8-1. A vertical force F acting on a bar is shown below. Given that the length of the bar $L=1.5\,\text{m}$, and the spring has a stiffness of $k \sim N(0.5, 0.03^2)\,\text{N}/\text{mm}$, determine the distribution of the critical buckling load of the bar. (**Ans.** $F_{cr} \sim N(187.5, 11.25^2)\,\text{N}$)