GRADIENT-DESCENT-CONSTRAINED$(f, \mathbf{x}^{(0)}, \gamma, T, K)$

1 **sum** $= 0$ // n-dimensional vector, initially all 0
2 **for** $t = 0$ **to** $T - 1$
3 **sum** $=$ **sum** $+ \mathbf{x}^{(t)}$ // add each of n dimensions into **sum**
4 $\mathbf{x}'^{(t+1)} = \mathbf{x}^{(t)} - \gamma \cdot (\nabla f)(\mathbf{x}^{(t)})$ // $(\nabla f)(\mathbf{x}^{(t)})$, $\mathbf{x}'^{(t+1)}$ are n-dimensional
5 $\mathbf{x}^{(t+1)} = \Pi_K(\mathbf{x}'^{(t+1)})$ // project onto K
6 **x-avg** $=$ **sum**$/T$ // divide each of n dimensions by T
7 **return x-avg**