



MONASH University

Information Technology



Welcome to IT 1006 Business Information Analysis

Semester 1, 2021 WeChat: cstutorcs

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QQ: 749389476

<https://tutorcs.com>

程序代写代做 CS 编程辅导

FIT1006

Business Information Analysis

Teaching Team:



- Lecturer: Mary Poh Lim (poh.lim@monash.edu)
~~WeChat: estutores~~
- Tutors:

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- ❖ Anthony Wong (anthony.wong@monash.edu)
- ❖ Flora Jin (Email:tutors@163.com)
- ❖ Heshan Kumarage (heshan.kumarage@monash.edu)
- ❖ Mary Poh Lim (poh.lim@monash.edu)
QQ: 749389476
- ❖ Sanaz Nikfalazar (sanaz.nikfalazar1@monash.edu)
<https://tutores.com>

Please use your Monash account for all emails to lecturer and
tutors

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Lectures

- Online lectures: Two lectures per week

- Wednesday 1pm
- Thursday 10am
- Zoom link:

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<https://monash.zoom.us/j/89087355304?pwd=cWg0MIJrSVhsMUDwSys3ZDZFQkawdz09>

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- Most lectures will require pre-reading, which will be posted on Moodle
- Lecture slides will be posted after the lecture on Moodle as PDF, one slide/page with <https://tutorscs.com>
- Lectures recordings available on Moodle under Class Streaming.
- Some topics will run across multiple lectures.

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程序代写代做 CS 编程辅导 Tutorials

- Enrol for tutorials or  + :
 - <https://my-time.monash.edu/odd/student>
- If you need help with timetabling:
 - <https://connectapps.monash.edu/students/timetables/allocate/help/>
- Tutorial starts in week 2 (2 hour session per week)
- Download the tutorial sheet [Email tutorcs@163.com](mailto:tutorcs@163.com)
- Arrive prepared for each tutorial. This means: revising lectures + reading + practice questions.

<https://tutorcs.com>
- Tutorials will comprise: review of lecture, worked examples, practice questions, manual & computer calculations.
- + 8 hours study/practice/research each week!

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- Consultations:

- Starts from Week 1. Consultation times will be posted on Moodle



- For urgent help or to make an appointment (outside the published consultation times), please email:
poh.lim@monash.edu Assignment Project Exam Help

- Forum: [Ed Discussion Forum](#)

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程序代写代做 CS 编程辅导 Resources

- Subject Resources
 - Download all notes, tutorial sheets, past tests and exams from:
 - [FIT1006 Business Information Analysis S1 2021 WeChat QR code](#)
- [Assignment Project Exam Help](#) (Under Moodle – Class Streaming)
- Library Email: tutorcs@163.com
Reading List: QQ: 749389476
<https://rl.talis.com/3/monash/lists/1E595FA4-F8CB-8F4D-FF74-A3B034BCFB45.html?lang=en-GB&login=1>

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Textbook and References

- Prescribed text:



Australian Business Statistics, Abridged 7th Ed. (or 8th edition)
Selvanathan et al., Pearson, South Melbourne, 2017.
(5th and 6th editions are very similar in content)

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- Additional Reading

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- *Statistics Without Tears*, Derek Rowntree, Penguin, Harmondsworth, Email: tutorcs@163.com
- *Statistics Explained: An introductory guide for life scientists*, Steve McKillup, Cambridge U.P., 2006.
- Wikipedia – a handy reference for most topics.
- Software:
 - Excel and SYSTAT

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Calculators



- A Scientific or Graphing calculator is ideal.
- Your calculator should be able to calculate:

e^x , π and ! as well as having a statistical mode where you can enter data and perform least squares regression (m , c and r are the usual outputs).

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- If you had a graphing/symbolic calculator in secondary school then use this. You may be able to download a package of statistical functions for probabilities etc.
- You cannot use a smartphone or laptop in exams so make sure you have a calculator you know how to use...
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程序代写代做 CS编程辅导 Mathematics!



