

STAT131 Understanding Variation and Uncertainty

Information Sheet

Autumn, 2008 Loftus Campus

Subject Coordinator : Anne Porter

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Email alp@uow.edu.au
Phone 42214058
Consultation Hours Tuesday 2:30-3:30pm, Wednesday 1:00-2:00pm, Thursday 10.30am-12.30pm
Or by appointment or email
E-Learning Access online E-Learning for this subject through SOLS

Subject lecturer and tutor Loftus campus. Maureen Morris mm00@uow.edu.au

Consultation with Maureen is to be organized via email or during lab classes.

This information sheet must be read in conjunction with the general information on educational issues and student matters provided in the document "Policies and Services of the University, Faculty and School" published by the School of Mathematics and Applied Statistics. A copy may be obtained from the subject coordinator or at <http://www.math.uow.edu.au/current/generic.html>

Subject Prerequisites/Co-requisites: None

Credit point value: 6

STAT131 will not be counted with: MATH122, STAT151, STAT252

Subject outline

Variation and uncertainty occur in most aspects of life. In this subject we will learn about techniques, concepts and theory which assist in making sense of this variability and uncertainty.

The subject has three major components. These are:

1. Exploring Variation in Data
 - Displaying variation
 - Summarising data
 - Statistical computing
 - Presentation skills
2. Modelling Uncertainty
 - Discrete Models, Binomial, Poisson
 - Continuous Models, Normal & Exponential
3. Estimation and Hypothesis Testing
 - Sampling Distributions
 - Central Limit theorem
 - Inference
 - Point & Interval Estimates
 - Hypothesis testing

Learning Outcomes

This subject has been designed with the intention of fostering the development in all students of a set of attributes defined by the University of Wollongong. The discipline objectives pertain to the understanding fundamental ideas, content and processes of statistics. For more details see the STAT131 laboratory manual. This also includes the teaching objectives that outline for you the way the lectures, laboratories, materials and assessment should be used to gain and demonstrate the graduate attributes and discipline objectives.

Lectures and Laboratories

Lecture/seminar: 2 hours weekly, Venue LF- 106
Tuesday 8.30-10.30am

You are expected to attend each lecture.

Laboratory: 2 hours per week, venue LF- G04 Computer Lab, Commencing Week 1 Tuesday 11:00-1:00pm

Labs start Week 1. There no lectures or labs in Week 10 Attendance at lectures and labs is compulsory Rolls will be taken by the lecturer

Differences with Wollongong Campus

1. Labs start Week 1 at Loftus, Week 2 Wollongong
2. There are no classes Week 10 at Loftus
3. Loftus students have a test Week 9 not Week 10 (Labs start earlier at Loftus)
4. Loftus students will have 1 week less revision within the 13 weeks of session
5. Students will have available revision hours in STUVAC. This is not available at Wollongong.

Essential Purchases for Lab classes from Week2:

- Memory stick/thumb drive for use on a PC and
- STAT131 Lab Manual/Lecture Notes (by Anne Porter) available from the TAFE bookshop. The completed manual may be used in lab tests and exams. (Approx. cost \$45).

Calculators

Calculators without transmission capabilities are allowed in examinations in this subject. Calculators are also required in lectures and are useful in lab classes.

E-Learning: Lecture recording (Edustream), lecture notes, lab solutions, past exam papers, notices and other resources are available via the E-Learning site for STAT131.

Textbook/Software Package

- J.M. Utts & R.F.Heckard (2004) *Mind on Statistics* (3rd Ed). Thomson Brookes/Cole and Student Version *SPSS 14.0 (or higher) for Windows*, (\$139 or less 12.5% if in VRT)

Other References

For most students **working** the materials provided is adequate reference material. Previous texts and excellent references include:

- D.Griffiths, W.D. Stirling & K.L.Weldon (1998) Understanding Data. John Wiley and Sons.
- D.S.Moore & G.P.McCabe (2003) Introduction to the Practice of Statistics (or similar)
- G. Francis (2004) *Introduction to SPSS for Windows Versions 12.0 and 11.0 with notes for Studentware* Pearson Education. This text will be helpful for statistical computing, interpretation of output and some concepts.

These readings are recommended only and are not intended to be an exhaustive list. Students are encouraged to use the Library catalogue and databases to locate additional readings with similar titles and contents.

