

# BCB744 Biostatistics Exam – Assessment Template

Smit, A. J.

2025-05-31

## Student Information

- **Student Name:** \_\_\_\_\_
- **Student ID:** \_\_\_\_\_

## I. Task-by-Task Assessment & Scoring

### Task 1: Initial Processing (Weight: 10%)

#### Components:

- **1.1: Reading NetCDF**
- **1.2: Restructuring Data**

#### Scoring Scheme (per component):

- Correct output shown: **assign 100**
- Penalty: Incorrect variable naming (max -30): \_\_\_\_\_
- Penalty: Poor presentation or formatting (max -20): \_\_\_\_\_

#### Task Summary:

- **Average Task 1 Raw Score (0–100):** \_\_\_\_\_
- **Task 1 Weighted Score (/10):** \_\_\_\_\_
- **Final Task 1 Score ( $\times 0.10$ ):** \_\_\_\_\_

#### Narrative Feedback (Task 1):

---

---

## Task 2: Exploratory Data Analysis (Weight: 10%)

### Component 2.1: Weighted Mean Time Series (Two Parts)

- (1) Correct summary plot for weighted mean time series: **assign 35**
  - Penalty: Missing year  $\times$  quarter aggregation (max -10): \_\_\_\_\_
  - Penalty: No exclusion of passes = 0 or area = NA (max -10): \_\_\_\_\_
  - Plot correctness: **assign 15**
  - Penalty: Poor formatting (max -10): \_\_\_\_\_
- (2) Correct pixel-level temporal analysis: **assign 35**
  - Penalty: Fewer than 100 samples (max -10): \_\_\_\_\_
  - Penalty: Missing year  $\times$  quarter  $\times$  pixel structure (max -10): \_\_\_\_\_
  - Plot correctness: **assign 15**
  - Penalty: Poor formatting (max -10): \_\_\_\_\_

**Component 2.1 Score (0–100):** \_\_\_\_\_

### Component 2.2: Summary Statistics & Visualisations

- (1) Statistical summaries: **assign 50**
  - Penalty: Incorrect grouping (max -15): \_\_\_\_\_
  - Interpretation quality: (max 20): \_\_\_\_\_
- (2) Plotting: **assign 30**
  - Penalty: Poor formatting (max -20): \_\_\_\_\_

**Component 2.2 Score (0–100):** \_\_\_\_\_

### Component 2.3: Observation Density Map

- Plot correctness: **assign 100**
  - Penalty: Poor formatting (max -50): \_\_\_\_\_

**Component 2.3 Score (0–100):** \_\_\_\_\_

### Task Summary:

- **Average Task 2 Raw Score (0–100):** \_\_\_\_\_

• **Task 2 Weighted Score (/10):** \_\_\_\_\_

• **Final Task 2 Score ( $\times 0.10$ ):** \_\_\_\_\_

**Narrative Feedback (Task 2):**

---

---

### **Task 3: Inferential Statistics – Part I (Weight: 20%)**

**Components:**

• **3.1: Hypothesis Structure:** Raw Score: \_\_\_\_\_

• **3.2: Model Choice & Implementation:** Raw Score: \_\_\_\_\_  
– *Penalty: Overcomplication not justified (e.g., unmotivated LMMs):* \_\_\_\_\_

• **3.3: Justification & Assumptions:** Raw Score: \_\_\_\_\_

• **3.4: Interpretation & Presentation:** Raw Score: \_\_\_\_\_  
– *Penalty: Poor writing or code/text blending:* \_\_\_\_\_

**Task Summary:**

• **Average Task 3 Raw Score (0–100):** \_\_\_\_\_

• **Final Task 3 Score ( $\times 0.20$ ):** \_\_\_\_\_

**Narrative Feedback (Task 3):**

---

---

### **Task 4: Assigning Kelp Observations (Weight: 20%)**

**Components:**

• **4.1: Coastal Sections Assignment** (70% of Task 4): Raw Score: \_\_\_\_\_

• **4.2: Biogeographical Provinces Assignment** (30%): Raw Score: \_\_\_\_\_

**Weighted Average Task 4 Score:**

•  $(4.1 \times 0.70 + 4.2 \times 0.30)$ : \_\_\_\_\_

**Final Task 4 Score ( $\times 0.20$ ):** \_\_\_\_\_

**Narrative Feedback (Task 4):**

---

---

## Task 5: Inferential Statistics – Part II (Weight: 30%)

### Components:

- **5.1: Section-wise Differences:** Raw Score: \_\_\_\_\_
  - Bonus: TukeyHSD (+5): \_\_\_\_\_
  - Penalty: Overcomplicated method (e.g., unmotivated LMM): \_\_\_\_\_
- **5.2: Province-wise Differences:** Raw Score: \_\_\_\_\_
  - Bonus: TukeyHSD (+5): \_\_\_\_\_
  - Penalty: Overcomplicated method: \_\_\_\_\_
- **5.3: Interaction (Section  $\times$  Province):** Raw Score: \_\_\_\_\_
  - Penalty: Overcomplicated method: \_\_\_\_\_
- **5.4: Temporal Trend by Province:** Raw Score: \_\_\_\_\_
  - Penalty: Overcomplicated method: \_\_\_\_\_
- **5.5: Seasonal Variability across Provinces:** Raw Score: \_\_\_\_\_
  - Penalty: Overcomplicated method: \_\_\_\_\_

### Task Summary:

- **Average Task 5 Raw Score (0–100):** \_\_\_\_\_
- **Final Task 5 Score ( $\times 0.30$ ):** \_\_\_\_\_

### Narrative Feedback (Task 5):

---

---

## Task 6: Final Write-up (Weight: 10%)

### Scoring Scheme:

- **Clarity & Communication** (report organisation, flow, language): \_\_\_\_\_ /70
- **Critical Thinking** (limitations, implications, insight): \_\_\_\_\_ /30
- **Penalty:** AI-generated text (-50%) or similar issues: \_\_\_\_\_

**Total Task 6 Score (after deductions):** \_\_\_\_\_

**Final Task 6 Score ( $\times 0.10$ ):** \_\_\_\_\_

### Narrative Feedback (Task 6):

---

---

## II. Final Mark Calculation

Task	Weighted Score
Task 1	_____ / 10
Task 2	_____ / 10
Task 3	_____ / 20
Task 4	_____ / 20
Task 5	_____ / 30
Task 6	_____ / 10
<b>Subtotal</b>	_____ / 100

### Global Penalties

- **Formatting / Document Structure (-0 to -15%):** \_\_\_\_\_  
– Reason: \_\_\_\_\_
- **Excess Output (-0 to -15%):** \_\_\_\_\_  
– Reason: \_\_\_\_\_

**Total Global Penalty (%):** \_\_\_\_\_ (max 40%)

**Final Exam Mark:** \_\_\_\_\_ %

> Calculation: Subtotal  $\times$  (1 - Penalty % / 100)

## III. Assessor Summary & Recommendations

- **Strengths:**  
\_\_\_\_\_
- **Weaknesses:**  
\_\_\_\_\_
- **Recommendations for Improvement:**  
\_\_\_\_\_