MEMBERS OF THE BOARD OF STUDIES OF SCIENCE

As it was considered unlikely that any of the items included in this Agenda would require substantial discussion it was decided that the Board of Studies of Science meeting, scheduled for 1st April 2008, be conducted by circulation.

If you wish to comment on any of the items below please advise me of your comments/suggestions/objections no later than 9am Friday 11th April 2008. Depending on the nature of the comments/suggestions/objections the item may be carried over to the next meeting of the Board of Studies as an item for discussion, otherwise the items will be deemed to have been approved by the majority of members.

If no comments/suggestions/objections have been received by 11th April 2008, the items will be processed in the normal way and the recommendations will be recorded as resolutions in the minutes of the Board of Studies of Science.

A full copy of this circular (including attachments) is sent to all school secretaries for consultation by Faculty members.

Imelda Ooi
Administrative Officer, Faculty Life and Physical Sciences
Secretary of the Board of Studies of Science  Email: imelda.ooi@uwa.edu.au

ITEMS FOR NOTING

Members are asked to note the following which were approved by the Faculty Board of Life and Physical Sciences at various meetings as indicated in the items below:

a. Changes to Second Year Physics Major  Ref: F5075

As a result of changes to the second-year mathematics offerings in 2008 i.e. the introduction of new units namely, MATH2200 Applied Mathematics and MATH2020 Multivariate Calculus and Linear Algebra and the suppression of MATH2213, MATH2214 and MATH2223, the School of Physics had requested to modify its second-year offerings in order to accommodate the changes in the mathematics offerings.

It had been resolved (R3/07) at the Faculty Board meeting on 18 September 2007 that the following be endorsed from 2008 onwards –

(i) Deletion of PHYS2211 Astronomy and Computational Physics;
(ii) Introduction of a new unit - PHYS2220 Atoms, Nuclei, Particles and Galaxies; and
(iii) Moving PHYS2212 Physics of Macroscopic Systems from second semester to first semester

b. BSc (Psychology) – Inclusion of SCIE1106 Molecular Biology of the Cell as an Optional Unit  Ref:

In order to provide greater flexibility for students, the School of Psychology has requested with immediate effect, that in the Rules for BSc (Psychology) programme, the Psychology Level 1 options under Group A be amended to include SCIE1106 Molecular Biology of the Cell (6 points) taken in combination with one of the following biology units – ANHB1101 Human Biology I, ANHB1102 Human Biology II, BIOL1130 Core Concepts in Biology and BIOL1131 Plant and Animal Biology. This was approved (R2/08) at Faculty Board meeting on 21 January 2008.

c. Minor Change to Rules For BSc (Nanotechnology) Ref: F6294

Currently, the Mathematics prerequisite units for PHYS2202 are: MATH1010, MATH1020 and MATH2200. In the BSc (Nanotechnology), students are only required to complete MATH2209 and MATH2020. This meant that under the current prerequisite Rules, students would not be eligible to enrol in PHYS2202. To rectify the problem, the Faculty had consulted the School of Mathematics & Statistics, School of Physics and
the Co-ordinator of the BSc (Nanotechnology) programme, to find a solution to enable students to enrol in PHYS2202. The School of Physics had agreed that the prerequisites for PHYS2202 be changed to:

“must have passed (MATH1010, MATH1020, PHYS1101, PHYS1102) and (MATH2200, PHYS2201) or (PHYS2201, SCIE1109, MATH2209)”. It was resolved (R8/08), at Faculty Board meeting on 25 February 2008, that the Rules for the BSc (Nanotechnology) programme be amended with immediate effect so that students were required to complete: either (CHEM2230 Nanochemistry, MATH2020, MATH2209) or (MATH2020, MATH2209, MATH2200).

d. Proposed Changes to the Bachelor of Computer Science, Bachelor of Computer and Mathematical Sciences and Associated Combined Courses Ref:

In response to a review in late 2006, the School of Computer Science and Software Engineering is proposing changes to its Bachelor of Computer Science, Bachelor of Computer and Mathematical Sciences and associated combined courses for the two degrees. The changes involve the introduction of a new additional major called ‘Software Management’ as well as some changes to units in existing majors. For the combined Bachelor of Computer Science/Bachelor of Science, the changes will apply to the Bachelor of Computer Science component only.

Checklists for the proposed changes are attached (Attachment A).

