Department of Mathematics, Statistics, and Computer Science - Marquette University

**Course:** MSCS 6960: Seminar in Math/Stats/Comp Sci, Spring 2010  
**Time:** Tu 3:30-4:30 Cudahy Hall 327  
**Instructor:** Daniel B. Rowe, Ph.D.  
**Office Hours:** WTh 3:15 pm – 4:15 pm & by appointment  
**Office:** CU 313  
**E-mail:** daniel.rowe@marquette.edu

**Readings List:** * indicates background paper  

**Topic 1**  
Kwong et al.: Dynamic magnetic resonance imaging of human brain activity during primary sensory stimulation. PNAS 89:5675-5695, 1992. (Bandettini 92 submitted before Kwong 92.)  
*Ogawa et al.: Brain magnetic resonance imaging with contrast dependent on blood oxygenation. PNAS 87:9868-9872, 1990.

**Topic 2**  

**Topic 3**  

**Topic 4**  

**Topic 5**  
Rowe and Logan: Complex fMRI analysis with unrestricted phase is equivalent to a magnitude-only model. NIMG 24:603-606, 2005.

**Topic 6**  

**Topic 7**  

**Topic 8**

**Topic 9**

**Topic 10**
* Jezzard and Balaban: Correction for geometric distortion in echo planar images from B0 field variations. MRM 34:65-73, 1995.

**Topic 11**
* Review FTs and multivariate transformations.

**Topic 12**
Nencka et al.: A Mathematical model for understanding the statistical effects of k-space (AMMUST-k) preprocessing on observed voxel measurements in fcMRI and fMRI. JNM 181:268-282, 2009.

**Topic 13**
Nencka et al.: A Mathematical Model for Understanding the STatistical effects of Time-series (AMMUST-T) preprocessing on observed voxel measurements in fcMRI and fMRI. In Submission, 2010.

**Topic 14**

**Topic 15**