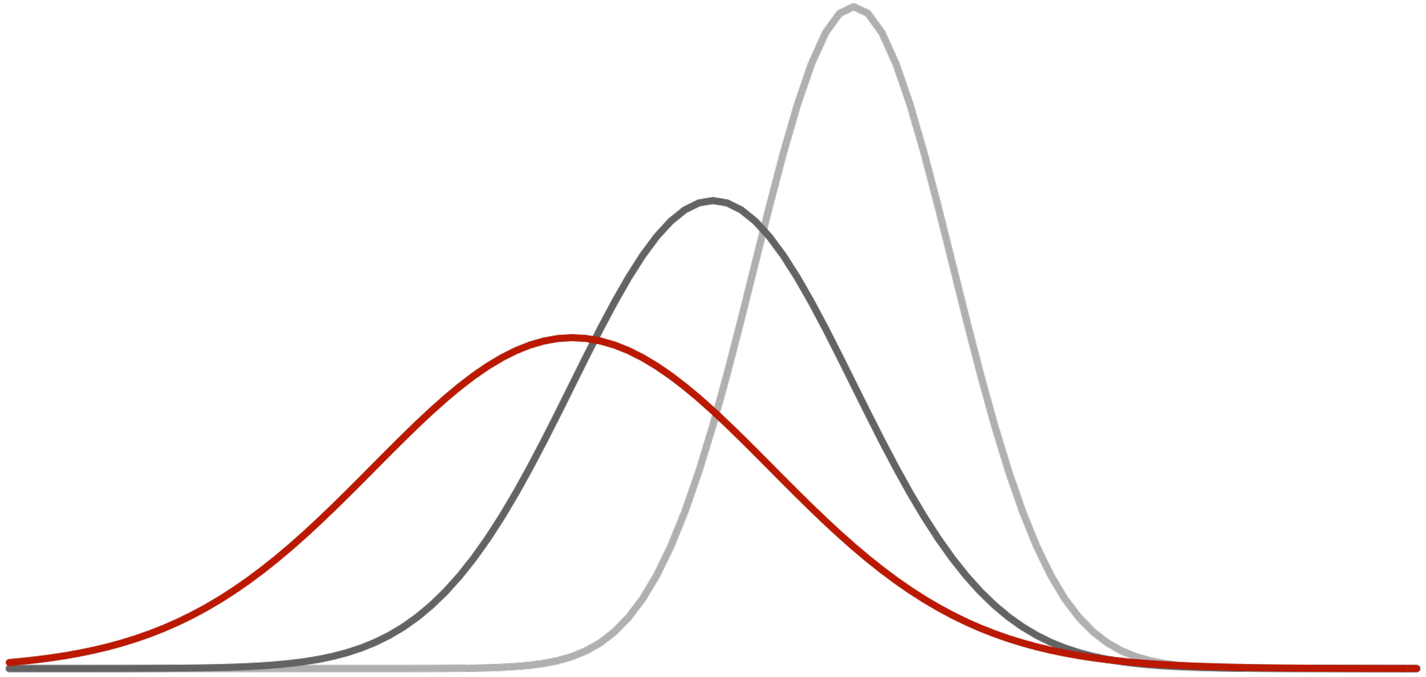

Estimation I: Bias, Variance, and Mean Squared Error

