

# Department of Radiation Oncology

The Department of Radiation Oncology (<http://radonc.wustl.edu/>) was created in 2001, after having been part of the Mallinckrodt Institute of Radiology for many decades. The department has a broad academic program that focuses on excellence in patient care and the development of new treatment paradigms; innovative research in each of our three divisions: Clinical, Medical Physics and Cancer Biology; and teaching graduate students, medical students, residents in both radiation oncology and medical physics, and allied health personnel.

The department is one of the largest, most academically balanced, and best equipped in the country, and it is responsible for all radiation therapy procedures at Washington University Medical Center and at Siteman Cancer Center facilities throughout the St. Louis regional area. Our faculty have gained international recognition for innovative technological advances in physics and treatment planning, biological research, computer applications and clinical investigation.

We have advanced treatment planning computer systems for 3D conformal and intensity-modulated radiation therapy as well as the latest Gamma Knife, the ICON unit. We have six linear accelerators with on-board CT imaging capability. The brachytherapy suite includes capabilities for high dose rate remote after-loading and for image-guided permanent prostate seed implants. Interstitial and external hyperthermia treatments are also available.

## The Department of Radiation Oncology offers the following formal educational programs:

- Clinical Residency Training Program (4 years), ACGME-accredited; established 1971
- Medical Physics Residency Training Program (2 years), CAMPEP-accredited; established 1993
- Post-PhD Graduate Certificate in Medical Physics (2 years), CAMPEP-accredited; established 2017
- Master of Science (MS) in Medical Physics (2 years), CAMPEP-accredited; established 2020
- Doctor of Philosophy (PhD) in Medical Physics (2 years); established 2022

Website: <http://radonc.wustl.edu>

## Faculty

**Dennis Hallahan, MD** (<https://radonc.wustl.edu/people/dennis-hallahan/>)

Department Head

**Maria Thomas, MD** (<https://radonc.wustl.edu/people/maria-a-thomas-md-phd/>)

Clerkship Director

**Joanna Yang, MD**

Clinical Residency Program Director

**Olga Green, PhD**

Medical Physics Residency Program Director

**Michael Altman, PhD** (<https://radonc.wustl.edu/people/michael-altman-phd/>)

Director of Education in Medical Physics

Visit our website for more information about our faculty (<https://radonc.wustl.edu/faculty/>) and their appointments.

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## A

**Christopher Abraham, M.S., M.D.**

Assistant Professor of Radiation Oncology (primary appointment)

Assistant Professor of Medicine

Bachelor of Science, Medical College Georgia, 2005

Doctor of Medicine, Saint Louis University, 2006

Master of Science, Washington University in St Louis, 2011

**Michael Bernard Altman, Ph.D.**

Associate Professor of Radiation Oncology (primary appointment)

Doctor of Philosophy, University of Chicago, 2010

**Anthony John Apicelli, Ph.D., M.D.**

Assistant Professor of Radiation Oncology (primary appointment)

Bachelor of Science, Princeton University, 1999

Doctor of Philosophy, Washington University in St Louis, 2009

Doctor of Medicine, Washington University in St Louis, 2009

## B

**Shahed Nicolas Badiyan, M.D.**

Associate Professor of Radiation Oncology (primary appointment)

Bachelor of Science, University of Texas Austin, 2005

Doctor of Medicine, University of Texas Austin, 2009

**Brian Christopher Baumann, M.D.**

Assistant Professor of Radiation Oncology (primary appointment)

Bachelor of Arts, Princeton University, 2003

Doctor of Medicine, University of Pennsylvania, 2012

**Carmen Renee Bergom, M.S., Ph.D., M.D.**

Associate Professor of Radiation Oncology (primary appointment)

Bachelor of Science, Massachusetts Institute of Technology, 1998

Master of Science, Cambridge University, 1999

Doctor of Philosophy, Medical College of Wisconsin, 2006

Doctor of Medicine, Medical College of Wisconsin, 2008

**Walter R Bosch, M.S.**

Associate Professor of Radiation Oncology (primary appointment)  
Master of Science, Washington University in St Louis, 1983

**Randall James Brenneman, Ph.D., M.D.**

Assistant Professor of Radiation Oncology (primary appointment)  
Bachelor of Science, Franklin & Marshall, 2003  
Doctor of Philosophy, University of Miami, 2013  
Doctor of Medicine, University of Miami, 2016

