



RON 299

Independent Study and Research in Therapeutic Radiology

UCDAVIS
HEALTH

**COMPREHENSIVE
CANCER CENTER**

RON 299

Independent Study and Research

Syllabus

Description:

Radiation Oncology is a unique discipline in that it combines elements of clinical practice linked to complex physics based dosimetry and treatment planning. Included within this clinical environment is a strong basis in biology that underpins the clinical effectiveness of radiation treatment. A study of biology and in particular biological mechanisms can provide an insight into both better ways to treat cancer and provide insight on potential adverse events, such as normal tissue damage.

Research under supervision of Radiation Oncology faculty. Work must be appropriate to fulfill the requirements for the Ph.D. degree.

Orientation:

Day 1:

Meet with the course instructor who will provide an overview of the proposed project and who will provide insight on how the work entailed fits in with both the laboratory goals and the clinical question or topic that it addresses

Mid-way:

Meet with Course Instructor to discuss rotation

End of rotation:

A summary will be prepared by the student and presented to the department research focused staff and faculty.

Objectives:

- Understand the basic question being asked that will be studied in the laboratory based environment as it pertains to the treatment of patients with radiation.
- Understand the acute and late effects that could result from treatment of patients with cancer.
- Understand how to design an experiment that will generate useful data. This will include concept of appropriate controls, the need for experimental repetition and critical assessment of data.
- Demonstrate the ability to keep and record both data and results such that others could understand and repeat your work as necessary.

Background Knowledge:

- Key to understanding the experiments undertaken will be to place these in the context of other work in the field.
- Research papers will be provided for your review that will cover key components of the research you undertake relating them to both clinical and biology based research.

Expectations:

- Gain an appreciation for the role of basic research undertaken in a clinical environment.
- Gain an appreciation for the possibilities and issues related to a complex treatment modality for which basic research is a key component.
- Understand and appreciate the concepts of mechanistic vs non-mechanistic research questions.

Additional Resources:

Our Team:

- [Radiobiologists](#)
- [Physicians](#)
- [Medical Physics](#)
- [Residents](#)

Suggested References:

- Hall EJ, Giaccia AJ. (2018). Radiobiology for the Radiologist (8th Edition). published by Lippincott Williams & Wilkins (Philadelphia)

Telecommunications Information

Phones

To call within the Medical Center, dial 4+XXXX or 3+XXXX (4-digit extension). To call the Davis Campus, dial 9+1+530+752+XXXX (4-digit extension). To call outside the Medical Center within the Sacramento area, dial 9+the seven-digit number.

Pager

How to page: To call while inside the Medical Center, dial 9+762-XXXX. You will then be asked to enter your numeric message after the tone (your telephone number). To page from outside the Medical Center, dial 762-XXXX.

Locations

Lab:

Research II
4625 2nd Avenue, #2101
Sacramento, CA 95817

Administrative Offices:

South Cancer Center Building
4501 X Street, #G0140
Sacramento, CA 95817