ITEMS FOR CONSIDERATION BY CIRCULAR

1. RESCISSION OF BSc (SCIENCE EDUCATION) REF: F8480

Professor Grady Venville has advised that the BSc (Science Education) will not be continuing in 2008 and beyond as enrolments have been too low for it to be viable.

*The Chair recommends that the BSc (Science Education) programme be withdrawn with immediate effect.*

2. GRADUATE OUTCOMES REF: F5026

Attachment B provides draft graduate outcomes for the BSc (Advanced Science), BSc (Biophysical Science), BSc (Green Chemistry), BSc (Physical Science), BSc (Science Communication), BSc (Science Education) and BSc (Scientific Computation).

*The Chair recommends that the graduate outcomes for the BSc (Advanced Science), BSc (Biophysical Science), BSc (Green Chemistry), BSc (Physical Science), BSc (Science Communication), BSc (Science Education) and BSc (Scientific Computation) be approved.*

3. WITHDRAWAL OF BIOC2250 BIOCHEMISTRY REF: F5075

The School of Biomolecular, Biomedical and Chemical Sciences has advised that due to the restructure of degree programmes in the Faculty of Natural and Agricultural Sciences, the requirement for students to take BIOC2250 in the BSc (Animal Science) programme has been modified. This has led to a steady decline in the number of students taking the unit. To this end, the School has requested that the unit be suppressed with immediate effect and that the unit be withdrawn from 2009 onwards, as it is no longer viable to run the unit.

*The Chair recommends that BIOC2250 Biochemistry offered in the BSc (Animal Science) programme, be suppressed with immediate effect and be withdrawn from 2009 onwards.*

4. PROPOSED CHANGE TO THE ADMISSION RULES FOR THE HONOURS PROGRAM IN PSYCHOLOGY REF:

In December 2007, the Faculty sought and obtained approval from the Chair of Academic Board for a waiver of the admission Rules for the Honours program in Psychology and to adopt the Faculty minimum for entry in 2008, i.e. a 65% average in the third-year units of the major sequence.
Currently, Rule 9.2.8A.46 states as follows:--

Students must have completed –

(a) a major sequence in Psychology, as defined under Rule 9.2.6.34A, with an average mark of at least 65 per cent in the Level 3 units (48 points), including a grade of distinction or better in at least four units, which must include either PSYC3301 Psychological Research Methods: Design and Analysis or PSYC3302 Psychological Measurement and its Application, and either PSYC3310 Psychology: Specialist Research Topics or PSYC3311 Psychology: Specialist Research Topics;

or

(b) equivalent as recognised by the Faculty.

The School of Psychology set their 2008 admission requirements at a higher level to ensure that the number of students admitted would not exceed the capacity for supervision. However, the School found that it had the capacity to admit a further eight students in the 2008 intake. The students had not met the specified admission requirements in (a) above but had met the Faculty’s minimum requirements.

The School of Psychology is now requesting that the Rules for entry to the Honours program in Psychology for 2009 be specified as –

"Entry to Honours in Psychology requires a minimum average mark in level 3 psychology units of 65%. Entry to this program is quota restricted; the number of places available is usually 70 but may vary with staff availability. Students who obtain distinctions or better in PSYC3301, PSYC3302, PSYC3310 and/or PSYC3311 will enhance their position in the quota selection rankings."

The School feels that the proposed change to the Rules and the application of a quota will provide flexibility for the School to admit as many students as they can accommodate in a given year.

*The Chair recommends that entry to the honours programme in Psychology for 2009 be amended to: “an average of 65% in the third-year units of the major sequence in Psychology”.*

5. REQUEST TO CHANGE TITLE OF UNIT ANTH2224 AUSTRALIAN ABORIGINAL ART AND SOCIETY REF:

The Discipline of Anthropology and Sociology has requested to change the title of ANTH2224 Australian Aboriginal Art and Society to ‘Aboriginal Art: Production of Meaning’ as this better reflects the content and purpose of the course.

*The Chair recommends that the request to change the title of ANTH2224 Australian Aboriginal Art and Society to ‘Aboriginal Art: Production of Meaning’ be endorsed.*

6. PROPOSED COMBINED BACHELOR OF SCIENCE AND BACHELOR OF MUSIC REF;

The Deputy Head of the School of Music and the Manager, Student Affairs, Faculty of Arts, Humanities and Social Sciences, have had discussions with the Academic Student Adviser, Dr Jane Emberson regarding the proposal for a combined Bachelor of Music and Bachelor of Science. The proposal is the outcome of the School of Music Review (2006 – 2007) and requests from both current and prospective students at UWA EXPO.

