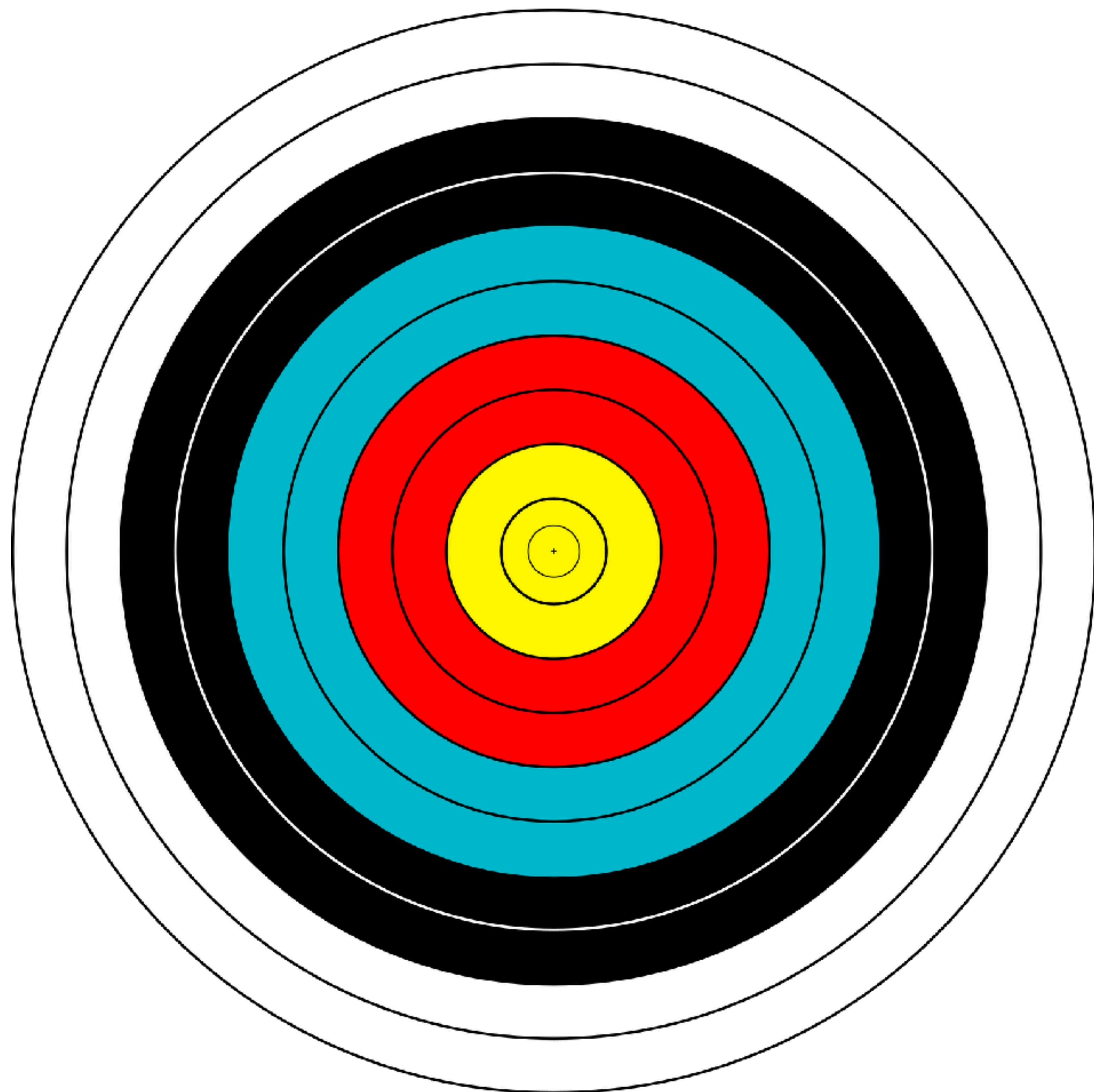


Estimation I: Bias, Variance, and Mean Squared Error

