UC Irvine School of Medicine
Curriculum and Educational Policy Committee

680J Radiation Oncology

This course is available to UC Irvine students only

Course Name Radiation Oncology
Course Director Aaron Simon, MD

Elective at a Glance		
Available to: [X]UCI MS3 students [X] UCI MS4 students [X] Extramural Students		
Duration: 2-12 weeks	**Number of Students:** 1-2	**Grading:** H/ P / F
Periods available: Throughout the year.		

1. Course Director, Coordinator and General Administrative Information

FACULTY AND STAFF

Name	Office Location	Phone	Email
Course Director: Aaron Simon, MD	UC Irvine Medical Center, Department of Radiation Oncology, 101 The City Drive, South, Rm 132	714-456-7105	simona3@hs.uci.edu
Course Coordinator: Liz Won	UC Irvine Medical Center, Department of Radiation Oncology, 101 The City Drive, South, Bldg. 23	714-456-5508	ewon1@hs.uci.edu

DESCRIPTION

The principal objective is to provide a clinical experience in Radiation Oncology with the evaluation and treatment of cancer patients. A secondary goal is to acquaint the student with the methodologies of modern cancer therapy. Emphasis will be on the concepts, methods, and principles of radiation therapy; both external beam (teletherapy) and internal (brachytherapy). Opportunities to participate in clinical or laboratory research are available. The primary aim of this course is to teach the role of radiation therapy in the management of a variety of solid and hematogenous malignancies. Students will work with residents and attendings to develop their oncologic-focused interview skills at the initial consultation along with a review of AJCC staging, physical examination, imaging review, and treatment options. During that time, they will learn when radiotherapy is indicated and its desired goal whether be palliative or curative. In between seeing patients, they will be introduced to unique aspects of radiation oncology including simulation, radiation planning, and physics Q&A. Attendings will also discuss how ablative external beam radiotherapy can be delivered with millimeter accuracy to the brain, lung, prostate,

pancreas and/or bone. In addition, they will be exposed to procedural radiotherapy procedures including intraoperative electron radiotherapy, Y-90 trans-arterial radioembolization, and internal Ir-192 high-dose brachytherapy.

PREREQUISITES
This course is intended for 3rd and 4th-year students enrolled in the undergraduate medical education program at the University of California, Irvine School of Medicine (UCISOM).

RESTRICTIONS
Extramural students must be in their 3rd or 4th year of undergraduate medical education.

COURSE DIRECTOR
Dr. Aaron Simon earned his M.D. and Ph.D. from the University of California, San Diego. His residency training was completed at UCSD in 2021, where he was awarded grants and accolades for his research in function imaging and stereotactic radiotherapy. Dr. Simon specializes in the management of malignant and benign tumors of the brain and spinal cord and also has an interest in the treatment of skin cancers and soft tissue sarcomas. As an expert in the use of radiosurgery, Dr. Simon is actively involved in investigational studies to improve the efficacy and safety of radiation therapy for brain tumors. His research interests involve the incorporation of advanced, quantitative imaging techniques into the specialty of radiation oncology. Dr. Simon has received prestigious grants from the Radiological Society of North America (RSNA) and the American Society for Clinical Oncology (ASCO) for his translational research.

Course Coordinator: Liz Won, Residency Coordinator

Instructing Faculty: Dr. Aaron Simon, Dr. Erin Healy, Dr. Jeremy Harris, Dr. David Hong, Dr. Quoc-Anh Ho, Dr. Priya Mitra, Dr. Shera Feinstein, Dr. Eric Chen, Dr. Caressa Hui

INFORMATION FOR THE FIRST DAY
Who to Report to on First Day: Dr. Aaron Simon the course preceptor, or one of the residents on UCI rotation.

Location to Report on First Day: Department of Radiation Oncology, 1st Floor, Chao Family Comprehensive Cancer Center, UCI Medical Center, Orange, CA 92868

Time to Report on First Day: 8:30 AM - Students must report with a white coat and UCI identification badge. We recommend you check in with us ahead of the rotation in case there are special procedures scheduled early on the first day. Students must report with a white coat.

SITE: Chao Family Comprehensive Cancer Center – UCI Medical Center

DURATION: 2-12 weeks

Scheduling Coordinator
UCI students please email comsched@hs.uci.edu to make a scheduling appointment.

Extramural students enrolled at a U.S. LCME medical school must use VSAS to apply. To apply please refer to the Visiting Student Learning Opportunities website.

Periods Available: Throughout the year.

