Statistical Graphics:
Understanding Quantiles

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Engineering
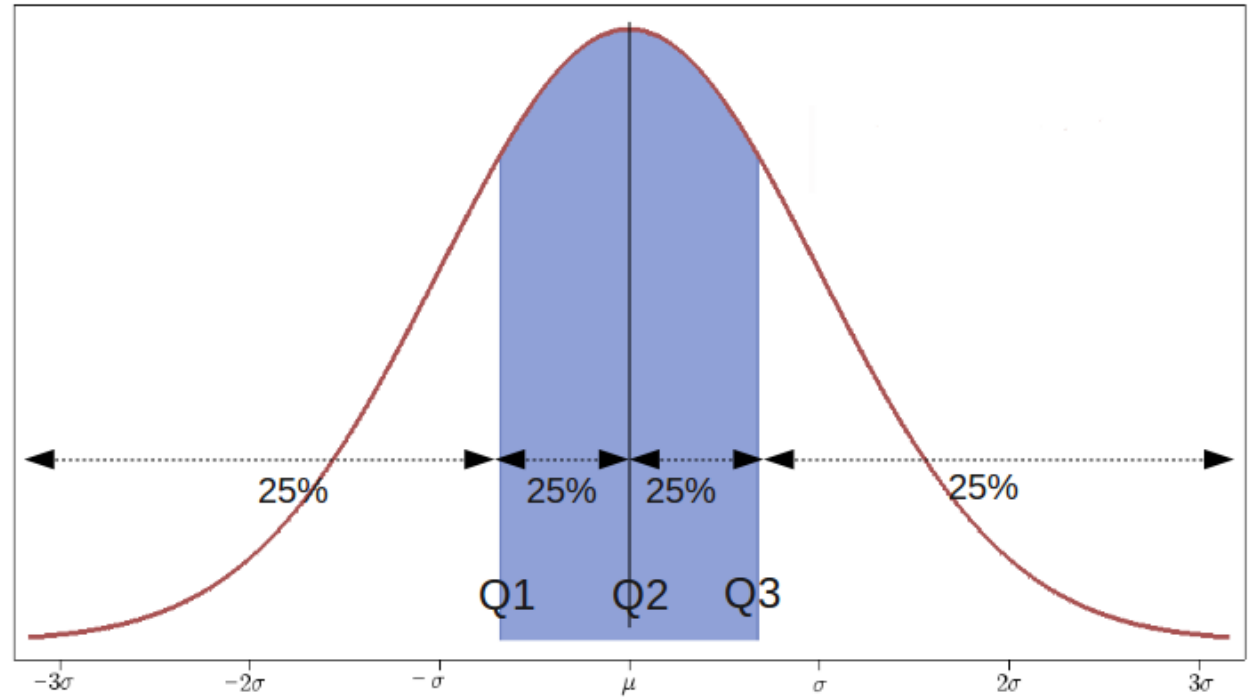**Arizona State University**

Objective

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Understand how to create and use Box-plots and Q-Q Plots

Quantiles

Quantiles – points taken at **regular intervals** from the **cumulative distribution** function of a random variable

Calculating Quantiles

Distribution of at-bats

587	547	471	470	596	587	599	525	619	463	543	554	591	554	580	517	579	569	514	589

Calculate Quantiles

| 463 | 470 | 471 | 514 | 517 | 525 | 543 | 547 | 554 | 554 | 569 | 579 | 580 | 587 | 587 | 589 | 591 | 596 | 599 | 619 |

Quantiles

Useful measures because they are less susceptible to long-tailed distributions and outliers.

May be more descriptive statistics than means and other moment-related statistics.

Quantiles of a random value are preserved under increasing transformations.

Can be used where only ordinal data are available.