**C**

**Douglas Ford Caruthers, M.S.**

Instructor in Radiation Oncology (primary appointment)  
Master of Science, University of Texas Health Science Center, 2010

**Aadel Ahmed Chaudhuri, M.D.**

Assistant Professor of Radiation Oncology (primary appointment)  
Assistant Professor of Computer Science and Engineering  
Assistant Professor of Genetics  
Bachelor of Science, Massachusetts Institute of Technology, 2004  
Doctor of Medicine, Stanford University, 2013

**David T Curiel, Ph.D., M.D.**

Professor of Radiation Oncology (primary appointment)  
Professor of Obstetrics and Gynecology  
Professor of Medicine  
Distinguished Professor of Radiation Oncology  
Bachelor of Arts, West Georgia College, 1978  
Doctor of Medicine, Emory University, 1982  
Doctor of Philosophy, University of Groningen, 2000

**D**

**Arash Darafsheh, M.S., Ph.D.**

Associate Professor of Radiation Oncology (primary appointment)  
Bachelor of Science, University of Tehran, 2004  
Master of Science, University of North Carolina at Charlotte, 2011  
Doctor of Philosophy, University of Pennsylvania, 2015

**Carl J. DeSelm, Ph.D., M.D.**

Assistant Professor of Radiation Oncology (primary appointment)  
Bachelor of Science, Dartmouth College, 2004  
Doctor of Medicine, Washington University in St Louis, 2012  
Doctor of Philosophy, Washington University in St Louis, 2016

**Venkata Rao Devineni, M.D.**

Associate Professor of Clinical Radiation Oncology  
Doctor of Medicine, Osmania Medical College, 1973

**Igor Dmitriev, Ph.D.**

Associate Professor of Radiation Oncology (primary appointment)  
Doctor of Philosophy, SRC Vector, 1994

**Robert E Drzymala, Ph.D.**

Professor Emeritus of Radiation Oncology  
Bachelor of Science, Northern Illinois University, 1972  
Doctor of Philosophy, University of Oklahoma, 1977

**G**

**H Michael Gach, Ph.D.**

Professor of Radiation Oncology (primary appointment)  
Professor of Radiology  
Doctor of Philosophy, University of Pittsburgh, 1998

**Jose L Garcia, M.S.**

Assistant Professor of Radiation Oncology (primary appointment)  
Bachelor of Science, University of Puerto Rico, 1995  
Master of Science, Finch University of Health Sciences, 1997

**Hiram Alberto Gay, M.D.**

Professor of Radiation Oncology (primary appointment)  
Bachelor of Science, University of Puerto Rico, 1996  
Doctor of Medicine, University of Puerto Rico, 2000

**Sreekrishna M Goddu, M.S., Ph.D.**

Professor of Radiation Oncology (primary appointment)  
Bachelor of Science, Andhra University, 1983  
Master of Science, Andhra University, 1985  
Doctor of Philosophy, Andhra University, 1991

**Yuxing Gu, Ph.D.**

Assistant Professor of Radiation Oncology (primary appointment)  
Doctor of Philosophy, University of Missouri in St Louis, 2014

**H**

**Lannis Hall, M.P.H., M.D.**

Associate Professor of Clinical Radiation Oncology  
Bachelor of Arts, University of Michigan (Duplicate of University of Michigan Ann Arbor), 1988  
Doctor of Medicine, Howard University, 1992  
Master of Public Health, Saint Louis University, 1995

**Dennis E Hallahan, M.D.**

Professor of Radiation Oncology (primary appointment)  
Professor of Biomedical Engineering  
Elizabeth H and James S McDonnell III Distinguished Professor of Medicine  
Head of the Department of Radiation Oncology  
Professor of Cell Biology and Physiology  
Professor of Pathology and Immunology  
Professor of Molecular Microbiology  
Bachelor of Science, University of Illinois, 1980  
Doctor of Medicine, Rush University, 1984

**Yao Hao, Ph.D.**

Assistant Professor of Radiation Oncology (primary appointment)  
California, 2004  
Doctor of Philosophy, University of Massachusetts Lowell, 2016

**Lauren Elizabeth Henke, M.D.**

Assistant Professor of Radiation Oncology (primary appointment)  
Bachelor of Science, Saint Olaf College, 2010

