NATALIE KARAVARSAMIS, Ph.D.

Education

2015 **Ph.D.**, Statistics.
School of Mathematics and Statistics, University of Melbourne, Australia.
Thesis title: Methods for estimating occupancy.
Supervisors: Prof. Richard Huggins, A/Prof. Ray Watson,
A/Prof. Andrew Robinson and A/Prof. Graham Hepworth.

2000 **B.Sc. Honours**, Statistics, 1st Class Honours.
School of Mathematics and Statistics, University of Melbourne, Australia.
Thesis title: Methods of Meta-Analysis.
Supervisors: Dr Ken Sharpe and A/Prof. Ian Gordon.

1995 **B.Sc.**, Statistics and Operations Research.
School of Mathematics and Statistics, University of Melbourne, Australia.

Languages

English (native), Greek (fluent), Spanish (advanced), French (beginner).

Work Experience and Skills

- 15+ years multi-disciplinary collaborations.
- current (6 months ongoing) Lecturer of Statistics, School of Mathematics and Statistics, La Trobe University.
- 2 years Lecturer of Statistics, Masters Level. School of Mathematics and Statistics. The University of Melbourne.
- 3 years (ongoing) Honorary Research Fellow. Current research collaborations with academic staff. School of Mathematics and Statistics. The University of Melbourne.
- 1 year Post Doctoral Research Fellow: School of Biosciences, The University of Melbourne; 6 months School of Mathematical and Geospatial Sciences, RMIT.
- 17 years Sessional Tutor. School of Mathematics and Statistics. The University of Melbourne.
- 20+ years Private Tutor.
- 4.5 yrs PhD candidate, School of Mathematics and Statistics, The University of Melbourne.
- 1 year Research Fellow, Faculty of Land and Food Resources, The University of Melbourne.
- 3.5 years industry and academic research, consultant, Victorian Department of Primary Industries (DPI).

- 1 year Supervisor, Victorian Department of Primary Industries (DPI).
- 3 years Statistician and Consultant, industry and academic research. Centre for Epidemiology. Cancer Council of Victoria (CCV).
- 1 year Statistician, research, data analysis & modelling. Department of Social Medicine, University of Crete. Greece.
- 1 year Research Assistant. Statistical Consulting Centre. School of Mathematics and Statistics. The University of Melbourne.
- 4 years (non-statistical) private industry. Australia and Europe.

Teaching Summary - Student Feedback

Thinking and Reasoning with Data, Masters course (academic years 2016 & 2017) – Lecturer

Teaching scores are currently above 4 out of a total score of 5.
In 2017, I was lecturer and consulted students, and wrote assignments. In 2016, in addition, I delivered tutorials and computer labs. I taught the R software as part of the course.
Examples of student feedback.

- 2017 "I've been studying statistics since I was in high school (aka 10 years ago) but **this is the first time I feel like I completely understood the concept.** The lecturer (Dr. Karavarsamis) **explains everything simply & clearly, & her metaphors/examples for the concepts could very easily be understood**."
- 2017 [What is the best thing about this course?]"The lecturer! **I've never been more attracted to a maths subject in my life! She's amazing she's clear she explains things in a very unique way, she is the best part of the course**."
- 2017 "Dr Natalie has an **excellent explanatory methods**. **She's very clear and genuinely cares about the student's knowledge**."
- 2017 "The lectures and the lecturer. All the concepts are taught and **explained simply and clearly**. All the **metaphors, analogues, and examples used are on point**."
- 2017 "This is an interesting subject actually, particularly the lecturer provide examples that simply to understand in delivering statistical concepts."
- 2017 **"Everything, the way it is taught, the lecturer, everything is just perfect. Enjoyed learning this subject."**
- 2017 "Lecturer taught the topic in **detail and step by step**, **easy to follow** for statistic class"
- 2017 "Natalie is a **great lecturer**, **making the difficult content easy to understand**."
- 2017 "**The lecturer is fantastic**."

