

Radiation Oncology

Courses offered by the Department of Radiation Oncology are listed under the subject code RADO on the (<http://explorecourses.stanford.edu/CourseSearch/search?view=catalog&catalog=&page=0&q=RADO&filter-catalognumber-RADO=on>) Stanford Bulletin's (<http://explorecourses.stanford.edu/CourseSearch/search?view=catalog&catalog=&page=0&q=RADO&filter-catalognumber-RADO=on>) ExploreCourses web site (<http://explorecourses.stanford.edu/CourseSearch/search?view=catalog&catalog=&page=0&q=RADO&filter-catalognumber-RADO=on>).

Radiation Oncology focuses on the use of radiation for cancer therapy and research. The department does not offer degrees; however, its faculty teach courses open to medical students, graduate students, and undergraduates. The department also accepts students in other curricula as advisees for study and research. Graduate students in Biophysics and Cancer Biology may perform their thesis research in the department. Undergraduates may arrange individual research projects under supervision of faculty.

At the present time, the major areas of basic research investigation in the department include: DNA repair in mammalian cells after ionizing irradiation; studies of the mechanism of tumor hypoxia in animal tumors; development of new anti-cancer drugs to exploit tumor hypoxia; cytogenetic and molecular methods of predicting the sensitivity of individual tumors to cancer therapy; radiolabeled monoclonal antibodies for cancer detection and treatment; studies of oxygen levels in human tumors using polarographic electrodes; clinical trials of a new hypoxic cytotoxic agent (tirapazamine); studies of the late effects of cancer therapy; and techniques of conformal and intensity modulated radiation therapy.

Faculty

Emeriti: Malcolm A. Bagshaw, Peter Fessenden, Don R. Goffinet, George M. Hahn, Kendric Smith

Chair: Richard T. Hoppe

Professors: J. Martin Brown, Sarah S. Donaldson, Amato J. Giaccia, Steven L. Hancock, Richard T. Hoppe, Quynh-Thu Le, Daniel S. Kapp, Steven A. Liebel

Associate Professors: Iris C. Gibbs, Paul Keall, Christopher R. King, Susan J. Knox, Gary Luxton, Lei Xing

Assistant Professors: Laura Attardi, Daniel Chang, Nicholas Denko, Edward Graves, Albert C. Koong

Consulting Professor: Robert M. Sutherland

Courses

RADO 101. Readings in Radiation Biology. 1-18 Unit.

RADO 121. Imaging Anatomy in Animal Models. 3 Units.

Introduces engineering and physical science majors to the basic laboratory animal anatomy visualized and targeted with biomedical imaging. Topics include: various imaging modalities (PET, CT, Radiology, MRI, and other optical imaging) and associated depiction of normal organs and skeletal structures in pigs, dogs, rabbits and rodents. Course includes didactic lectures, discussion, imaging labs and gross cadaver examination.

RADO 199. Undergraduate Research. 1-18 Unit.

Students undertake investigations sponsored by individual faculty members. Prerequisite: consent of instructor.

RADO 202. The Basic Science of Radiation and Cancer Biology. 1 Unit.

For residents or fellows in the training program in the Division of Radiation Therapy, and for interested medical students. Basic processes of radiation biology that underly the treatment of malignant diseases by radiation. Carcinogenesis and mutagenesis by radiation are also covered. Prerequisite: familiarity with cell biology and physiology; consent of instructor.

RADO 244. Program in Radiation Biology Seminar Series. 1 Unit.

Open to graduate and undergraduate students. Current research in radiation and cancer biology summarized by two laboratories.

RADO 280. Early Clinical Experience in Radiation Oncology. 1-2 Unit.

Provides an observational experience as determined by the instructor and student. Prerequisite: consent of instructor.

RADO 299. Directed Reading in Radiation Oncology. 1-18 Unit.

Prerequisite: consent of instructor.

RADO 370. Medical Scholars Research. 4-18 Units.

Provides an opportunity for student and faculty interaction, as well as academic credit and financial support, to medical students who undertake original research. Enrollment is limited to students with approved projects.

RADO 399. Graduate Research. 1-18 Unit.

Students undertake investigations sponsored by individual faculty members. Prerequisite: consent of instructor.