Additional Materials

Videos. *Statistics Decisions through Data.* Consortium for Mathematics and its Applications (COMPAC) Inc. These are available in the Library AV519/132

Optional statistical software

SPSS 12.0 for **Windows Student Version**, Copyright 2000, ISBN 0-13-028040-2 (or version 11 or 10). The cost is approximately \$90. It is available from the unishop or from www.spss.com.au. There is also a demo version online at the SPSS site. There are limitations to the student version, e.g. SPSS syntax is not available but it will let you complete most of the statistical computing for this subject.

Examination Papers previously set by Anne Porter for STAT131 include the *Final Examination* 1997-2003 and Autumn 2004-2007.

Notice Board & E-Learning

Messages for STAT131 students are posted in e-Learning for TSAT131. You are responsible for reading all notices placed on this Website. You should consult it on a regular basis. Questions about academic work should be posted to the forum on this website.

Assessment

Your final mark in STAT131 is comprised of:

Assignment 1 Compulsory	Due Week 8	15%
Assignment 2 Compulsory	Due Week 12	15%
Presentation	Due Week 8 or 12	5%
Lab tests*	In lab Weeks 4, 5,	15%
Minimum 3, Maximum 5	6 and 9	
Final examination	Exam weeks	<u>50%</u>

* Any test where the mark is less than 7/10 the student will be awarded 0. Students who fail will have the opportunity to re-sit the test the following week with a different data set and will need to attend a second lab class to do this. Students not passing on the re-sit will need to meet with the subject co-ordinator, to clarify any problems they are experiencing. Each assignment or lab test will be due in the student's allocated lab class in the weeks it is due. Note **scaling** of marks is **not** a standard procedure in STAT131.

Students who do not actually do the lab tasks AND check their solutions will find it near impossible to do the tests, assignments and exams.

Acknowledgment, Cheating and Plagiarism

Plagiarism may result in the imposition of severe penalties. Ensure that all submitted work is your own and use appropriate acknowledgement of your sources including your partner's contribution. Use the Harvard Referencing system and consult the Universities policy on Plagiarism. <http://www.uow.edu.au/handbook/course/rules/plagiarism.html>.

Assignments (Team Work)

The two assignments and presentation are to be completed in teams of two. Team work is designed so that you have a collaborator with whom you can check results, confer with, ascertain the best way to proceed. With permission students may complete the assignments as individuals. Team members **must** be in the same class (or have the same tutor). If the other team member drops out at that crucial moment, you must complete the work yourself.

Cover sheets/receipts

Assignments require signed cover sheets. These are available from your laboratory tutor. Different tutors have a different colour, sheet enabling quick return to students. Initial the class roll when submitting assignments **and** obtain a receipt for your work from the tutor. Assignments will not be accepted via fax or e-mail.

Return of assignments

Assignments are to be collected from tutors in laboratory class typically the next week. At the end of session assignments can be collected during consultation hours from the subject co-ordinator. Work similar to assignments and tests will be asked in the final examination so make sure you examine how you made errors.

Extensions and Late submission

History has indicated that students who do not complete an assignment are generally unable to complete that section of the final exam. So complete assignments even if late. E-mail Anne Porter for an extension if it is required. Short extensions (24-48 hours) with good reason can generally be accommodated. However, note that feedback before the next assessment task may not be possible with late submissions. Feedback from assignments is important. Assessment items submitted after solutions have been released will be graded for your information but no marks will be allocated. Subject to a student being granted special consideration an estimate or alternative work may be substituted for work not completed by the release of solutions.

Special Consideration for Missed Work

Any request for consideration for having missed assessment will only be **considered** if you complete an application for Special Consideration through SOLS. For further information consult the document <http://www.math.uow.edu.au/current/generic.html>. Application should be made within one week of the missed work, with appropriate documentation. Where problems are anticipated consult your subject co-ordinator in advance.

Supplementary examinations are held in Week 1 of Spring Session (21st – 28th July).

Scholarships

Scholarships provided by the Australian Bureau of Statistics for students from Wollongong have been awarded to students in Mathematics and Statistics moving from years 100 to 200 level, from 200 to 300 level and some cadships at 400 level. If you are interested you need to aim high in all your subjects.

Finally: If you are having any difficulty with STAT131, you should seek advice before it is too late.

Stat131 Understanding Variation & Uncertainty Homework from Week 1

Complete in a group. To be used at the start of the lecture Wednesday Week 2. Provide numerical value as a measure of each the following. Is there a better measure than the one you have provided? What is it?

1. Distance from the Library to the closest eatery.
2. Find the perimeter of the desk in your computer lab.
3. The likelihood that the train returning from Loftus to Central after the last STAT131 lecture will be late.
4. Estimate the age of your lecturer.



