MEMBERS OF THE FACULTY OF LIFE AND PHYSICAL SCIENCES EXECUTIVE COMMITTEE

A meeting of the Executive committee will be held in the Faculty of Life and Physical Sciences Meeting Room, Room 1.58, First Floor, Physics Building on Tuesday, 28 July 2009, at 2.15pm.

Membership of the Executive Committee as follows:

The Dean (Winthrop Professor George Stewart)
The Deputy Dean (Winthrop Professor Brendan Waddell)
The Academic Student Advisor (Dr Jane Emberson)
The Faculty Manager (Ms Jenny Gamble)

Heads (or their nominees) of the following Schools:
Winthrop Professor Linc Schmitt (Anatomy and Human Biology)
Winthrop Professor Geoff Stewart (Biomedical, Biomolecular and Chemical Sciences)
Professor Ian McArthur (Physics)
Professor David Morrison (Psychology)
Winthrop Professor Bob Grove (Sport Science, Exercise and Health)

Deputy Head of the following School:
Professor Lee-Yong Lim (Biomedical, Biomolecular and Chemical Sciences)

Associate Deans:
Professor Colin Raston (Research)
Winthrop Professor Geoff Hammond (Teaching and Learning)
Winthrop Professor Arunasalam Dharmarajan (South Asia Research Initiatives)
Dr Mohamed Makha (Middle East Research Initiatives)

Managers of the following Schools:
Dr Ron Swann (Anatomy and Human Biology)
Ms Jennifer Stevenson (Biomedical, Biomolecular and Chemical Sciences)
Mr David Faithfull (Biomedical, Biomolecular and Chemical Sciences)
Mr Jegatheva Jegathesan (Physics)
Dr Craig Clark (Psychology)
Mr Ron Kelly (Sport Science, Exercise and Health)

Elected Representatives:
Winthrop Professor Ian Dadour (Centre for Forensic Science)
Mr Doug Robb (School of Psychology)
Dr Giles Plant (Anatomy and Human Biology)

Visitor:
Ms Rochelle Fleming (Research Development Officer, Faculty of Life & Physical Sciences)

Part 1 of the agenda has items of communication to be dealt with en bloc. Part 2 of the agenda is items for decisions to be dealt with en bloc by motion of the Chair. Part 3 is for discussion and decision. A member may request the removal of an item from one part to another.

Up to three members of staff from resourced Schools in the Faculty may attend the meeting with speaking rights only. Anyone wishing to do so should contact the Faculty Office prior to the meeting.

Mrs Lesley Tubic
Secretary
AGENDA

1. MINUTES
Confirmation of the minutes of the Executive Committee meeting held on 26 May 2009.

2. DECLARATION OF POTENTIAL FOR CONFLICT OR PERCEIVED CONFLICTS OF INTEREST
The chair invites members to declare interests in relation to any item on the agenda.

PART I – Items for Communication to be dealt with En Bloc

There are no items for inclusion in Part I

PART II – Items for Decision to be dealt with En Bloc

There are no items for inclusion in Part II

PART III – Items for Discussion and Decision

3. FACULTY RESEARCH SHOWCASE NETWORKING EVENT
The Faculty of Natural and Agricultural Sciences (FNAS) networking events were introduced to showcase new research awards and to raise awareness of research and collaborative opportunities to colleagues both inside and outside the Faculty. For members’ information a copy of the program for the FNAS Research Showcase Networking Event held on 12 June 2009 is attached (Attachment A). Ms Rochelle Fleming will speak to members regarding her proposal to conduct a similar event in this Faculty.

For discussion

4. ACADEMIC MISCONDUCT NOTIFICATIONS
The President of the Guild of Undergraduates and the Manager of the Guild Student Centre have written to all Deans requesting that Schools deal with plagiarism issues promptly and avoid delivery of misconduct notices during periods set aside for examination preparation and the examination period itself. A copy of the letter is attached (Attachment B).

For discussion

5. DEAN’S REPORT
The Dean will report on current issues of interest to members of the Executive Committee.

6. RESEARCH COMMITTEE REPORT
Professor Colin Raston, Chair of the Research Committee, will provide an update on research activities within the Faculty.
7. **TEACHING AND LEARNING COMMITTEE REPORT**

Wintrop Professor Geoff Hammond, Chair of the Teaching and Learning Committee will provide an update on teaching and learning activities within the Faculty. His report will include the following:

- **The Peer Assisted Learning (PAL) Program** – The PAL Program gave first year students in core units the opportunity to work in small groups under the guidance of trained students leaders. A copy of the report on the PAL Program for Semester 1, 2009, is attached (**Attachment C**).

