Chapter 3

Probability[1]

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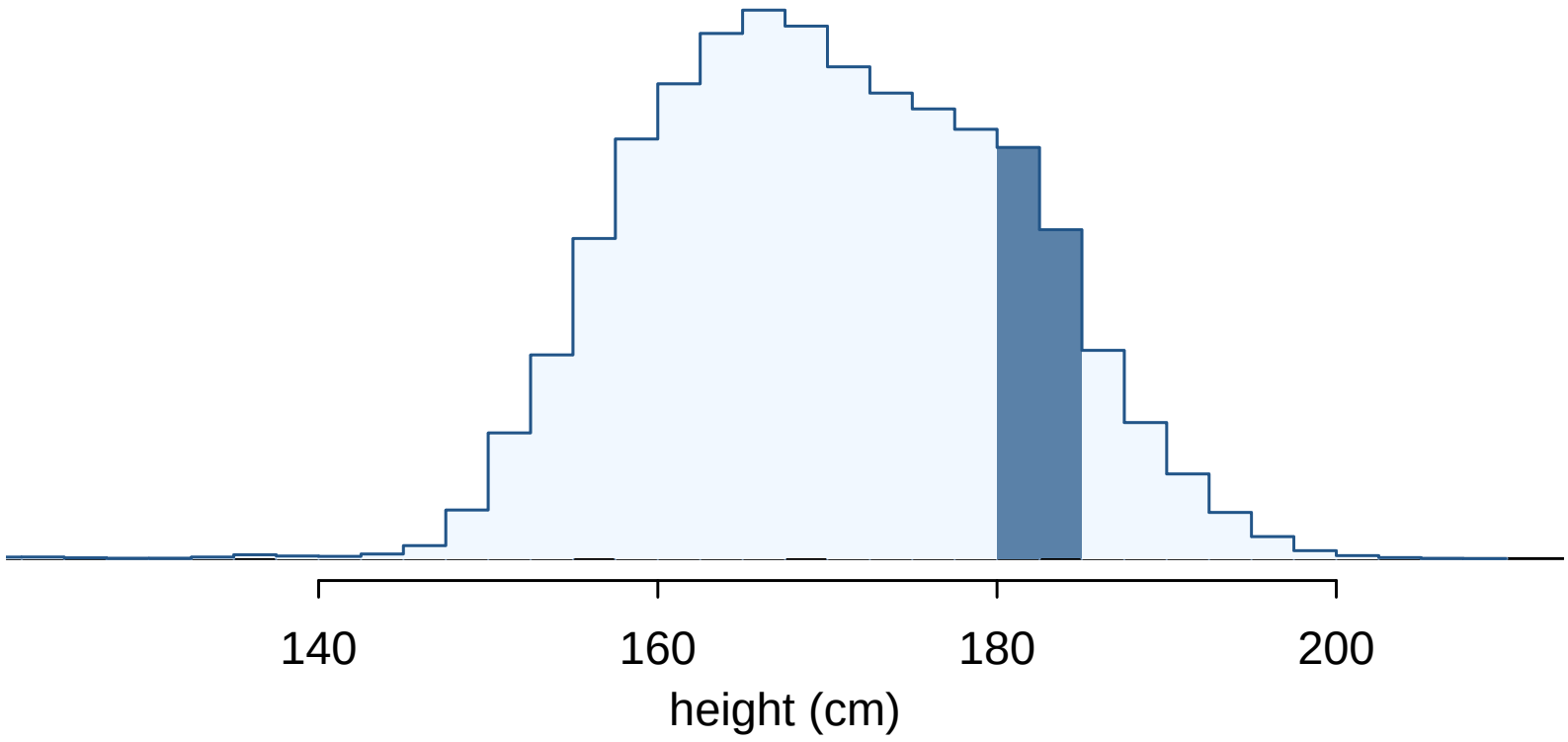
[1] These notes use content from OpenIntro Statistics Slides by Mine Cetinkaya-Rundel.

