

Fundamentals of Radiology Research

Course Description

The *Fundamentals of Radiology Research* course offers an introduction to the essential principles of clinical research within the radiology specialty. Delivered online at no cost, the curriculum is designed to build both foundational knowledge and practical skills. Key topics include regulatory considerations, trial design and statistics, collaborations, plus guidance on grants and patents. This course is ideal for radiology trainees and professionals seeking to strengthen skills in clinical research.

Course Objectives

- 1) Describe regulatory requirements relevant to radiology research, including IND and IDE considerations
- 2) Design basic radiology clinical research studies by developing research questions, selecting study designs and endpoints, and applying introductory statistical concepts
- 3) Develop collaborative partnerships and multidisciplinary perspectives unique to radiology research
- 4) Improve grant application practices to compete for radiology research funding opportunities

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Module 1: Introduction to Radiology Research

The Importance of Radiology Research	Dr. Peter L. Choyke, MD
Clinical Trials in Radiology	Dr. David A. Mankoff, MD, PhD
Editor's Perspective on Imaging Research Publications	Dr. Christina Fuss, MD, PhD

Module 2: Regulatory Considerations

Conducting IND Studies in Imaging: Regulatory Perspective	Dr. Dwaine Rieves, MD
Conducting IND Studies in Imaging: A Researcher's Perspective	Dr. Martin G. Pomper, MD, PhD
Preclinical Technology Development	Dr. John W. Karanian, PhD
Conducting IDE Studies in Imaging	Dr. William F. Pritchard, MD, PhD
Research Ethics in Radiology	Dr. Gayle E. Woloschak, PhD

Module 3: Clinical Trial Design & Statistics	
How to Make Your Research More Impactful	Dr. Etta Pisano, MD
Study Design and Endpoints in Radiology Research	Dr. Chaya S. Moskowitz, PhD
Evaluating Quantitative Imaging Biomarkers	Dr. Nancy Obuchowski, PhD
Power and Sample Size in Radiology Studies	Dr. Jeffrey D. Blume, PhD
Novel Multi-Level Outcomes	Dr. Ruth C. Carlos, MD, MS
Artificial Intelligence in Radiology Research	Dr. Baris Turkbey, MD

Module 4: Team Science	
Building a Radiology Clinical Research Team	Dr. Pamela K. Woodard, MD
Building an Engineering/Physics Team in Medical Imaging Research	Dr. Matthias Stuber, PhD
Building a Chemistry Team in Medical Imaging Research	Dr. Rolf E. Swenson, PhD

Module 5: Grants & Patents	
Grant Funding Opportunities for the Radiologist	Dr. Jonathan R. Dillman, MD, MSc
Grant Writing for Radiology Researchers: Tips & Tricks	Dr. Peter Caravan, PhD
From Research to Commercialization: Patents and Licensing in Radiology	Dr. Hiroyuki Fujita, PhD