STAT 3202 | OSU | Autumn 2018
Dalpiaz

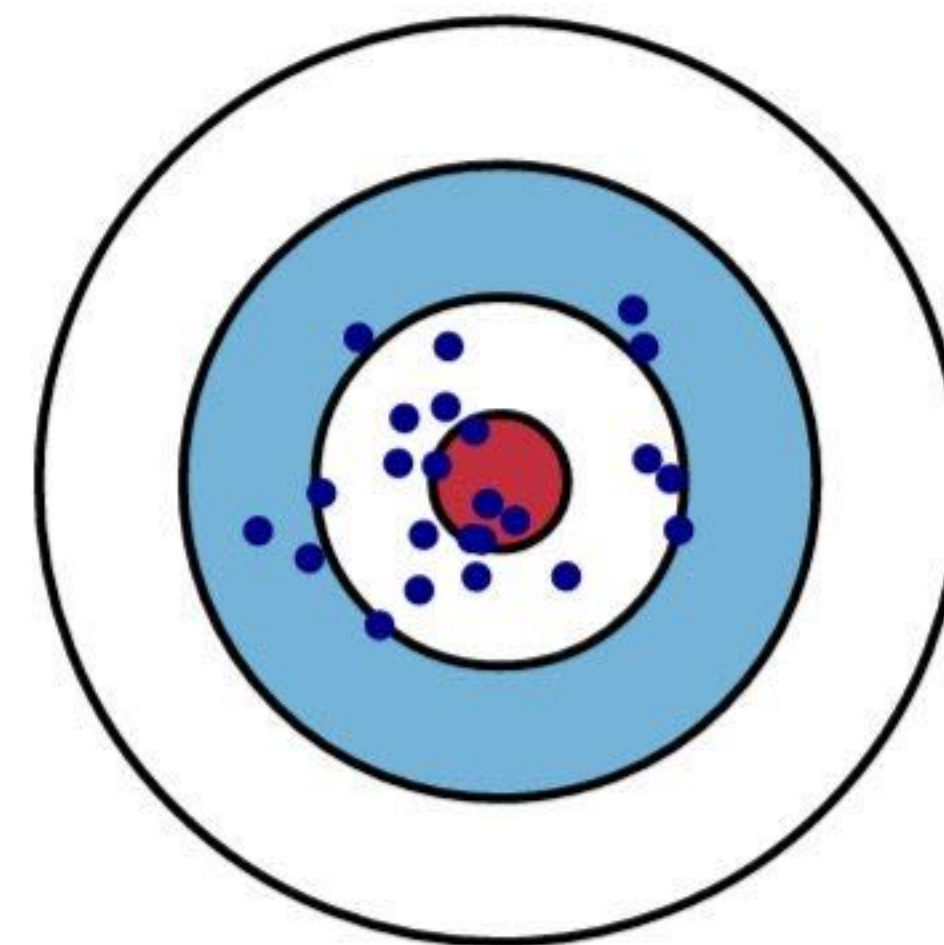
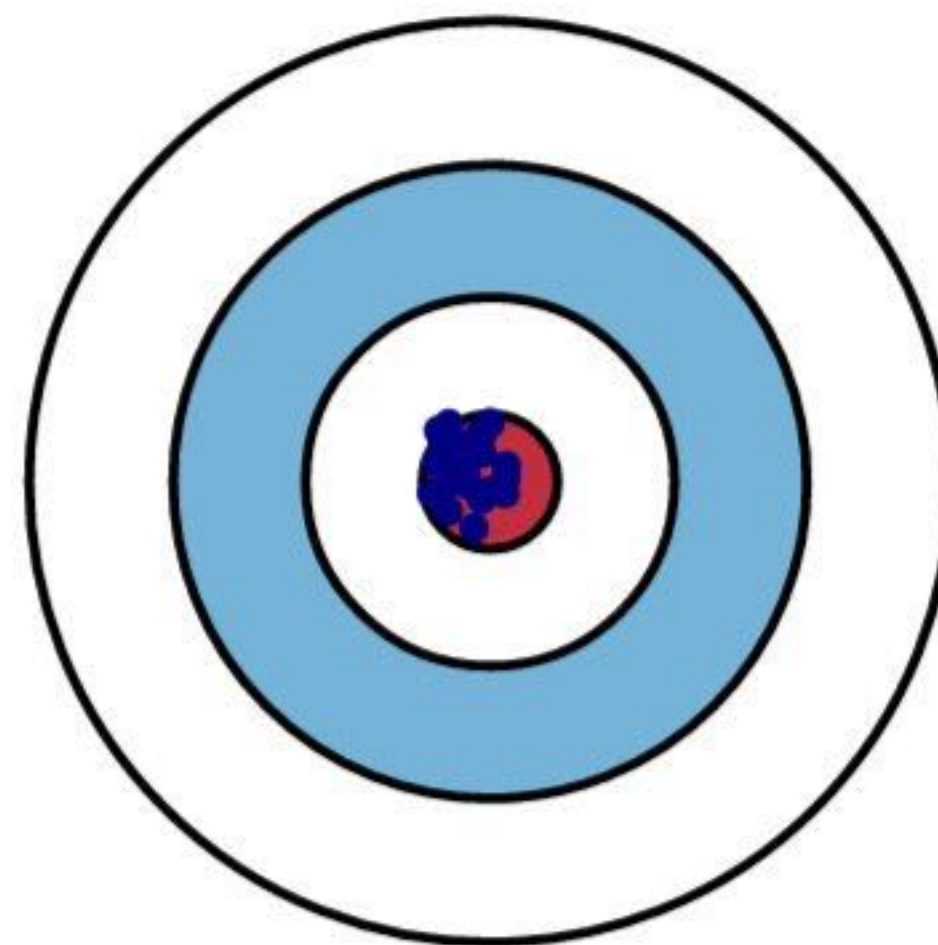




