

Mini-Exam

MAA-C3001 Statistical and Stochastic Methods in Engineering

20.10.2015

Answers may be given in en, fi, se, dk, de

1 Spatial correlation (0.5 pt)

What is spatial autocorrelation, and what is meant by positive and negative spatial autocorrelation?

2 Geostatistics (1 pt)

Describe the similarities and differences between Inverse Distance Weighting and Kriging

3 Wind and wave spectra (1.5 pts)

- What quantity does a wave or wind spectrum contain, and how can it be graphically presented?
- How is *probability* linked to the wave spectrum?
- What are the statistical conditions assumed in deriving the spectrum?

4 Bayesian (1 pt)

The Bayes Rule is

$$p(\theta|X) = \frac{p(\theta) p(X|\theta)}{p(X)}.$$

Explain all the symbols appearing.

Mini-exam and course grading:

- points from the mini-exam (above, max 4) are added to
- points from the exercises: 0 - 2 bonus points for 50% - 100% of the exercises, linearly. Minimum 50% is required
- The yes/no graded exercises count for 0% / 100%
- 1-6 are passing grades, both for mini-exam and course.