Previously on MA40189:

- aim: inferences about parameter θ given data x

- classical setting: θ is a fixed unknown constant; work with $f(x \mid \theta)$ (a function of the data x for given θ)

- Bayesian approach: θ is treated as random; specify a prior distribution $f(\theta)$ (a function of the parameter θ)

Today on MA40189:

- look more closely at the Bayesian approach and its use of Bayes' theorem:

$$f(\theta \mid x) \;=\; \frac{f(x \mid \theta)f(\theta)}{f(x)} \;\propto\; f(x \mid \theta)f(\theta)$$

- updating rule is thus:

$$\text{Posterior} \propto \text{Prior} \times \text{Likelihood}$$

- look at using Bayes' theorem for general random variables X and Y