Session 4 Handout: Forecasts and AI-Assisted Analysis

FAST-05 Applied Data Science and ML for Business Users · 7formations · Instructor: Wadood Chaudhary · All examples fictional

Why this session matters

Forecasts drive staffing, inventory, and cash. A point forecast hides how uncertain it is, and models don't know what your sales team heard yesterday. This session covers reading forecast ranges, measuring error, deciding when a person should override, and using AI analysis tools without trusting them blindly.

Key concepts

1. Forecast ranges

A forecast like "1,330 (80% range 1,120-1,540)" means: the middle estimate is 1,330, and in roughly 8 of 10 similar months actual demand should fall in the range. Plan around the range: buffer stock, overtime options, or supplier flexibility toward the high end when stockouts are costly.

2. Measuring forecast error

Measure	How	Use
Absolute error	|Actual − Forecast|	Per period
MAE	Average of absolute errors	Typical miss, in units
% error	Absolute error / Actual	Compare items of different sizes
Outside range	Actual < Low or > High	Signal to investigate

Measure separately before and after known changes; a single MAE can hide a shift.

3. When a person should override

Override when you have **specific, new information the model doesn't**: a confirmed contract, a plant shutdown, a promotion, a supplier failure. Don't override on a hunch. Every override gets a log: original, new value, reason, source, approver, review date. Then compare overridden and original forecasts against actuals.

4. AI-assisted analysis

Tool	Useful for
Excel Forecast Sheet	Quick statistical forecast with a range (needs enough history)
Copilot in Excel	Plain-language questions, formula columns, highlights
Power BI	Copilot summaries; anomaly detection; key influencers
ChatGPT data analysis / Gemini in Sheets	Profiling, calculations, charts with shown working

Rules: name the table and columns; ask a specific question; ask it to show the formula or calculation; **confirm one finding by hand**. Feature availability varies by license and changed during 2026; confirm in your tenant.

Worked example: Bayside BP-2207

Month	Forecast	Range	Actual	Abs error	Outside?
Jan	1,200	1,050-1,350	1,180	20	No
Feb	1,220	1,060-1,380	1,250	30	No
Mar	1,250	1,080-1,420	1,310	60	No
Apr	1,270	1,090-1,450	1,240	30	No
May	1,290	1,100-1,480	1,620	330	Above
Jun	1,310	1,110-1,510	1,700	390	Above

MAE Jan-Apr = 35; May-Jun = 360. **Manual check** of the AI's "average actual = 1,383": 8,300 / 6 = 1,383.3 ✓.

Override: Sales confirmed Granite State Hydraulics' new program (+~350/month from May). July forecast 1,330 → override **1,680**. Logged: source = sales confirmation; approver = operations manager; review = August actuals.

Checklist: forecast review

- ☐ Range read, not just the point.
- ☐ Errors computed; outside-range months flagged.
- ☐ Error measured before/after known changes.
- ☐ One AI finding confirmed by hand.
- ☐ Override only with new information; logged.
- ☐ Override reviewed against actuals.

Do and don't

Do	Don't
Plan to the range	Treat the point as certain
Investigate out-of-range actuals	Delete "odd" months
Override with logged evidence	Override on hunches
Ask the tool to show its working	Paste AI numbers into plans unchecked
Note when history is too short	Trust a forecast from six data points

Try this at work

1. Pull six to twelve months of forecast vs. actuals for one item.

2. Compute errors and flag outside-range months.
3. Ask an AI tool for the MAE, then check it.
4. Start an override log.

Glossary

Term	Meaning
Point forecast	Single middle estimate
Forecast range (interval)	Span likely to contain the actual
MAE	Mean absolute error
Override	Human replacement of a forecast value with a logged reason
Forecast Sheet	Excel feature producing a forecast with confidence bounds

Key takeaways

- Plan around ranges, not points.
- Override with new information, and log it.
- Confirm one AI finding by hand every time.