of those who have signed up for Final Hours. Students are required to attend a minimum of 16 seminars per semester and to complete a requirement to demonstrate their attendance and participation. To fulfill the minimum number of seminars, students may include seminars offered by disciplines other than their own in which they are enrolled. However, to enroll, students should obtain permission from the course Section Director affiliated with the appropriate discipline. The course numbers of the individual course sections are IBMS 6090-1GEN, 6090-2BA, 6090-3CB, 6090-4CGM, 6090-5III, 6090-6MBB, 6090-7NS and 6090-8PP for the IBMS Disciplines: Biology of Aging (BA), Cancer Biology (CB), Cell Biology, Genetics & Molecular Medicine (CGM), Infections, Inflammation & Immunity (III), Molecular Biophysics & Biochemistry (MBB), Neuroscience (NS), and Physiology & Pharmacology (PP). Some students who have not declared a discipline, and have obtained the approval of their academic advisor and the Senior Associate Dean of the GSBS, may sign up for IBMS 6090-1GEN. A list of seminars from all disciplines will be posted on the Graduate School website. Each Section Director will determine, for the relevant IBMS-6090 section, the policy for tracking student's attendance and participation in seminars.

IBMS 6097. Research. 0.5-12 Credit Hours.

This course consists of independent, original research under the direction of a faculty advisor. Students should enroll in the research course section that corresponds to the most appropriate IBMS Disciplines: IBMS 6097-2BA for Biology of Aging (BA), IBMS 6097-3CB for Cancer Biology (CB), IBMS 6097-4CGM for Cell Biology, Genetics & Molecular Medicine (CGM), IBMS 6097-5III for Infections, Inflammation & Immunity (III), IBMS 6097-6MBB for Molecular Biophysics & Biochemistry (MBB), IBMS 6097-6NS for Neuroscience (NS), and IBMS 6097-7PP for Physiology & Pharmacology (PP). All students are required to meet with their research supervising committees at least once per semester. Students who have not declared a discipline should sign up for IBMS 6097-1GEN, General section.

IBMS 6098. Thesis. 1-9 Credit Hours.

Registration for at least one term is required for M.S. candidates. Prerequisite: Admission to candidacy for the Master of Science degree is required.

IBMS 7001. Qualifying Exam. 1 Credit Hour.

The objective of the Qualifying Examination (QE) is to determine if a student has met programmatic expectations with regard to: i) Acquiring a level of scientific reasoning and a knowledge base in his/her field of study appropriate for a graduate student at the current stage of training; ii) Demonstrating skills of problem-solving and development of experimental strategies designed to test hypotheses associated with a specific scientific problem; and iii) Demonstrating the ability to defend experimental strategies proposed for solving scientific problems. Successful completion of the QE is required for Advancement to Candidacy and continuation in the IBMS Ph.D. program. During the Spring semester of Year 2 (4th semester overall) of the student's program, the QE will be administered by a faculty committee approved by a student's Discipline leadership. Each IBMS discipline will administer the QE process for its students so as to achieve the goals of the discipline while satisfying the expectations of the IBMS graduate program. In general, the QE requires the solving of a relevant unsolved problem in the biomedical sciences by writing a research proposal based on an idea conceived and developed by the student, followed by an oral defense-of-proposal to explore the student's problem-solving process, and the soundness of the student's experimental design. Following the QE, a report will be submitted by the chair of the examination committee to the student's discipline leadership indicating the outcome of the exam and any recommendations that may be required to foster further academic progress by the student. IBMS 7001 is divided into 7 modules overseen by the 7 IBMS Disciplines, each that is responsible for providing its students with a detailed description of the examination process, and for ensuring that the programmatic expectations and goals of the QE are met.

IBMS 7010. Student Journal Club & Research Presentation. 1-2 Credit Hours.

IBMS students should have continuous experience in: 1) discussion and critical analysis of current scientific literature (journal clubs) and, 2) formal presentation of their ongoing research progress to other students and faculty members of their discipline. A discipline-specific course or combination of courses that contains a semester minimum of 0.5 credit hours of scientific literature discussion and 0.5 credit hours of research presentation. This course will be a continuous requirement beginning the Fall semester of the second year until the preceding semester of the dissertation defense. At least once per academic year, students will provide a formal presentation of their research progress to other students and faculty members of their discipline. As well, they will contribute to journal club discussions of current scientific literature. Course will be sub-divided by Disciplines as follows: IBMS 7010-1GEN (General Section) IBMS 7010 -2BA (Biology of Aging) IBMS 7010 -3CB (Cancer Biology) IBMS 7010 -4CGM (Cell Biology, Genetics & Molecular Medicine) IBMS 7010 -5III (Infection, Inflammation & Immunity) IBMS 7010 -6MBB (Molecular Biophysics & Biochemistry) IBMS 7010 -7NS (Neuroscience) IBMS 7010-8PP (Physiology & Pharmacology).

IBMS 7099. Dissertation. 1-12 Credit Hours.

This course is designed to prepare graduate students writing their doctoral dissertation. A candidate for the Ph.D. degree must register for the Dissertation course for at least two terms. Students should enroll in the research course section that corresponds to the most appropriate IBMS discipline: IBMS Disciplines: IBMS 7099-2BA for Biology of Aging (BA), IBMS 7099-3CB for Cancer Biology (CB), IBMS 7099-4CGM for Cell Biology, Genetics & Molecular Medicine (CGM), IBMS 7099-5III for Infections, Inflammation & Immunity (III), 7099-6MBB for Molecular Biophysics & Biochemistry (MBB), IBMS 7099-6NS for Neuroscience (NS), and IBMS 7099-7PP for Physiology & Pharmacology (PP). Prerequisite: Registration is only permitted following a student's admission to candidacy for the Ph.D. degree, approval of the dissertation research proposal and approval of the membership of the candidate's Supervising Committee.