

**Formal Aspects of Security**  
**Insider Attacks**  
**Assignment**  
**Date: October 3, 2011**

You should answer questions 1 and 2, and choose one of 3 or 4.

1. In the lectures, the modelling formalism acKlaim has been introduced. Choose a non-trivial part of an organization that exhibits potential insider threats, and model it using acKlaim. Explain where the insider threat occurs.
2. Explain how acKlaim models actors and their behaviours (approx. one page).
3. The current version of acKlaim does only support unencrypted data. Sketch how this can be added to the language and its semantics.
4. As discussed in the lectures, the analyses in their current form do over-approximate uncertain behaviour. One approach would be to compute the probability that a certain action or event occurs. Extend the current approaches with mechanisms to do so, and argue for your solution.