CBIO (CBIO)

Courses

CBIO 101. Cancer Biology. 4 Units.
Experimental approaches to understanding the origins, diagnosis, and treatment of cancer. Focus on key experiments and discoveries with emphasis on genetics, molecular biology, and cell biology. Topics include carcinogens, tumor virology, oncogenes, tumor suppressor genes, cell cycle regulation, angiogenesis, invasion and metastasis, cancer genomics, cancer epidemiology, and cancer therapies. Discussion sections based on primary research articles that describe key experiments in the field. Satisfies Central Menu Areas 1 or 2 for Bio majors. Prerequisite: Biology or Human Biology core or equivalent, or consent of instructor. 
Same as: PATH 101

CBIO 240. Molecular Genetic Basis of Cancer. 4 Units.
Core course required for first-year Cancer Biology graduate students. Focus is on key experiments and classic primary research papers in cancer biology. Letter grade required. Undergraduates require consent of course director.

CBIO 241. Cellular Basis of Cancer. 4 Units.
Core course required for first-year Cancer Biology graduate students. Preference to graduate students; undergraduates require approval of course instructor to enroll. Focus is on key experiments and classic primary research papers in cancer biology, centering on cancer cellular biology.

CBIO 242. Scientific and Translational Basis for Clinical Cancer Therapy. 3 Units.
Required for first- and second-year medical students who wish to join the Cancer Biology Scholarly Concentration Program. Also open to advanced undergraduates with instructor consent; limited enrollment. The curriculum includes a sampling of recent biomedical research discoveries that led to the current cancer diagnosis and therapeutic treatments.

CBIO 243. Principles of Cancer Systems Biology. 3 Units.
Focus is on the study of cancer that integrates experimental and computational methods when synthesizing and testing biological hypothesis. Covers basic principles of cancer systems biology research with an emphasis on network biology and pathway analysis. Topics include reconstruction of regulatory networks from multi-omic data (gene expression, methylation, miRNA, CNV) from the Cancer Genome Atlas (TCGA), functional approaches to large scale sequencing, single cell systems analysis of the tumor microenvironment, oncogene-specific synthetic lethal interactions, signaling analysis of targeted drugs and cancer proteomics.

CBIO 260. Teaching in Cancer Biology. 1-10 Unit.
Practical experience in teaching by serving as a teaching assistant in a cancer biology course. Unit values are allotted individually to reflect the level of teaching responsibility assigned to the student.

CBIO 275. Tumor Immunology. 2 Units.
Tumor Immunology focuses on the mechanisms by which tumors can escape from and subvert the immune system and conversely on the ability of innate and adaptive arms of the immune system to recognize and eliminate tumors. Topics include: tumor antigens, tumor immunosurveillance and immunoediting, tumor immunotherapy (including CAR-T and checkpoint antibodies) and cancer vaccines. Tracks the historical development of our understanding of modulating tumor immune response and discusses their relative significance in the light of current research findings. Prerequisite: for undergraduates, human biology or biology core. 
Same as: IMMUNOL 275

CBIO 280. Cancer Biology Journal Club. 1 Unit.
Required of and limited to first- and second-year graduate students in Cancer Biology. Recent papers in the literature presented by graduate students. When possible, discussion relates to and precedes cancer-related seminars at Stanford. Attendance at the relevant seminar required.

CBIO 299. Directed Reading in Cancer Biology. 1-18 Unit.
Prerequisite: consent of instructor.

CBIO 399. Graduate Research. 1-18 Unit.
Students undertake investigations sponsored by individual faculty members. Cancer Biology Ph.D. students must register as soon as they begin dissertation-related research work.

CBIO 801. TGR Project. 0 Units.

CBIO 802. TGR Dissertation. 0 Units.

CBIO 801. TGR Project. 0 Units.

CBIO 802. TGR Dissertation. 0 Units.