UNIVERSITY OF TECHNOLOGY SYDNEY

2017 First Year Experience (FYE) grants
Embedding transition pedagogies in the curriculum

Application form

Project applications (expressions of interest) must be submitted on this form.
Applications must be submitted by **10 am Monday December 5th, 2016.**

Applications are to be submitted by email to Kathy Egea, UTS FYE coordinator at Kathy.Egea@uts.edu.au

Project applicant/team leader:

Name: Kristine McGrath — Position: Lecturer

Contact email: Kristine.McGrath@uts.edu.au — Contact phone no: 02 9514 9773

Faculty: Science

School/Department (if applicable): School of Life Sciences

Other applicants if team application:

Name: Jacqueline Melvold — Position: Associate Lecturer

Name: Renee Dowse — Position: First Year Transition Coordinator

Title of project: Students guiding students: integrating student peer review into a large first year science subject.

Transition subject involved: 91161 Cell Biology and Genetics

Endorsement by Associate Dean (Teaching and Learning)

I …… endorse this project application and confirm that embedding of the project outcomes in the subject will be supported by the Faculty.

Signed

Date:

Have you received one or more FYE Grants previously?

☐ Yes – please attach a progress summary (max 1 page) for any 2016 grant that is not yet completed. Reports from earlier grants will be taken into account.

☑ No

Project outline (max 1-2 pages) (See guidelines for detail)

A brief description of the aims and rationale for the project

Cell Biology and Genetics (CBG) is a first year science subject undertaken by 650 students in the Autumn teaching session and 250 in Spring. Students enrolled in this subject come from a variety of entrance pathways and the student cohort is extremely diverse. Currently, students in CBG are required to create a scientific poster whereby students choose a topic of interest, research the literature, identify an article to present, critically analyse the article and then create and present a scientific poster in class. Two Library Workshops have previously supported this assessment task, however the structure and consistency between different classes and student outcomes from these workshops can be quite varied. The objective of this project proposal is to help facilitate a smooth transition into the students first year of university studies with the enhancement of the current Library Workshops in CBG. We aim to ensure all students have a uniform level of understanding of the assessment task by (i) providing students with an opportunity to work collaboratively; (ii) providing students with formative feedback on their task through the use of peer-review and (iii) guiding the students to self-reflect on the feedback provided via peer-review.

Peer review occurs regularly in the workplace and is central in science research. Therefore, learning how to give and receive peer review is a critical skill (Nilson, 2003) required in science students, and one that they need support in developing (Pearce et al., 2009). Despite this, student peer review is rarely included in first year science curricula. According to (Nilson, 2003), there are reasons that students are reluctant to fully engage in student peer review:

1. Emotion
2. Unaware of professional standards and expectations
3. Laziness – in critiquing work and/or writing thoughtful feedback. (Note: it is not our opinion that students are lazy. Rather, we feel they may be afraid of writing the wrong thing in feedback or not knowing how to provide feedback)

Because there is the possibility of absent or negative effects of student peer review exercises (Gielen et al., 2010), we will implement best practise methods into the first year science subject Cell Biology and Genetics (CBG) with the aim of overcoming these problems.

To help alleviate the issue of emotion we will provide prior information to the students and with guidance from the Teaching Associates (TAs), assist them in learning to assess the writing and not the writer. By providing a set of objective questions that the peer reviewer must answer, we will prompt students to provide feedback that will help their peer clarify their writing.

Most first year students lack the disciplinary knowledge, in this case the knowledge of peer review, to respond to questions at a professional standard (Nilson, 2003). We will assist our students in the review process by preparing them (Pearce et al., 2009) in the lesson before the exercise is undertaken (see description of Library Workshop Design below). To do this, we will discuss team work and peer review with the students, and allow time for the students to ask questions. TAs will discuss with the class the expected level of performance. Most importantly, the expected level of performance will be informed only through consideration of the skill set expected (Nelson et al., 2007) of first year science students.

The option of laziness in critiquing and/or writing thoughtful feedback will be dealt with in the design of the questions that will guide each student in their review. Examples of questions and directions that require thought and consideration, and may require the student to read the work multiple times include (from Nilson, 2003):

a) Highlighting any sections of writing that you had to read more than once to understand what the author was trying to explain

b) Underline the main conclusions of this research
c) Are you provided with strong evidence supporting these main conclusions? Justify your answer.