The academic objectives of the proposed combined course are to achieve proficiency in studies relevant to the two degree courses and possible interfaces such as music technology, acoustics studies etc.

The proposed structure comprises a total number of 258 – 264 points required for completion, made up of Bachelor of Music (144 points); and BSc (114 – 120 points). Several students are undertaking the first year Bachelor of Music in 2008 with a view to transferring to the combined course in 2009.

Checklists for the proposed combined course and draft Rules are attached (Attachment C).

*The Chair recommends that the proposal for a combined Bachelor of Music and Bachelor of Science in 2009 be endorsed, subject to approval by Academic Council.*
7. **PROPOSAL FOR THE ADMINISTRATION OF BSc HONOURS OFFSHORE** REF:

Attached *(Attachment D)* is a proposal prepared by Dr Mark Cregan for the administration of BSc Honours offshore for those students completing at PSB Academy at the end of April this year. A number of them have indicated that they would be interested in taking honours offshore, whilst others are quite interested to come to Perth. There are about ten students who might become eligible for honours, and of those somewhere between three and five might want to take honours in Singapore.

A working party was formed including all the honours supervisors for the programmes from which the students would be graduating (at this stage it only relates to honours in BBCS). They agreed that offshore honours was possible but that they would want the students to come onshore for their assessment. They would come mid-year when the colleges were relatively empty, so accommodation should not be a problem. The other limiting factor was that not all projects would lend themselves to being supervised offshore and so the numbers of such projects on offer was likely to be small. If the offshore projects on offer were less than the number of students wanting to take them, offers would be made on academic merit (i.e. the top five students wanting offshore honours would get the five offshore projects on offer).

Yet to be determined is the fee structure for the Singapore-based students. Due to the different environment under which the Singapore-based Honours students would be operating (the perceived value in the Singapore market for an Honours degree, the expense of the required additional travel to Perth for assessment, the high value of the Australian dollar, and the use of non-UWA infrastructure offshore), it is proposed that the fee for the Singapore-based Honours programme be set at AUD$15,000 (approx SGD$19,500). This fee would retain a relative equity with onshore international student fees where the average fee is currently AUD$24,200.

*The Chair recommends that the proposal for the administration of BSc Honours offshore be endorsed and forwarded to the Faculty Board of Life and Physical Sciences for approval.*
PROPOSALS FOR MAJOR CHANGES TO EXISTING COURSES

Major changes to existing courses include: the introduction of new majors or streams within existing courses; the introduction of new honours programmes within existing honours degree courses; and major restructuring of existing courses.

CORE QUESTIONS FOR CHECKLISTS USED BY FACULTIES

All faculties should use the questions below in their checklists for proposals for major alterations to existing courses. Faculties may add other questions as they see fit.

1. Details of the proposed change/s

Please provide the following information:

(a) the name of the existing course to which changes are proposed;

Bachelor of Computer Science
Bachelor of Computer Science (Hons)
Bachelor of Computer and Mathematical Sciences
Bachelor of Computer and Mathematical Sciences (Hons)

And these courses in the following combinations:
Bachelor of Arts/Bachelor of Computer Science
Bachelor of Commerce/Bachelor of Computer and Mathematical Sciences
Bachelor of Commerce/Bachelor of Computer Science
Bachelor of Computer Science/Bachelor of Economics
Bachelor of Computer Science/Bachelor of Engineering
Bachelor of Computer Science/Bachelor of Science
Bachelor of Computer Science/Bachelor of Science (Geophysics) (Curtin)
Bachelor of Computer and Mathematical Sciences/Bachelor of Economics
Bachelor of Computer and Mathematical Sciences/Bachelor of Engineering
Bachelor of Economics/Bachelor of Computer Science

(b) the nature of the proposed changes;

To introduce a new additional major within these courses and make a few changes to the units which make up the existing majors.

The new major is called Software Management.

Our existing majors are: Computation, Systems, Web Technologies, and Entertainment Technologies.