- **Learning and Teaching Performance fund (LTPF) Projects** - The Faculty has received approval for its LTPF projects. A list of these projects is attached (**Attachment D**). A copy of the Dean’s letter to the SDVC seeking approval for expenditure on these projects is attached (**Attachment E**). The Undergraduate Research Opportunity (URO) project was inadvertently omitted from the original letter to the SDVC. This was corrected by email. A copy of the URO submission is attached (**Attachment F**).

8. **OTHER ITEMS OF BUSINESS**

**ITEMS FOR THE AUGUST MEETING**

The agenda for the August meeting will include the following items:

- Professor Allan McKinley, Chair, University Safety Committee and Mr Mike Rafferty, Manager, Safety and Health, will be attending the August meeting to speak to members regarding safety and health issues raised in the University Safety Committee Annual Report for 2008. A copy of this report is available at


- South Asia Research Initiatives Report.
- Middle East Research Initiatives Report.
Winthrop Professor Tony O’Donnell
Dean
Faculty of Natural and Agricultural Sciences

Invites you to

A Research Showcase Networking Event

The Faculty of Natural and Agricultural Sciences networking events have been introduced to showcase new research awards in the Faculty of Natural and Agricultural Sciences.
The Faculty attracts significant funding from a variety of sources and these events provide an opportunity to celebrate our new awards and to ensure that colleagues, both inside and outside the Faculty, are aware of our research and opportunities for synergy and collaboration with their own research programmes.

Our expectation is that these events will add value to many of the projects by raising awareness amongst colleagues with complementary expertise.

Friday 12th June 2009

4:00 pm – 5:30 pm
(Followed by refreshments)

Webb Lecture Theatre (G.21) UWA
(Geography & Geology Building – map attached)

- RSVP -
Wednesday 10th June 2009

Email: fnasadmin@fnas.uwa.edu.au
Or phone Kate Bath: 08 6488 7467
<table>
<thead>
<tr>
<th>Time</th>
<th>Title(s)</th>
<th>Speakers</th>
</tr>
</thead>
<tbody>
<tr>
<td>4:00 – 4:05 pm</td>
<td>Introduction</td>
<td>Winthrop Professor Tony O'Donnell</td>
</tr>
<tr>
<td>4:05 – 4:10 pm</td>
<td>Neurotrauma Research Program</td>
<td>Research Professor Sarah Dunlop</td>
</tr>
<tr>
<td>4:10 – 4:15 pm</td>
<td>Finfish Diversity in Ngaloo Park</td>
<td>Associate Professor Euan Harvey</td>
</tr>
<tr>
<td>4:15 – 4:20 pm</td>
<td>WA Geothermal Centre of Excellence</td>
<td>Winthrop Professor Klaus Regenauer-Lieb</td>
</tr>
<tr>
<td>4:20 – 4:25 pm</td>
<td>Trauma and Secondary Degeneration</td>
<td>Research Assist. Professor Lindy Fitzgerald</td>
</tr>
<tr>
<td>4:25 – 4:35 pm</td>
<td>Mineral Exploration Modelling</td>
<td>Professor Steffen Hagemann</td>
</tr>
<tr>
<td>4:35 – 4:45 pm</td>
<td>Weed Management Decision Support</td>
<td>Assistant Professor Michael Renton</td>
</tr>
<tr>
<td>4:45 – 5:00 pm</td>
<td>Fertiliser Management and Greenhouse Gasses</td>
<td>Research Assistant Professor Louise Barton</td>
</tr>
<tr>
<td>5:00 – 5:05 pm</td>
<td>Marine Community Analysis and Sanctuary Zones</td>
<td>Research Professor Jessica Meeuwig</td>
</tr>
<tr>
<td>5:05 – 5:15 pm</td>
<td>Soils and Climate Change</td>
<td>Associate Professor Dan Murphy</td>
</tr>
<tr>
<td>5:15 – 5:20 pm</td>
<td>Interspecific Hybrids in Lupins</td>
<td>Research Assistant Professor Jon Clements</td>
</tr>
<tr>
<td>5:20 – 5:30 pm</td>
<td>Groundwater Management</td>
<td>Professor David Pannell</td>
</tr>
</tbody>
</table>
Thursday, July 16, 2009