- 2017 "The lectures were well presented, making a challenging subject as interesting and manageable as possible. The assignments helped to reinforce and engage you in the topics discussed in lectures"
- 2017 "The course helped **solidify important foundational concepts**."
- 2017 " **Theory is always followed by related examples**. That makes me **easy to understand the theory**."
- 2017 "The subject was taught very well and the assignments required good amount of time and effort. This subject will **help in analysis part of my research**"
- 2016 "Natalie explains things **very clearly**, and is **always happy to answer questions** in class and comp labs."
- 2016 "**Natalie is a great lecturer**"
- 2016 "Lecturer is **easily approachable** and **shows enthusiasm**."
- 2016 "**I've learned a lot than what I expected**."
- 2016 "The **class is great** and lecturer is **really patient**."
- 2016 "The lecturer explained all the problems **very clearly** and **carefully**. **Tutorials and consultation hours are really helpful**." (Natalie Karavarsamis delivered tutorials)
- 2016 "Lab discussions. **Learning useful skills for my future.** The skills taught are very applicable. Easy to apply to the practise. The **pracs helped to put the theory into context**. It was where the majority of my learning happened." (Natalie Karavarsamis delivered computer labs and tutorials)
- 2016 "The application of R to our projects was very useful. The **labs were helpful and interactive**. Lecturer, Natalie K was **very helpful** and **friendly** and a **good communicator**" (Natalie Karavarsamis delivered computer labs and tutorials)
- 2016 "lecturer is **so patient** with all the questions. And all **the knowledge present clearly**. I feel I have **learnt things that I will use in my own research in the future**."

Data Analysis, 1st year undergraduate course – Tutor

- I was responsible for tutoring two (out of ten) tutorials groups in Semester 2, 2016. Both my groups were the highest performing for the course, for internal assessment and for the examination assessment.

Experimental Design and Data Analysis, 1st year undergraduate course – Tutor

- "I am most confident in this subject, because **of all the tutors and lecturers in all subjects you can answer all my questions and can explain things os that I understand**." (Semester 2, 2017)
- "**Only when you explain things I can understand**, I can't understand it when the lecturer explains it to me." (Semester 2, 2017)

Employment

2018– **Lecturer of Statistics**
School of Mathematics and Statistics
La Trobe University.

2017 **Postdoctoral Research Fellow**
School of Biosciences, University of Melbourne.
Project: Hypothesis tests for occupancy models.
Collaborator: Dr Gurutzeta Guillera-Arroita & Prof Richard Huggins.

2016–2017 **Sessional Lecturer, Subject Coordinator, Tutor, Computer Lab Instructor, Examiner**
Postgraduate, Masters level,
Course: Thinking and Reasoning with Data.
School of Mathematics and Statistics, University of Melbourne.

2016– **Honorary Research Fellow.**
School of Mathematics and Statistics, University of Melbourne.
Collaborators: Prof. Richard Huggins & Ass. Prof. Ray Watson.

2001–2017 **Lecturer/Tutor/Coordinator/Computer Lab Instructor**
School of Mathematics and Statistics, University of Melbourne.
Undergraduate, Postgraduate and Professional levels.
Topics: Experimental design, Statistical modelling, Introductory concepts in mathematics and statistics, Statistics workshop, Computing for statistics (See Academic Teaching for course details).

2015 **Postdoctoral Research Fellow.**
School of Mathematical and Geospatial Sciences, RMIT University.
Project title: New statistical approaches for analysing species distributions (ARC).
Summary: Develop modern statistical models for estimating occupancy from presence-only data, presence-background data, augmented by presence-absence data.

2014 **Ph.D.**, Theoretical and Applied Statistics.
School Mathematics and Statistics, University of Melbourne.
Thesis title: Methods for estimating occupancy.

2010 **Chief Investigator**, PhD candidature - Scholarship stipend,
Parks Victoria and University of Melbourne.
Project title: Assessment of Fox Control Programs in Victoria.
Summary: Model biological systems associated with the fox control baiting program.
Develop occupancy models for informed interval-censored frailty models.
Model patterns of bait-take with relation to bait-laying behaviours.

Employment – continued

2008 **Research Fellow**
School of Food and Land Sciences, University of Melbourne and Deakin University.
Project title: Develop models for risk from microbial disease from reclaimed water.
Summary: Construct stochastic models using probability density functions and Monte Carlo simulation techniques. Investigate theoretical aspects of risk quantification. Modify a Visual Basic program for the water and health authorities in conducting quantitative health risk assessments for recycled water schemes.