- This unit has a mathematics prerequisite of:
- A study score of 20 in Year 12 Mathematics Methods or Specialist Maths units 3 & 4 or 30 in Further Maths units 3 & 4 or MTH1010 or equivalent
- If you have come to university via a non-VCE pathway, or are just curious, you can see some sample questions on Moodle.

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Assessment

To pass the unit you must obtain:



- At least 45% in the examination,
- At least 45% in the unit's total non-examination assessment
- And an overall unit mark of 50% or more.

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Unit Assessment

Assessment	Due Date	% of Mark
Assignment	QQ 749389476	20
Test	Wed 21st April 1 – 5pm	20
eExam (2 hours)	TBA	60

Brief outline

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- Collecting and presenting data;
- Calculating and interpreting descriptive statistics;
- Calculations by hand using your calculator, and with EXCEL and SYSTAT;

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- Modelling relationships between variables;

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- Probability theory, probability distributions;

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- Inferential statistics and hypothesis testing;

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- Time series analysis;

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Unit outline

Lect	Date	Theme	Topics
1	3-Mar	Introduction	Introduction to the unit. The broad context of statistical problems. The process/practice of statistics. Practical matters.
2	4-Mar	Surveys and Data Collection	Sampling. Sampling samples. Reasons for sampling. Methods of choosing samples. Sampling errors.
		No Tutorial during Week	
3	10-Mar	Graphical Presentation of Data	Tally, Frequency Table, Stem and Leaf Plot, Histogram, Visual Representation.
4	11-Mar	Descriptive Statistics, Measures of Centre and Dispersion	Mean, Median, Trimmed Mean, Robust statistics. Variance and Standard Deviation, Quartiles, Interquartile Range, Boxplots.
		Tutorial 1	Introductions, Surveys
5	17-Mar	Introduction to statistical software (<i>assignment discussion</i>)	Calculating descriptive statistics with EXCEL and SYSTAT. Comparing groups.
6	18-Mar	Analysing Data, Writing a Statistical Report	Visualising data, Using appropriate statistics, Describing data, The structure of a report, Figures and tables, Citing references.
		Tutorial 2	Disp Data, Des Stats
7	24-Mar	Correlation and Regression	Introduction to correlation and regression, The general linear model, q-Correlation, Pearson's r.
8	25-Mar	Correlation and Regression	Least squares regression. SYSTAT and Excel calculation. Interpreting diagnostic output, Recognising outliers and extreme values.
		Tutorial 3	Stat Software Report
9	31-Mar	Introduction to Probability	Definition of probability, Introduction to set theory, Probability distributions, Expectation.
10	1-Apr	Probability <i>Assignment due 1st Apr 11pm</i>	Independence, Conditional probability, Bayes' theorem. Background mathematics for probability distributions.
		Tutorial 4	Correlation, Regression
			Mid Semester Break (5th April - 9th April 2021)



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Lect	Date	Theme	Topics
11	14-Apr	Binomial and Poisson Distributions	Characteristics of Binomial and Poisson Distributions including mean and variance, Applications of these distributions to typical situations.
12	15-Apr	The Normal Distribution	Characteristics, The Standard Normal variable, Mean and variance, Calculating Normal probabilities using tables and Excel.
		Tutorial 5	Probability
13	21-Apr	Mid-semester test	
14	22-Apr	Index Numbers – Applications. The Consumer Price Index	Index numbers, Using indices in practice, The Australian Consumer Price Index (CPI), Reading the quarterly CPI Report. + answer some questions using the CPI (http://www.abs.gov.au/ausstats/abs@.nsf/chain/compare sectors)
		Tutorial 6	Sampling Distributions
15	2-May	Theoretical Sampling Distributions	Central Limit Theorem, Sampling distribution of mean and proportion, Standard error of sample mean.
16	5-May	Test review and feedback	Feedback on mid-semester test.
		Tutorial 7	Index Numbers
17	9-May	Estimation	Estimators, Confidence Intervals (C.I.), C.I. for the mean and proportion, difference of means and proportions.
18	12-May	Estimation	t-Distribution, C.I. for the difference of means and proportions. Polling.
		Tutorial 8	Sampling Distributions
19	16-May	Hypothesis Testing	The Null and Alternative Hypothesis, The test procedure, The hypothesis test for a population mean and proportion.
20	19-May	Hypothesis Testing	The hypothesis test for the difference of means, Type I and II errors, the significance level, power of a test.
		Tutorial 9	Estimation
21	16-May	Time Series Analysis	Time series data, Components of a time series, Smoothing with moving averages and seasonal, Exponential smoothing.
22	19-May	Time Series Analysis	Seasonal Indices, Calculating multiplicative seasonal indices, Regression based forecasting, The accuracy of forecast.
		Tutorial 10	Hypothesis Testing
23	23-May	Review of course/ Exam Prep	Applied questions from hypothesis testing, probability etc.
24	26-May		Motivating questions from past lectures, Review of the course.
		Tutorial 11	Time Series Analysis