Professor George Stewart  
Dean, Faculty of Life and Physical Sciences M011  
University of Western Australia  
35 Stirling Highway  
Crawley WA 6009

Dear Professor Stewart,

RE: Academic Misconduct Notifications

As you will be aware, the UWA Student Guild provides assistance to students in a variety of circumstances in regard to their dealings with the University. Students often seek our assistance when they are making application for special consideration regarding the assessment process, or when they have received notice of alleged academic misconduct on their part.

Recently we have noticed these two issues bearing on each other with greater frequency and this appears to be due to two factors.

i. Delays in resolving accusations of academic misconduct – particularly when allegations of misconduct mid-semester are not fully dealt with until after the end of semester and into the pre-examination study break.

ii. Students receiving written notification of alleged academic misconduct during the schedule examination period whilst they are in the process of preparing for, and sitting, examinations.

Consequently, we have had a number of students seeking to apply for special consideration based on the distress and disruption caused by either the long periods of uncertainty, or the ill-timed receipt of the allegations against them. The consequences of each of these circumstances can be considerable irrespective of whether the allegations are eventually dismissed or substantiated.

We are wondering, therefore, whether it might be possible both to ensure more expeditious resolution of allegations of academic misconduct, and to avoid delivery of
misconduct notices during the periods set aside for examination preparation and administration.

We appreciate your consideration of these matters and would be happy to discuss them further if that would be helpful.

Best wishes,

Dr Martyn Churcher
Student Centre Manager
UWA Student Guild
Phone: 6488 2295
Fax: 6488 1200
Email: martyn@guild.uwa.edu.au

Dominic Rose
President
UWA Student Guild
Phone: 6488 2294
Fax: 6488 1200
Email: president@guild.uwa.edu.au
Faculty of Life and Physical Sciences

Peer Assisted Learning Program:
Report: First Semester 2009

1. Purpose

The purpose of this document is to provide a report on the activities of the Peer Assisted Learning (PAL) Program for Semester 1, 2009.

2. Background

The PAL Program is a peer-facilitated cooperative learning scheme for students. PAL gives first year students enrolled in core units the opportunity to work collaboratively in small groups with guidance from trained student leaders who have completed the unit successfully.

The focus is on the group and on learning together. Peer learning is recognised as a powerful learning technique and research has shown that students who study together outside the classroom achieve better results.

PAL is a program where students work together to:
- consolidate understanding
- reinforce key concepts
- develop effective study strategies

PAL consists of ten weekly one-hour sessions over the semester, which are voluntarily attended by participants and led by study group leaders. Participants bring questions about the unit's content to the group meetings and discuss questions raised by other group members. The group meetings are moderated discussion sessions, not remedial tutorials, and their success depends on the active participation of the group members.

Funding for PAL has been sourced from the Learning and Teaching Performance Fund. PAL will be administered by the Faculty over the planned two year trial period. The PAL Program was a Faculty initiative proposed by Geoff Hammond (Associate Dean LPS Teaching and Learning) and Jenny Gamble (LPS Faculty Manager).

3. Implementation of the Program

Each school in the Faculty was allocated PAL groups for one unit, except for BBCS, which was allocated groups for two units because of its size.

In Semester 1, 2009 PAL groups were conducted in ANHB1101, CHEM1103, CHEM1105, HMES1101, PHYS1141 and PSYC1101. Adjustments to the number of groups were made during the semester according to demand and attendance.

<table>
<thead>
<tr>
<th>PAL Unit</th>
<th>Original number of groups</th>
<th>Final number of groups</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANHB1101</td>
<td>13</td>
<td>11</td>
</tr>
<tr>
<td>CHEM1103</td>
<td>7</td>
<td>8</td>
</tr>
<tr>
<td>CHEM1105</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>HMES1101</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>PHYS1141</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>PSYC1101</td>
<td>17</td>
<td>15</td>
</tr>
<tr>
<td>TOTAL</td>
<td>52</td>
<td>51</td>
</tr>
</tbody>
</table>

Table 1: Study groups by unit-semester 1, 2009

NOTE: The formula for calculating the number of groups required was – 30% of the number of students enrolled (the expected uptake) divided by 12 (the maximum number of students in each group)