2007 **Biometrician**
Department of Primary Industries (DPI), Victorian State Government.
Responsibilities: Consultant on experimental design and statistical analysis to scientists within the department and to external collaborators/stakeholders. Including monthly travel to Irymple for consulting provided to scientists. Trained and supervised two research assistants. Developed and full delivery of workshop on experimental design and statistical analyses with Genstat to Scientists of DPI.

2003 **Biostatistician**
Cancer Epidemiology Centre (CEC), Cancer Council of Victoria (CCV).
Summary: Design and analysis of cancer risk factor longitudinal study.
Statistical consultant to CCV researchers. Analysis, assessment and develop statistical methodologies. Including, survival method comparison and modelling relative survival. Assess and modify commercial software in VBA with re-prgoramming to Stata. Survey development, assessment and translation, from English to Greek.

2001 **Research Assistant**
Statistical Consulting Centre, School of Mathematics and Statistics, University of Melbourne.
Project title: Review of the Australian Drinking Water Standards.
Summary: Review and summarise literature on Australian Drinking Water Standards methodology. Create Access database for literature review summaries.

1999 **Research Assistant**, School of Medicine, University of Crete, Greece.
Project title: European Union Seven Countries Study
Summary: Statistical consulting to researchers in the department. Statistical assessment of the nutritional value of the Mediterranean Cretan diet for protective biochemical markers to cardiovascular and chronic disease, for data collected from the longitudinal study. Development and translation of surveys.

1998– **Private/Volunteer tutor**.
Primary, Secondary including final year levels for the Victorian Certificate of Education (VCE) and Tertiary levels. Volunteer tutor at the Hanover Centre. Teaching in English and Greek language.

1992–1997 Customer Service and Sales, casual (non-Academic).

Supervision

2018 – **Supervisor**, La Trobe University.
PhD Candidate

2004 – **Supervisor**, Department of Primary Industries.
2005 Trained and supervised two Research Assistants to assist with data collection, data cleaning and preparation for analysis. Trained and supervised their communication with industry stakeholders for data collection.

Teaching

School of Mathematics and Statistics, La Trobe University

2018 **Applied Statistical Methods** (STA2ASM)
Lecturer, Co-ordinator, Tutor, Lab instructor, Examiner

2018 **Applied Statistics** (STA3AS)
Lecturer, Co-ordinator, Tutor, Lab instructor, Examiner

2018 **Linear Models** (STA3LM)
co-Lecturer, Co-ordinator, Tutor, Lab instructor, Examiner

School of Mathematics and Statistics, Melbourne University

2016–2017 **Thinking and Reasoning with Data**
Masters level. **Lecturer**, Co-ordinator, Tutor, Lab instructor, Examiner.

2001–2017 **Experimental Design and Data Analysis**
1st Year Undergraduate. Tutor/Computer Lab Instructor/Examiner

2008–2017 **Data Analysis**, 1st Year Undergraduate.
Tutor/ Computer Lab Instructor/ Examiner.

2010–2017 **Statistics for Research Workers**, Postgraduate and Professional level.
Run by the Statistical Consulting Centre. Tutor/ Computer Lab Instructor.

2009 **Critical Thinking with Data**, 1st Year Undergraduate.
Tutor/Computer Lab Instructor.

2008, 2007 **Applied Statistics**, 2nd Year Undergraduate.
Tutor/ Computer Lab Instructor/ Examiner.

2008, 2007 **Experimental Design / Statistical Methods**, 2nd Year Undergraduate.
Tutor and Computer Lab Instructor.

2008 **Experimental Design and Data Analysis for Biomedical Science**, 1st Year Undergraduate.
Tutor/Computer Lab Instructor.

1999 – **Tutor - private**
Primary, secondary (including Year 11 and 12): Maths, Science, Chemistry, Physics. Undergraduate and postgraduate and professional level of private tutoring in statistics, including for courses taught at the School of Maths and Stats, and for courses from other University faculties.

2006–2007 **Tutor - volunteer**, Hanover Centre for displaced families.
General reading and comprehension, maths and science to primary and secondary students for the Drop-in After School Tutoring Centre.

Workshops

2004 **Karavarsamis, N.**. *Design of Experiments*. Irymple, Department of Primary Industries.
Responsibilities: **Author & presenter** to DPI Researchers.

Publications

Karavarsamis, N. (July, 2018). How can the score test be consistent?. Invited Speaker, La Trobe–Kyushu joint seminar series, La Trobe University.

