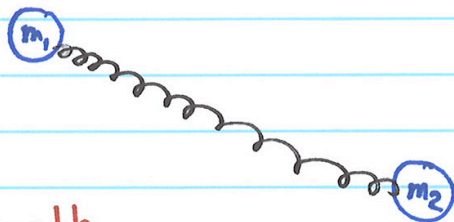# Lagrangian Mechanics

## "Springs" in Free Space



Free to move and rotate in 3D

Assume $\ell = 0$
zero equilibrium length

a) How many degrees of freedom?

b) Write down $T$ and $U$ in terms of $\vec{r_1}$, $\vec{r_2}$.

c) Choose generalized coordinates

d) Write down Lagrangian

e) Equations of Motion