Compiled by Matthew Kohler and Joanne Castelli-15 July 2009
4. Outcomes achieved

- Comprehensive training session undertaken by all study group leaders
- 51 study groups facilitated by 31 study group leaders (see table 1)
- Approximately 320 students participated in the PAL program for semester 1
- Established a monitoring and evaluation system through the PAL On-line survey (see below)
- Demonstrative enhancement of the 1st year science student learning experience
- Completed the semester 1, 2009 program under budget (see below)

5. Monitoring and Evaluation

Monitoring and evaluation of the program was undertaken through the compiling of an attendance register, regular contact with the study group leaders, on-line discussion boards and an on-line survey.

6. On-line Survey Results

The main evaluation tool was the PAL On-line survey. This individualised survey was made available to PAL participants (85 respondents), study group leaders (20 respondents) and unit coordinators (one respondent) via the PAL web page. The number of study groups attended by participants ranged from 1 to 10, with most of the respondents attending eight to ten study group sessions.

The response to PAL from participants was overall very positive:

- 93% of participants said they would attend a PAL study group in the future
- 92% reported they would recommend PAL to their friends
- 88% of participants said they thought PAL had helped them improve their performance in the unit (Table 3).

The survey also revealed that only one third of respondents used WebCT to communicate with other participants or their study group leader.

<table>
<thead>
<tr>
<th>Survey Question</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do you think PAL helped you to improve your performance in the unit?</td>
<td>75 (88%)</td>
<td>10 (12%)</td>
</tr>
<tr>
<td>Will you attend a PAL study group in the future?</td>
<td>79 (93%)</td>
<td>6 (7%)</td>
</tr>
<tr>
<td>Would you recommend PAL to your friends?</td>
<td>78 (92%)</td>
<td>7 (8%)</td>
</tr>
<tr>
<td>Did you use the discussion board on WebCT to communicate with other participants or your study group leader?</td>
<td>29 (34%)</td>
<td>56 (66%)</td>
</tr>
</tbody>
</table>

Table 3: Participant responses to survey questions

Respondent feedback

**PAL study group leaders** generally responded very positively to the question “What is the best thing about being a PAL study group leader”, with some representative answers below:

- Being able to share my experiences with first years and seeing them become more and more comfortable with the uni environment
- Seeing students learning, reinforcing your own understanding, developing confidence being in front of people
- Helping students to develop a deeper understanding of a topic they are interested in and really committed to learning. Get to speak to students on a less formal level about the course and content. Makes it more fun and allows them to speak freely about their difficulties without them feeling silly about it
- Being able to contribute to the learning of younger years of students. Feeling as though I was helping find solutions to problems for students which there may not normally be an avenue to solve. Creating an environment where students could assist each other
The above comments indicate that one of the key achievements of PAL in Semester 1 was an enhancing of the student learning experience. The study groups encouraged support and socialisation outside the formal learning environment, as the comments below from participants also attest to:

- The best thing about PAL was the ability to meet new people doing the same unit, sometimes course and being able to discuss issues with course content and resolve misunderstandings within the unit criteria. It's also pretty good for socialising just before/after sessions
- If I wasn't sure about something someone else knew it. We helped each other and this helped me learn a lot
- It provides an opportunity to talk things out that are learnt in the unit and clarify some things which you're not sure on. I personally find when I speak about the stuff that I have learnt to peers I tend to remember it more than if I don't

Participants were also generally very positive about their PAL experience, and below are some of the responses they gave when they answered "yes" to the question "Would you recommend PAL to your friends?"

- Was a great interactive way to review subject material
- These sessions helped me fix concepts in my brain, focus on what was important and find gaps in my weaknesses. The enthusiasm and intelligence of the leader was inspirational. Reminds you learning is fun and not really a chore.
- I was given really useful tools for revision
- Discussing things with other students made me understand the topic more.
- Consolidates your knowledge in an informal manner by discussing over the course content
- I thought PAL was a fantastic idea. It helped me fill the gaps in my understanding
- It helped to clarify things I didn't understand and ask further questions which you can't do in a lecture.
- Sometimes text books use complicated methods to solve problems, but hearing other people's ideas and how they approach these methods simplifies these complex ideas. It was helpful to hear other people's tips for study techniques.
- Personal experience from tutor helped in getting a feel of what exams and its questions were like.