Karavarsamis, N. (July, 2018). How can the score test be consistent?. Speaker, International Statistical Ecology Conference (ISEC) 2018, St Andrews, Scotland.

Karavarsamis, N. (June, 2018). How can the score test be consistent?. Invited speaker, Statistical Seminar Series, La Trobe University.

Karavarsamis, N. and Watson, R. (2018). Plausible region for the occupancy model. (in prep.).

Karavarsamis, N., Huggins, R.M. Guillera-Arroita, G. and Morgan, B. (2017). How can the score test be consistent? (under review) (Arxiv ID: 1805.05002).

Karavarsamis, N. and Huggins, R.M. (2017). A two-stage approach to the analysis of occupancy data I. The Homogeneous case. (under review) (Arxiv ID: 1804.08694).

Karavarsamis, N. and Huggins, R.M. (2017). A two-stage approach to the analysis of occupancy data II. The Heterogeneous case. (*Computational Statistics and Data Analysis*, revisions) (Arxiv ID: 1803.11354).

Karavarsamis, N. (2015). Methods for Estimating Occupancy. PhD thesis. *Bulletin of the Australian Mathematical Society*. DOI: 10.1017/S0004972715000908.

Mara, D., Hamilton, A.J., Sleigh, A., **Karavarsamis, N.***, Razak Seidu. (2015). Tools for Risk Analysis: Updating the 2006 Guidelines. Wastewater Irrigation and Health. Earthscan. (*Based on publication: Karavarsamis, N. and Hamilton, A.J. (2010).)

Karavarsamis, N. (2014). Methods for Estimating Occupancy. PhD Completion Seminar. School of Mathematics and Statistics, University of Melbourne.

Karavarsamis, N., Robinson, A. P., Hepworth, G., Hamilton, A.J. and Heard, G.W. (2013). Comparison of four bootstrap-based interval estimators of species occupancy and detection probabilities. *Australian and New Zealand Journal of Statistics*, 55(3):235–252.

Karavarsamis, N. (2013). Occupancy Models. Fortnightly seminar series. School of Mathematics and Statistics, University of Melbourne.

Kreidl, S., Holmes, R., Partington, D., **Karavarsamis, N.*** (2012). The effect of calcium and nitrogen nutrition on the development of postharvest rots in pak choi. *Acta horticulture*, 944:73–82. (*Principal statistician; author contributed statistical and technical work, and development of

project.)

Mara, D., Hamilton, A.J., Sleigh, A., **Karavarsamis, N.*** (2011). Tools for risk assessment: updating the 2006 WHO guidelines. *Wastewater irrigation and health: Assessing and mitigating risk in low–income countries.* Earthscan, IDRC and IWMI. Editors: P. Drechsel and C.H.Scott and L. Easchild-Sally ajnd M. Redwood and A. Bahri (89–100). (*Based on publication: Karavarsamis, N. and Hamilton, A.J. (2010).)

Karavarsamis, N. and Hamilton, A.J. (2010). Estimators of Annual Probability of Infection for quantitative microbial risk assessment. *Journal of Water and Health*, 8(2):365–373.

Karavarsamis, N. (June 2010). Safeguarding our species. *The Age; The Voice*, 6(6). (http://voice.unimelb.e 6/number-6/safeguarding-our-species).

Karavarsamis, N., Robinson, A. P., Hepworth, G., Hamilton, A.J. and Heard, G.W. (2010). Comparison of four bootstrap-based interval estimators of species occupancy and detection probabilities. International Statistical Ecology Conference (ISEC), University of Kent, UK. (Abstract accepted for full presentation.) (Funding: MATS award, School of Mathematics and Statistics, University of Melbourne.)

Mara D, Hamilton AJ, Sleigh A, **Karavarsamis N.***, Seidu R. (2009). Tools for risk analysis: Updating the 2006 WHO guidelines. In Wastewater Irrigation and Health: Assessing and Mitigating Risk in Low-income Countries. 89-100. (Book Chapter)

Karavarsamis, N., Robinson, A. P., Hepworth, G., Hamilton, A., and Heard, G. (2009). Comparison of four bootstrap-based interval estimators of species occupancy and detection probabilities. International Biometrics Society Australasian Region Conference (IBS), Taupo, New Zealand. (Abstract accepted for full presentation) (Funding: School of Mathematics and Statistics, University of Melbourne.)

