Semester: Fall 2020
Time: Monday and Wednesday, 11:30 A.M. – 1:00 P.M.
Location: Course will be held remotely and meet via Zoom

Course masters:
Adam Bauer, PhD: aqbauer@wustl.edu
David Reichert, PhD: reichertd@mir.wustl.edu
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Course Summary
PABI will focus on the interdisciplinary nature of imaging sciences and will include a comprehensive survey of modalities that define biological imaging. Topics will include the basics, scope and applications of optical, ultrasound, photoacoustic, magnetic resonance, and nuclear imaging modalities. Lectures will be contributed by experts in the relevant fields.

Introduction
09-14-20 (M): Introduction to Biological Imaging (Adam Bauer)

Optical, Ultrasound, and Photoacoustic Imaging
09-16-20 (W): Tissue Optics and Diffuse Optical Imaging (Adam Bauer)
09-21-20 (M): Clinical Applications of Diffuse Optical Tomography (Adam Eggebrecht)
09-23-20 (W): Fluorescence and Contrast Agents (Mikhail Berezin)
09-28-20 (M): Principles and Applications of Optical Coherence Tomography (Chao Zhou)
09-30-20 (W): Overview of Microscopy (Tim Holy)
10-05-20 (M): Microscopy Applications (Tim Holy)
10-07-20 (W): Super resolution Microscopy (Matt Lew)
10-12-20 (M): Combining Photons with Ultrasound (Quing Zhu)
10-14-20 (W): PAT Development/animal applications (Song Hu)
10-19-20 (M): Review Session, Q&A

Magnetic Resonance Imaging
10-21-20 (W): Introduction to MR Imaging (Josh Shimony)
10-26-20 (M): Structural and Functional MR Imaging-I (Josh Shimony)
10-28-20 (W): Functional MR Imaging-II (Josh Shimony)
11-02-20 (M): Diffusion and Perfusion MRI (Jamal Derakhshan)
11-04-20 (W): Preclinical MR (Joel Garbow)

Nuclear Medicine Imaging
11-09-20 (M): Overview of X-Ray/CT and PET/SPECT-I (Yuan-Chuan Tai)
11-11-20 (W): Overview of PET/SPECT-II (Yuan-Chuan Tai)
11-16-20 (M): Overview of PET Image Reconstruction (Richard Laforest)
11-18-20 (W): Overview of PET Image Quantification (Richard Laforest)
11-23-20 (M): Contrast Agents for PET/SPECT (David Reichert)
11-25-20 (W): No Class
11-30-20 (M): Preclinical PET (Kooresh Shoghi)
12-02-20 (W): Preclinical Oncologic Imaging (Monica Shokeen)
12-07-20 (M): Cardiovascular Imaging with PET/SPECT (Rob Gropler)
12-09-20 (W): Targeted Radiopharmaceutical Therapy (Richard Wahl)
12-14-20 (M): Clinical Oncologic Imaging (Farrokh Dehdashti)
12-16-20 (W): Student Presentations (Case Study)
01-04-21 (M): Final

Scoring: Equally distributed between the quizzes, presentation, attendance, and final exam
Telesis: Lecture notes will be posted on WU Canvas (https://mycanvas.wustl.edu/)