NUMBER OF STUDENTS ALLOWED: 1 per rotation block (2 maximum)

WHAT STUDENTS SHOULD DO TO PREPARE FOR THE COURSE
Reading on basic principles of oncology will be helpful.

COMMUNICATION WITH FACULTY:
Questions about logistics should be directed to the Course Coordinator. Direct questions, comments, or concerns about the course can be directed to the Course Director. Contact information and office location are at the beginning of this document.

Dr. Simon is also available to meet in person or via zoom or chat with you. Please email ewon1@hs.uci.edu to arrange an appointment. To ensure that your email will not be lost in the large volume of emails received, please use the following convention for the subject line:

SUBJECT: COURSE NAME, your last name, your issue (e.g. XXX, Smith, Request for an appointment)

2. Course Objectives and Program Objective Mapping

The following are the learning objectives for the 680J course. Students are expected to demonstrate proficiency in these areas in order to satisfactorily complete the course. In addition, the extent of a student's mastery of these objectives will help guide the course evaluation and grade.

Course Objective	Mapped UCI School of Medicine Program Objective	Sub Competency	Core Competency
The objective of this elective is to acquaint the student with the role of radiation therapy in the	A-3. Knowledge of basic clinical skills required to meet the skills objectives, including interviewing, physical	Basic Clinical Skills	Knowledgeable

management of malignant diseases.	diagnosis, communication, and clinical reasoning processes		

Key Topics:

- Oncology
- Basic technologies of radiation therapy
- Definitions of radiation therapy
- Oncologic application of ionizing radiation

Competencies:

The School of Medicine requires attainment of four Core Competencies. For the rotation, the program specific objectives are:

- Knowledge
  - Knowledge of the major definitions and principles of radiation oncology
  - Knowledge of basic principles of oncology
  - Knowledge of the relevant literature or evidence base for cases seen
- Skill
  - The ability to conduct a medical interview and to perform an appropriately detailed physical examination
  - The ability to articulate a cogent, accurate assessment and plan
  - The ability to work effectively and compassionately with patients and their families
  - The ability to execute assigned duties
  - The ability to conduct a literature search and present the findings to the team
  - The ability to function effectively within the context of complexity and uncertainty in health care and medical education
- Altruism
  - Honesty and integrity reflecting the standards of the profession in one's conduct with colleagues, patients, families, and professional organizations
  - Sensitivity and awareness of diverse cultures, health beliefs, and social factors
- Duty (accountability)
  - A commitment to improving one's knowledge and skills
  - A commitment to patient care and to the community
  - A commitment to personal well being

Attitudes and Commitments: See the Core Competencies

Clinical Responsibilities of the Student: Perform thorough histories and physicals; write up findings; follow up on assigned patients.

Patient Care Responsibilities: Not Stated

Call Schedule of the Student: None

Procedures to be Learned by the Student: Not Stated

Percentage of Time Student will Participate in Ambulatory Setting: Approximately 75% in clinic, 20% in radiation treatment planning or conferences, 5% in lectures.

Content Theme Integration:

- Communication
- Decision making
- Technology and medicine
- Palliative Care
- Health education

3. Course Resources

TEXTS AND READINGS: RECOMMENDED

Selected Reading:
Radiation oncology: a primer for medical student

Introduction to Radiation Oncology: 50 slide talk about how radiation works including its delivery, dose and fractionation.

For med students considering Radiation Oncology as a career:

- eContour: make a free account and examine sample contour designs by disease site.
- theMednet: online forum of oncologists where more advanced questions are posed and answered by fellow oncologists. Great discussion threads.
- Essentials of Clinical Radiation Oncology (2nd edition) by Sarah M. C. Sittenfeld MD (Editor), Matthew C. Ward MD (Editor). Great for learning the work-up and staging of various cancers. Detailed explanation of seminal papers and their significance.
- Absolute Clinical Radiation Oncology Review (2019 1st edition) by Daniel M. Trifiletti (Editor), Nicholas G.Zaorsky (Editor): Details disease work-up, imaging, dose constraints, literature for almost every site. A more superficial view that Essentials of Clinical RO but is handy to develop a broader view of disease treatment. Beautiful anatomy illustrations as well.

