

# 6 STATISTICAL TOOLS FOR ANALYTICS

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# 1. Bayesian Inference

Stop ignoring your gut feeling. Bayesian methods combine your prior beliefs with new data. Essential when situations keep changing.

**Example:** Updating your fraud model as new scams pop up.

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# 2. Hypothesis Testing & p-values

Is your result legit or just luck?  
Hypothesis tests give clarity.  
Understand p-values or risk chasing  
ghosts.

**Example:** Checking if that new website  
tweak actually boosts sales.

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# 3. Confidence Intervals

One number won't tell the full story.  
Confidence intervals give you a range to trust—not guess.

**Example:** Estimating how many users will actually convert, within a realistic range.

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# 4. Linear and Logistic Regression

Basic doesn't mean boring. These are the bread-and-butter tools that let you predict what's next. Also, they are my go-to tools for descriptive analytics.

**Example:** Predicting house prices or who's likely to unsubscribe.

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# 5. Confusion Matrix, Precision & Recall

“Accuracy” alone is misleading.  
Precision and recall show where your  
model truly stands.

**Example:** Evaluating medical tests  
where a missed diagnosis matters  
more than accuracy alone.

# 6. ROC Curves and AUC

Every decision involves trade-offs.  
ROC curves show what happens when you shift your standards.

**Example:** Comparing two models for loan approvals and balancing false positives against true positives.

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