

Advanced Neuroimaging Methods with a Clinical Focus

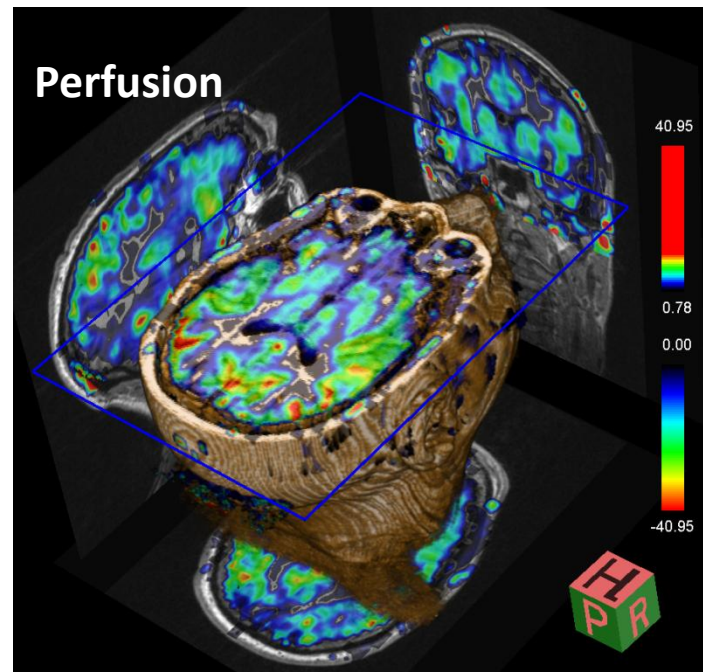
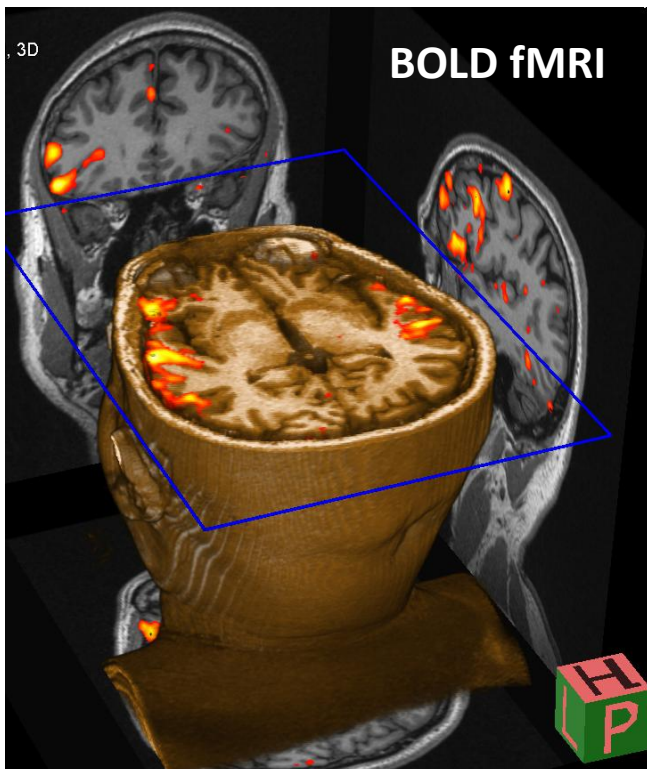
Hands-on approach to Functional MRI (fMRI), Diffusion Tensor Imaging (DTI), Perfusion Imaging, and Spectroscopy

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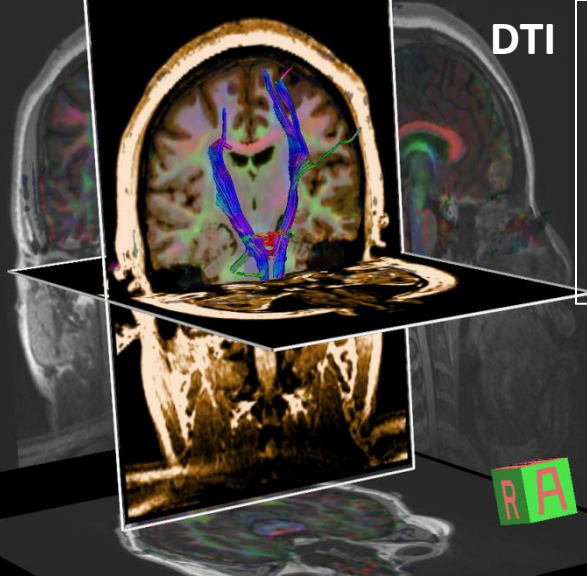
See our website for available dates: www.neuroimaging.northwestern.edu/course

Program Description:

This course uses interesting lectures and powerful hands-on sessions to provide the optimal learning environment. Topics include imaging physics, functional MRI (acquisition, stimulus presentation, experiment design, data analysis, and interpretation), perfusion imaging (ASL and DSC), diffusion imaging (analysis and tractography), and MR spectroscopy. Topics will be presented through lectures, and then hands-on practical sessions will be conducted followed by hands-on data analysis sessions. With a small course size, attendees will enjoy individualized attention during the hands-on sessions. Emphasis will be placed on the clinical application for all of the methods discussed. Attendees will be given copies of the experiments and protocols used during the course to take back to their institution to provide a strong foundation for applying the recently gained knowledge.



