FAST-11 Lab Guide: AI-Assisted Analytics and Business Intelligence

FAST-11 AI-Assisted Analytics and Business Intelligence · 7formations · Instructor: Wadood Chaudhary · All companies and data are fictional

Five labs, one per session. Each produces a worksheet (W1 to W5) that feeds the capstone dashboard and data story. Tool tracks: **Microsoft** (Excel with Copilot, Power BI with Copilot), **Tableau** (Tableau Cloud with Tableau AI and Pulse), or **alternate** (ChatGPT data analysis or Gemini in Google Sheets). The instructor runs only the employer's approved tool. Note: Power BI Q&A is scheduled to retire in February 2027; labs use Copilot for Power BI for natural-language questions.

0. Rules for every lab

1. **Fictional data only.** Files come from the course folder. Never load customer personal information (G.L. c. 93H), PHI, or confidential financials into class tools.
2. **Keep the raw file untouched.** Work on a copy or in query steps.
3. **Every AI answer is a claim** until you check it with a formula, pivot, or second method.
4. **Log everything** you change, ask, or fix on the worksheet.

Datasets (all fictional): `bayside-scrap-q3.xlsx` (Bayside Precision Parts, Worcester County: 412 rows, July to September 2026), `bayside-scrap-raw-excerpt.csv` (20 rows), `crfd-schedule-deid.csv` (Charles River Family Dental, de-identified), `cape-harbor-bookings.csv` (Cape Harbor Inn), `pvm-renewals.xlsx` (Pioneer Valley Mutual, fictional names).

Lab 1 (Session 1): Scrap log cleanup

Objective: O1. **Time:** 60 minutes. **Deliverable:** W1 Transformation log.

Raw excerpt (`bayside-scrap-raw-excerpt.csv`)

#	date	machine	part	qty	unit_cost	reason
1	2026-07-02	VF-4	BP-2207	6	18.40	tool break
2	07/02/2026	VF4	BP-2207	6	18.40	tool break
3	2026-07-03	vf 4	BP-1150	2	42.00	dimension
4	2026-07-03	Lathe-2	BP-3300		9.75	finish
5	2026-07-05	Lathe-2	BP-3300	3	9.75	Finish
6	2026-07-06	VF-4	BP-2207	60	18.40	dimension
7	2026-07-08	Mill-1	BP-4410	4	27.10	setup

#	date	machine	part	qty	unit_cost	reason
8	2026-07-09	Mill-1	BP-4410	1	27.10	"Setup "
9	2026-07-10	VF-4	BP-1150	3	42.00	tool break
10	2026-07-13	Lathe-2	BP-3300	5	9.75	finish
11	2026-07-14	VF-2	BP-5120	2	55.60	material
12	2026-07-15	VF-4	BP-2207	4	18.40	vibration
13	2026-07-16	Mill-1	BP-4410	2	27.10	dimension
14	7/17/2026	VF-2	BP-5120	1	55.60	material
15	2026-07-20	VF-4	BP-2207	5	18.40	vibration
16	2026-07-21	Lathe-2	BP-3300	2	9.75	finish
17	2026-07-22	VF-4	BP-1150	2	42.00	vibration
18	2026-07-23	Mill-1	BP-4410	3	27.10	setup
19	2026-07-24	VF-2	BP-5120	1	55.60	dimension
20	2026-07-24	VF-4	BP-2207	3	18.40	tool break

Steps

1. Ask the AI to list data-quality problems and propose formulas or query steps (activity F11-S1-A3 prompt). Do not accept a "cleaned file."
2. Apply each fix yourself (formula, Find and Replace with a log, or Power Query step).
3. For blanks and outliers, check the "source record" card from the instructor (it plays the shift lead). Never guess.
4. Log each step on W1: step, what changed, rows affected, reason, method.
5. Swap logs with a partner; they repeat your steps on a fresh copy and compare totals.

W1 template

Step	What changed	Rows affected	Reason	Method (formula / step)

Lab 2 (Session 2): Ten questions, three verified

Objective: O2. **Time:** 60 minutes. **Deliverable:** W2 Question-and-verify log.

Use `bayside-scrap-q3.xlsx` (412 rows, already cleaned).

Steps

1. Ask ten specific questions (measure, period, filter) in Copilot, Tableau AI, or ChatGPT data analysis. Ask it to show the calculation.

2. Pick three answers and verify each with a pivot, SUMIFS, or COUNTIFS. Include one question about a share and one about a change over time.
3. Record match or mismatch; for each mismatch, find the cause.

W2 template

#	Question	AI answer	Check method	Check result	Match?	Cause if not

Lab 3 (Session 3): Visual clinic and dashboard draft

Objective: O3. **Time:** 75 minutes. **Deliverable:** W3 Chart fix sheet and dashboard draft.

Part 1: Fix five AI-drafted charts (30 minutes)

Chart	As drafted	Your fix
C1	Bar chart of Q3 scrap by machine, y-axis starts at $1,000	
C2	Pie chart of weekly no-shows at Charles River Family Dental, 26 slices	
C3	3D column chart of Cape Harbor Inn monthly room-nights, 12 colors	
C4	Line chart of scrap cost with no axis titles, title "Chart 1"	
C5	Line chart connecting machines VF-4, Mill-1, VF-2... as if they were time	

Part 2: Dashboard draft (45 minutes)

Pick one reader and three questions (activity F11-S3-A3). Use Copilot for Power BI or Tableau AI to draft a page, then edit: at least four visuals, one takeaway title each, consistent colors, clear filters. Check every number against W2. Get feedback from a partner: "Which question could you not answer in 10 seconds?"

Meets on W3: five fixes correct; dashboard has 4+ visuals matched to questions; all numbers match W2; partner feedback recorded and acted on.

Lab 4 (Session 4): Data story with fact-check

Objective: O4. **Time:** 60 minutes. **Deliverable:** W4 Data story fact-check.

AI draft to fact-check

> "Scrap skyrocketed in Q3, driven mostly by VF-4, which is responsible for the majority of losses. Tool breaks were the main cause across the shop. The new coolant introduced in August is clearly to blame. September was the worst month on record. Costs will keep rising unless we replace VF-4."

Steps

1. Underline every claim. Trace each to W2 or a chart; mark Supported, Overstated, or Unsupported.

2. Rewrite to lead with the answer and action, three points, uncertainty stated, ending with the decision needed.

Lab 5 (Session 5): Permissions lab and capstone

Objective: O5 (plus capstone). **Time:** 30 minutes lab, then presentations. **Deliverable:** W5 Sharing checklist; capstone.

Permissions scenario (`pvm-renewals.xlsx` , fictional)

Pioneer Valley Mutual's renewal report includes policyholder names, renewal dates, premium, and agent. Six agents should see only their own clients; the agency principal sees all; an outside marketing contractor wants "a copy."

W5 Sharing checklist

- ☐ Classify: personal or confidential data present? Which label?
- ☐ Audience: who needs it, and to do what (view or edit)?
- ☐ Access: Viewer role or app audience; no edit for readers
- ☐ Rows: RLS needed? Roles defined and tested with "View as"?
- ☐ Exports: label travels; export settings appropriate
- ☐ Refresh: schedule and last refresh shown on the page
- ☐ Public links: none

Capstone presentation (5 minutes each)

Question → answer with one number → how you verified it → the dashboard (4+ visuals) → the data story → sharing setup → decision needed. Scored with the capstone rubric in projects.md.