

CB - CANCER BIOLOGY

CB 7130 Clinical Aspects of Cancer Biology Cr. 1

Cancer Biology Ph.D. students accompany clinicians during rounds in hospital and outpatient clinics, as well as attend clinical conferences, tumor boards and related sessions. Offered for S and U grades only. Offered Spring/Summer.

Restriction(s): Enrollment is limited to students with a major in Cancer Biology.

CB 7210 Fundamentals of Cancer Biology Cr. 4

This course focuses on fundamental principles underlying the complex field of contemporary cancer biology. The lectures are organized into two thematic blocks: I, mechanisms of cancer development and progression, and II, characteristics of cancer types and approaches to cancer therapy. Offered Fall.

Restriction(s): Enrollment is limited to Graduate level students.

CB 7220 Molecular Biology of Cancer Development Cr. 4

The course will provide a basic understanding of the molecular biology of cancer with emphasis on core concepts and molecular technologies. The course will include lectures, student-led discussions, and critical reading of literature. Students are required to present and actively participate in discussions. Offered Winter.

Prerequisite: IBS 7015 with a minimum grade of C and CB 7210 with a minimum grade of C

Restriction(s): Enrollment is limited to Graduate level students.

CB 7240 Molecular Mechanisms of Cancer and Therapy Cr. 4

This course will introduce graduate students to the biology of solid tumors and hematological malignancies, and the principles of conventional chemotherapy, targeted therapy, radiation therapy, and immunotherapy. The lectures cover cancer-related signaling pathways, tumor immunology, tumor microenvironment, cancer metastasis, tumor imaging, mechanisms of drug action, pharmacokinetics and clinical implementation. Offered Fall.

Prerequisite: IBS 7015 with a minimum grade of C and CB 7210 with a minimum grade of C

Restriction(s): Enrollment is limited to Graduate level students.

CB 7300 Special Topics in Cancer Biology Cr. 1-5

This special topics course will provide students with the opportunity for in-depth study of emerging themes and technologies on basic, translational, epidemiologic and clinical topics related to cancer, as well as augment material from other courses in Cancer Biology. Offered Every Term.

Prerequisite: CB 7210 with a minimum grade of C

Restriction(s): Enrollment is limited to Graduate level students.

Repeatable for 5 Credits

CB 7430 Cancer Epidemiology Cr. 2

This course introduces concepts and methods used in cancer epidemiology research and focuses on the cancer burden in the United States and worldwide, as well as the major causes of cancer. Students will be required to review and provide critical appraisal of selected literature in innovative areas of cancer epidemiologic research. Offered Fall.

Restriction(s): Enrollment is limited to Graduate level students.

CB 7500 Introduction to Cancer Biostatistics Cr. 2

This is an introductory masters-level course in biostatistics for students pursuing a master's degree in Cancer Biology. The main goal of this course is for the student to be introduced to basic statistical methods utilized in cancer research including experimental design, statistical hypothesis tests, linear regression, and survival analysis. The course will utilize Excel and the PSPP programming environment for instruction. Offered Winter.

Restriction(s): Enrollment is limited to students with a major in Cancer Biology; enrollment limited to students in a Master of Science degree.

CB 7510 Journal Club/Seminar Cr. 1

This journal club/seminar format course is required for master's students in the Cancer Biology Graduate Program. Classes will be split between cancer research-focused paper presentations/discussions and seminar presentations. Offered Winter.

Restriction(s): Enrollment is limited to students with a major in Cancer Biology; enrollment limited to students in a Master of Science degree.

Repeatable for 2 Credits

CB 7600 Applied Cancer Biostatistics Cr. 2

The objective of this course is to equip students with the knowledge and skills to understand, apply, and interpret fundamental biostatistical concepts using a statistical software package. These skills are essential for conducting, evaluating, and presenting research in the field of biological science. Students will gain hands-on experience with a statistical software package to manage, analyze, and present biological data. Key activities include data recording, transformation, generating descriptive and inferential statistics, and interpreting statistical reports and outcomes in the context of biological research. Offered Winter.

Restriction(s): Enrollment is limited to students with a major in Cancer Biology.