Karavarsamis, N., and Hamilton, A..(2008) Estimators of Annual Probability of Infection. Australian Statistical Conference (ASC2008), Australian Mathematical Sciences Institute (AMSI) and Statistical Society of Australia Inc. (SSAI) (Full presentation – N. Karavarsamis). (Funding: School of Land and Environment, University of Melbourne.)

Porter, I.J., Trinder, L., Partington, D., Banks, J., Smith, S., Hannah, M., **Karavarsamis, N.*** (2006). Special report validating the yield performance of alternatives to Methyl Bromide for preplant fumigation. *TEAP/MBTOC Special Report, UNEP Nairobi.* (*Principal statistician; author contributed statistical and technical work, and development of project.)

Karavarsamis, N.. Control of downy mildew of grapevines by boosting their natural defence system, Final Report to Grape and Wine Research and Development Corporation 2004 – 2005 (2005).

Karavarsamis, N.. The 55^{th} Session of the International Statistical Institute (ISI) (2005). Sydney, NSW Australia. Conference Delegate. Funding: Denise Lievesley Young Statisticians Award, and Department of Primary Industries.

Karavarsamis, N.. Reducing Spoilage and Contamination Risks of Fresh Vegetables in China and Australia, Chinese Collaboration (2004). (Principal statistician)

Karavarsamis, N. Submission (to Australian Government) for the Revised Draft Import Risk Analysis Report for Apples from New Zealand (2004). Principal statistician and co-author in the evaluation of the Draft Importation Risk Analysis (IRA) report by Biosecurity Australia (BA), June 2004.

International Biometrics Conference joint Statistical Society of Australia (SSAI) (2004). Cairns, QLD, Australia. Conference delegate. Funding: Department of Primary Industries (DPI).

Giles, G., English, D., **Karavarsamis, N.***, Thursfield, V. (2003). *Cancer Survival in Victoria – Relative survival for selected cancers diagnosed from 1982 to 1997 with follow-up to 2000.* (*Principal statistician; author contributed majority of statistical and technical work, and co-authored.)

Karavarsamis, N. (2003). Energy-adjustment methods for nutrient data. Work in Progress (WIP) Statistics Seminars, Centre for Genetic Epidemiology & School of Public Health, University of Melbourne. Convenor Prof. John Hopper.

Karavarsamis, N. (2003). Survival in women in the Victorian breast survey management cohorts: 1986-1995.

Karavarsamis, N. (2003). Nutrient Analysis Software – Stata language. Commercial Release of Software (Programmer).

Roberts, S., **Karavarsamis, N.***, English, D., Giles, G. (2001). Hepatocellular carcinoma in Victoria Australia: survival and prognostic factors. 53rd Annual Meeting of the Association-for-the-Study-of-Liver-Diseases (AASLD), BOSTON, MASSACHUSETTS, 01 Nov 2002 - 05 Nov 2002. HEPATOLOGY. W B SAUNDERS CO. 36: 693A. (Conference publication) * Principal statistician and co-author).

The Australasian Epidemiological Conference and the Biostatistics Conference (2001). Sydney, NSW, Australia (Conference delegate). Funding: Cancer Council Victoria (CCV).

Major projects

2004	Import Risk Analysis for Apples from New Zealand. Department of Primary Industries. **Principal statistician; author**.
2004 – 2005	Validating the yield performance of alternatives to methyl bromide for pre-plant fumigation, TEAP and UNEP. Department of Primary Industries. **Principal statistician; consultant; supervisor; co-author**.
2003 – 2005	Reducing Spoilage and Contamination Risks of Fresh Vegetables in China and Australia, Chinese Collaboration. Department of Primary Industries. **Principal statistician; consultant, co-author**.
2004 – 2005	National (Australian) Industry potato grower Project. Department of Primary Industries. **Principal statistician; consultant; co-author**.
2001 – 2003	Melbourne Collaborative Cohort Study (MCCS) (commenced 1990). Cancer Council of Victoria. **Principal statistician; consultant; co-author**.
2002 – 2003	Eating Patterns and Food Consumption Survey and Methods. Development translation and Testing (English and Greek versions), MCCS, Cancer Council of Victoria. **Principal Statistician; translator**.
2001 – 2003	Nutrient Analysis Methods Development and Testing. Software testing (Visual Basic) and software re-development (STATA). Cancer Council of Victoria. **Software investigator and developer; programmer**.
1999	European Union Seven Countries Study. School of Medicine, University of Crete, Greece. **Principal Statistician; consultant.**

Grants, Awards, Funding

2018 AFRAN Funding Application

2010 **Ph.D. Stipend** — Fox Control Program, Parks Victoria.