Below are some representative answers participants gave to the question “What is the best thing about PAL?”

- Good to meet students who are doing the same units as you
- Being able to talk with a student who has been through the unit and is able to give us their perspective on it
- Easy, interactive and fun way to consolidate what has been learnt.
- Being able to get some form of help at uni
- Knowing that I have someone to go to talk about the course and get help
- The chance to ask both my peers and my leader questions about parts of the lecture material that I didn't understand
- Having the ability to ask for assistance when required, and being given the opportunity to compare results and ideas
- Regular check of the work, encourage us to study, use the study techniques that the group leaders used to help them get good marks

7. Improving PAL

Study group leaders had many good ideas about how to improve PAL, such as:

- Make it very clear to students that we are not teachers. Participants have a responsibility to contribute to classes
- Run a PAL session in the final week of semester
- Better promotion to students about joining study groups in the lectures
- PAL leaders could be supplied with some materials (e.g. example questions)
• Find ways to encourage more people to participate, and to participate regularly/consistently
• Enabling study group leaders to communicate more with unit coordinators or tutors might help in planning of study group content
• Make PAL compulsory to go to the first one just so they know what it's like and then chose to opt out or not

Participants also had ideas about how PAL could be improved:
• Held in rooms relevant to the subject to easily access information for the unit if needed in a session
• Guideline on what to do in each group so people know what we are doing - more people may turn up that way
• More advertisement about the study group right from the beginning of semester,
• I think the optimum number of students is about 5-8. Anything more it's difficult to hear from each other fairly
• Possibly more PAL times and can go to more than one PAL class for one unit
• Have a back up plan or some tasks in case we don't know what to discuss.
• Give study group leaders a general outline that they can follow if need be and general notes on what we've been doing so we don't have to explain it.
• The PAL groups should be more structured.
• Tutor-prepared questions if none were presented by participants of PAL.
• If questions relevant to upcoming tests could be given out that would help heaps.

8. Expenditure

<table>
<thead>
<tr>
<th></th>
<th>Projected</th>
<th>Actual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group leader salaries (including on costs)</td>
<td>$21,772.80</td>
<td>$17,124.07</td>
</tr>
<tr>
<td>End of semester lunch</td>
<td>$660</td>
<td>$276.50</td>
</tr>
<tr>
<td>Fee for project management</td>
<td>$1200</td>
<td>$1200</td>
</tr>
<tr>
<td>Book vouchers</td>
<td>$125</td>
<td>$50</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$23,757.80</strong></td>
<td><strong>$18,650.57</strong></td>
</tr>
</tbody>
</table>

**Budget comment**
It is anticipated, based on the experience of semester 1, that there will be surplus of funds at the end of the two years of around $10,000. This comes from the removal of the administrative fee paid to study group leaders, better monitoring of groups to allow for the removal of groups without sufficient participants and the restructuring of the study group leader training.

9. Administrative changes - Implemented semester 2, 2009

1. PAL sessions to be scheduled for 45 minutes, since venues are only booked for 45 minute blocks. This will give participants and group leaders time to get to the next class. Study group leaders will be paid for the whole hour, with the extra fifteen minutes being spent on managing groups, looking at unit materials on WebCT and emailing participants to encourage attendance

2. As a result of the above administrative change, the one hour administration paid to each study group leader will be discontinued. This will result in a saving of 55 administrative hours ($1386)

3. No sessions to be held during the study break and week 9. A session will be scheduled in the final week of semester instead

4. Training: To enhance the support for PAL study group leaders, a one hour PAL leader workshop will be held at the start of each semester, replacing the initial 2.5 hour training session held at the start of semester 1, 2009. This session will include a 45 minute interactive 'How to run a PAL Group' and a 15 minute PAL administration/housekeeping session (New study group leaders will complete an extra 15 minute administrative session to complete all employment paperwork). Attendance at these workshops is compulsory for all study group leaders. As a result of this change the Program will have an increased training cost in 2009 of 31 hours. In 2010 the program will save 30 hours in training costs due to the reduction of the projected training from 2.5 to 2 hours.

