

# Biometry

2015

University of Melbourne and Deakin University

[www.zoology.unimelb.edu.au/stats](http://www.zoology.unimelb.edu.au/stats)

Venue: Agar Lecture theatre, BioSciences 4 Building (old Zoology), University of Melbourne

Date	Topic	Lecturer
<b>On-line</b>	July 1 onwards Introduction to linear models and inference (3 mini-lectures)	GQ
<b>Tuesday 15th</b>	2:15-4:00 Subject introduction, basic software operations (UM students enrolled in BIOL900002 only)	MK
<b>Wednesday 15th AM</b>	9.30 – 10.45 11.15 – 12.45 Introduction to ANOVA models Factorial ANOVA models and interactions	GQ
<b>Wednesday 15th PM</b>	1.45 – 3.00 3.15 – 4.30 Random effects, nested ANOVA models & variance components ANOVA model assumptions, unbalanced designs, mixed models	GQ
<b>Thursday 16th AM</b>	9.30 – 10.45 11.15 – 12.30 Spatially restricted designs: models for block and split plot designs	GQ
<b>Thursday 16th PM</b>	1.30 – 3.00 3.15 – 4.30 Repeated measures designs: models for longitudinal and correlated data TBA (possible Q & A)	GQ
<b>Tuesday 21st AM</b>	9.30 – 10.45 11.15 – 12.00 Introduction to linear regression models Linear regression model assumptions, smoothing, other issues	GQ
<b>Tuesday 21st PM</b>	1.00 – 2.30 2: 45 – 4.15 Multiple linear regression models Model selection and prediction	GQ
<b>Wednesday 22nd AM</b>	9.30 – 10.45 11.15 - 12.30 Generalised linear models: logistic regression models	MK
<b>Wednesday 22nd PM</b>	1.30 – 3.00 3.15 - 4.00 Generalised linear models: contingency tables and log-linear models; Presentation of Results	MK
<b>Thurs 23<sup>rd</sup> AM</b>	9.30-10.45 11.15-12.30 Multivariate statistics: Resemblance measures, data standardisation, PCA	JC
<b>Fri 24th AM</b>	9:30 - 10.45 11.15 - 12.30 Multivariate statistics: MDS, ANOSIM, SIMPER, Bio-Env	JC

## Presenters

MK: Prof Mick Keough (University of Melbourne)

GQ: Prof Gerry Quinn (Deakin University)

JC: Dr Jan Carey (University of Melbourne)

**N.B.** We will start each session right on the designated time, to allow for material to be recorded, and breaks will be at fixed times

# Notes

## BIOL90002 students at the University of Melbourne

- Attend all lecture sessions.
- Assessment consists of an open-book exam early in Semester 2, after your second assignment has been submitted. The timing of that exam will be done as part of a class discussion at the conclusion of lectures. There will be a series of computer-based tutorials for you to get practical experience in use of the statistical techniques discussed in lectures, and will consist of analysing real biological data sets. The tutorials are recommended, but are not assessed formally, and will be offered on the 17<sup>th</sup> and 20<sup>th</sup> July. Times will be listed on LMS. Two of the tutorial sessions (23<sup>rd</sup> and 24<sup>th</sup>) are directly linked to the morning lecture sessions on those days. We expect to run at least 2 sessions in the week of the 27<sup>th</sup> July.
- There are also two written assignments, the first of which will be accompanied by small group workshops. The first assignment focuses on the design of a biological sampling program, and you will be asked to design and justify a data collection exercise relevant to your research, and then discuss your plan with peers and staff. The second assignment is a critical assessment of published data analyses. The first assignment is <2000 words and will be due on the 10<sup>th</sup> August. The second is <1000 words and will be due 24<sup>th</sup> August.

## All students

- Please note that the course material in both modules assumes some background knowledge of statistical analysis and linear models. If you have not done any statistical units in your undergraduate degree (or even if you have), you should go through the on-line lecture material and recordings.
  - a. Revision material is available online (from July 7), and consists of a series of video lectures. You should be familiar with the material covered here by the time you start on 15th July.
- Enrolled students at Melbourne and Deakin should use the teaching support system (LMS, etc.). Other students should use the web site at the top of the first page.

Any queries for Melbourne students, please contact Mick Keough ([mjkeough@unimelb.edu.au](mailto:mjkeough@unimelb.edu.au)) or Jan Carey ([janetmc@unimelb.edu.au](mailto:janetmc@unimelb.edu.au)); Deakin students' enquiries to Gerry Quinn.