

Mathematics & Statistics Teacher Day @ Vic – 2014

Date: 27 November 2014, 9am – 3pm

Venue: Victoria University of Wellington, CO350

Theme: Bridging the gap between Secondary and University Mathematics and Statistics Education

Workshop Aim

The aim of this workshop and any other we may hold in the future is to improve dialogue and communication between secondary schools in the Wellington region and Victoria University.

For this year, the theme is based on NCEA Level 3 standards and how these link in with Victoria's first year courses in Mathematics and Statistics. This has an impact on the entry requirements that are set and the level of knowledge assumed when teaching first year courses.

To better inform future teaching, the University would like to know more about considerations made in selecting the standards that students take at Level 3 and the various combinations that can be expected from in-coming NCEA students. This is also an opportunity for Schools to learn more about how material taught in Level 3 NCEA subjects links in with University courses.

The target audience will be teachers of NCEA Level 3 Mathematics and Statistics, as well as academic staff in the School of Mathematics, Statistics and Operations Research.

There is no charge for attendance.

Learning Objectives

For the University:

- Which of the Mathematics and Statistics standards do most students take at Level 3
- What considerations are made in selecting those standards
- Do all Statistics students make use of computers? If so, what software is used?
- Proportion of pupils who usually take each standard
- What support or resources would teachers like to have from the University?

For Secondary School teachers:

- What courses are taught in first year Mathematics and Statistics
- What are the entry requirements for those courses?
- Assumptions currently made about students accepted into first year courses and implications for further study.

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Programme

Each 30-minute session will consist of a 20-minute presentation on the listed standards, followed by a 10-minute floor discussion on those standards. See the Information Sheet below on the scope of the presentations. There will be time for more a general discussion after the last presentation.

9:00 – 9:20 Registration, Coffee
9:20 – 9:30 Welcome – Peter Donelan (HoD, School of Mathematics, Statistics & Operations Research) Opening – Mike Wilson (PVC Science)
9:30 – 9:50 College to University Transition – what are the issues? <i>Cushla Thomson, Onslow College</i>
9:50 – 10:20 Differentiation (3.6) & Integration (3.7) <i>Coline Diver, Paraparaumu College</i> <i>Mark McGuinness, Victoria University of Wellington</i>
10:20 – 10:50 Inference (3.10) & Experimental design (3.11) <i>Frances Hinchcliffe, Wellington Girls College</i> <i>Ivy Liu, Victoria University of Wellington</i>
10:50 - 11:10 Tea break
11:10 – 11:40 Linear programming (3.2) & Critical path analysis (3.4) <i>Peter McClymont, Wellington Girls College</i> <i>Rachel Hunt, Victoria University of Wellington</i>
11:40 – 12:10 Complex numbers (3.5) & Simultaneous equations (3.15) <i>Frank Kane, Onslow College</i> <i>Dillon Mayhew, Victoria University of Wellington</i>
12:10 – 12:40 Bivariate measurement data (3.9) & Evaluate statistically based reports (3.12) <i>Cushla Thomson, Onslow College</i> <i>Richard Arnold, Victoria University of Wellington</i>
12:40 – 1:30 Lunch break
1:30-2:00 Geometry of conic sections (3.1) & Trigonometric methods (3.3) <i>Richard Catterall, Hutt International Boys' School</i> <i>Steven Archer, Victoria University of Wellington</i>
2:00 – 2:30 Probability concepts (3.13) & Probability distributions (3.14) <i>Margaret Priest, Wellington Girls College</i> <i>Nokuthaba Sibanda, Victoria University of Wellington</i>
2:30 – 2:50 General discussion session
2:50 – 3:00 Closing statements: Bruce Welsh, Wellington Maths Association Margaret Priest, Wellington Girls College

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Information Sheet

Aim:

To improve dialogue and communication between secondary schools within the Wellington region and Victoria University, and to foster a closer working relationship.

Format:

This first workshop will consist of joint presentations by staff from the School of Mathematics, Statistics and Operations Research and teachers from Schools around the Wellington region. Presentations will be on NCEA Level 3 standards, focusing on how these link in to University courses.

Process:

University academic staff were paired up with Secondary School teachers early in the academic year. Each pair was allocated an NCEA Level 3 standard on which they will have prepared a joint 20-minute (10 minutes each) presentation.

Presentation focus:

For each standard the presentation may include, but is not limited to:

Secondary School Teacher:

- Is the standard internally or externally assessed?
- What considerations are made in students' decision to take the standard? Is there a selection process the school uses to select students into a class teaching the standard?
- How many students take the standard?
- What resources are used to teach the standard eg calculator, computer?
- What Victoria University courses assume knowledge of the standard?

MSOR staff:

- What courses teach or make use of knowledge taught in the standard?
- What resources are used in those courses eg calculator, computer?
- What are the entry requirements in any of those courses?
- What assumptions do those courses make about in-coming students' knowledge of the standard?
- What issues (short or long) term do students face due to lack of appropriate knowledge of the standard?
- What additional support is available in the course or within the School as a whole to bridge any existing gaps?

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