Introduction:
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 understanding of both better ways to treat cancer and on potential adverse events, such as normal tissue damage.

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

Important phone numbers:

Andrew Vaughan, PhD, Professor (IOR)  734-8726
Jian Jian Li, MD, PhD, Professor   703-5174
Matthew Coleman, PhD, Associate Professor 703-5022
Course Coordinator: Tiffany Fairbanks  734-8252

Locations:
Research will be performed (depending on IOR):
Oak Park Facility
Building# 47, Lab Area 1108
2700 Stockton Avenue
Sacramento, CA 95817

or

10535 Hospital Way
Mather, CA 95655
Sacramento VA Medical Center, 5th floor

Administrative offices and location of the presentation:
Cancer Center Building
4501 X Street, Ste 0140
Sacramento, CA 95817
OBJECTIVES

Research Knowledge:
- Understand the basic question being asked that will be studied in the laboratory based environment as it pertains either to the treatment of patients with radiation or some aspect of the cancer initiation process.
- Understand the acute and late effects that could result from treatment of patients with cancer. Here an appreciation is required of either the process of clinical treatment and/or the experience of patients undergoing treatment. This information may be generated from either attendance at clinical meetings or through discussion with your mentor.
- Understand how to design an experiment that will generate useful data. It may be that you will participate in the experimental design process. This will include the 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. As a part of the training you will be required to present your progress in an informal setting as a part of weekly laboratory meetings.

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

Suggested References:
- Radiobiology for the Radiologist, Latest edition (Eds. Hall and Giaccia) Lippincott

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.