

RADIATION ONCOLOGY

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Chair: Richard T. Hoppe

Professors: Arthur Boyer, J. Martin Brown, Sarah S. Donaldson, Amato J. Giaccia, Don R. Goffinet, Steven L. Hancock, Richard T. Hoppe, Daniel S. Kapp

Associate Professors: Susan J. Knox, Quynh-Thu Le, Gary Luxton, Melanie C. Smitt

Assistant Professors: Laura Attardi, Nicholas Denko, Iris C. Gibbs, Christopher R. King, Albert C. Koong, Todd Pawlicki

Associate Professor (Research): Lei Xing

Consulting Professor: Robert M. Sutherland

Courses given in Radiation Oncology have the subject code RADO. For a complete list of subject codes, see Appendix B.

Radiation Oncology is a discipline focused around the use of radiation for both cancer therapy and research. The fundamental and applied research within the department reflects this spectrum in radiation therapy and clinical oncology, and in radiation and tumor biology.

The department does not offer degrees; however, its faculty teach a variety of 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 the Biophysics Program and in the Cancer Biology Program may perform their thesis research in the department. Undergraduate students may also arrange individual research projects under the supervision of the 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.

COURSES

Course and lab instruction in the Department of Radiation Oncology conforms to the “Policy on the Use of Vertebrate Animals in Teaching Activities,” the text of which is available at <http://www.stanford.edu/dept/DoR/rph/8-2.html>.

The following are open to undergraduate and postgraduate students.

RADO 101. Selected Readings in Radiation Biology

1-18 units, Aut, Win, Spr (Staff)

RADO 199. Undergraduate Research

1-18 units, Aut, Win, Spr, Sum (Staff)

RADO 202. The Basic Science of Radiation Therapy—For residents or fellows in the training program in the Division of Radiation Therapy, and for interested students. Focus is on the basic processes of radiation biology that underly the treatment of malignant diseases by radiation, and carcinogenesis and mutagenesis by radiation. Prerequisite: familiarity with cell biology and physiology.

1 unit, Aut (Brown, Staff) by arrangement

RADO 202B. The Basic Science of Radiation Therapy II—Primarily for residents or fellows in the Radiation Therapy division training program; open to medical or graduate students. Focus is on the basic biological processes underlying the treatment of malignant disease by radiation. Prerequisites: some familiarity with cell biology and physiology, and consent of instructor.

1 unit, Aut, Win, Spr (Brown)

RADO 204. Clinical Experience with the Cancer Patients—For residents or fellows in the training program in the Division of Radiation

Therapy, and for interested students. Focus is on the basic processes of radiation biology that underly the treatment of malignant diseases by radiation, and carcinogenesis and mutagenesis by radiation. Prerequisite: familiarity with cell biology and physiology.

2 units, Aut (Goffinet, Staff) by arrangement

RADO 299. Directed Reading—Prerequisite: consent of instructor. See faculty list for section numbers.

1-18 units, Aut, Win, Spr, Sum, by arrangement

RADO 399. Research—Sponsored by individual faculty members. Prerequisite: consent of instructor. See faculty list for section numbers.

1-18 units, Aut, Win, Spr, Sum, by arrangement

RADO 459. Frontiers in Interdisciplinary Biosciences—(Crosslisted in multiple departments in the schools of Humanities and Sciences, Engineering, and Medicine. Students should enroll through their affiliated department; otherwise enroll in CHEMENG 459.) See CHEMENG 459 or http://biox.stanford.edu/chemeng_index.html for description.

1 unit, Aut, Win, Spr (Robertson)

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