- Pocket Radiation Oncology (Pocket Notebook) (1st edition) by Chad Tang MD (Author), Ahsan Farooqi MD (Author).
- Handbook of Treatment Planning in Radiation Oncology (2020) by Cleveland Clinic: This is a little more advanced and probably something you'd start using your PGY-2 year, but it goes into radiation design (specifically field placement and treatment plan evaluation).
- ARROCases: A member of the Association of Resident in Radiation Oncology (ARRO, residents make a mini-case presentation about something they encountered in clinic along with detailed explanations of work-up, treatment, and evidence-based literature. These are published on the ARRO website for other residents to learn.
- ASTRO Medical Student Resources: Here you can learn more about radiation oncology as a field, how to find a mentor, and virtual RO rotations.
- ASTRO membership: Membership to ASTRO is FREE for medical students

National Radiotherapy Recommendations by the American Society for Radiation Oncology (ASTRO). If you have difficulty accessing any of these materials, please ask Dr. Simon or the residents to print/email you a copy.

ASTRO Guidelines by Site

- Pancreas (2019)
- Breast
  - Whole breast
  - Margins breast conservation therapy for DCIS
  - APBI
  - Post-mastectomy RT
- Prostate
  - Adjuvant vs Salvage RT: although slightly outdated with recent data from 2020
  - Hypofractioanted RT for localized prostate cancer (2018):
- Rectal (2020)
- Cervical (2020)
- Oropharyngeal (2017)
- Thoracic
  - Small cell lung cancer (2020)
  - SBRT for Early stages NSCLC (2017)
- Definitive and post-op RT for Basal and SqCC of the Skin (2019)

Entire Guidelines website: https://www.astro.org/Patient-Care-and-Research/Clinical-Practice-Statements/ClinicalPractice-Guidelines

4. Expectations, Major Exams, Assignments and Grading

MAJOR ASSIGNMENTS AND EXAMS: N/A

EXPECTATIONS

Medical students are required to wear their white coat while in the clinic at all times. Most of the time during the rotation should be evaluating new consults. While in the room with a patient, students should always be engaged while displaying the highest level of empathy. Students who are disengaged (i.e. checking their watch, leaning against the door, slouching, falling asleep) will be asked to leave the room. When there are no consults available for evaluation, they should be working with dosimetry to learn how radiation is planned, observing CT simulation or the machine, or reading current literature/guidelines about radiotherapy. Most importantly, we encourage all students to ask questions to our faculty and residents to learn more about the specialty.

GRADING

Medical Students are graded using the following scale: Honors (H), Pass (P), Fail (F), and Incomplete (I). For further information, please review the Grading Policy.

The student will receive a grade of Honors, Pass or Fail. Please note that **the UCI School of Medicine wants <15% of clerkship grades to be Honors**. The UCI student's final grade will be submitted on the standard UC Irvine elective form, and extramural students will need to submit their school's evaluation form to the course director. The student will be evaluated by faculty and residents in the areas of:

- Interest, attendance, and participation
- Level of preparation before presenting the patient
- Quality of presentations of H&Ps in clinic and during teaching rounds
- Presentation of a selected topic. Topics that can teach the residents and faculty are encouraged. This can be coordinated with any resident/faculty.

Written evaluation by supervising physician(s). If the student fails the elective a grade of "F" will be permanently recorded on his/her transcript. The student can repeat the course for a second grade; however, the "F" will not be removed from the transcript. Written evaluation by supervising physician.

Requirements for "Pass":

To receive a grade of Pass, students must demonstrate successful performance in all the following areas:

- Knowledge
- Patient Care
- Practice-Based Learning
- Interpersonal & Communication Skills
- Professionalism
- Systems-Based Practice

Requirements for "Honors":

To receive a grade of Honors, students must demonstrate exceptional performance all the following areas:

- Knowledge
- Patient Care
- Practice-Based Learning
- Interpersonal & Communication Skills
- Professionalism
- Systems-Based Practice

An Honors grade will be given to the exceptional medical student who displays the level understanding and commitment to radiation oncology as a junior radiation oncology resident. This includes presenting a focused H&P with an evidence-based assessment and plan to justify for their recommendation. The caliber of their 15-30 min presentation should be at the level where our faculty and residents learn a new concept in radiation oncology or other subspeciality (i.e. radiology, surgery, medical oncology). These students will fully involve themselves throughout all aspects of radiation oncology including didactics, dosimetry, and radiation delivery.

Grounds for "Incomplete": You will not be issued a grade until all elements of the course have been completed.

REMEDIATION

Remediation, if needed, will be designed by the Course Director to suit the issue at hand.

Grounds for "Fail": You will receive a grade of "Fail" if the requirements for passing the course have not been met. Please refer to the Grading Policy for the impact of the "Fail" grade to the transcript.