

First Year in Maths NSW <i>Mathematical cavities</i> Thursday 22nd June 2017 Western Sydney University, Parramatta campus* EB.G.02	
9:30–10:00	Registration, tea/coffee
10:00–11:00	Jason Stanley Foundations for success
11:00–11:20	A quick cuppa
11:20–11:40	Simon Green Numeracy in Exercise Science
11:40–12:20	Jim Pettigrew and Susan McGlynn Measurement of the Mathematical Proficiency of Health Science Students at WSU
12:20–12:40	Miriam Krakovska and Zdenka Misanovic Preparatory units at WSU, The College
12:40–1:50	Lunch
1:50–2:10	David Merzi and Benjamin Bui High School Student Transition to University: A HS teacher's perspective
2:10–2:40	Janet Hunter The prerequisite idea of HSC Mathematics for Science related tertiary courses: good idea but will it work?
2:40–3:10	Dilshara Hill and Frank Valckenborgh Assessment: A tool to motivate and engage
3:10–3:30	Leanne Rylands Basic skills: test, work, learn?
3:30–4:00	Afternoon tea
4:00–4:50	Workshop: What do we want students to know?
4:50–5:00	What's next?
6:00–late	Dinner: Thai Garden House, 526 Church St, Nth Parramatta (own cost)

* *This is not the campus used for FYiMaths in July 2016. It's where we were in 2015.*

The 5th annual FYiMaths workshop will be held in Melbourne on Thursday 13th and Friday 14th of July 2017. For information see <https://fyimaths.org.au/>

This event is supported by the Office of the Pro Vice-Chancellor (Learning Transformations) and the Centre for Research in Mathematics, Western Sydney University.

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Information on presenters and presentations

Invited speaker

Jason Stanley is curriculum developer in the School of Mathematical and Physical Sciences, UTS, and former principal of an accelerated K–12 school.

Foundations for success

Jason will talk about his experiences running the Maths Readiness Survey for a number of years for us at UTS; the Pathways website that he has developed for the UTS Australian Maths and Science Partnerships Program (AMSP) project ‘Maths Inside’. He will also talk about training non maths teachers to be maths teachers and leading General Mathematics students to success in calculus.

Other speakers

Simon Green is from the School of Science and Health, Western Sydney University.

Numeracy in Exercise Science

We tested the numeracy skills of 401 students enrolled in a Bachelor of Health Sciences degree in Sports and Exercise Science (SES) using a multiple-choice survey consisting of four background questions and 39 numeracy test questions. Background questions (5 point scale) focused on highest level of mathematics study at high school, self-perception of mathematics proficiency, perceived importance of mathematics to SES, and likelihood of seeking help with mathematics. Numeracy questions focused on rational numbers, ratios and rates, basic algebra and graph interpretation. Numeracy performance was based on answers to these questions (1 mark each) and represented by the total score (maximum = 39). Students from first ($n = 212$), second ($n = 78$) and third ($n = 111$) years of the SES degree completed the test. The distribution of numeracy test scores for the entire cohort was negatively skewed with a median (IQR) score of 27(11). Test scores varied substantially as a function of highest level of mathematics studied ($P < 0.05$), being lowest in students who studied Year 10 Mathematics (20 (9)), intermediate in students who studied Year 12 General Mathematics (26 (8)) and highest in two groups of students who studied higher-level Year 12 mathematics (31 (9), 31 (6)). Test scores varied significantly as a function of level of self-perception of mathematics proficiency and likelihood of seeking help with mathematics ($P < 0.05$) but not with the perceived importance of mathematics to SES. These findings reveal that the level of mathematics studied in high school is a critical factor determining the level of numeracy performance in SES students.

Jim Pettigrew and Susan McGlynn are from Western Sydney University.

Measurement of the Mathematical Proficiency of Health Science Students at an Australian University

In this talk we outline the use of a statistical test analysis technique, Rasch modelling, in a large-scale health sciences numeracy project. As well explaining what Rasch modelling is and how it was applied to the dichotomous assessment data collected for the project, we describe some of its value, or potential value, in refining the design of the test (considered as a measurement instrument) and examining relevant developmental learning pathways.

Miriam Krakovska and Zdenka Misanovic are from The College, Western Sydney University.

Preparatory units at WSU, The College

Western Sydney University, The College enrolls students who aren't accepted into university. We will focus on preparatory mathematics subjects which aim to prepare students for university mathematics and physics in the context of engineering.

Benjamin Bui and David Merzi are from Cambridge Park High School.

High School Student Transition to University: A HS teacher's perspective

Two Mathematics teachers from Western Sydney: one a PDHPE the other a Mathematics major, talk about their educational background, teaching experiences, and how their pedagogy has been shaped.

Janet Hunter is from Ascham School

The prerequisite idea of HSC Mathematics for Science related tertiary courses: good idea but will it work?

There have been calls from many quarters over a number of years for a hard prerequisite of HSC Mathematics for tertiary Science - related courses. This is in response to the increasing numbers of students failing these courses due to a lack of basic knowledge of high school Mathematics. Now that Sydney University has taken the plunge and other institutions will probably follow suit, this has implications at the school level, as far back as Year 8 subject choices for 13 year olds. These issues will be highlighted, promoting discussion about how to address them.

Dishara Hill and Frank Valckenborgh are from Macquarie University

Assessment: A tool to motivate and engage

An important aspect of assessment is that it provides the students with accurate feedback on their progress and guidance on what is required to maintain satisfactory progress. We will present a new form of assessment which we have developed to motivate and engage students, as well as overcome some of the traditional problems associated with assessment.

Leanne Rylands is in the Mathematics Education Support Hub and in the School of Computing, Engineering and Mathematics, Western Sydney University.

Basic skills: test, work, learn?

I am frustrated by the high proportion of students who lack the skills to cope with basic university mathematics. We can run diagnostic tests to determine where skills are missing, but what then? Telling students that they lack basic skills is not enough. This talk presents an approach that gets students working on basic skills and keeps them working, and which has been at least partly successful.