Common mistakes and comments on the exam scripts (2014/2015)

The answers were overall good. Some of the difficult parts were answered unexpectedly well.

- Question A1:
  Parts (a) and (b) were generally answered well. For part (c) the model is invertible if the roots of the moving average polynomial are greater than one.

- Question A2:
  This question was generally answered very well.

- Question A3:
  This question was generally answered very well. This could be approached by comparing coefficients in power series expansions or by writing down the predictors and deriving the variances directly from these expressions. Full marks were given for correct answers derived using either approach.

- Question A4:
  This question was generally answered well.

- Question B5:
  - (a) Parts (i)-(iv) are bookwork and were answered mostly correctly. Part (v) is more difficult but was answered well by more students than I expected.

    If you failed to answer part (vi), you have not learned much from this course and your answers to (i)-(v) have been rather mechanical. You still get the marks you accumulated for parts (i)-(v), of course.

  - (b) This question is not technically difficult but it does require understanding of partial autocorrelations and linear predictors. The lag one partial autocorrelation happens to coincide with the lag one autocorrelation but for other lags this is not true, in general.

- Question B6:
  This question examines knowledge from various parts of the course. Students who chose this question did it mostly well.

Curiously, a number of students who actually obtained the general formula for the predictor, a straight line w.r.t. prediction
horizon, stated that it is quadratic or even a circle!

- **Question B7:**
  
  - This was done pretty well, although, despite the instructions, many of the answers were very, very long. I didn't penalise this though.
  
  - Part (d) was technically more challenging and required skillful work with the backward shift operator. I surprised that so many students managed it.

- **Question C8:**
  
  This question was done mostly well. Parts (d) and, unexpectedly, (e) proved difficult for some students.

- **Question C9:**
  
  This question was done very well by most students.