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Peer-assisted learning

We're using peer-assisted learning for you to participate more fully during lectures. This means:



- Come prepared to each lecture having done the pre-reading and other activities. (See Moodle)

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- Bring your mobile or laptop or any device that will allow you to connect to the internet.

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- Feel free to private chat with your friends to discuss the questions/answers

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Instructions to participate in the poll:

- Audience Response System: FLUX
- Use your smartphone, computer etc.
- Search for <https://flux.qa>
- Login via your Monash account
- Join an audience: use [Assignment](#) [Project](#) [Exam](#) [Help](#)
- Type 6 digit code: **SJ6KGV**
- Select today's lecture
- Put in your response while the Poll is open



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Flux.qa for lecture participation



You should see something like this on your device.

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To participate, go to

<https://tutorcs.com>

GOT IT

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Question 1

Are you currently in Au



- A. Yes, I'm in Australia (~~WeChat: costutors~~).
~~Assignment Project Exam Help~~
- B. Yes, I'm in Melbourne, Australia.
~~Assignment Project Exam Help~~
- C. No, I'm not in Australia at the moment.

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Question 2

What degree are you



- A. B. Information Technology (include doubles)
- B. B. Computer Science Assignment Project Exam Help
- C. B. Software Engineering Email: tutorcs@163.com
- D. Humanities (any) QQ: 749389476
- E. Sciences (any) https://tutorcs.com
- F. Something else

About FIT1006...

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Quantitative analysis



- Some real-world issues where quantitative analysis may lead to improved outcomes:
 - Health: patterns of disease, effectiveness of treatments, the inequality of nations;
 - Civilization: the science of food production, the risk of catastrophe – the QFC, climate change, global warming, social disadvantage;
 - Commerce: the volatility of investments, the risk of borrowers defaulting on loans ...;
 - Sport: player statistics and rankings.



Quantitative analysis



- Quantitative analysis gives us the big picture.
- Using data (usually numerical) to:
 - Generalise: what has happened now and in the past (and may happen in the future), what is typical behaviour?
 - Normalise: what is normal? What is exceptional?
 - Contextualise: how do we compare with others around us? How are things

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Quantitative analysis



- Quantitative analysis is concerned with business:
 - Customer behaviour – randomness, risk;
 - Demand patterns, trends – change over time;
 - Determining public sentiment;
 - Cause and effect relationships;
 - Identifying the systematic from the *ad hoc*...
 - A good example of a company using quantitative analysis to good effect is Google. Their page rank algorithm changed the world. SEO was an industry unknown 15 years ago...

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Overview

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- Quantitative techniques include:

- Descriptive techniques applicable to a wide range of data – sample, financial, internet, etc.;
- Conducting surveys and analysing the results;
- Modelling relationships and trends;
- Forecasting based on historical data;
- Working with large datasets;
- Presenting results as summaries and reports;
- Testing hypotheses.

