Exercise 1:
Show that Stochastic Set Cover can be reduced to the deterministic problem. To this end, define a different universe of elements $U'$, family of subsets $S'$, and costs $(c'_{S'})_{S' \in S'}$ appropriately. Any solution of this Set Cover instance then corresponds to a policy of the same cost.

Exercise 2:
We consider the Stochastic Vertex Cover problem which is a special case of the Stochastic Set Cover problem from the lecture. The edge set $A \subseteq E$ is uncertain, but drawn from a known probability distribution. The probability that the edge set is $A \subseteq E$ is given by $p_A$. Our goal is to compute a Vertex Cover of minimum cost for the graph $G = (V, A)$. Before $A$ is revealed, we have to pay $c^I_v$ for $v$, afterwards $c^I_v \geq c^I_v$.

Derive an LP such that every policy corresponds to a feasible solution. Consider variables $x_v$ denoting if $v$ is picked in the first stage and $y_{A,v}$ if the edge set is $A$ and $v$ is picked in the second stage.