



STEM Educational Leadership Stream

TAG Family Foundation Grandstand



8:00AM – F23 Administration Building – Registration

9:00-10:30AM – F19 Eastern Avenue Auditorium – Official Opening, Acknowledgement of Country, and Opening Plenaries

10:30-11:00AM – Move to venue: TAG Family Foundation Grandstand

11:10AM Master of Ceremonies Professor Manjula Sharma, Director of the STEM Teacher Enrichment Academy, The University of Sydney

Session 1: Curriculum, teachers, and initial teacher education

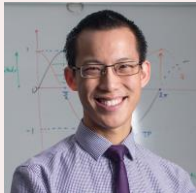
11:20AM STEM Educational Leadership Keynote Speaker 1



Megan Kelly, Executive Director of Curriculum, NSW Department of Education

The NSW Curriculum Reform is a program to deliver a new curriculum for Kindergarten to Year 12 from 2024, the most comprehensive reform of the NSW school curriculum in 3 decades. The Reform is an ambitious opportunity to support teachers in NSW Public Schools to implement and teach the new curriculum and strengthen evidence based pedagogy and assessment practices. The Curriculum team Megan leads provides extensive implementation support to teachers, school and system leaders which includes professional learning, advice and resources

11:45AM STEM Educational Leadership Keynote Speaker 2



Professor Eddie Woo, Professor of Practice, The University of Sydney, and NSW Department of Education

A renowned mathematics educator and advocate for STEM integration, Professor Eddie Woo is a global sensation with over 1.7 million YouTube subscribers and 150 million views. Known for making mathematics accessible and engaging, Eddie is dedicated to elevating teaching practices as the leader of the NSW Department of Education's Mathematics Growth Team. As a Professor of Practice at the University of Sydney, he shares his expertise with future educators, inspiring them to see mathematics as an interconnected part of the STEM landscape.

12:10PM STEM Educational Leadership Keynote Speaker 3



Professor Kelly Freebody, Head of the Sydney School of Education and Social Work, University of Sydney.

Kelly Freebody is a Professor and Head of the Sydney School of Education and Social Work, The University of Sydney. Kelly has held several leadership positions throughout her career, including Associate Dean of the Faculty of Arts and Social Sciences, and Program Director of Secondary Education. Kelly's teaching and Research interests are in drama and creativity education, social justice, and school-community relationships.

12:35 PM Educational Leadership Round Table – Curriculum, teachers, and initial teacher education

Round Table

Where we at?

How are moving forward to meet projected STEM workforce needs?

Challenges and opportunities.

1:00 – 2:00PM Lunch

Session 2: Supporting and strengthening STEM education in schools

2:00PM Master of ceremonies



2:10PM STEM Educational Leadership Keynote Speaker 4

John Phillips, CEO, SLAM Education

Explaining the E in STEM: Making Engineering Visible in Primary Classrooms

Synopsis: This presentation addresses Australia's growing engineering deficit by highlighting a critical gap in primary education: the absence of explicit engineering instruction within the STEM framework. Despite children's natural inclination toward engineering-like activities, primary students receive little exposure to engineering concepts, leading to fewer students choosing engineering pathways in later years. Current professional development solutions are effective but costly and limited in scale. We propose a more sustainable approach by integrating an "Understanding STEM" module into primary education teaching degrees. This cost-effective strategy requires no additional syllabus content whilst potentially plugging a leak in the current engineering education pipeline at its source.



2:35PM STEM Educational Leadership Keynote Speaker 5

Dr Simon Crook, Director, Crooked Science

STEM the Tide: What are the factors working against STEM education and how can we overcome them?

Synopsis: While there are so many positive and often well-resourced initiatives to promote STEM education across the state and country, there are also many impediments. In fact, the tide would appear to be going in the wrong direction. This keynote will identify the systemic educational barriers affecting uptake and 'success' in STEM subjects, but it will also offer recommendations to overcome these barriers. Data will be presented comparing STEM subjects (including VET) with non-STEM subjects in terms of HSC uptake, trends, difficulty, performance, accolades, scaling and more. Practical suggestions, at both school and state level, on how to make studying STEM subjects more attractive to students will be highlighted.



3:00PM STEM Educational Leadership Keynote Speakers 6

Dr Frederick Osman, President, The Teachers' Guild of New South Wales

Dr Danica Solina, Lecturer at the University of Technology Sydney

Professor Miroslav D. Filipovic, Professor, Western Sydney University

Partnering for Impact: Advancing STEM Teaching Through Outreach and Innovation - Exploring Enrolment Trends, Educational Research, and Strategic Collaboration in New South Wales

Synopsis: HSC Enrolments in hard STEM subjects have fallen over the recent years with increasingly fewer females taking physics, and higher levels of mathematics. In this talk we will present a brief overview of the data, some key insights from current literature and research with focus on some recent reports in the news about faddish maths teaching. An Overview of The Teachers' Guild of New South Wales and The Australian Institute of Physics of New South Wales – Current Mission and Upcoming Initiatives to Support the STEM Teaching Profession will also be given.



3:30PM STEM Educational Leadership Keynote Speaker 7

Professor Manjula Sharma, Director of the STEM Teacher Enrichment Academy, The University of Sydney

Multi-pronged approach to tipping the STEM scale: In-service professional learning for teachers

Synopsis: While the need for STEM education can be traced back to 1950's, it was in the early 2000's that the acronym was coined and the movement gathered momentum. In the current context, STEM education and pipeline into careers is of utmost urgency for economic, industrial and social growth of societies. Despite substantive and growing investment in efforts to meet STEM workforce needs, there remains a deficit. This presentation summarises the landscape, comparing strategies and approaches, with a focus on short term and long term goals.

Round Table

3:50PM Educational Leadership Round Table – Supporting and strengthening STEM education in schools

Wrap-Up

4:15PM

4:30 – 6:00 Social and networking activities (included in registration – please select which option you will attend on conference app)

4:30 – 5:30 PM Engineering Tour (limited numbers) - meet at Engineering J03

4:30 – 6:00 PM STEM Festival Networking Event – TAG Family Foundation Grandstand

6:00 – 10:00 PM Dinner – The Refectory Banquet Hall, The University of Sydney (additional registration required)