Continuous distributions

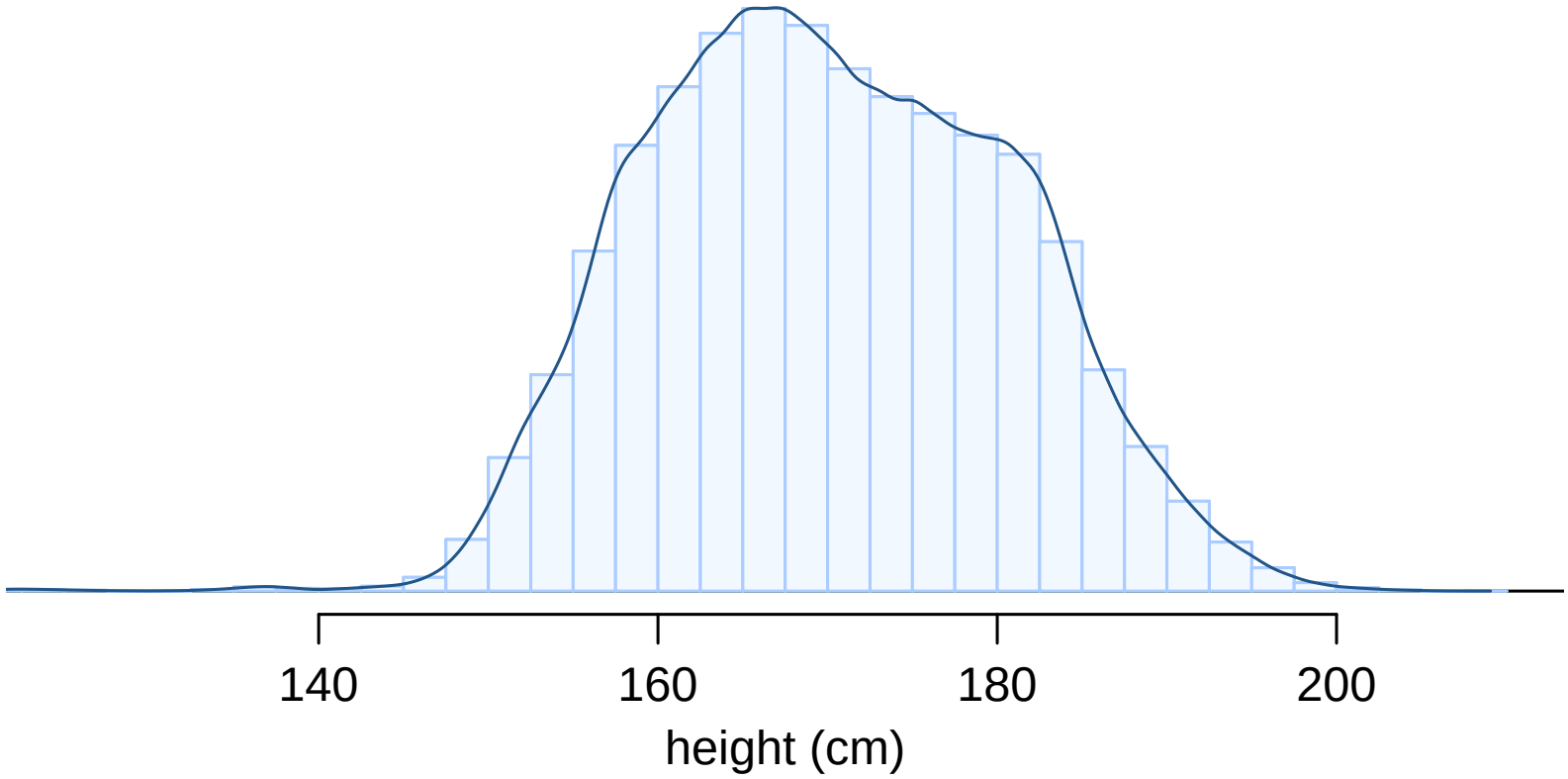
Continuous distributions

- Below is a histogram of the distribution of heights of US adults.
- The proportion of data that falls in the shaded bins gives the probability that a randomly sampled US adult is between 180 cm and 185 cm (about 5'11" to 6'1")