Compiled by Matthew Kohler and Joanne Castelli-15 July 2009
5. Monitoring of groups
   • Study group leaders will contact participants who have signed-up to join a group but have not attended for the first two weeks (or two weeks in a row). The study group leader will remove those participants who do not plan to attend their groups allowing other participants to sign up for the group
   • Study group leaders will submit their attendance register at the end of week 5. From the participation numbers, study groups will be re-adjusted to meet demand
   • The Program coordinator will be able to reallocate or cancel groups based on the number of participants signed up to the group, the attendance register and feedback from the study group leaders.

10. Recommendations for semester 2, 2009

   • Promote the program through visit to lectures in the first two weeks of semester by the PAL coordinator and/or study group leaders; emails to all students enrolled in the PAL linked units and ‘pop up’ announcements on WebCT. Information flyers will also be available at lectures as well as testimonials from participants displayed on the PAL webpage.
   • Include MATH1050 as a PAL unit in 2010 for students enrolled in Science. The cost of these study groups would be met by the operating surplus detailed in the budget notes above
   • Consider adding postgraduate courses to the PAL program in 2010 (as run in BBCS). The cost of these study groups would be met by the operating surplus detailed in the budget notes above
   • The current budget includes a project management fee of $1,200 per semester paid to the Faculty Office. This project fee should now be recorded as a PAL Program administration fee paid to the Faculty Office for the administration of the program. This fee could be adjusted based on the actual hours the program is administered by the Faculty

11. Semester 2, 2009

In semester 2, 2009 there will be 55 study groups facilitated by 31 study group leaders. The breakdown of the groups is detailed in the table below:

<table>
<thead>
<tr>
<th>PAL Unit</th>
<th>Initial number of groups</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANHB1102</td>
<td>12</td>
</tr>
<tr>
<td>CHEM1104</td>
<td>7</td>
</tr>
<tr>
<td>SCIE1106</td>
<td>8</td>
</tr>
<tr>
<td>HMES1102</td>
<td>5</td>
</tr>
<tr>
<td>PHYS1102</td>
<td>4</td>
</tr>
<tr>
<td>PHYS1142</td>
<td>3</td>
</tr>
<tr>
<td>PSYC1102</td>
<td>16</td>
</tr>
<tr>
<td>TOTAL</td>
<td>55</td>
</tr>
</tbody>
</table>

Table 4: Study groups by unit-semester 2, 2009

NOTE: The formula for calculating the number of groups required is – 30% of number of students enrolled divided by 15
<table>
<thead>
<tr>
<th>Project</th>
<th>School</th>
<th>Cost</th>
<th>Category</th>
<th>Decision</th>
<th>Future Framework</th>
<th>OPP</th>
<th>Comment</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level 1 equipment</td>
<td>SSEH</td>
<td>$90,183.00</td>
<td>equipment</td>
<td>√</td>
<td>$46,000.00</td>
<td></td>
<td>ACESS accreditation required expansion and improvement of computer-based equipment</td>
</tr>
<tr>
<td>Sensors (transducers) and computer interface</td>
<td>SSEH</td>
<td>$5,750.00</td>
<td>equipment</td>
<td>Not funded</td>
<td></td>
<td>$19,848.00</td>
<td>SPOT responses indicate that students want more practical experience</td>
</tr>
<tr>
<td>Outfit 12&quot; optical telescope</td>
<td>Physics</td>
<td>$19,848.00</td>
<td>equipment</td>
<td>√</td>
<td></td>
<td>$19,848.00</td>
<td>in preparation for new major</td>
</tr>
<tr>
<td>Research experience in Physics - construction/purchase of new experimental apparatus</td>
<td>Physics</td>
<td>$46,130.00</td>
<td>Salary</td>
<td>√</td>
<td>$46,130.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Upgrade of first year lab equipment</td>
<td>Physics</td>
<td>$30,000.00</td>
<td>equipment</td>
<td>√</td>
<td>$15,000.00</td>
<td></td>
<td>continue process of upgrading labs</td>
</tr>
<tr>
<td>Introducing Calibrated Peer Review</td>
<td>Faculty Office</td>
<td>$33,912.00</td>
<td>Program</td>
<td>√</td>
<td>$33,912.00</td>
<td></td>
<td>trial in chemistry. Share position with URO to save costs.</td>
</tr>
<tr>
<td>Adjustments in Anatomical sciences teaching take-home student-designed anthropometry exercises</td>
<td>ANHB</td>
<td>$149,005.00</td>
<td>Salary (mainly)</td>
<td>Not funded</td>
<td>Not funded</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Introducing Calibrated Peer Review</td>
<td>ANHB</td>
<td>$40,000.00</td>
<td>salary (mainly)</td>
<td></td>
<td>$40,000.00</td>
<td></td>
<td>extension of project funded in 2008</td>
</tr>
<tr>
<td>Introduction of clickers in Chemistry (6)</td>
<td>BBCS</td>
<td>$21,350.00</td>
<td>equipment</td>
<td>Not funded</td>
<td>Not funded</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Engaging Scientific Displays in MCS Foyer (5)</td>
<td>BBCS</td>
<td>$40,000.00</td>
<td>salary and display unit</td>
<td>Not funded</td>
<td>$71,754.00</td>
<td></td>
<td>need to develop core infrastructure</td>
</tr>
<tr>
<td>Digital Microscopy laboratory (3)</td>
<td>BBCS</td>
<td>$59,238.00</td>
<td>equipment</td>
<td>Not funded</td>
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17th June 2009