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FIT1006: The big picture



Application of theory
to practical problems

Describing
Data

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Modelling
relationships
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Reporting
results

Being
Certain



FIT1006: The bigger picture



FIT1006
Business
information
analysis

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The wide world!
Big Data, Analytics...

FIT3152
Data analytics

Descriptive statistics



- A statistic is a summary measure of data. For example, the *number* of students enrolled in a project is a statistic. Statistics are a way of summarizing essential features of a large quantity of data.
- Statistics gets its name from the collection of data about the State.
- Data is a plural noun. Datum is the singular form.
- Descriptive statistics describe the features of a data set; for example, the mean and standard deviation.

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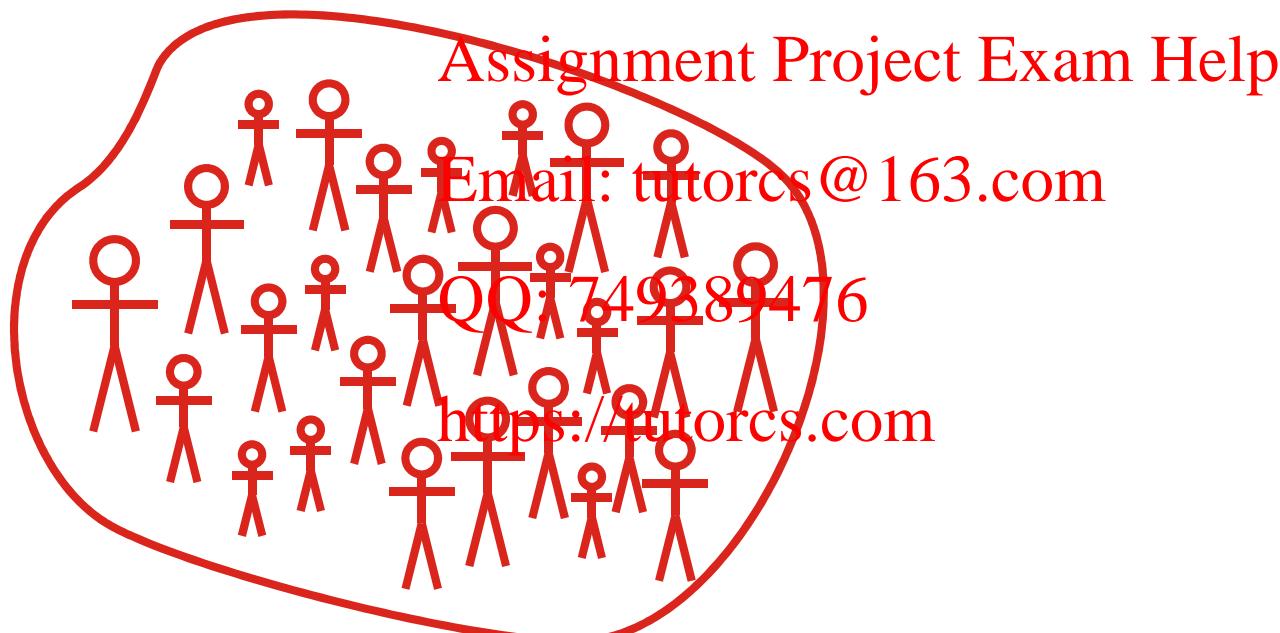
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Describing data (a)

- How was the data selected; could this introduce bias into our conclusions?
- Representing the data graphically; calculating summary statistics: average height for example.