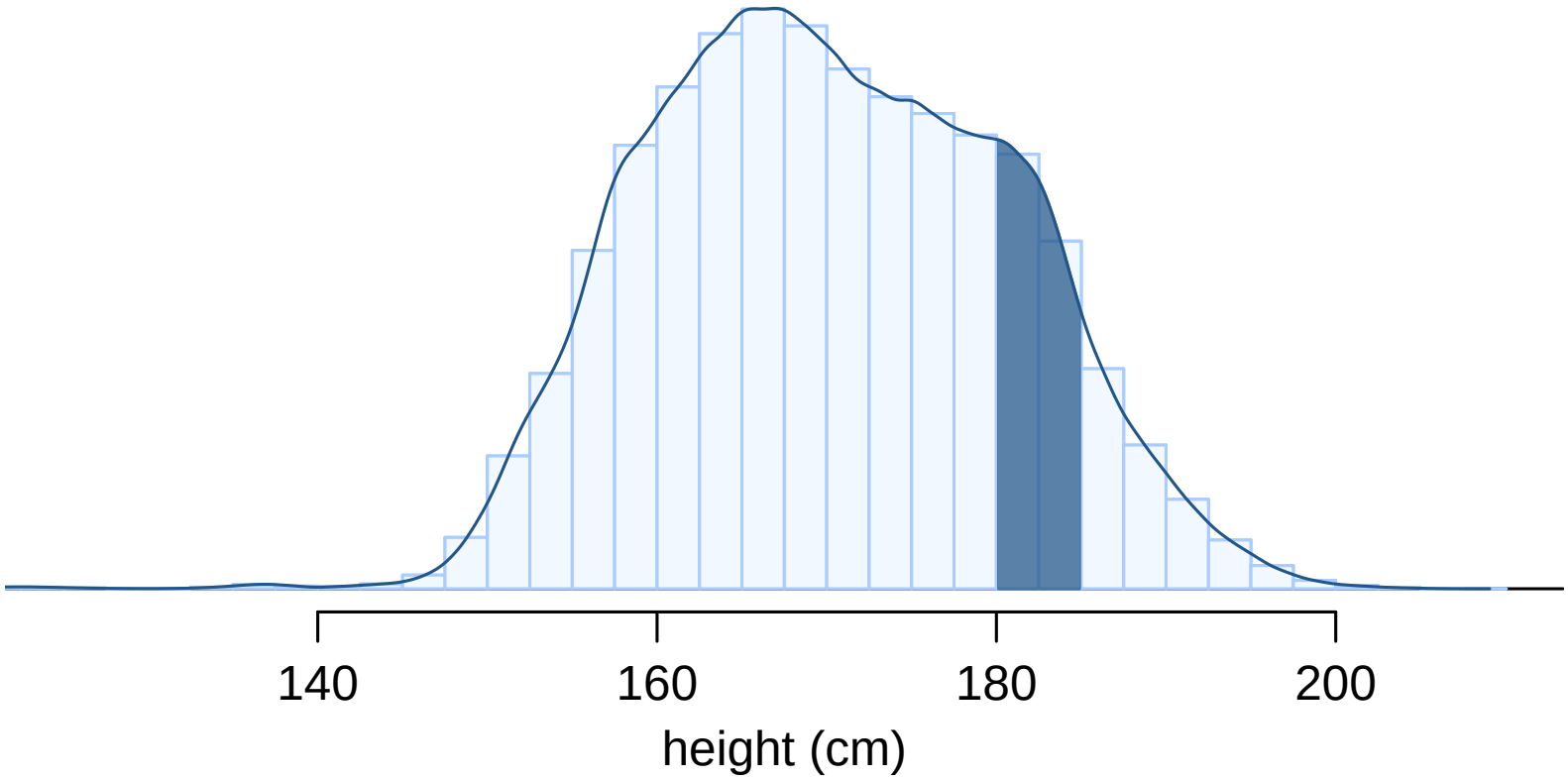
From histogram to continuous distributions

Since height is a continuous numerical variable, its **probability density function** is a smooth curve.



Probabilities from continuous distributions

Therefore, the probability that a randomly sampled US adult is between 180 cm and 185 cm can also be estimated as the shaded area under the curve.



By definition...

Since continuous probabilities are estimated as "the area under the curve", the probability of being exactly 180 cm (or any exact value) is defined as **0**.