(c) the rationale for the proposed changes, including reference to any review which may have given rise to the proposal;

In response to a school review in late 2006, we began a major restructuring of our teaching programme in early 2007 for implementation in 2008. The main aims were to bring our offerings up to date and rationalize the number of units. Further development has occurred during 2007, especially in relation to our staffing profile. The changes described here continue the restructuring now that the staffing
profile is clearer.

(d) any change to the total number of points required for completion of the course;

NO

(e) any change to expected time for full-time student taking standard load; NO

(f) Any change to

(i) the delivery model (ie. Internal, external, multi-mode, online only).

NO change

(ii) Units should that there is any introduction of non face-to-face instruction? NO change

(Note: Where a course is delivered less than 75% face-to-face (ie more than 25% by distance learning or similar), there may be implications for international student visas. Please contact the International Centre for more information.)

(iii) where the course is taught (ie any move away from the Crawley campus)?

NO change

(iv) Arrangements for the course – is it to be taught in collaboration with another organisation. If yes, please state the name and address of the other organisation. NO change

2. Demand

If you are proposing a new major/stream/honours programme:

(a) what is the estimated new annual intake?

The new major will make the courses more attractive but will mainly cause a redistribution of students from our existing four majors. Possibly 40 students will do this major.

(b) how has the estimated new annual intake figure been arrived at?

Based on current numbers doing BCS/BCM.

(c) which existing majors/streams/honours programmes are likely to lose enrolments to the new major/stream/honours programme.

Our existing majors.

3. Employment Outcomes

If you are proposing a new major/stream/honours programme, what do you believe will be the principal employment destinations for graduates and on what basis have you estimated this?

Principal employment destinations for the graduates with the Software Management major include: software development companies, large companies and government departments with software development departments.

4. Consultation

(1) Please provide details of consultations you have had with various groups and individuals during the development of this proposal, including the following:

(a) other schools within the University who may have an interest in the proposal, including relevant academic staff;

(b) students and graduates;

(c) employers and/or employer groups and professional bodies;

(d) other universities in WA which offer courses in similar fields;

(e) leading universities in Australia and overseas which offer courses in similar fields.
If the proposal is similar to offerings in other institutions in WA, have you considered whether there is scope for a co-operative/collaborative approach?

These new majors have been introduced in response to the recommendations of a school review held in November 2006. The review involved consultation and input across the University and elsewhere, including staff, students, employers & staff of leading international universities.

Collaboration with other universities in WA has not been carried out as it is not strategic.

5. **Explanation of how the proposed changes enhance how the course fits with the University’s and the Faculty’s Strategic and Operational Priorities Plans**

An explanation as to how the proposed changes enhance how the course fits with the University’s and the Faculty’s Strategic and Operational Priorities Plans must be attached to this checklist. The maximum length of the explanation is one A4 page.

By restructuring and renaming the majors, the content has been updated, and is now cutting-edge, as per other leading international universities. This exercise has also lead to the reduction of the total number of units offered in any given semester, increasing teaching efficiency.

6. **Information Flow**

(1) Please confirm by ticking the boxes and entering the date of action, that you have forwarded a copy of this proposal, either in hard copy, or electronically, to:

* **External to the Faculty**

- The Deans of all faculties involved, including that of the faculty in which the course concerned is offered, that of any faculties which offer units in the course, and that of any faculties which offer this course as a component of a combined course.

  - Faculty of FAHSS, Business, FlAPS, FNAS_________  →  Date 25/03/08
  - Faculty of Sci&Eng, Curtin University_______________  →  Date 25/03/08
  - Faculty of ____________________  □  Date ______________

- The Head and relevant academic staff of any school which will be teaching in the new major/stream/ honours programme/ revised courses (specify below).

  - School of N.A.  □  Date ______________
  - School of ____________________  □  Date ______________
  - School of ____________________  □  Date ______________

- The Head and relevant academic staff of any school which is not involved in the new major/stream /honours programme/revised course, but which teaches in a cognate area (specify below):

  - School of N.A.  □  Date ______________
  - School of ____________________  □  Date ______________
  - School of ____________________  □  Date ______________

H:\My Documents\Work\Admin\Overall Course Admin\IFC009 ac plans\papework\course changes\CS&IE_Chart_Majors_Change.mt
The Librarian ➔ Date __20/03/08________

Where the course involves indigenous issues, the Dean of the School of Indigenous Studies

☐ Date _____ N.A.________

Where the course is postgraduate and includes 66.6% or more research, the Pro Vice-Chancellor (Research and Research Training)

☐ Date _____ N.A.________

Where changes to admissions requirements are proposed, the Executive Officer, Admissions Committee (for undergraduate courses)

☐ Date _____ N.A.________

Internal to the Faculty

• The Head and relevant academic staff of any school which will be teaching in the course/programme:

School of _____ EECE, Maths, Mech, ESE, CRE _______ ➔ Date _25/03/08________

School of _________________________________ ☐ Date ___________________

School of _________________________________ ☐ Date ___________________

• The Head and relevant academic staff of any school which is not involved in the course/programme, but which teaches in a cognate area. N.A.