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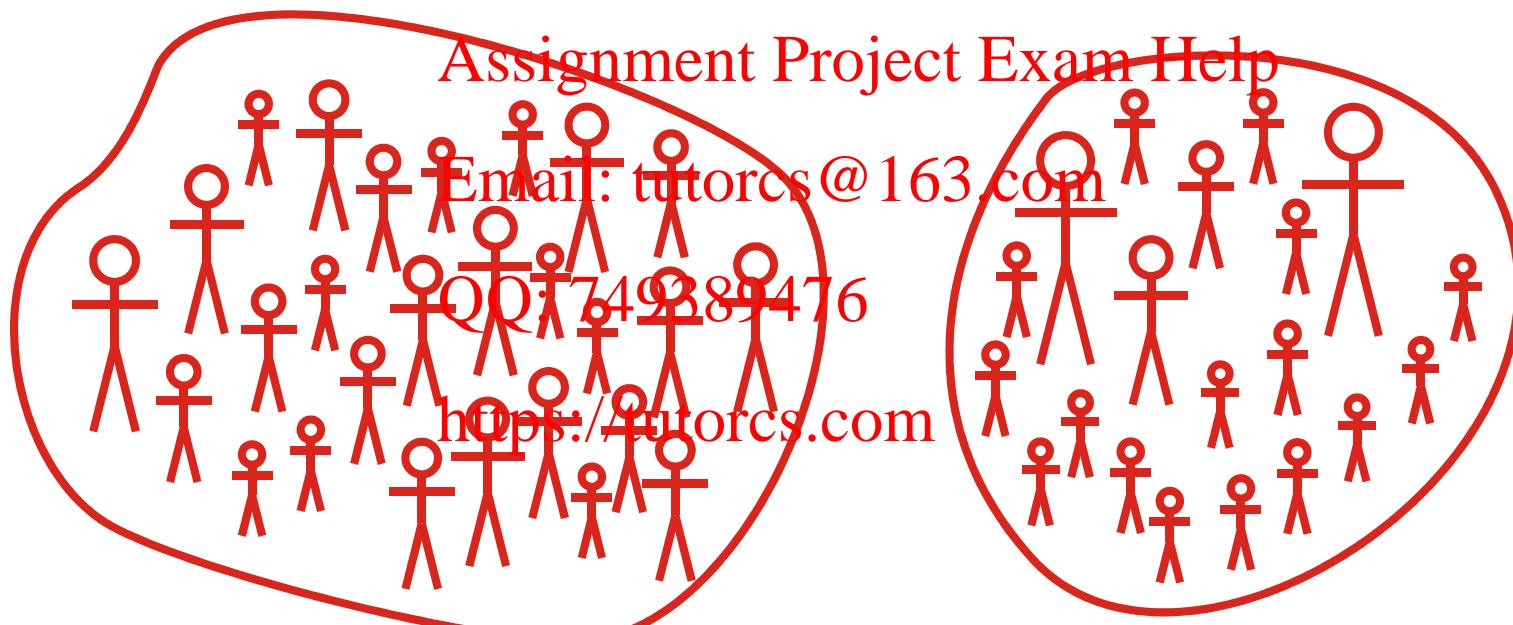
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Describing data (b)

- What are the major differences between the two groups as suggested by the summary statistics?
- Can we represent the groups visually?



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Statistical reports



- Having responsibly collected your data and accurately calculated statistics, the next most important skill is the *interpretation* and *communication* of the results.
- Reports should discuss the *significance* and *consequences* of findings as well as any *assumptions* made in analysis.
- Statistical summaries should be presented in an easy to read form - such as a table.
- Your report should be understandable to a person without a detailed statistical knowledge.

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Probability

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- What is the chance certain person selected at random will exhibit a certain probability?
- Does that chance change if the person belongs to a subgroup of the population?



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Inferential statistics



- Having observed some differences between groups of data we may wish to know whether these differences are due to some *systematic* cause or just due to *chance fluctuations*.
- This is an important part of product testing, medical treatments etc.
- We generally use descriptive statistics to observe differences between groups and then use **Assignment Project Exam Help** Inferential statistics to test whether the difference is *significant*.

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Being certain

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- Are the two groups different?
- What measure are we using?
- What level of confidence? Are you 99% sure – or only 50% sure?

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Why is this unit important?