Doctor of Medicine, Washington University in St Louis, 2014

**Jiayi Huang, M.D.**

Associate Professor of Radiation Oncology (primary appointment)

Doctor of Medicine, University of Massachusetts, 2007

**Geoffrey Douglas Hugo, Ph.D.**

Professor of Radiation Oncology (primary appointment)

Professor of Computer Science and Engineering

Director - Physics Division, Medical Physics

Doctor of Philosophy, University of California Los Angeles, 2003

**I**

**Amir Iravani Tabrizipour, M.D.**

Assistant Professor of Radiation Oncology

Doctor of Medicine, Tehran University, 2003

**K**

**Vaishali Kapoor, M.S., Ph.D.**

Assistant Professor of Radiation Oncology (primary appointment)

Bachelor of Arts, Delhi University, 2006

India Inst of Medical Sci, 2008

India Inst of Medical Sci, 2013

**Hyun Kim, M.D.**

Assistant Professor of Radiation Oncology (primary appointment)

Bachelor of Science, University of California, 2006

Doctor of Medicine, University of Pittsburgh, 2012

**Taeho Kim, Ph.D.**

Associate Professor of Radiation Oncology (primary appointment)

Doctor of Philosophy, Washington University in St Louis, 2007

**Nels C Knutson, M.S., Ph.D.**

Assistant Professor of Radiation Oncology (primary appointment)

Bachelor of Science, University of Montana Missoula, 2009

Master of Science, Louisiana State University, 2012

Doctor of Philosophy, University of Massachusetts Lowell, 2016

**L**

**Susan Joy Laduzinsky, M.D.**

Assistant Professor of Radiation Oncology (primary appointment)

Doctor of Medicine, University of Illinois, 1983

**Heui Chang Lee, M.S., Ph.D.**

Assistant Professor of Radiation Oncology (Pending Executive Faculty Approval) (primary appointment)

Bachelor of Science, Hanyang University, null

Master of Science, Seoul National University, null

Main Campus, null

**Jason Dole Lee, Ph.D., M.D.**

Assistant Professor of Radiation Oncology (primary appointment)

Doctor of Philosophy, Duke University, 2009

Doctor of Medicine, Duke University, 2010

**Hua Li, Ph.D.**

Professor of Radiation Oncology (Pending Executive Faculty Approval) (primary appointment)

Doctor of Philosophy, Huazhong University of Science and Technology (#####, HUST), 2001

**Hsiu-San Lin, Ph.D., M.D.**

Professor Emeritus of Radiation Oncology

Doctor of Medicine, National Taiwan University, 1960

Doctor of Philosophy, University of Chicago, 1968

**Zhi Hong Lu, Ph.D.**

Assistant Professor of Radiation Oncology (primary appointment)

Bachelor of Science, Fudan University, 1990

Doctor of Philosophy, University of Mississippi Medical Center, 1999

**M**

**Stephanie Markovina, M.D.**

Assistant Professor of Radiation Oncology (primary appointment)

Madison, 2010

**Nichole M Maughan, Ph.D.**

Assistant Professor of Radiation Oncology (primary appointment)

Doctor of Philosophy, Washington University in St Louis, 2017

**Thomas Rolf Mazur, Ph.D.**

Assistant Professor of Radiation Oncology (primary appointment)

Bachelor of Science, Union College New York, 2007

Doctor of Philosophy, University of Texas Austin, 2014

**Jeff Michael Michalski, M.B.A., M.D.**

Professor of Radiation Oncology (primary appointment)

Director - Clinical Division, Clinical Programs

Vice Chair - Department of Radiation Oncology

Carlos Perez Distinguished Professor of Radiation Oncology

Bachelor of Science, University of Wisconsin Madison, 1982

Doctor of Medicine, University of Wisconsin Madison, 1986

Master of Business Administration, Washington University in St Louis, 2001

**Justin Mikell**

Assistant Professor of Radiation Oncology (Pending Executive Faculty Approval) (primary appointment)

**Timothy John Mitchell, M.S., Ph.D.**

Assistant Professor of Radiation Oncology (primary appointment)

