

**Level 3 Statistics**

**March 2014**

Full Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Learning Advisor: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

“BACK TO THE FUTURE”

**NCEA Level 3 AS91582 (version 2.0)**

**3.10 Use statistical methods to make a formal inference.**

**Credits: 4**

**Begins: 8:30am on 14 March 2014**

**Written report due: 3:30pm on 21 March 2014**

*Answer all parts of this assessment in the form of a written report. Include in your written report all graphs and computer output.*

**YOU MUST HAND A PRINTED COPY OF YOUR REPORT THAT INCLUDES ALL GRAPHS, COMPUTER OUTPUT, AND WITH APA REFERENCING TO YOUR STATISTICS TEACHER BY 3:30PM ON FRIDAY 21 MARCH 2014. ANY ASSESSMENTS HANDED IN AFTER THIS TIME WILL NOT BE ACCEPTED FOR MARKING.**



**Authenticity Statement.**

It is a requirement that you read and agree with the terms set out in this authenticity statement. Failure to agree with the terms and/or to comply with the terms means a **breach of authenticity**.

Conditions of Authenticity

1. The written report part of this assessment is **open book**, and you are permitted to work on the written report at any time and at any location between 8:30am on Friday 14 March 2014 and 3:30pm on Friday 21 March 2014.
2. All work submitted as part of this assessment must be solely your own.
3. The written report must be submitted before 3:30pm on Friday 21 March 2014.
4. In all work submitted as part of this assessment, there must not be a **significant duplication** of:

i . Any other student’s work that is submitted as part of this assessment,

1. Any other student’s work that is not part of this assessment (e.g. exemplars),
2. Resources that have been produced by your statistics teacher to guide your learning.
3. Evidence from any research sources.

5. Submission of the original exam booklet is expected when you submit the assessment for marking.

I (name) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ agree with all the conditions of authenticity set out in this Authenticity Statement. The work I submit as part of this assessment will be and is solely my own and therefore will be significantly different from any other student’s work at Ormiston Senior College.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (date) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (signature)

Definitions

*“breach of authenticity” -* means that your statistics teacher, or any mathematics or statistics teacher at Ormiston Senior College cannot verify the work you have submitted to be solely your own. As a result the grade you will receive is Not Achieved.

*“open book” -* for the duration of the assessment you are allowed to consult any source of information you wish to help you with any part of this assessment. Your statistics teacher will be available to give you verbal feedback only.

*“significant duplication” -* in no part or parts of the report you submit for this assessment, should there be word-for-word copying from any of the sources listed in (4.) above. Where general structures to guide the statements you produce are available, the use of these in the work that you submit will not be regarded as significant duplication.

Conditions of Assessment

**What do I need to complete for the assessment?**

This assessment task requires you to complete a written report, investigating a multivariate dataset and making an appropriate statistical inference based on evidence.

You must attempt all parts of this assessment as set out in the ‘Student Instructions’.

**Who holds onto the assessment and my work?**

Once you collect the assessment from 8:30am on Friday 14 March 2014, you will be responsible for the safekeeping of the assessment booklet as well as any work you complete that you wish to submit as part of this assessment.

Loss of the assessment booklet due to carelessness will automatically result in a Not Achieved grade.

No teacher at Ormiston Senior College will be held liable for any loss of your assessment booklet and / or any work you complete between 8:30am Friday 14 March 2014 and 3:30pm Friday 14 March 2014.

**Can I use a computer?**

You are permitted to use a computer to write your report. All output from iNZight must be produced by you and you alone, and should be included in your report. No copying of another student’s iNZight output is permitted.

You have priority to use all thin client computers in LC8, over any other student who is not part of this assessment at Ormiston Senior College; this privilege does not apply during Monday session 3 and Thursday session 1. In addition, your statistics teacher has two small laptops available to book for one session at a time.

**What do I hand in?**

A printed copy of your written or typed report, including all graphs, computer output and sources of research, together with your original assessment booklet, **MUST** be returned to your statistics teacher before 3:30pm on Friday 21 March 2014. Any work that is not returned by this time and date will not be marked, and therefore not submitted to NZQA.

**What happens if I donʼt follow assessment conditions?**

The Authenticity Statement and Conditions of Assessment in this assessment booklet clarify what is expected of you. If a breach of either statement occurs, you will receive a grade of Not Achieved.

Student Instructions (Page 1 of 2)

WRITTEN REPORT

Introduction:

This activity requires you to investigate *Income in New Zealand*,and write a report on your findings. Your overall grade will be determined by the quality of your final report.

You will work independently from 8:30am Friday 14 March till 3:30pm on Friday 21 March.

Task

You are required to undertake a statistical investigation and make a formal statistical inference, using the *New Zealand Income Survey (2011)* dataset.

The target population of the New Zealand Income Survey (2011) is the “general population of New Zealanders aged 15 years and over”.

Treat the 500 observations in the sample dataset as a randomly selected sample from the target population. The data is very similar to real data (the real data is not available for public release).

You must choose the appropriate variables from the New Zealand Income Survey (2011) dataset.

Your investigation must include:

* A clearly defined purpose section; “Introduction”.
* A complete analysis of your chosen variables; “Technical Notes”.
* A formal statistical inference; “Executive Summary”.

Research & APA Referencing.

You are encouraged to use evidence from research to justify key areas of your written report. You should summarise the key points from your research in *your own words.* You must reference your sources, preferably using APA referencing (see attached sheet guide, “APA Referencing”).

Making a significant duplication of any research source is a breach of the Authenticity Statement, and means you will receive a grade of Not Achieved.

Refer also to the “Useful definitions” sheet in this assessment booklet.

Written Report

Your report will be in a written or typed document, and will include all evidence that you wish to be assessed on, including graphs and sources of research.

Your overall grade will be determined by the quality of your written report; evidence of statistical insight throughout your report will be rewarded appropriately.

*There must be no conflicting statements or misunderstandings in any part of the report.*

Student Instructions (Page 2 of 2)

Dataset

A copy of the *New Zealand Income Survey (2011)* dataset has been uploaded into the Year 13 Statistics folder located in your google drive:

*Y13 Statistics / Inference assessment (March 2014).*

For Mac/Linux users of iNZight, use the file:

(MAC) *NZIS.csv*

For Windows users of iNZight, use the file:

(WINDOWS) *NZIS.xls*

Both files have been emailed to your student account email address. All school thin-client computers can run iNZight, but cannot perform bootstrapping.

Useful Definitions

Target population

The target populaion of the New Zealand Income Survey (2011) is the “general population of New Zealanders aged 15 years and over”.

Dataset variables

| Variable name | Definition |
| --- | --- |
| Ethnicity | The major ethnic group of the survey respondent;   1. Maori-Pasifika, or 2. European 3. Asian |
| Region | The region where the survey respondent resides. |
| Sex | The gender of the survey respondent. |
| Agegroup | The age group of the survey respondent. This should be interpreted as follows:  For example…  15 = respondent is between 15-19 years of age.  20 = respondent is between 20-24 years of age. |
| Credentials | If the survey respondent has a formal qualification or not  Formal qualification can be at school level, university level or higher. |
| Occupation | The occupation of the survey respondent. |
| Hours | The hours per week the survey respondent worked for the week before the survey was completed. |
| Income | The income per week (in $) of the survey respondent earned, for the week before the survey was completed. |

*Source: Statistics New Zealand*