School of _________________________________ ☐ Date ___________________

School of _________________________________ ☐ Date ___________________

School of _________________________________ ☐ Date ___________________

(2) Please confirm, by ticking the box, that you have completed a Faculty Checklist for each new unit introduced as a result of this proposal. ➔

(3) Please confirm, by ticking the box that proposed changes to the course rules are attached. ➔

(4) Please confirm, by ticking the box, that you have sent an amended course overview to Publications if this is needed. ☐ Not needed

7. Changes to combined courses only

Where the proposal concerns the introduction of a new combined course, the relevant minute extract from both faculties must be attached as set out below: [N.A. no new combined courses]

Faculty of __________________________ Date of meeting __________ Extract attached ☐

Faculty of __________________________ Date of meeting __________ Extract attached ☐

If the other Faculty’s minute extract is not yet available, the Dean of the other Faculty is asked to sign below to indicate that his/her Faculty is satisfied with the proposal.

Signature of Dean

Faculty of __________________________

8. All courses – confirmation by Dean of originating faculty

I confirm that the process leading to the proposed changes to the following course/programme
Name of course/programme

has included appropriate consultation with all other faculties with a potential interest in the proposed changes and that –

(1) the proposed changes will not result in a significant overlap with an existing course; and

(2) any implications for combined courses caused by changes to a single degree course have been discussed with the other faculties concerned and have been/will be addressed in a way acceptable to all faculties concerned.

Have any objections to this proposal been raised during the consultation process?  □ Yes  □ No
(If yes, please attach details of objection and response)

Signature of Dean

Faculty of

9. Confirmation by Dean of the School of Indigenous Studies

Where the course involves indigenous issues, the Dean of the School of Indigenous Studies must confirm the School's support for the changes.

I confirm that the indigenous issues involved in the proposal for the following course/programme:

Name of course/programme

have been discussed with me and I confirm the support of the School of Indigenous Studies for the changes.

Signature of Dean of the School of Indigenous Studies:

10. Certification that the changes are acceptable to the International Centre

Where the course is offered to international students, or offshore, the Director, International Centre (or delegate) must confirm the changes are acceptable to the International Centre.

I confirm that the International Centre has been consulted on the changes to this course/programme, and supports the changes.

Name of course/programme

Signature of Director, International Centre (or delegate):

April 2007
Checklist_Major_Change
11.1.53 BACHELOR OF COMPUTER SCIENCE AND BACHELOR OF SCIENCE (S2100)

Note: (1) The Bachelor of Science component of this course is derived from the Bachelor of Science (S0110) course.

(2) Choice of units must be approved by the Faculties.

Applicability of the General Provisions
11.1.53.1 The General Provisions in 11.1.1 apply to the course.

Course Structure
11.1.53.2(1) The combined course for the degrees of Bachelor of Computer Science and Bachelor of Science consists of units to a total value of at least 216 points and no more than 228 points, comprising a Bachelor of Computer Science component to the value of 108 points and a Bachelor of Science component to the value of 108 to 120 points.

(2) A student must complete at least one of the majors listed for the Bachelor of Computer Science component in Rule 11.1.53.3 and at least one major sequence for a major listed for the Bachelor of Science component in Rule 11.1.53.4.

(3) All computer science and information technology units are counted towards the requirements set out in Rule 11.1.53.3, and all units in any subject area listed in Rule 11.1.53.4 are counted towards the requirements set out in that rule.

(4) A student who has not passed TEE Applicable Mathematics or Calculus, or equivalent, must include in the course MATH1050 Calculus C and STAT1530 Statistics B, one of which will count towards the requirements set out in Rule 11.1.53.3 and one of which will count towards the requirements set out in Rule 11.1.53.4.