Bachelor of Science, John Carroll University, 2005

Master of Science, Washington University in St Louis, 2007

Doctor of Philosophy, University of Missouri in St Louis, 2014

**Eric Daniel Morris**

Assistant Professor of Radiation Oncology (Pending Executive Faculty Approval) (primary appointment)

**Robert J Myerson, Ph.D., M.D.**

Professor Emeritus of Radiation Oncology

Bachelor of Arts, Princeton University, 1969

Doctor of Philosophy, University of California, 1974

Doctor of Medicine, University of Miami, 1980

## N

### **Gilbert H Nussbaum, M.A., Ph.D.**

Associate Professor Emeritus of Radiation Oncology  
Bachelor of Science, City College, 1960  
Master of Arts, Harvard University, 1962  
Doctor of Philosophy, Harvard University, 1967

## P

### **Carlos A Perez, M.D.**

Professor Emeritus of Radiation Oncology  
Bachelor of Science, School Not Listed, 1952  
Doctor of Medicine, School Not Listed, 1960

### **Stephanie Mabry Perkins, M.D.**

Associate Professor of Radiation Oncology (primary appointment)  
Bachelor of Science, Union University, 2001  
Doctor of Medicine, University of Tennessee at Memphis, 2005

### **James Vernon Piephoff, M.D.**

Instructor in Clinical Radiation Oncology  
Bachelor of Science, Citadel Military College of South Carolina, 1985  
Doctor of Medicine, University of South Carolina (Duplicate of University of South Carolina Columbia), 1989

### **Alex Price, M.S.**

Instructor in Radiation Oncology (primary appointment)  
Bachelor of Science, Hampden Sydney College, 2013  
Master of Science, Duke University, 2015

### **Michael Thomas Prusator, M.S., Ph.D.**

Assistant Professor Radiation Oncology (primary appointment)  
Bachelor of Science, University of Ozarks, 2012  
Master of Science, University of Oklahoma Health Sciences, 2014  
Doctor of Philosophy, University of Oklahoma Health Sciences, 2018

### **James A Purdy, M.A., Ph.D.**

Emeritus Professor of Radiation Oncology  
Bachelor of Science, Lamar University, 1967  
Master of Arts, University of Texas Austin, 1969  
Doctor of Philosophy, University of Texas Austin, 1971

## R

### **Francisco Javier Reynoso, M.S., Ph.D.**

Assistant Professor of Radiation Oncology (primary appointment)  
Master of Science, Georgia Tech, 2008  
Doctor of Philosophy, Georgia Tech, 2014

### **Clifford Grant Robinson, M.D.**

Professor of Radiation Oncology (primary appointment)  
Professor of Medicine  
Bachelor of Science, University of Pittsburgh, 2000  
Doctor of Medicine, Case Western Reserve University, 2004

### **Buck Edward Rogers, M.A., Ph.D.**

Professor of Radiation Oncology (primary appointment)  
Professor of Radiology  
Bachelor of Science, Loyola University Chicago, 1989  
Master of Arts, Washington University in St Louis, 1991  
Doctor of Philosophy, Washington University in St Louis, 1995

### **Joseph L Roti Roti, Ph.D.**

Professor Emeritus of Radiation Oncology  
Bachelor of Science, Michigan Technological University, 1965  
Doctor of Philosophy, University of Rochester, 1972

### **Tapan Roy, M.S.**

Instructor in Clinical Radiation Oncology  
Master of Science, Baroda Medical College, 1974

## S

### **Pamela Parker Samson, M.A., M.P.H., M.S., M.D.**

Assistant Professor of Radiation Oncology (primary appointment)  
Bachelor of Arts, University North Carolina, 2001  
Master of Arts, University of Washington, 2003  
Master of Science, University of Cincinnati, 2007  
Doctor of Medicine, University of Cincinnati, 2011  
Master of Public Health, Washington University in St Louis, 2020

### **Matthew Schmidt, M.S.**

Instructor in Radiation Oncology (primary appointment)  
Bachelor of Science, Valdosta State College, 2011  
Master of Science, Duke University, 2013

### **Julie K Schwarz, Ph.D., M.D.**

Professor of Radiation Oncology (primary appointment)  
Professor of Cell Biology and Physiology  
Director - Cancer Biology Division  
Vice Chair - Research  
Bachelor of Science, Duke University, 1995  
Doctor of Philosophy, Washington University in St Louis, 2004  
Doctor of Medicine, Washington University in St Louis, 2004