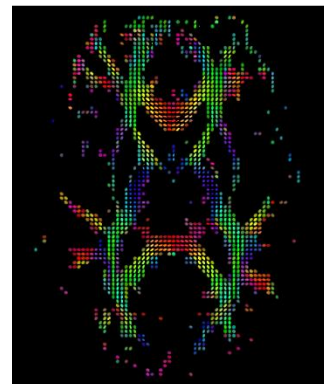
21.5 hours of CE available from the ASRT



DTI

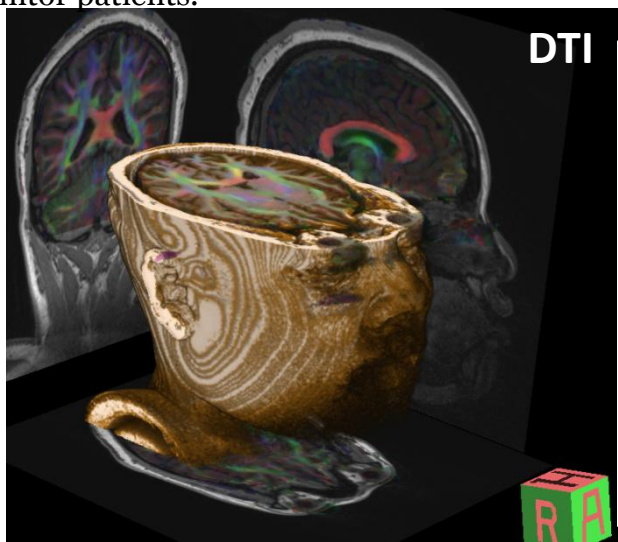
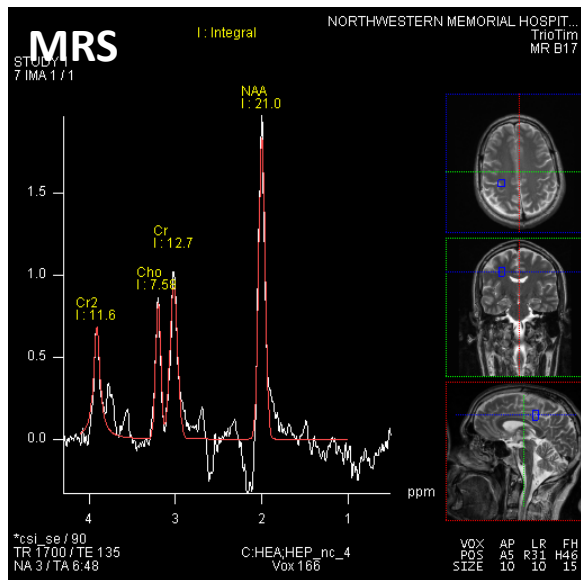
Who should attend?

Any Physician or MR Technologist looking to gain practical knowledge of advanced neuroimaging methods using MRI will benefit from this course. The course assumes a working knowledge of Siemens software and key concepts related to advanced imaging methods will be reviewed. The small course size will provide attendees the highest level of attention by the instructors and allow the course to be tailored to the needs of the attendee's institutions. The fMRI experiments are designed assuming there are no stimulus presentation devices available at your local site, eliminating the need to purchase additional equipment.



Program Objectives:

- To obtain an understanding of the underlying anatomy, physiology, and cognitive networks being assessed with the advanced neuroimaging methods.
- To gain general knowledge of experimental design, implementation of fMRI experiments, and analysis methods used in neuroscience research studies.
- Learn to conduct functional MRI studies with knowledge of imaging physics, physiologic implications, data analysis issues, and interpretation in the context of pathology.
- To differentiate between ASL and DSC perfusion methods and how each method impacts the interpretation of cerebral blood flow measures.
- To understand how diffusion tensor measurements are made and the impact acquisition parameters have on derived measures and tractography maps.
- To become familiar with the methods of MR spectroscopy and the rich metabolic information that can be obtained and how it can be used to quantitatively monitor patients.



DTI

What you take home:

Attendees will have gained a strong foundation of imaging physics, physiology, anatomy and cognitive networks through lectures and hands-on labs. Copies of all the experiments and protocols will be provided so the attendees can practice at their site and train others. In addition, "normal" data will be provided to use as a reference to ensure the studies were done correctly. Most importantly, the attendee will have the confidence and understanding to apply these advanced methods upon returning home.