- Report in maximum of 2 pages
- The total value of the assignment is 6 points
- You can write your answers either in Finnish, Swedish or English
- Deadline for this assignment is Thursday, March 29th, 2018 at 16:00.
- Return your report via MyCourses

Assignment 4.1 – Life sentence prisoners

In this exercise, we use simulation to estimate the number of prisoners that are serving a life sentence in Finland. Use the following information to analyze how changes in the legal system might affect the number of 'lifers' (Note: the given data may not be up-to-date, but do not let that disturb you).

In Finland, a person that has been found guilty of high treason, espionage, genocide or murder can be sentenced to imprisonment for life. Practically, all of the new sentences are given for murder. The number of life sentences given between the years 1981 and 2000 is depicted in table 1.

Table 1. Number of life sentences given between 1981-2000

1981	3	1991	3
1982	2	1992	4
1983	5	1993	12
1984	8	1994	8
1985	1	1995	6
1986	5	1996	16
1987	5	1997	5
1988	4	1998	5
1989	3	1999	7
1990	4	2000	7

Currently, the only way to be released from serving life is to be pardoned by the president. The average 'length' of a life sentence has been approximately 16.5 years in the 70's, 11.7 years during the 80's and 10.7 years during the 90's.

Choose probability distributions to describe both the number of new life sentences per year as well as the length of the sentences. Use these to estimate the number of prisoners in the year 2030. Quantify, in some way, how accurate your estimate is.

Note that there is no single correct answer to this assignment. Make the necessary modeling assumptions according to your own judgment.