

# Additional guidance

## Simulation of pass and fail indicators

The random numbers from the  $U[0,1]$  distribution can be used to simulate a pass or fail by using the following rule, where  $Z$  is the pass rate and  $U$  is the random number:

if  $U \leq Z$ , the exam is passed;  
if  $U > Z$ , the exam is failed.

## Cumulative persistency rates

The cumulative persistency rate  $p(t)$  is the probability of being a member at time  $t$  (in years).

It can be calculated using the following relationship:

$$p(t + 0.5) = p(t) \times \{1 - w(t)\}$$

where  $w(t)$  is the withdrawal rate over the period from time  $t$  to time  $t + 0.5$ .

This withdrawal rate  $w(t)$  is dependent on whether the student passed or failed the exam taken in the half year period ending at time  $t$ .