**CCT College Dublin Continuous Assessment**

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| **Programme Title:** | Statistical techniques for Data Analysis | | |
| **Cohort:** | HDip in Science in Data Analytics for Business (FT) | | |
| **Module Title(s)**: | Statistical Techniques for Data Analysis | | |
| **Assignment Type:** | Individual | **Weighting(s)**: | 45% |
| **Assignment Title:** | Integrated CA | | |
| **Lecturer(s)**: | Aldana Louzan | | |
| **Issue Date:** | 27/04/2022 | | |
| **Submission Deadline Date:** | 20/05/2022 | | |
| **Late Submission Penalty:** | Late submissions will be accepted up to **5** calendar days after the deadline(25/05/2022). All late submissions are subject to a penalty of **10%** of the mark awarded. Submissions received more than 5 calendar days after the deadline above **will not** be accepted and a mark of 0% will be awarded. | | |
| **Method of Submission:** | **Moodle** | | |
| **Instructions for Submission:** | IPYNB file (Jupyter Notebook) & PDF file, dataset when nedeed | | |
| **Feedback Method:** | **Results posted in Moodle gradebook** | | |
| **Feedback Date:** | After Exam Period | | |

**Learning Outcomes:**
Please note this is not the assessment task. The task to be completed is detailed on the next page.
This CA will assess student attainment of the following minimum intended learning outcomes:

1. MIMLO 2: Formulate and test hypotheses within a business context using appropriate statistical techniques and both evaluate and communicate the results effectively to peers and team members. (Linked to PLO 3, PLO 6)
2. MIMLO 3: Apply regression analysis to appropriate datasets and demonstrate an awareness of the limitations of regression models. (Linked to PLO 2)
3. MIMLO 4: Use and understand current software tools and languages to produce result sets from existing data(e.g. Python). (Linked to PLO 4 )

Attainment of the learning outcomes is the minimum requirement to achieve a Pass mark (40%). Higher marks are awarded where there is evidence of achievement beyond this, in accordance with QQI *Assessment and Standards, Revised 2013*, and summarised in the following table:

| Percentage Range | CCT Performance Description | QQI Description of Attainment | |
|---|---|---|---|
| | | **Level 6, 7 & 8 awards** | **Level 9 awards** |
| 90% + | Exceptional | Achievement includes that required for a Pass and in **most** respects is significantly and consistently beyond this | Achievement includes that required for a Pass and in **most** respects is significantly and consistently beyond this |
| 80 – 89% | Outstanding | | |
| 70 – 79% | Excellent | | |
| 60 – 69% | Very Good | Achievement includes that required for a Pass and in **many** respects is significantly beyond this | Achievement includes that required for a Pass and in **many** respects is significantly beyond this |
| 50 – 59% | Good | Achievement includes that required for a Pass and in **some** respects is significantly beyond this | Attains all the minimum intended programme learning outcomes |
| 40 – 49% | Acceptable | Attains all the minimum intended programme learning outcomes | |
| 35 – 39% | Fail | Nearly (but not quite) attains the relevant minimum intended learning outcomes | Nearly (but not quite) attains the relevant minimum intended learning outcomes |
| 0 – 34% | Fail | Does not attain some or all of the minimum intended learning outcomes | Does not attain some or all of the minimum intended learning outcomes |

Please review the CCT Grade Descriptor available on the module Moodle page for a detailed description of the standard of work required for each grade band.

The grading system in CCT is the QQI percentage grading system and is in common use in higher education institutions in Ireland. The pass mark and thresholds for different grade bands may be different from what you have experience of in the higher education system in other countries. CCT grades must be considered in the context of the grading system in Irish higher education and not assumed to represent the same standard the percentage grade reflects when awarded in an international context.

# Assessment Task

Students are advised to review and adhere to the submission requirements documented after the assessment task.

## Assessment Overview:

You **must** create **a notebook in Jupyter Notebooks** to complete the following tasks using your chosen dataset for your first CA.

If you have used a **local dataset**, you **must submit** it with your JN.

All your code should be commented in your JN file.

## First section (30 marks)

Choose **one variable** from your chosen dataset and perform a **Hypothesis Test.** All the steps **must** be supported by appropriate references, statistical concepts, and calculations.

You **must** interpret your results, provide your **own analysis and conclusion** based on your Hypothesis Test.

You will need to conduct **research** to find the parameters of the population you want to analyse.

Some examples:

- ✓ It is believed that the average age to finish High School is 17 years old. Based on this parameter, then you perform a HT to reject or not this hypothesis.
- ✓ It is believed that due to COVID and remote working, workers save 8.5hours on average, then you perform a HT to reject or not this hypothesis.

## Second section (30 marks)

Carry out a **correlation analysis** between **2 variables**. Interpret your results and check if the **correlation implies causation**.

Provide a short **explanation and conclusion** based on your findings.

## Third section (30 marks)

Using the **same 2 variables** in the second section, build a **linear regression model** that allows you to predict information about those variables.

Interpret your results, and provide a short **explanation and conclusion** based on your findings.

## Report (10 marks)

All your answers must be in form of a formal **report in a PDF file**.

The report must include an **introduction** to the selected topic and **conclusion** at the end of the report.

There are some sections that requires conducting some **research,** make sure to use appropriate external references.

All the sections must be answered using **appropriate statistical terms and calculation** (supported with your calculation on the JN file).

You **must** add a **References list** at the end of your CA following the **Harvard Referencing Style**.

**Submission Requirements**

All assessment submissions must meet the minimum requirements listed below. Failure to do so may have implications for the mark awarded.

All assessment submissions must:

- You must submit a IPYNB file
- You must use Markdown Language to format your CA, following a report style
- Be submitted by the deadline date specified or be subject to late submission penalties
- Be submitted via Moodle upload.
- Use Harvard Referencing when citing third party material
- Be the student's own work.
- Include the CCT assessment cover page.

**Additional Information**

- Lecturers are not required to review draft assessment submissions. This may be offered at the lecturer's discretion.
- In accordance with CCT policy, feedback to learners may be provided in written, audio or video format and can be provided as individual learner feedback, small group feedback or whole class feedback.
- Results and feedback will only be issued when assessments have been marked and moderated / reviewed by a second examiner.
- Additional feedback may be provided as individual, small group or whole class feedback. Lecturers are not obliged to respond to email requests for additional feedback where this is not the specified process or to respond to further requests for feedback following the additional feedback.
- Following receipt of feedback, where a student believes there has been an error in the marks or feedback received, they should avail of the recheck and review process and should not attempt to get a revised mark / feedback by directly approaching the lecturer. Lecturers are not authorised to amend published marks outside of the recheck and review process or the Board of Examiners process.
- Students are advised that disagreement with an academic judgement is not grounds for review.
- For additional support with academic writing and referencing students are advised to contact the CCT Library Service or access the CCT Learning Space.
- For additional support with subject matter content students are advised to contact the CCT Student Mentoring Academy
- For additional support with IT subject content, students are advised to access the CCT Support Hub.