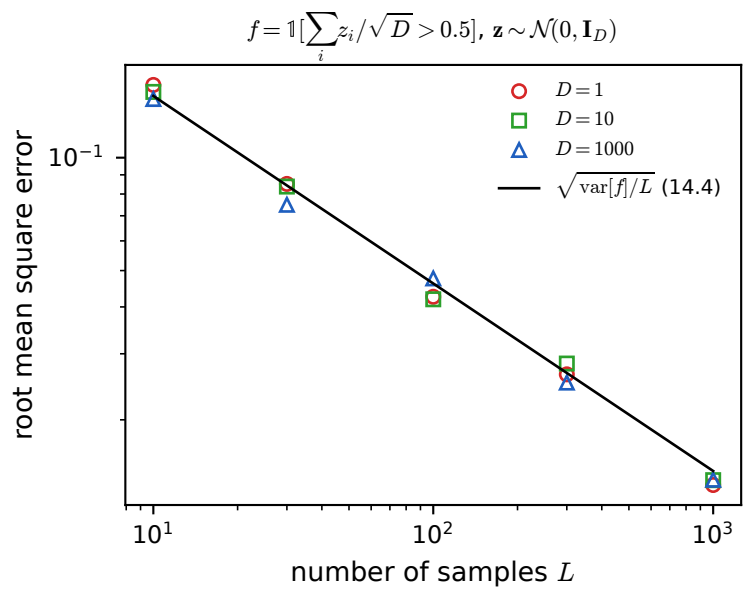
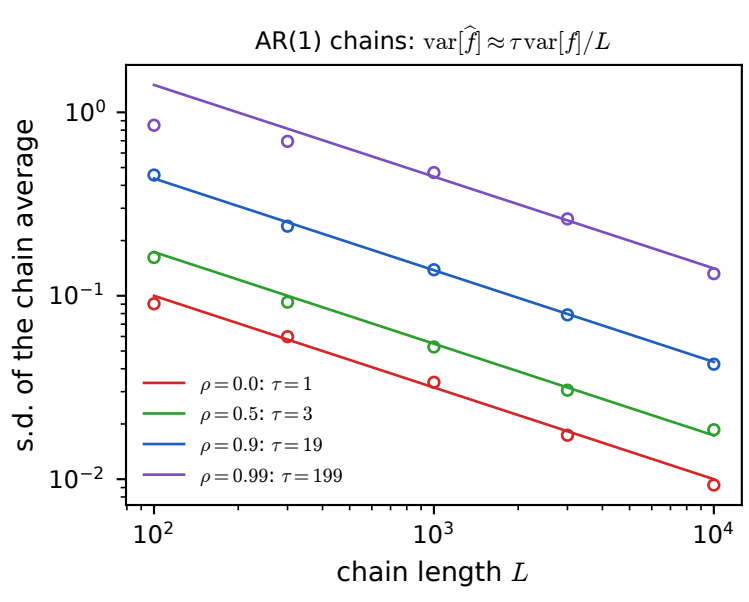
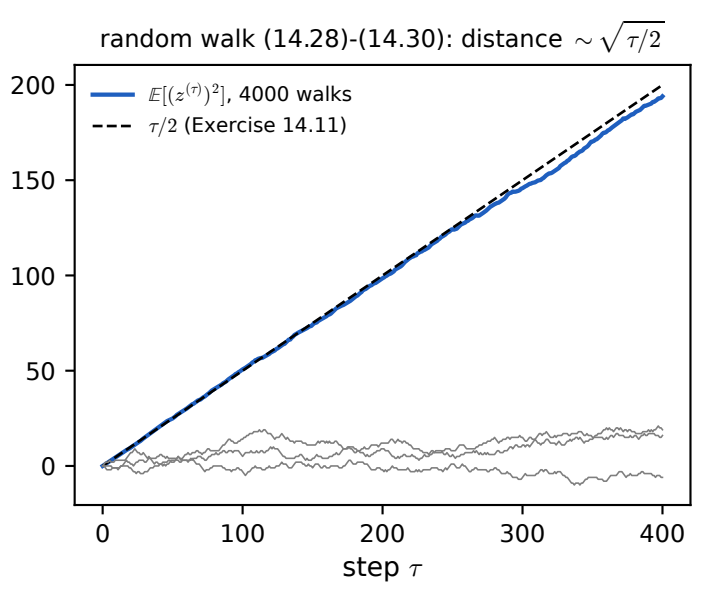

$f = \mathbb{1}[\sum_i z_i/\sqrt{D} > 0.5]$, $\mathbf{z} \sim \mathcal{N}(0, \mathbf{I}_D)$
root mean square error
10^{-1}
$D = 1$
$D = 10$
$D = 1000$
$\sqrt{\mathrm{var}[f]/L}$ (14.4)
10^1
10^2
10^3
number of samples L


AR(1) chains: $\mathrm{var}[\widehat{f}] \approx \tau \mathrm{var}[f]/L$
s.d. of the chain average
10^0
10^{-1}
10^{-2}
$\rho = 0.0$: $\tau = 1$
$\rho = 0.5$: $\tau = 3$
$\rho = 0.9$: $\tau = 19$
$\rho = 0.99$: $\tau = 199$
10^2
10^3
10^4
chain length L


random walk (14.28)-(14.30): distance $\sim \sqrt{\tau/2}$
$\mathbb{E}[(z^{(\tau)})^2]$, 4000 walks
$\tau/2$ (Exercise 14.11)
200
150
100
50
0
0
100
200
300
400
step τ