### **Joseph Rogers Simpson, Ph.D., M.D.**

Professor Emeritus of Radiation Oncology  
Bachelor of Arts, Cornell University, 1963  
Doctor of Philosophy, University of Chicago, 1967  
Doctor of Medicine, Harvard University, 1973

### **Abhay Kumar Singh, M.S., Ph.D.**

Instructor in Radiation Oncology (Pending Dean's Approval) (primary appointment)  
Bachelor of Science, Brabu, 2002  
Master of Science, Jamia Hamdard University, 2005  
India Inst of Medical Sci, 2012

### **Christopher Spencer, M.A., M.D.**

Adjunct Instructor in Radiation Oncology  
Master of Arts, Truman State University (Duplicate of Truman State University (Formerly Northeast Missouri State University)), 2006  
Doctor of Medicine, Saint Louis University, 2010

**Matthew Benjamin Spraker, M.D.**

Assistant Professor of Radiation Oncology (primary appointment)  
Doctor of Medicine, University of Illinois, 2013

**William L Straube, M.E.E.**

Associate Professor of Radiation Oncology (primary appointment)  
Bachelor of Science, University of Illinois, 1983  
Master of Electrical Engineering, Washington University in St Louis, 1992

**Baozhou Sun, M.S., Ph.D.**

Associate Professor of Radiation Oncology (primary appointment)  
Bachelor of Science, Jilin Medical University, 2000  
Master of Science, College of William and Mary, 2002  
Doctor of Philosophy, College of William and Mary, 2005

**Jeffrey Szymanski, Ph.D., M.D.**

Instructor in Radiation Oncology (Pending Dean's Approval) (primary appointment)  
Bachelor of Science, Northern Michigan University, 2005  
Doctor of Philosophy, Wayne State University, 2014  
Doctor of Medicine, Wayne State University, 2014

**T**

**Maria A Thomas, Ph.D., M.D.**

Associate Professor of Radiation Oncology (primary appointment)  
Bachelor of Science, Creighton University, 2000  
Doctor of Philosophy, Saint Louis University, 2006  
Doctor of Medicine, Saint Louis University, 2008

**Wade L Thorstad, M.D.**

Professor of Radiation Oncology (primary appointment)  
Bachelor of Science, Trinity University, 1986  
Doctor of Medicine, University of Texas Austin, 1991

**Dinesh Thotala, M.S., Ph.D.**

Associate Professor of Radiation Oncology (primary appointment)  
Adjunct Instructor  
Adjunct  
Bachelor of Science, Bangalore University, 1990  
Master of Science, Bangalore University, 1993  
Doctor of Philosophy, Bangalore University, 1998

**Amaris Renee Tippey, Ph.D.**

Assistant Professor of Clinical Radiation Oncology  
Doctor of Philosophy, East Carolina University, 2014

**V**

**Gregory Riccardo Vlacich, Ph.D., M.D.**

Associate Professor of Radiation Oncology (primary appointment)  
Doctor of Philosophy, University of Chicago, 2007  
Doctor of Medicine, University of Chicago, 2009

**W**

**Bruce J Walz, M.D.**

Associate Professor of Clinical Radiation Oncology  
Bachelor of Arts, Washington University in St Louis, 1962  
Doctor of Medicine, Washington University in St Louis, 1966

**Jeffrey F Williamson, M.S., Ph.D.**

Professor of Radiation Oncology (primary appointment)  
Bachelor of Arts, Saint Olaf College, 1974  
Master of Science, University of Minnesota, 1980  
Doctor of Philosophy, University of Minnesota, 1982

**Y**

**Joanna Chensi Yang, M.P.H., M.D.**

Assistant Professor of Radiation Oncology (Pending Executive Faculty Approval) (primary appointment)  
Doctor of Medicine, Mount Sinai School of Medicine, 2013  
Master of Public Health, Harvard University, 2018

**Z**

**Jin Zhang, M.S., Ph.D.**

Assistant Professor of Radiation Oncology (primary appointment)  
Bachelor of Science, Fisher More College, 2005  
Master of Science, Rappaport Faculty of Medicine, 2008  
Doctor of Philosophy, University of Connecticut, 2012