Students will be reminded that questions such as these encourage comprehension, deep thought, analysis and evaluation, and that the quality of their answers should aim to improve the final product (Gielen et al., 2010), which in this case is their poster and presentation. Critical to overcoming these problems will be the briefing of both TAs and students on why we are peer reviewing, and the benefits and how to peer review in an objective, formative and therefore constructive way.

Expected Outcome

The implementation of enhanced collaborative, teamwork activities, student peer review and self-reflection into a large first year science subject at UTS will ensure that students have an opportunity to interact and engage with their fellow students and TAs, feel a sense of belonging, gain deeper understanding of their assessment task, reflect on their learning, and transition the cohort into their first year of university.

Library Workshop Design

Library Workshop 1 will be structured so that in the first half of the class student will pick their poster topic and learn how to search the literature in order to find the article they will present. Guided by a worksheet, they will pick out the important information from the article and use this to create a one-page summary of their article. Students will also be provided with and discuss an instruction sheet and detailed marking rubric of the assignment to ensure they understand the outcomes required.

Library Workshop 2 will expect students to come to class with a completed one-page summary of their article (and a copy of the article) and have this summary peer-reviewed by their fellow students. This peer-review will be facilitated by the TAs and follow a developed worksheet that will give formative feedback to the students. Students will then be asked to self-reflect on this feedback by writing a one-paragraph under the given feedback, describing how the feedback may improve their work. TAs will acknowledge students who have doubts about the accuracy of the feedback they are given, and will encourage any such students to research further (Gielen et al., 2010), and come to their own evidence based conclusions. In addition, online resources will be added to UTS Online to assist in student knowledge of scientific articles and how to create a scientific poster.

First Year Curriculum Principles for Transition Pedagogy (TP) addressed by the project

See Kift (2009) First Year Curriculum Principles for Transition Pedagogy - http://fyhe.com.au/transition-pedagogy/fy-curriculum-principles/

Select (tick) from the list below, one or two strongest TP principles that frame your project aims.

- [x] Transition
- [ ] Diversity
- [x] Engagement
- [ ] Assessment

☐ Design (broader focus)

☐ Evaluation and Monitoring (broader focus)

Explain how each of the selected principles selected frame the new practice in your application.

Transition: supporting students to build on past educational experiences and become independent, lifelong learners, at university, and beyond.

This task introduces a formative process into CBG that supports our students' transition to university studies. It encourages collaboration, critical thinking and analysis, and worksheets will be designed to promote succinct articulation of evidence based answers and responses. Small group/teamwork discussion of peers work allows students to share thoughts and knowledge in an environment that feels safe. This is followed by individual responses as student peer reviewers, thus promoting independent thought and learning. Responding to and reflecting on peer review, coupled with TAs encouraging students to further research peer comments that they are unsure of introduces the student to processes that they will practice as lifelong learners.

Students will be supported by close TA guidance throughout the peer review learning process, and TAs will be supported through a meeting dedicated to discussing what is and how to implement best practise for student peer review. Both the TAs and the students will know what is expected of them; they will be provided with verbal and step-by-step written information and criteria that clearly explains concepts and that guides them through every step of the task. Each procedural step of this task has been designed to provide the students with sturdy scaffolding, enabling them to take the next step with greater confidence.

Engagement: connecting with students for collaborative and creative learning in and out of class.

Our proposal connects students with students, and encourages students to deeply engage in the assessment, their learning process, and the learning of their peers. Students will connect with and have the opportunity to learn from each other through the formation of small discussion groups prior to writing their peer reviews individually. Peer reviewing, receiving peer review and reflecting on peer review will lead students to a deeper engagement of the assessment task. TAs will engage with students as they move around the room facilitating group discussions. TAs will be paid to attend a meeting where they will have the opportunity to engage with Academics on the philosophy behind why we are introducing student peer review into a first year subject, and where the Academics can instruct the TAs on delivering this task so that there is consistency across classes within a large first year cohort.

It is crucial that students understand their assessment tasks and receive feedback on them, so these newly developed workshops will increase their engagement both in class with one another and in their assessment tasks by providing them the opportunity to work collaboratively and facilitating their understand the marking criteria, receiving feedback on their article summary and reflecting on this feedback prior to handing the assignment in.

Other University/Faculty/Course/Subject priorities addressed (optional)

When designing the peer review activity for CBG, the UTS Model of Learning was carefully considered. The implementation of this activity fits with Learning.Futures, in that they complete the final version of their summary at home and bring it to the next class for discussion and peer review. Students are engaging in peer review and self-reflection, therefore this proposal also addresses the Faculty of Science Teaching and Learning

Strategy for 2016-2020.

