

Overview of ALT 2: Introduction to Analytics in Interdisciplinary Contexts

80 minutes (2 periods)

Applied Learning Tasks (ALTs)

Outcome 3.4

Outcome 3.5

Outcome 3.6

Outcome 3.7

Outcome 1.20

Outcome 1.23

Outcome 1.11

WHAT THIS LESSON DOES

As a student, you'll explore the essentials of analytics in this lesson. Learn about the task, review key skills, understand applications across disciplines, brainstorm hypotheses, form teams, and reflect on societal impacts.

CURRICULUM OUTCOMES

Outcome	What the specification asks for
3.4	develop algorithms that can find the frequency, mean, median and mode of a data set
3.5	structure and transform raw data to prepare it for analysis
3.6	represent data to effectively communicate in a graphical form
3.7	use algorithms to analyse and interpret data in a way that informs decision-making
1.20	collaborate and assign roles and responsibilities within a team to tackle a computing task
1.23	reflect and communicate on the design and development process
1.11	discuss the complex relationship between computing technologies and society including issues of ethics

WHAT STUDENTS SHOULD BE ABLE TO DO

- Understand the fundamental concepts and applications of analytics across interdisciplinary contexts.
- Apply prior data processing and algorithmic skills to develop an analytics artefact.
- Collaborate effectively in teams to brainstorm, plan, and execute a data-driven project.
- Create and interpret visual representations of data to support decision-making.
- Reflect on the societal impacts and ethical considerations of analytics in real-world scenarios.

BEFORE THE LESSON

- This is a discussion and planning lesson, so no environment needs testing. Have a shared document or folder ready where each team can save its hypothesis, roles and plan so the work survives to the next session.
- Decide your team-size policy in advance (the lesson suggests 2 to 4) and have a plan for students who cannot easily find a group.
- Be clear yourself on the required analytics elements students must eventually deliver: frequency, mean, median, mode, structured data, a graph and interpretation.

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HOW THE LESSON RUNS

Introduction

Reviewing Key Concepts

Understanding the Task Requirements

Forming Your Team

Brainstorming Ideas

Planning Your Project

Reflection Time

TEACHING MOVES

- 1. Introduction. Frame ALT 2 as an in-class team task, not the externally assessed Coursework Project. Give the two worked examples (environmental trends, sports stats) so students see analytics as processing data to inform a decision, not just making charts.
- 2. Reviewing Key Concepts. Pull the review back to concrete recall: ask students to name a data type that holds a dataset and write the header of a function that returns a mean. Confirm the class can already do this before moving on.
- 3. Understanding the Task Requirements. Read out the mandatory list: frequency, mean, median, mode, structured data, a graph, and interpretation. Stress that interpretation, saying what the numbers mean for a decision, is the part students most often leave out.
- 4. Forming Your Team. Push teams to assign named roles now, data gatherer, algorithm writer, visualiser, so nobody rides along. Write the roles into the shared plan so they can be checked next session.
- 5. Brainstorming Ideas. Insist each hypothesis is testable and that the data to test it is actually gettable in class. Kill vague ideas early by asking: where does the data come from and how many values will you have?
- 6. Planning Your Project. Have each team state the hypothesis and name which required statistic tests it. If they cannot connect the goal to a calculation, the plan is not finished yet.
- 7. Reflection Time. Draw out both sides: analytics informing good policy versus data privacy and misinformation risks. Keep it spoken. Give a concrete pairing like health data helping treatment versus the same data leaking.

WHAT TO WATCH FOR

- Students think analytics means producing a nice-looking chart, and stop once a graph appears. Insist that every visual is followed by a sentence saying what it means for the hypothesis. A chart with no interpretation is incomplete work.
- Students pick a hypothesis with no realistic way to get the data, so the project stalls later. At the brainstorm stage make each team answer where the data comes from and roughly how many values they can gather before you approve the idea.
- Students confuse this Applied Learning Task with the externally assessed Coursework Project. State plainly that ALT 2 is a formative in-class team task and is not the graded 30% project.

DIFFERENTIATION

- Emerging: Give a ready-made hypothesis and a small provided dataset so the student can join a team with a clear starting point rather than a blank page. Pair them with a partner and assign a single concrete role such as data gatherer.
- Developing: Ask them to justify which statistic (mean, median or mode) best answers their hypothesis, not just to list all three. Have them sketch the intended graph type and label its axes before any coding begins.
- Proficient: Push toward a Higher Level treatment: ask why median might be more honest than mean for their dataset, or where an outlier would distort results. Have them draft the ethics reflection as written evidence they can reuse when documenting the finished artefact.