# Grading Rubric – Homework #5: ARIMA Forecasting

Total Points: 100  
Course: Forecasting 301

## Problem 1: Explore & Visualize – 25 pts

* 5 pts – Load dataset with proper PeriodIndex
* 5 pts – Clear time‑series line chart with labeled axes
* 8 pts – Accurate narrative on trend and seasonality
* 4 pts – Discussion of variance/stationarity
* 3 pts – ACF & PACF plots and correct initial interpretation

## Problem 2: Decompose & Difference – 20 pts

* 5 pts – STL or classical decomposition executed
* 5 pts – Justified choice of non‑seasonal differencing d
* 5 pts – Justified choice of seasonal differencing D
* 5 pts – Evidence (plots/stats) supporting choices

## Problem 3: Model Selection – 25 pts

* 5 pts – Hold‑out split: last 24 months
* 5 pts – Model search (auto\_arima or manual grid) documented
* 5 pts – Model selected using information criteria (lowest AIC/BIC)
* 5 pts – Residual diagnostics (Ljung‑Box, QQ plot) performed
* 5 pts – Clear interpretation of model coefficients & diagnostics

## Problem 4: Forecast & Evaluate – 30 pts

* 6 pts – 12‑step forecast with 80 % & 95 % intervals
* 6 pts – Plot forecasts vs actuals, clearly labeled
* 6 pts – Compute RMSE and MAPE on hold‑out
* 6 pts – Baseline comparison (e.g., naive seasonal) discussed
* 6 pts – Thoughtful discussion on model limitations & improvements

A submission scoring 90 – 100 demonstrates flawless execution, clear explanations, and professional presentation. A 70 – 79 meets basic requirements but shows gaps in diagnostics or discussion. Below 60 lacks core analyses or has major conceptual errors.