5. Complete the Dolly Girl Measure of Personality (next page)
 6. Purchase the *STAT131 Laboratory Manual and Lecture Notes*, disk and find requested materials
 7. Complete the preparation for the week 2 Lab
 8. Review your lecture notes
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Dolly Girl Personality Test What type of person are you?

Everyone has their priorities, whether it's saving the planet or having a good time. But the things that matter to you can reveal what sort of person you are. Do our quiz to find out where you fit in. By Rachelle Unreich (lost date)

1) To pull up your marks in English, you have to work on the school paper. You...

- a) Dread the idea! You prefer solo projects to being involved in team efforts.
- b) Use it as an excuse to make loads of new friends.
- c) Work diligently at it. Maybe you'll end up Editor!
- d) immediately write an article on the subject of global destruction.

2) Of these movie characters, which did you relate to most?

- a) Molly Ringwald in *Pretty in Pink*
- b) Nicole Kidman in *Far and Away*
- c) Sigourney Weaver in *Alien 3*
- d) Michelle Pfeiffer in *Batman Returns*

3) You're throwing a party, and you want to give it a theme. You end up choosing...

- a) "Save the World", with people dressing up in green.
- b) "Mardi Gras", and everyone has to dress up in Carmen Miranda-type flounces and bright colours.
- c) "Your Hero", with all the guests coming as their idol.
- d) God, you'd never, ever, ever have a fancy dress party. You do everything you can to get out of the ones you're invited to.

4) If you could pick any career at all, you'd become...

- a) An actor
- b) A politician
- c) A zoo-keeper
- d) A volunteer helper in an organisation that needs you.

5) When you fight with your friends, they complain you are...

- a) Too stubborn - you always have to have everything your own way.
- b) Too serious - you take everything to heart.
- c) Too much of a flirt - you tease all the guys.
- d) Anti-social - you never want to go out with the group or go to parties.

6) When you settle down with a good book, it's likely to be...

- a) The biography of an interesting person.
- b) Real escapist stuff, like a corny love story.
- c) Non-fiction, about the world and it's problems.
- d) A self improvement book.

7) There's a new girl in the class, who no-one seems to like. You...

- a) Wait for her to approach you. You'd never approach someone you didn't know.
- b) Invite her to have lunch with you and your friends. The more the merrier - who cares what everyone thinks?
- c) Stay away from her. She could ruin your reputation.

d) Feel outraged by the way she's been treated by everyone, and make an effort to be nice to her.

8. The relationships you have are ...

- a) Only with popular guys, or with real brains, guys who can help you in some way.
- b) Non-existent. Guys don't really notice you.
- c) Short-lived and fun. Love 'em and leave 'em is your favourite motto.
- d) Intense and serious lasting for absolutely ages.

9. In ten years' time, you want...

- a) Fame. You want everyone to know your face.
- b) To have a place of your own, where you can be your own person.
- c) To have made a difference, however small, to some cause or issue you really believe in.
- d) Power - the only way you can leave your mark.

10. You would go nuts without...

- a) Your personal philosophy.
- b) Compliments.
- c) Space.
- d) An audience.

HOW YOU SCORED

- 1. a)1 b)4 c)3 d)2
- 2. a)1 b)3 c)2 d)4
- 3. a)2 b)4 c)3 d)1
- 4. a)4 b)3 c)1 d)2
- 5. a)3 b)2 c)4 d)1
- 6. a)4 b)1 c)2 d)3
- 7. a)1 b)4 c)3 d)2
- 8. a)3 b)1 c)4 d)2
- 9. a)4 b)1 c)2 d)3
- 10. a)2 b)4 c)1 d)3

10-13 THE LONER

You like to spend free time alone, or with a few close friends. You're a thinker, and you analyse everything. Sometimes however you run the risk of pushing people away without realising it. try to branch out a bit - there are many people who would enjoy your company.

14-22 THE ACTIVIST

You're extremely sensitive, and you always have a lot on your agenda. There are heaps of things in this world you want to change! Don't let your zealotry get out of hand, but don't get disheartened, either. You have many good qualities and you can really make a difference.

23-33 THE CAREER WOMAN

Going straight to the top is your goal. You won't be satisfied until you're successful in whatever you want to do and you probably will be. But a little caution is called for - sometimes being the best at everything isn't the most important thing.

34-40 THE BORN EXTROVERT

You're the life of the party! Everyone likes being around you because you're so bubbly and fun. But sometimes you put on an act to get attention, and ignore important issues. Still, you're a delight to be around - just make sure you're not overbearing.