CB 7700 Recent Developments in Cancer Biology Cr. 1

This course is a journal club designed for students to develop proficiency in critically evaluating original cancer biology literature, to broaden their knowledge of contemporary topics in cancer biology, and to provide insights into current research strategies. Each student is expected to participate in class discussions. Offered Fall, Winter.

Restriction(s): Enrollment is limited to students with a major in Cancer Biology.

Repeatable for 4 Credits

CB 7710 Individual Studies in Cancer Biology Cr. 1-3

Cancer Biology graduate students pursue experimental research under the guidance of selected faculty. This is the research rotation through which students select their Ph.D. dissertation mentor. Students are required to complete three rotations. Offered Every Term.

Restriction(s): Enrollment is limited to students with a major in Cancer Biology.

Repeatable for 3 Credits

CB 7800 Rigor and Reproducibility in Cancer Biology Cr. 1

This course will introduce students to basic principles of rigorous and reproducible Cancer Biology research. This includes experimental design and data interpretation, publishing, animal and human research, and other topics relevant to the conduct of research in Cancer Biology. Offered Winter.

Restriction(s): Enrollment is limited to students with a major in Cancer Biology.

CB 7890 Seminar in Cancer Biology Cr. 1

This course provides Cancer Biology students with the opportunity to present their dissertation research to their peers. This class not only provides students with the opportunity to develop their oral presenting skills but also gives the students a chance to critically evaluate their peers' research. Offered Fall, Winter.

Restriction(s): Enrollment is limited to students with a major in Cancer Biology.

Repeatable for 4 Credits

CB 7996 Research Cr. 1-7

Directed study and pre-dissertation research with faculty in the program. Offered Every Term.

Restriction(s): Enrollment is limited to students with a major in Cancer Biology.

Repeatable for 7 Credits

CB 7999 Master's Essay Cr. 1-4

Review of relevant literature and research summary based on master's research in Cancer Biology. Offered Every Term.

Restriction(s): Enrollment is limited to students with a major in Cancer Biology.

Repeatable for 4 Credits

CB 8910 Applied Cancer Bioinformatics Cr. 1

This course is to equip students with the knowledge and skills of the basic concepts and computational methods in the interdisciplinary field of bioinformatics and their applications in biomedical and cancer research. The course will focus on the multi-omics data generated from next generation sequencing technology. Students will receive an introduction to the concepts, analysis and interpretation of multi-omics data and their applications in cancer research. This course is designed to instruct students having a general background in molecular biology. No coding or programming experience is required. Offered Fall.

Restriction(s): Enrollment is limited to Graduate level students.

CB 8920 Principles of Translational and Clinical Cancer Research Cr. 1

The goal of this course is for the students to understand the fundamentals of translational and clinical cancer research with emphasis on identifying clinically meaningful research goals and application of laboratory based research into clinical trials. The students will attend a series of lectures from clinical oncology faculty members. Students will work with their clinical mentors to develop translational research projects or correlative end points for a clinical trial concept. Students are expected to present a brief proposal of the project at the end of the course, which will be evaluated by the course director. Offered Fall.

Prerequisite: CB 7130 with a minimum grade of C

Restriction(s): Enrollment is limited to students with a major in Cancer Biology.

CB 8999 Master's Thesis Research and Direction Cr. 1-8

Offered Every Term.

Restriction(s): Enrollment is limited to students with a major in Cancer Biology.

Repeatable for 8 Credits

CB 9991 Doctoral Candidate Status I: Dissertation Research and Direction Cr. 3-9

Candidacy Research Offered Every Term.

Restriction(s): Enrollment is limited to students with a major in Cancer Biology.

CB 9992 Doctoral Candidate Status II: Dissertation Research and Direction Cr. 1-18

Candidacy Research Level 2 Offered Every Term.

Prerequisite: CB 9991 with a minimum grade of S

Restriction(s): Enrollment is limited to students with a major in Cancer Biology.

CB 9995 Candidate Maintenance Status: Doctoral Dissertation Research and Direction Cr. 0

Offered Every Term.

Restriction(s): Enrollment is limited to students with a major in Cancer Biology.

Repeatable for 0 Credits