Australian Council of Deans of Science

First Year in Science and Mathematics

…come to solve problems and stay for the community…

Australian Council of Deans of Science

Thank you to…

Our hosts at the University of Melbourne: Deb King and Jo Cattlin

Our Session Chairs: Dawn Gleeson
Karen Burke da Silva
Pauline Ross

Our Speakers: Tania Blanksby
Deb King
Karen Burke da Silva
Gerry Rayner
Pauline Ross

Your Deans who are investing in our workshop

…And **you** for coming along and sharing your experiences

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A different point of view

First year discipline lead

First year student

Department / major

Year 1				
SLE010 – Laboratory and Fieldwork Safety Induction Program – 0 Credit Point Compulsory Unit				
Tri-1	SLE111 Cells and Genes	^SLE133 Chemistry in Our World	SLE115 Essential Skills in Bioscience	Major
Tri-2	SLE155 Chemistry for the Professional Sciences	SLE132 Biology: Form and Function	SEP122 Physics for the Life Sciences	Major
Tri-3				
Year 2				
STP010 – Introduction to Work Placement – 0 Credit Point Compulsory Unit				
Tri-1	SLE212 Biochemistry	SLE251 Research Methods and Data Analysis	SLE234 Microbiology	Major
Tri-2	SLE221 Systems Physiology	SLE206 Cell Biology (B- T2)	SLE254 Genetics	Major
Tri-3	SLE206 Cell Biology (G-T3)			
Year 3				
Tri-1	SLE323 Advanced Topics in Biomedical Science	Elective/Major	Elective/Major	Major
Tri-2	#SLE390 Professional Practice in Bioscience	SLE334 Medical Microbiology and Immunology	SLE346 Molecular Basis of Disease	Major

First Year is different

- Transition and orientation
- Foundation skills and under-preparation
- Service teaching
- Large classes and administration/management
- Large teaching teams with sessional staff
- And…

First Year Leaders

based biology chemistry classes
co-ordinate committee convenor
coordinator core courses
curriculum director education engineering first-year health
including involved lab large learning
lecturer level majors manager
mathematics maths member overseeing
physics physiology program provide role school
science service skills statistics
students subject support
teaching topics tutor undergraduate unit
university unsw year

Recognized positions
Informal leaders

First year convenor
First year co-ordinator
Discipline co-ordinator

Subject co-ordinators
Lab co-ordinators

Course co-ordinators

Support specialists
Transition co-ordinators
Pathway co-ordinators

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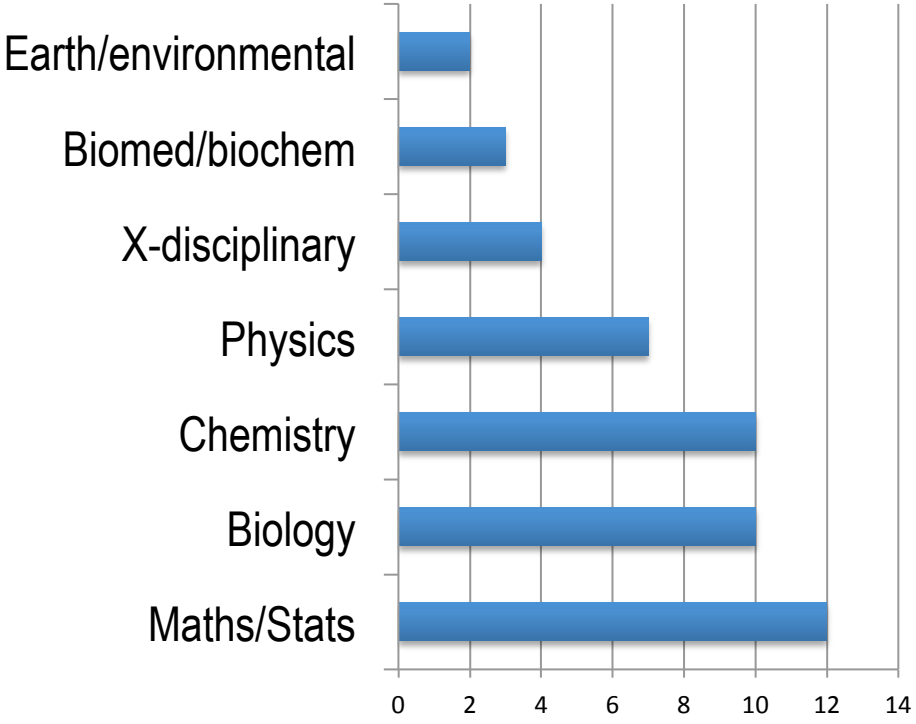
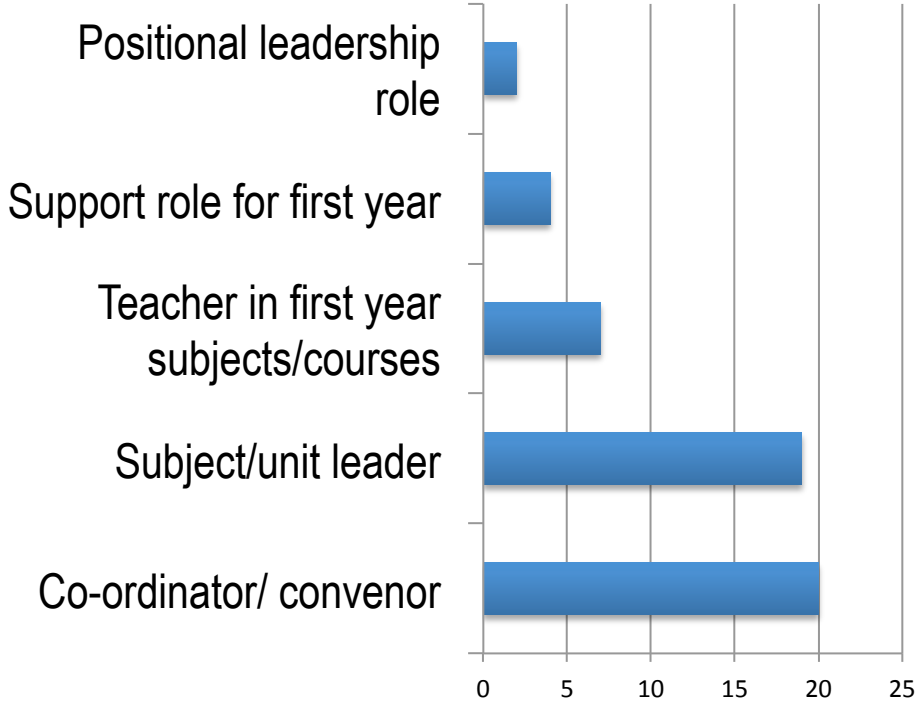
Who is here?