**Tiezhi Zhang, M.S., Ph.D.**

Associate Professor of Radiation Oncology (primary appointment)  
Bachelor of Science, Jilin Medical University, 1994  
Master of Science, Drexel University, 1999  
Doctor of Philosophy, University of Wisconsin Madison, 2004

**Tianyu Zhao, M.S., Ph.D.**

Associate Professor of Radiation Oncology (primary appointment)  
Bachelor of Science, Shanghai Jiao Tong University, 1998  
Master of Science, Shanghai Jiao Tong University, 2001  
Doctor of Philosophy, Washington University in St Louis, 2010

**Tong Zhu, Ph.D.**

Associate Professor of Radiation Oncology (Pending Executive Faculty Approval) (primary appointment)  
Doctor of Philosophy, University of Rochester, 2009

**Imran Zoberi, M.D.**

Professor of Radiation Oncology (primary appointment)  
Bachelor of Science, University of South Dakota, 1992  
Doctor of Medicine, Washington University in St Louis, 1996

**Jacqueline Esthappan Zoberi, Ph.D.**

Professor of Radiation Oncology (primary appointment)  
Bachelor of Arts, University of Chicago, 1995  
Doctor of Philosophy, University of Chicago, 2000

## Research Electives

### Radiation Oncology Research Electives

The Cancer Biology division provides opportunities for graduate students in the Division of Biology and Biomedical Sciences (<http://dbbs.wustl.edu/Pages/>) (DBBS) and the Medical Scientist Training Program (<http://mstp.wustl.edu/Pages/>) (MSTP) to train with faculty in the cancer biology research laboratories.

The Department of Radiation Oncology offers a clinical clerkship for medical students that can be selected as an elective through the medical school.

Please visit the Department of Radiation Oncology website (<https://radonc.wustl.edu/education/>) for more information about current research in the department.

## Courses

For course information related to the Post-PhD Graduate Certificate, Master's of Science in Medical Physics, and PhD in Medical Physics programs, please visit the Medical Physics (<http://bulletin.wustl.edu/medicine/areas-of-study/medical-physics/#courses>) page of this *Bulletin*.

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## MD/MSTP Programs

The Department of Radiation Oncology offers courses that are open to students in the MD and MSTP (MD/PhD) programs. For course information, please visit the online course listings (<https://acadinfo.wustl.edu/CourseListings/Semester/Listing.aspx>).

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### M92 RadOnc 740 Radiation Oncology Clerkship

The two-week clerkship in Radiation Oncology will provide students with the opportunity to participate in the evaluation and management of a broad range of patients referred for consideration of radiation therapy. Clerkship activities will take place at the Barnes-Jewish Hospital/Siteman Cancer Center complex and at our satellite facilities. Students will conduct patient evaluations under the supervision of radiation oncology department residents and faculty. Students will attend many conferences throughout the weeks of this clerkship, with the workday starting between 7:00 and 7:30 a.m. Students will also have the opportunity to attend the appropriate multidisciplinary clinics, follow-up clinics, and multidisciplinary conferences (such as pediatric neuro-oncology, cardiothoracic oncology, lymphoma, GYN tumor conferences, and so on) pertaining to their rotation schedule. Instructional materials are available for students on the rotation. (Students are not expected to purchase any curricular materials for the clerkship.) Student performance will be evaluated by both resident and faculty members who supervise the student over the course of the two-week clerkship. Credit 77 units.

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### M92 RadOnc 801 Clinical Radiation Oncology Subinternship

The Radiation Oncology clinical division offers an elective with emphasis on the evaluation, planning, and administration of radiation therapy in patients with malignant tumors. Students will have the opportunity to enhance their knowledge of the natural history of cancer as well as its pathological and biological

features. Students will sharpen their clinical skills by participating in the management of cancer patients. Students will be mentored to prepare and lead a department noon conference on the management of a specific patient's care, including literature review and discussion. Students will be expected to prepare for clinical consultations by reviewing patient records and relevant literature, obtaining the patient's history, and performing a physical examination. This will be followed by presenting findings and a proposed care plan to the attending and resident physicians. This course is designed for MS4 students who are entering the Radiation Oncology Match. If a student is an MS4 applying in another specialty but interested in a radiation oncology elective, we encourage them to pursue a two-week special study elective in Radiation Oncology.

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### M92 RadOnc 900 Radiation Oncology Research Elective

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