

## **Biomedical Imaging Program Curriculum**

The duration of the Program is 24 months. Each course is designed to be self-contained including development of the necessary mathematical formalism. Students will choose an advisor for their Master's thesis research project by the end of the first spring semester. Research projects will be conducted over the final 15 months of the Program, including time to complete the thesis document. Students are required to defend their thesis orally to a thesis committee.

### **First Fall Semester (September – December)**

- Physics in Nuclear Medicine (new, 4.00 credits, Sadek Nehmeh PhD)
- Optical and Electron Microscopy (new, 3.00 credits, Sushmita Mukherjee PhD and Brian Robinson MD)
- X-ray Methods and Computed Tomography (new, 3.00 credits, Usman Mahmood MS)
- Anatomy (new, 3.00 credits, James Shin MD)

### **First Spring Semester (January - May)**

- Magnetic Resonance Imaging (new, 3.00 credits, Ricardo Otazo PhD)
- Machine Learning with Images (new, 3.00 credits, Joseph Deasy PhD and Harini Veeraraghavan PhD)
- Ultrasound Imaging (new, 3.00 credits, Director TBD)
- Health Literacy (new, 3.00 credits, Sumit Niogi MD PhD)

### **First Summer Semester (June - August)**

- Special Topics Seminar Series (new, 1.00 credits, Douglas Ballon PhD)
  - Biostatistics (Jason Mezey PhD)
  - 3D Printing (Simon Dunham PhD)
  - Imaging in Genetic Medicine (Douglas Ballon PhD)
  - Nanotechnology in Imaging (Simon Dunham PhD)
  - Radiation Safety (Nelia Long PhD)
  - Radiobiology (Pat B Zanzonico PhD)
  - Instrument ACR Calibration (Jonathan Dyke PhD)
- Begin Independent Research – Laboratory Track or Clinical Track Thesis Project (8.0 credits)

### **Second Fall Semester (September - December)**

- Independent Research – Laboratory Track or Clinical Track Thesis Project (8.0 credits)
- Responsible Conduct of Research (RCRP 9010 01, 1.00 credits)

### **Second Spring Semester (January - May)**

- Independent Research – Laboratory Track or Clinical Track Thesis Project (8.0 credits)
- Career Development in Biomedical Imaging (new, 1.00 credits, Douglas Ballon PhD)

### **Second Summer Semester (June – August)**

- Independent Research – Laboratory Track or Clinical Track Thesis Project (9.0 credits)

The total number of course credits offered by the Program = 28. The total number of credits including thesis work is 61.