- We are constantly being told certain things are true. This subject gives you the tools to track down the evidence, apply the theory, and verify for yourself.
- For example, from the past and recent press:
 - New Johnson & Johnson Shot Prevents Severe COVID As Well As Existing Vaccines Do. Experts Say. (Scientific American, Mar 2021)
 - Belly fat may be resistant to weight loss when intermittent fasting (The Age, Mar 2021)
 - Climate change sceptics are more likely to be conservative white males. (Scientific American Feb 2016)
 - Women are better than men detecting infidelity from facial expressions. (The Age Dec 2012)



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Drinking soft drink linked to cancer risk

By Sarah Wiedersohn

Updated 22 February 2018 – 10:54am, first published at 10:42am



Similarly consume at least one soft drink a day, no matter the size of their waistline, increased risk of cancer, according to a new study.

Cancer Council Victoria and University of Melbourne analysed more than 40,000 obesity-related cancers including breast, liver and prostate reported between 1994 and 2003-2007 through The Melbourne Collaborative Cohort Study.

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Published on Thursday, the study found a positive association between soft drink consumption and cancer risk independent of obesity.

Photo: Jeff Chiu

<https://www.theage.com.au>

Published on Thursday, the study found a positive association between soft drink consumption and cancer risk independent of obesity after statistically adjusting for waist circumference.

Soft Drink

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- ... the study found a positive association between soft drink consumption and cancer risk independent of obesity after statistically adjusting for waist circumference. ...
- ... "Initially our hypothesis was that drinking soft drinks would cause obesity which would then cause an association with obesity-related cancers but we found that there was more beyond the affect of obesity," ...
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- ... "According to the research, the more sugary soft drinks participants drank the higher their risk of cancer. However, this was not the case with those who drank diet soft drinks, suggesting sugar could be the key, says Professor Hodge. ...
- <https://www.theage.com.au>

Quantitative claims using data



For any quantitative argument based on data, you should get in the habit of thinking about the following three considerations:

1. Data: how was it collected, how much have you got?
2. Model: are you using the correct model for the argument?
(average, linear equation, proportion, time series or
forecast...?)
3. Randomness: how does variability in the data affect the
reliability of the conclusion?

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Question 3

Do you believe the M^{an}’s claim?



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- A. Yes
- B. No

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Question 4

What extra evidence would convince you?



- A. Number of situations tested? **WeChat: cstutorcs**
- B. Types of germs studied? **Assignment Project Exam Help**
- C. How germs are counted?
- D. Number of trials conducted? **Email: tutorcs@163.com**
- E. How experiments are designed? **QQ: 749389476**

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What to do this week (today)



- Get Flux.qa set up. [Save](#) if you have not done so.
- Do the pre-reading for Lecture 2.
- Log in to Moodle and check that you have access to the FIT1006 page. [Assignment](#) [Project](#) [Exam](#) [Help](#)
- Check your tutorial time and lab using Allocate+. [Email: tutorcs@163.com](#)
- Obtain a textbook and calculator if required. [QQ: 749389476](#)

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Seek assistance as a preventative measure



Take the following relevant preventative measures as you are falling behind studies:

- Study difficulties: Discuss any difficulties you are experiencing with your course leader, unit coordinator, lecturer or tutor.
 - These staff members can assist you in identifying your problem areas and explore the options available to you in your course.
- Language and learning online can help you with study methods, language skills and work presentation **Email: tutorcs@163.com**
<http://www.monash.edu.au/lis/lionline/>
QQ: 749389476
- Student life and support services can be found at:
<https://tutorcs.com>

and include: Health services, support and services, clubs and sports etc



Disability Support Services



Do you have a disability or medical or mental health condition that may impact on your study?

Disability Support Services provides a range of services for registered students including:

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- Note takers and Auslan interpreters
- Readings in alternative formats
- Adaptive equipment and software
- Alternative arrangements for exam and class tests

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Disability Support Services also support students who are carers of a person with a disability, medical or mental health condition, or who is aged and frail.

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For further information and details about how to register:

T: 03 9905 5704

E: disabilitysupportservices@monash.edu