2010 **Melbourne abroad travelling scholarships (MATS)** — School of Mathematics and Statistics, University of Melbourne.
Travel Destination: University of Kent, UK.
Purpose of Travel: Conference presentation, International Statistical Ecology Conference (ISEC).

2010 **The Overseas Research Student Belz Award Scheme.** School of Mathematics and Statistics, Awarded by The University of Melbourne.
Travel Destination: Taiwan.
Purpose of Travel: Invited academic guest during my Ph.D. candidature of Professor Wen-Han Huang, NCH University, Taiwan.

2009 **Travel Award** —School of Mathematics and Statistics, University of Melbourne.
Travel Destination: Taupo, New Zealand.
Purpose of Travel: Conference presentation, International Biometrics Society Australasian Region Conference (IBS).

2009 **Ph.D. Scholarship** — University of Melbourne.

2008 **Conference presentation** — Department of Land and Food Sciences, University of Melbourne.
Travel Destination: Melbourne, Victoria, Australia.
Purpose of Travel: Conference presentation Australasian Statistical Conference.
Short course participation: Introduction to R programming and graphics

2005 **Denise Lievesley Young Statisticians Award** — Statistical Society of Australia.
Travel Destination: Sydney, NSW.
Purpose of Travel: Delegate of the 55^{th} International Statistical Institute (ISI) conference.
Short course participation: Design and Analysis of Repeated Surveys.

2004 **Travel award** — Department of Primary Industries.
Travel Destination: Cairns, Queensland.
Purpose of Travel: Delegate joint International Biometrics (IBC) and Australasian Statistical (ASC) conference.

2001 **Travel award** — Cancer Epidemiology Centre (CEC), Cancer Council of Victoria.
Travel Destination: University of Sydney, NSW, Australia.
Purpose of Travel: Delegate of the Australasian Epidemiological Association (AEA) and Biostatistics Conference.
Short Course participation: Biostatistics workshop.

Reviewer

- Austral Ecology, A Journal of ecology in the Southern Hemisphere (Ecological Society of Australia)

Outreach, Academic and professional activities

2018	Invited Speaker & Discussion Panel Member, Choose Maths, La Trobe University.
2017	Committee member and Mentor, Mathematics & Statistics Female PhD & Academic Mentoring Program.
2014–2017	Equity Plenary Committee, Melbourne University.
2012	Invited teacher to run a Year 9 Mathematics Class.
2010	Organising committee member for the 2010 Victorian Mathematics and Statistics Student Conference, School of Mathematics and Statistics, Melbourne University.
2003	Founding member and committee member of the Victorian Young Statisticians.
2003–	Member of the Statistical Society of Australia.

Other achievements:

2011	Karavarsamis, N.. "Dance Class". Concept, Executive Producer and Dancer. Contemporary dance performance for 16 dancers with 6 choreographers. 1 year development from concept to performance. Gasworks Theatre Melbourne. Australia.

Statistical Expertise

Occupancy modelling • Survey design • Frailty models • Analysing longitudinal data • Power analyses • Generalised linear modelling (GLMs) • Generalised linear mixed modelling • Generalised additive modelling (GAMs) • Capture-recapture methods • Spatially explicit capture-recapture modelling • Distance sampling • Bootstrap methods for interval estimation • MCMC estimation • Method comparison • Cancer register based-research • (Relative) Survival methods • Risk analysis • Heavily censored data • Species distribution modelling • Experimental design and analysis for agriculture (biometrics) • Medical statistics (biostatistics) • Epidemiology • Medical survey design, development and analysis • Algorithm development, programming and implementation • Statistical Consulting • Statistical Modelling • Statistical Computing • Statistical Programming.

Programming & Software

R, Maple, Matlab, Mathematica, Minitab, S-Plus, Stata, Excel, @Risk (Excel), Access, LaTeX, Genstat, Glim, SPSS, Presence, MARK, Visual Basic, C++.