Key project activities and timeline, including appropriate activities that engage the overall teaching team (if applicable)

Activity 1 – Redevelopment of Poster Presentation Assessment Task

- The poster assessment task will be redeveloped to include a detailed marking rubric, which allocates marks to the peer-review and self-reflection performed in the Library Workshops

Activity 2 – Redevelopment of Library Workshops 1 and 2 (January 2017)

- Library Workshop 1 will contain information about literature searching, critiquing and summarising an article and an information session on the peer and self-reflection for next Library Workshop
- Library Workshop 2 will be redesigned to contain group discussion and individual peer-review of student's poster summaries, and self-reflection of the peer review, both of which must be handed in with the assignment

Activity 3 – Training of teaching staff (March 2017)

- All TA's teaching into CBG will attend a 30-45 minute information and training session in which they will be given information on how to run and facilitate the Library Workshops and the opportunity to discuss the task
- Additional resources will be added to UTSOnline to assist students knowledge of scientific article structure and creating a scientific poster

Activity 4 – Survey of students and teaching associates on peer review and reflection integration (May 2017)

- Students will be surveyed at the conclusion of the poster presentation via an online confidence survey
- TAs will be surveyed after the poster presentation via an online survey

Activity 5 – Evaluation of peer review implementation (June-July 2017)

- Surveys will be collated to determine the engagement student had with the workshops themselves, peer review and self reflection
- Grades of the student poster assignment will be compared to those from last year to see if student outcomes increased as a result of the new workshops, peer-review and self-reflection

Your evaluation strategy i.e. how you will know that the project has been successful, with particular focus on the transition pedagogies that you have chosen, and how will you collect information to improve the outcomes?

This project will be evaluated by:

- Tracking of the use of online resources implemented into UTSOnline
- Evaluation of end of workshop student confidence surveys which will be completed by students in class at the end of the poster presentation
- Evaluation of end of workshop TA's confidence surveys which will be completed by TA's at the end of Library Workshop 2
- Comparison of student assignment grades from this year to last year

Attach a copy of your evaluation plan available here: http://tiny.cc/evalplan

(evaluation plan completed as requested)

Project Budget (insert table or spreadsheet if appropriate) **and budget justification** (remember to add on-costs – approximately 17%) Salary rates- see guidelines for comments.

Activity	Item	Pay Scale	Hours	Amount
1	Redevelopment of poster assessment task	Casual Academic, other – student assistant (Nov 16) $45.01 + 17% on costs	15	$789.93
2	Redesign of Library Workshop 1	Casual Academic, other – student assistant (Nov 16) $45.01 + 17% on costs	10	$526.62
	Redesign of Library Workshop 2	Casual Academic, other – student assistant (Nov 16) $45.01 + 17% on costs	10	$526.62
3	Training of teaching staff	Casual Academic, other – student assistant (Nov 16) $45.01 + 17% on costs	15	$789.93
	Online resources added to UTSOnline	Casual Academic, other – student assistant (Nov 16) $45.01 + 17% on costs	5	$263.31
4	Development of evaluation surveys for students and TA's	Casual Academic, other – student assistant (May 17) $45.69 + 17% on costs	3	$157.99
5	Collation of survey information from students and TA's	Casual Academic, other – student assistant (May 17) $45.69 + 17% on costs	15	$526.62
	Comparison of this year's assignment marks to last years assignment marks	Casual Academic, other – student assistant (May 17) $45.69 + 17% on costs	5	$263.31
TOTAL			**78**	**$3844.33**

References

Gielen, S., Peeters, E., Dochy, F., Onghena, P. & Struyven, K. 2010. Improving the effectiveness of peer feedback for learning. *Learning and Instruction* 20. 304-315

Nelson, KJ., Kift, SM., Creagh, TA. & Quinn, C. 2007. *Teamwork protocol*. Teamwork protocol: Enhancing Transition at QUT: A Student Centred Approach to Learning. Queensland University of Technology.

Nilson, L. 2003. Improving student peer feedback. *College Teaching* 51(1). 34-38

Pearce, J., Mulder, R. & Baik, C. 2009. *Involving students in peer review. Case studies and practical strategies for university teaching*. Centre for the Study of Higher Education: The University of Melbourne.