STAT 3202 | OSU | Dalpiaz

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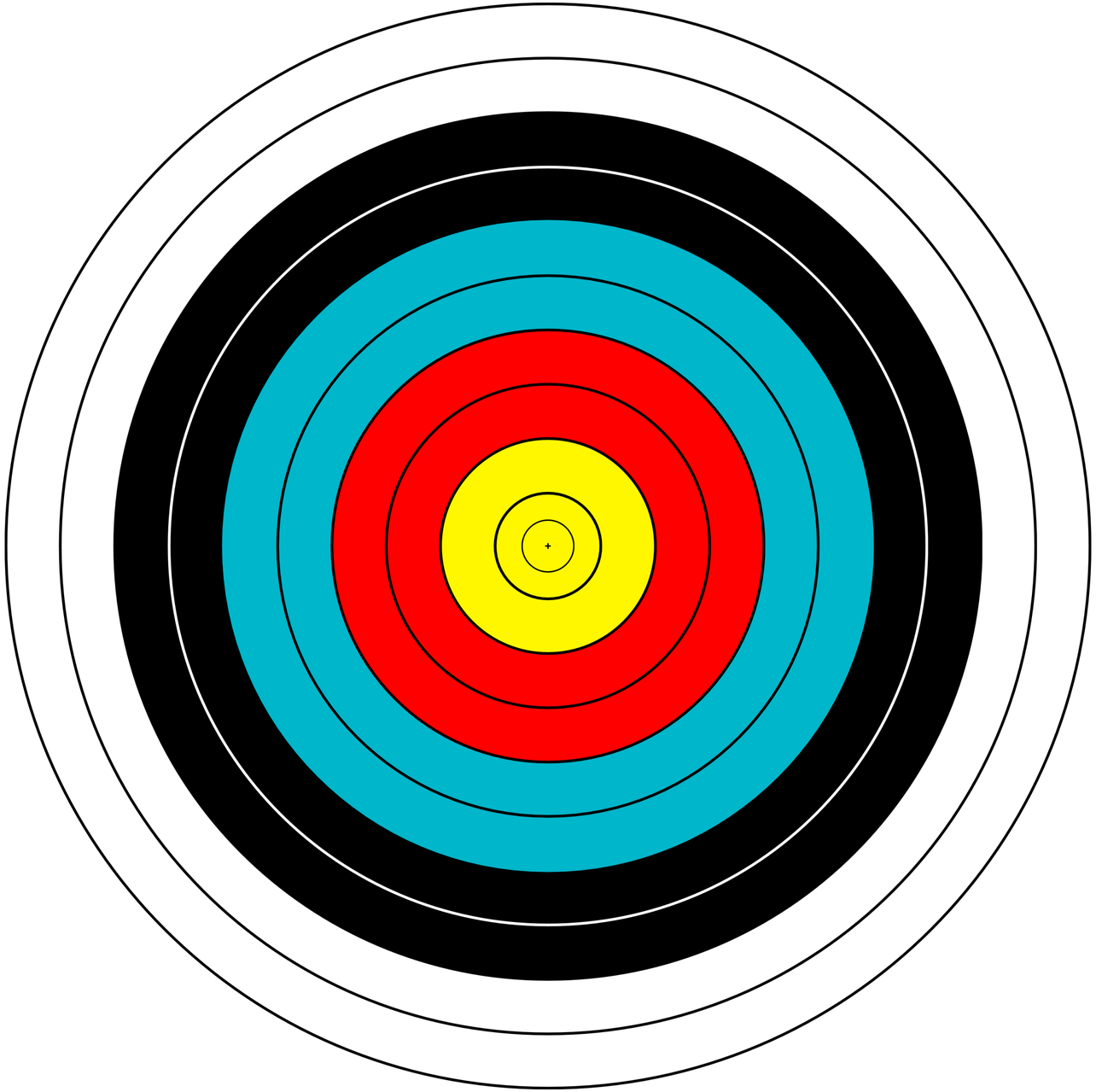