- Approx 20% formally work across disciplines
- Limited cross-disciplinary collaboration





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Today…

- Identify major issues in first year teaching
- Identify and share good practice for first year science and mathematics
- Share strategies to influence institutions and improve experience for staff and students
- Peer networking to build links for future work and validate experiences

IDEAS…DILEMMAS…DISCUSSION…A FRESH VIEW

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First Year in Science and Mathematics
Melbourne Workshop

10:00 **Welcome and Introduction:** *Prof Liz Johnson*

10:15 **Topic 1: Foundation skills & integrated curriculum** *Chair: Dr Dawn Gleeson*

Ideas and inspiration

- Deb King, University of Melbourne
- Tania Blanksby, La Trobe University

Group discussion: Dilemmas for first year leaders

12:00 LUNCH

1:00 **Topic 2: Engagement in large classes** *Chair: Karen Burke da Silva*

Ideas and inspiration

- Karen Burke da Silva, Flinders University
- Dr Gerry Rayner, Monash University

Group discussion: Dilemmas for first year leaders

2:15 AFTERNOON TEA

2:30 **Topic 3: Academic roles, management and leadership**

Session lead: *Prof Pauline Ross, Western Sydney University*

Foundation literacies & Integrated Curriculum

- **Dilemma 1**

‘motivating students to put extra time into improving their quantitative skills’

‘embedding basic skills like academic integrity, information literacy in the curriculum

- **Dilemma 2**

‘Facilitating meetings/ discussions between first year teaching staff as time is becoming scarce to fit this into busy academic workloads.’

Stakeholders, constraints, opportunities? Your experience?

Dilemma 1: QS skills in FY,

- Stakeholders? Constraints? Opportunities? Ideas?
- Stakeholders: students, teachers, employers, institutions
- Constraints: student attitudes, different disciplines don't interact enough (agree on content/skills), cultural diversity, student available time, resources (staff, time, marking support), academic integrity, transition from school
- Opportunities: professional accreditation, re-introduce maths pre-requisites, maths support programs (MathsBench), modelling maths in the discipline (graduates/future employers), automated test banks, formative assessment (resources and importance), effective bridging courses, use popular modes (online) to engage and support practice
- Motivating students: Use all contexts, self-testing, focus on skills for achieving the degree (course advisers), bridging programs (+/-), multiple entry points, using previous learning (not just for the exam), serious funding for tutorials/practice classes, is online 2nd best?
- Embedded basic skills:
- Need champions to drive improvement: allocate resources and acknowledge the role

Dilemma 2: facilitating discussion

- **Stakeholders**: student, staff, course leaders, sessional staff, faculties
- **Constraints**: Need someone with authority to broker and sustain discussion, staff attitudes, engaging staff in TL, payment for sessional staff, academic staff priorities (buy-in)
- **Opportunities**: talk about non-content issues (eg dealing with large classes and teaching teams), assign time to discussion, incentivise first year teaching (recognizing TL challenges, choosing the best), team teaching, peer review of TL = recognition for achievement (promotion), use existing reviews and change opportunities, collaborate with TL development teams
- **Ideas:** use (and create) team meetings that offer value for participants, pay for sessional staff to attend (offset against retention and success in Yr 1)
- **Benefits of sharing**: linkage improves student experience, align teaching and timing promotes better sequencing, happier students and staff = happier faculty; sharing different methods increases options, identifying gaps
- This is about **changing culture**
- **Employment of teaching specialists**

FYiSM Melbourne Workshop
Engagement in Large Classes

- **Dilemma 1**

‘managing large class sizes while maintaining good quality, hands on teaching’

- **Dilemma 2**

‘cost effective tutoring and feedback systems’

‘providing adequate individualised feedback for large cohorts’

Stakeholders, constraints, opportunities?
Your experience?