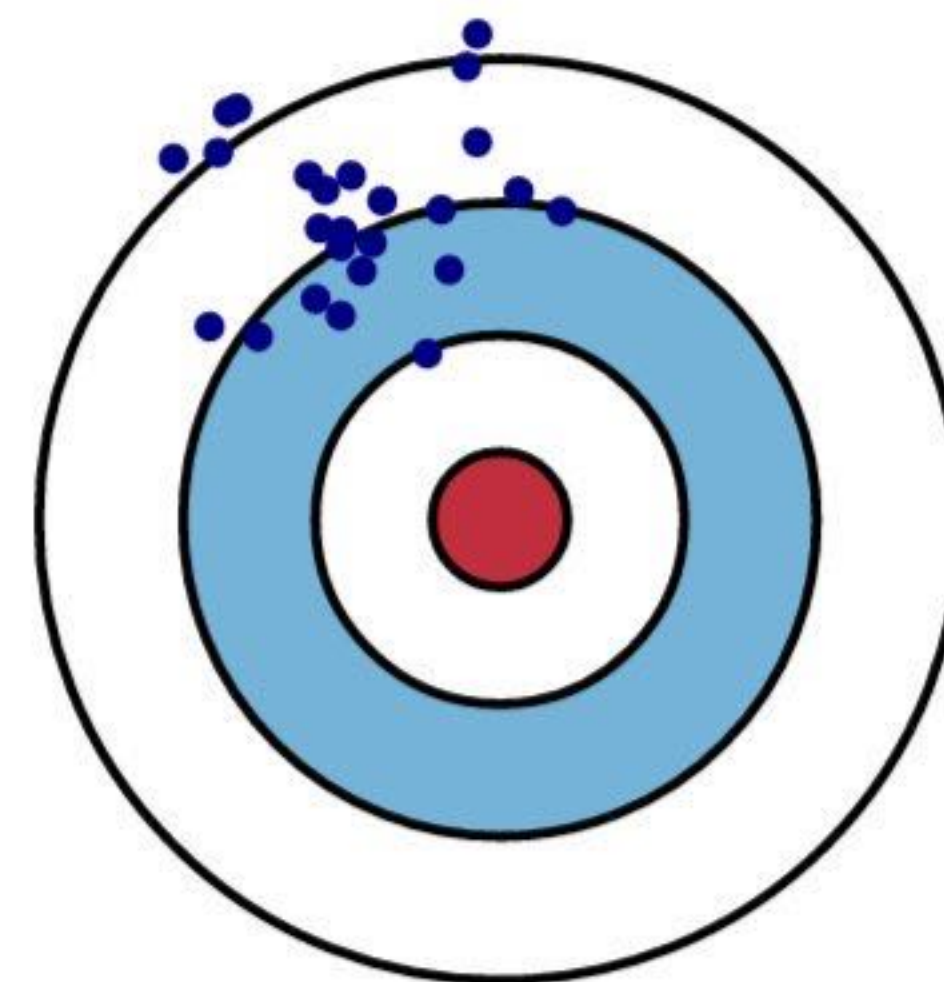
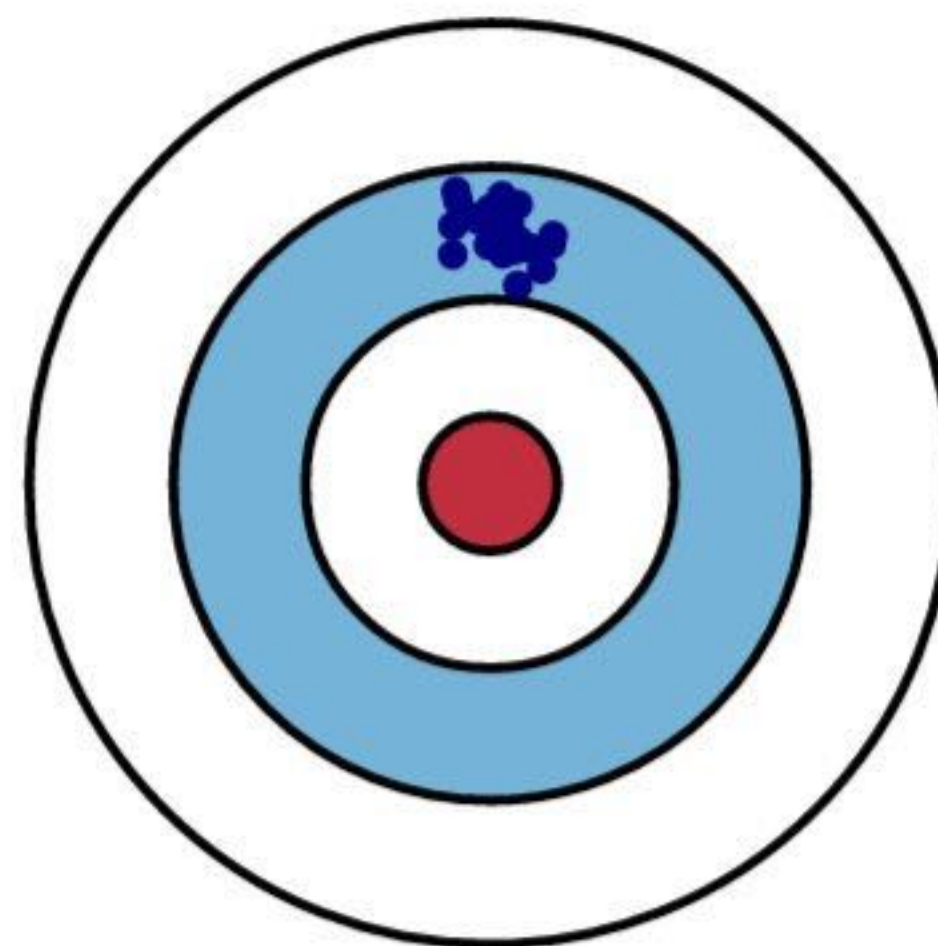
Low Variance

High Variance

Low Bias



High Bias



Definitions

$$\text{bias}[\hat{\theta}] = \text{E}[\hat{\theta}] - \theta$$

$$\text{var}[\hat{\theta}] = \text{E}[(\hat{\theta} - \text{E}[\hat{\theta}])^2]$$

$$\text{MSE}[\hat{\theta}] = \text{E}[(\hat{\theta} - \theta)^2] = \left(\text{bias}[\hat{\theta}]\right)^2 + \text{var}[\hat{\theta}]$$

Grades as Estimation

Questions?

Comments? Concerns?



That's all Folks!