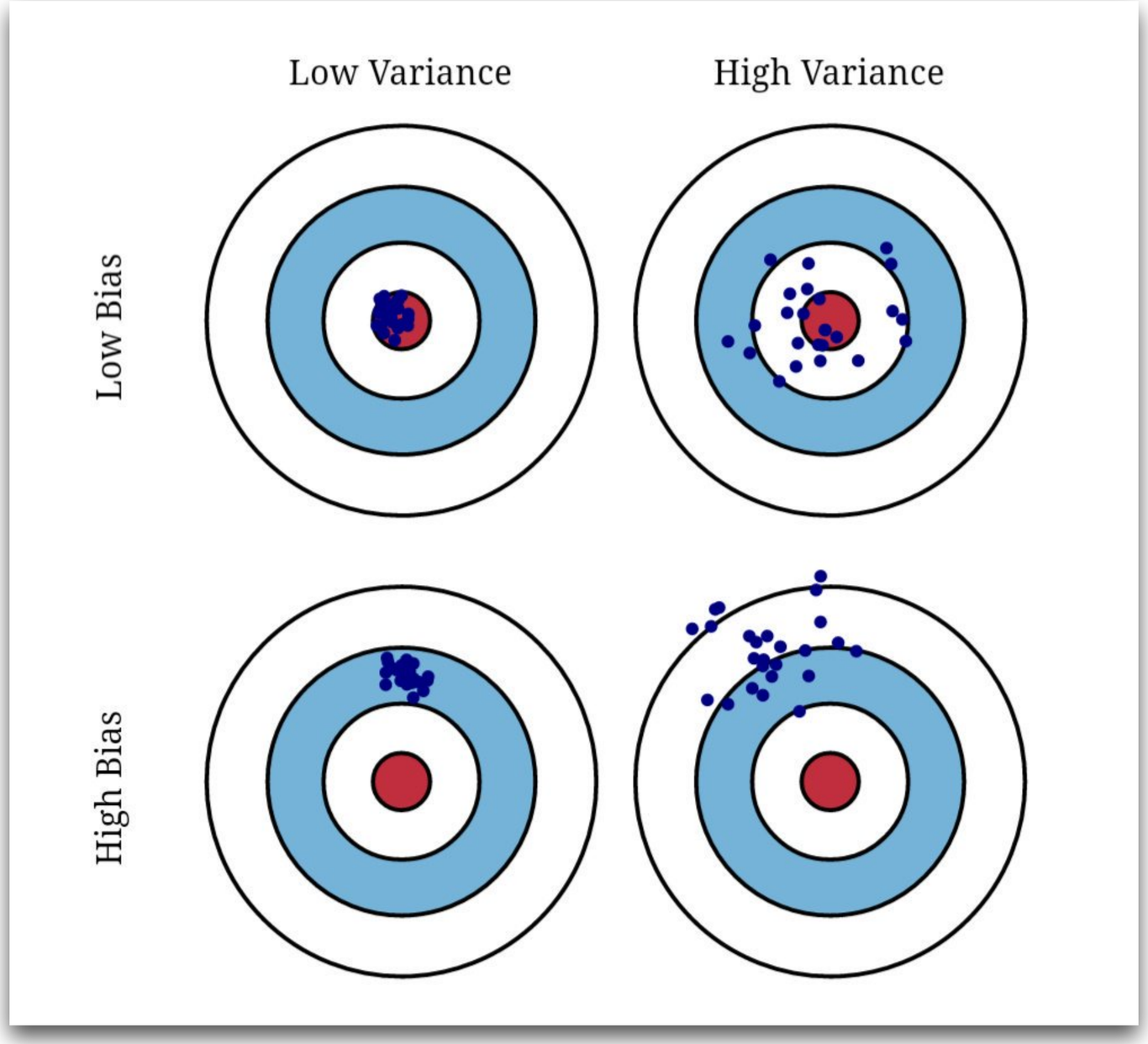
Low Variance
High Variance
Low Bias
High Bias

Definitions

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

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

$$\mathrm{MSE}[\hat{\theta}] = \mathrm{E}[(\hat{\theta} - \theta)^2] = \Big(\mathrm{bias}[\hat{\theta}]\Big)^2 + \mathrm{var}[\hat{\theta}]$$

Note: Grades as Estimation

Questions?

Comments? Concerns?

That's all Folks!