Dilemma 1: Managing large classes

- Stakeholders:
- Constraints:
- Opportunities:
- Ideas:

Dilemma 2: Tutoring and feedback

- Stakeholders:
- Constraints:
- Opportunities:
- Ideas:

Academic roles, management and leadership

- **Dilemma 1**

‘clearly defining the boundaries of the role so that it doesn't become the default T&L person who does everything and absolves everyone else of responsibility’

- **Dilemma 2**

‘how do we ensure our tutors are on the same page - and are teaching the way we want (which is often not the way they were taught)’

Stakeholders, constraints, opportunities?
Your experience?

Dilemma 1: the ‘default’ TL person

Dilemma 2: working with tutors & sessional staff

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Next steps

What would help you most to improve FYiSM programs in your Faculty?

How would you like to engage with issues for FYiSM in the future?

Survey Monkey https://www.surveymonkey.com/r/QP6J9MB

Other opportunities to interact:

ACSME conference, Brisbane, Sep 28-30
http://sydney.edu.au/iisme/conference/2016/index.shtml

STARS conference, Perth, Jun 29-Jul 2 http://unistars.org/

Discipline networks: Chemnet, BEAN, FYiM, AIP-PEG

Where to from here – Melb 3 Feb

- Broaden group out.
- Should ACDS sponsor another session like this on an ongoing basis? Yes, but not to talk about the same stuff. Subgroups could be good. Focus on a topic(s).
- Interdisciplinarity was a topic of high interest, as was to see some of the best practice and showcase ideas from the list of themes already identified through the SurveyMonkey, particularly assessment and feedback.
- Today's format was good (not bigger or micro groups).
- The cross discipline angle was seen as very important in the context of this forum to support understanding of how we can work together, cross fertilizing, etc.
- Parallel sessions was thought to be a good idea.
- Frequency was annual (so next February).

- More money! - For what? Tailored subjects? How to ask?
- Expectations - Match with reality and experience
- Recruitment – Who are the students? Are they informed? Use of ATAR as entry mech vs interviews.
- Engagement – With the university. Make the campus comfortable, active, resource rich. Field work opportunities.
- Withdrawal from units and impact on Faculties and Schools has big effect when it's 1st year students.
- Perceptions of what university and student life is like (vs what students may have picked up through TV, life, etc).
- Anywhere / Anytime vs *real* engagement and interaction of students and teachers.
- Class size - ~35 to ~500 to 30 / 50 … large class sizes and impact on retention? Can we do it? What about the $s! What about the flipped classroom?

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Sydney Workshop

10:00 **Welcome and Introduction:** *Prof Liz Johnson*

10:15 **Topic 1: Foundation skills & integrated curriculum** *Chair: Dr Charlotte Taylor*

Ideas and inspiration

- Michael Jennings, University of Queensland
- Dr Glennys O'Brien, University of Wollongong

Group discussion: Dilemmas for first year leaders

12:00 LUNCH

1:00 **Topic 2: Engagement in large classes** *Chair: Karen Burke da Silva*

Ideas and inspiration

- Dr Gwen Lawrie, University of Queensland
- Prof Adam Bridgeman, University of Sydney

Group discussion: Dilemmas for first year leaders

2:15 AFTERNOON TEA

2:30 **Topic 3: Academic roles, management and leadership**

Session lead: Prof Pauline Ross, Western Sydney University

Foundation literacies & Integrated Curriculum

- **Dilemma 1**

'getting students who have never completed science or maths subjects to understand the core concepts needed'

- **Dilemma 2**

'dealing with other departments when our unit is required for their majors/degrees'

Stakeholders, constraints, opportunities? Your experience?

FYiSM Sydney Workshop
Engagement in Large Classes

- **Dilemma 1**

'Methods of teaching large cohorts other than traditional lecture styles. Generating meaningful feedback to large cohorts.'

- **Dilemma 2**

'Resourcing - lack of budget for casual staff, pressure to reduce practical hours'

'Keeping the teaching consistent across a large cohort of students (1500+)'

Stakeholders, constraints, opportunities?
Your experience?

Academic roles, management and leadership

- **Dilemma 1**

‘recognition for ‘academic administration’ is almost non-existent compared to the work involved’

‘death by email’

- **Dilemma 2**

‘Trying to ensure a minimum standard from some of the academics who I have to use as lecturers but who prioritise research.’

Stakeholders, constraints, opportunities?
Your experience?