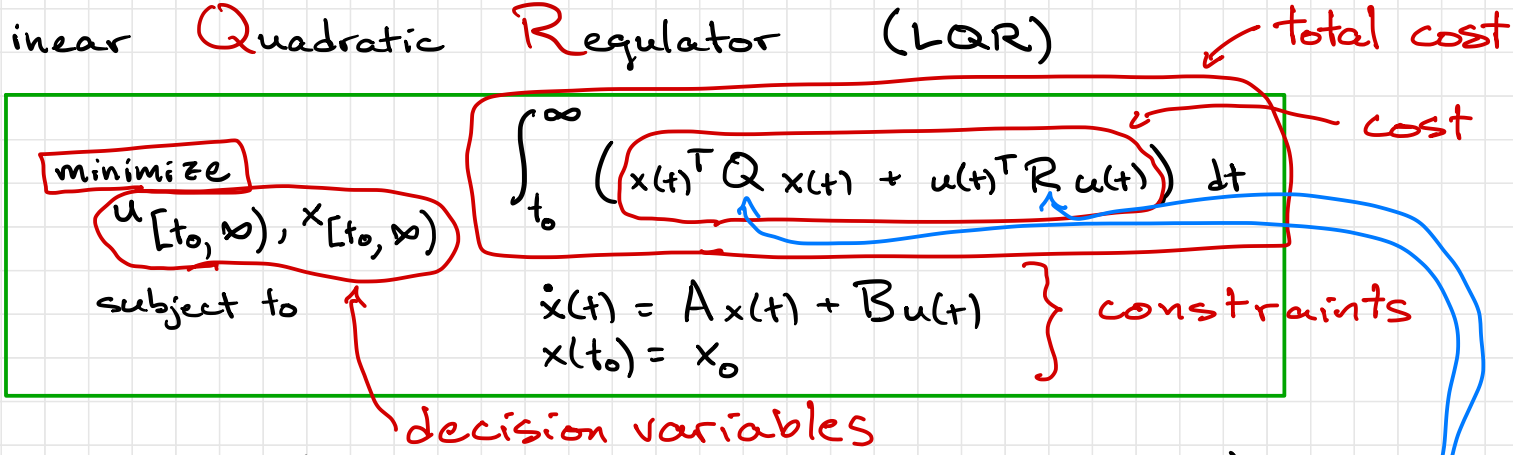
LQR (problem statement)

AE353

Spring 2023

Bretl

Linear Quadratic Regulator (LQR)



The minimizer (i.e., the input that achieves minimum cost) is

$$u(t) = -K\,x(t)$$

and the minimum (i.e., the minimum cost) is

$$x_0^T P\, x_0$$

where K and P can be found in python as follows:

```python
def lqr(A, B, Q, R):
    P = linalg.solve_continuous_are(A, B, Q, R)
    K = linalg.inv(R) @  B.T @ P
    return K, P
```