Professor Bill Louden
Senior Deputy Vice-Chancellor
M464

Dear Bill,

LEARNING AND TEACHING PERFORMANCE FUND 2009 PROJECTS

I am writing to request approval for the projects that we have identified for 2009 Learning and Teaching Performance Fund monies. Under the category of implementation of Future Framework we propose the following projects:

Research Experience in Physics ($46,130)
This will involve a major review of the second- and third-year laboratory programs in physics to move them from "recipe book" style of laboratory session with a fixed duration for a given experiment to more open-ended laboratory projects in which students are given less guidance and have to rely on their own initiative to achieve the goals of the experiment. This could be extended to other disciplines.

Equipping Resource Areas in Psychology ($85,000)
This will involve developing and equipping three resource areas within GP3 building. This will enable small group interaction in both undergraduate and postgraduate programs. It will also provide a resource for students from different years of the program to interact and share knowledge, expertise and experience. The facilities will also include workstations and research-development software that will provide infrastructure for student research projects, undergraduate and postgraduate. This will lighten demands on currently over-stretched staff laboratories.

Calibrated Peer Review ($33,912)
This project will introduce a tool that could be used across the Faculty to increase writing assignments and decrease marking time. The tool — Calibrated Peer Review- is used in over 650 universities around the world. It has successfully been used in large science classes. It will be trialed in a large first-year unit as well as small units that specialize in science writing at both undergraduate and postgraduate levels.

Take-home Student-designed Anthropometry Exercises ($40,000)
This project is a continuation of take-home anthropometry research projects trialed in Anatomy and Human Biology with a group of third year students last year. The take-home projects were popular with students for the excitement of designing and carrying out a research project and for the flexibility of its delivery. The take-home nature of the task reduced in-class laboratory time and the need for the School to provide simultaneous laboratory space and equipment to large numbers of students. Funds will be used to extend this to other Anatomy and Human Biology units.

Support for Associate Dean (Teaching and Learning) ($25,000)
The Associate Dean (Teaching and Learning) will play a crucial role in driving change within the Faculty to meet the requirements for implementation of Future Framework. These funds are used to provide research support to the Associate Dean.
Efficiency in Teaching Discretionary Fund ($37,300)
Monies will be set aside to fund small projects that are identified through the year that result in efficiency in teaching.

The other projects primarily relate to improving the student experience through investment in teaching infrastructure:

- Equipment for First-year laboratories in Sports Science, Exercise and Health ($48,000)
- Outfit 12" optical telescope in Physics ($19,848)
- Continued upgrade of first-year physics laboratories ($15,000)
- Purchase of Agilent 2100 bioanalyzer in Microbiology ($54,007)
- Fit out of Pharmaceutical Analysis Teaching Laboratory ($71,754)
- Teaching Awards ($10,000)

Please confirm your support for the above projects.

Yours truly

George Stewart
Faculty submission: An undergraduate research opportunity (URO)

Undergraduate research opportunities, which give selected undergraduates an authentic research experience in an established laboratory, are an established part of the curriculum of good research-intensive universities in the US and the UK. Web-page descriptions of some of these are attached. An outline of the expectations and responsibilities of staff and students in a URO is appended to this submission.

This submission for LTPF support is to trial a URO that will allow students to work on a ‘contained’ project in a research laboratory for credit. Selection into a project will be competitive and restricted to high-achieving students. (It would not be possible to offer a sufficient number of projects to cater for all students, nor would all students want to take the opportunity.) Staff offering a URO will be allowed to select participants and might require relevant prior practical experience.

