Syllabus requirements (INF9410 -- spring 2010)

Preliminary version 2 February 2010

The following contents are syllabus / achievement requirements that regard the PhD students or others that follow the course INF9410. Note: They come in addition to the syllabus / achievement requirements of INF5410

1. Extra curriculum: Papers from our research

1. S. Holm and R. Sinkus, ”A unifying fractional wave equation for compressional and shear waves,” Journ. Acoust. Soc. Am., pp-542-548, Jan 2010, http://dx.doi.org/10.1121/1.3268508
   (less weight on shear wave than compressional wave results).

   Comment: Complements chapter 2.3.2 Attenuation. As an aid in understanding this paper, it is recommended that problems 2.6 and 2.7 be solved.

2. S. Holm, A. Austeng, K. Iranpour and J. F. Hopperstad: Sparse sampling in array processing, chapter 19 in "Sampling theory and practice" (F. Marvasti Ed.), Plenum, New York , pp. 787-833, 2001,
   http://folk.uio.no/sverre/papers/01_Sparse_array_Marvasti_chap19.pdf

   Comment: This chapter complements chapters 3.3.5-6 Sparse and random arrays

3. J.-F. Synnevåg, A. Austeng, and S. Holm, "Adaptive beamforming applied to medical ultrasound imaging," IEEE Trans. Ultrason., Ferroelect., Freq. Contr., pp. 1606-1613, Aug. 2007 , http://dx.doi.org/10.1109/TUFFC.2007.431

4. J.-F. Synnevåg, A. Austeng, and S. Holm, ”Benefits of minimum Variance Beamforming in Medical Ultrasound Imaging”, IEEE Trans. Ultrason., Ferroelect., Freq. Contr., pp. 1868-1879, Sept. 2009,
   http://dx.doi.org/10.1109/TUFFC.2009.1263

   Comment: These papers complement chapters 7.2.1 Minimum variance beamforming, 7.3.4 Signal coherence, and 7.4.3 Robust Constrained Optimization and show how these methods work in one particular application. As an aid in understanding these papers, it is recommended that problem 7.17 be solved.

2. Mandatory exercises

All problems, even voluntary ones for the ordinary INF5410 student, must be answered.