An outline of this proposal was considered at the April 2009 meeting of the Teaching and Learning Committee. A URO is consistent with the Future Framework (which specifies research experience for all students) and will prepare the Faculty for the introduction of the BPhil program, in which students will have a more intensive research experience.

The URO will be run as a six-point unit across both semesters to avoid time pressure. The 6-point research project units available in the Advanced Science Program (SCIE2214/2217 and SCIE3340/3341) can be adapted to serve as units for the URO. The URO will be an extension or enrichment unit for those taking it; and it is likely that many will take the URO unit as an overload.

The consensus of experience elsewhere is that the sooner students are introduced to ‘authentic’ research in their undergraduate career the better. In a sense this inverts the traditional teaching sequence: instead of teaching the fundamentals of a discipline before letting students loose on an innovative research project, it introduces the research project early as a stimulus and a context for students to learn the disciplinary fundamentals. The URO will be available to students in their second or third year.

The demands of running a URO should not be burdensome for those with active research programs with Honours and PhD students. Of course, some research areas may be unsuitable for safety reasons or because of the technical demands or resource limitations. Twenty projects would give a research opportunity for about 50-60 students each year (it would be desirable to have at least two students working on each project).

Experience with UROs shows them to have a number of benefits for both staff and students. The University of Michigan identified engagement, informed career choice, mentorship, and membership in scientific community as benefits for students and a positive contribution to productivity, a transformation of work into new areas, and added mentoring training within groups as benefits to staff. A survey of staff and students identified the following categories as those in which students made gains as a result of a URO: thinking and working like a scientist, becoming a responsible scientist (engagement, project ownership, and initiative), confidence in their ability to do research, clarification of career goals (including an increased likelihood of a research career), increased enthusiasm for the discipline, establishing professional relationships, and the development of practical and communication skills (Hunter et al., Science Education, 2006).
Three-year Budget

Funding is requested for a three-year trial of a URO in Life and Physical Sciences. Funds will be used for administration and for financial support for researchers who run a URO. The DVC (Education) has approved the use of $28,854 held over from a previous LTPF allocation to be put towards the development of research-based teaching within the Faculty, primarily for elite students.

Unit administration cost has been estimated as 20% of a causal appointment (a postgraduate student in the Faculty will be employed as the project administrator). Project funding has been estimated at $750/project for 60 projects, 20 in each year of the trial.

Costs (over 3 years)

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Existing funds               $28k

Funds requested               $47k

The main expected long-term benefit is an increased interest in research and a flow through to Honours and postgraduate research. This expected benefit will assessed by surveying the career intentions of students who have done a URO project. The benefits and costs to staff will be assessed by surveying those who have offered a URO.
Expectations and responsibilities of staff and students in URO:

Staff

*What would I have to do?*
- Write a project description (no more than one page) for posting on a web page
- Ensure that enrolling students have a supportive lab environment (Honours students, PhDs, and maybe post-docs willing to advise)
- Grade reports of participating students

*What would I expect to get from it?*
- Participation of one or a few bright and motivated students in your research
- Funding to cover project costs and to make it worthwhile
- No inflexible demands on your own time; the unit will run throughout the year
- An opportunity to trial a new research project

*What positive outcomes might happen?*
- Research that leads to a paper or conference presentation
- Increased enrolments in Honours and PhD

Students

*What would I have to do?*
- The tasks specified as part of the research project
- Be an active member of the research group and participate in lab activities
- Prepare a project report

*What would I expect to get from it?*
- An understanding of key ideas, techniques, and ways of analyzing data in an area of current research
- Immersion in a research environment and an understanding of how research gets done
- Interaction with academics and senior students
- Credit towards your degree with flexible time commitments
- Opportunities to meet with other undergraduates taking a research opportunity
- An understanding that research is integral to the University's activity

*What positive outcomes might happen?*
- Co-authorship on a research publication or conference presentation
- Develop interest in a research career
Faculty and Schools

What has to be done?

Administer a 6-point unit (including processing results)
Recruit projects and maintain a web page listing the projects
Organize end-of-semester or end-of-year poster session (maybe not in the trial phase)
Fund the projects as required; the initiative will be financially sustainable if it increases retention rates and encourages students into research degrees