Bachelor of Computer Science Component
11.1.53.3(1) The Bachelor of Computer Science component consists of units to a total value of 108 points comprising—

(a) all units in Table 6.2.5a (Bachelor of Computer Science Core Units) in the Faculty of Engineering, Computing and Mathematics Rules—4254 points

and (b) two units from Table 6.2.5aa (Bachelor of Computer Science Level Two Option Units)- 12 points

and (cb) the requirements for completion of one of the following majors:

(i) Systems (MJ-SYSTM) comprising the remaining units chosen from Table 6.2.3d (Systems Major Core Units) in the Faculty of Engineering, Computing and Mathematics Rules—18-30 points

or (ii) Web Technologies (MJ-TCHWB) comprising the remaining units chosen from Table 6.2.3e (Web Technologies Major Core Units) in the Faculty of Engineering, Computing and Mathematics Rules—18-24 points

or (iii) Entertainment Technologies (MJ-TCHET) comprising the remaining units chosen from Table 6.2.3f (Entertainment Technologies Major Core Units) in the Faculty of Engineering, Computing and Mathematics Rules—18-24 points

or (iv) Computation (MJ-COMPT) comprising the remaining units chosen from Table 6.2.3g (Computation Major Core Units) in the Faculty of Engineering, Computing and Mathematics Rules—18-24 points

or
(v) Software Management (MJ-?????) comprising the remaining units from Table 6.2.3gg (Software Management Major Core Units) in the Faculty of Engineering, Computing and Mathematics Rules—18 to 24 points

and

(de) units to make up the remaining points required for the component which may comprise one or more of the following:

(i) a second major from (c);

(ii) a major chosen from those available within the University excluding those listed under Rule 11.1.53.4(1)(b);

(iii) units chosen from those available within the University excluding units offered in the Bachelor of Science course other than computer science and information technology units;

and

(ed) practical experience through a professional practicum as set out in Rule 6.2.5.4 in the Faculty of Engineering, Computing and Mathematics Rules (CITS3010 Professional Practicum). 1

1 Refer to unit description and to the Faculty of Engineering, Computing and Mathematics web site at http://www.ecm.uwa.edu.au/page/32392.

Bachelor of Science Component

11.1.53.4(1) The Bachelor of Science component consists of units to a total value of 108 to 120 points from Table 9.2.2a [Recognised Units for the Bachelor of Science (50110)] in the Science Faculties’ Rules comprising—

(a) Level 1 units to the value of 24 to 36 points chosen in consultation with a Faculty Adviser from one of the Bachelor of Science foundation packages in 9.2.5 of the Science Faculties’ Rules.

and

(b) Level 2 units to a minimum value of 24 points from at least two Science subject areas and including those listed for the major sequence as set out in 9.2.6 of the Science Faculties’ Rules for at least one of the following majors:

Anatomy and Human Biology
Anthropology
Applied Mathematics
Archaeology
Biochemistry
Biophysics
Botany
Cell Physiology
Chemical Physics
Chemistry
Conservation Biology
Environmental Chemistry
Environmental Geoscience
Environmental Management
Environmental Microbiology
Genetics
Geography
Geology
Human Movement and Exercise Science
Land and Water Management
Linguistics
Marine and Coastal Management
Marine Biology
Mathematical Sciences
Mathematical Statistics
Microbiology
Pathology
Pharmacology
Physics
Physiology
Psychological Studies
Psychology
Pure Mathematics
Soil Science
Zoology

and

(c) Level 3 units to the value of at least 24 points to complete the chosen major or majors.
Graduate Outcomes – BSc (Advanced Science)

Upon completion of the BSc (Advanced Science) the graduate will:

- Have an in-depth understanding of one scientific subject area and a broad understanding of related areas
- Have a broad understanding of key issues that affect science
- Be able to explain and critically appraise recent scientific literature
- Have had extensive experience of independent research carried out in a range of laboratories
- Have gained international experience in an overseas laboratory
GRADUATE OUTCOMES – BSc (BIOPHYSICAL SCIENCE)

Students completing the degree will:

1) gain a foundation of the physics related to biological systems with particular emphasis on processes at the biological membrane and techniques for their characterisation and measurement.

2) acquire theoretical and practical skills relevant to many aspects of medical physics.

3) experience advanced level training in selected areas of current research in collaborating fields of biophysics.

4) become proficient in basic computational approaches to the investigation, analysis and modelling of various areas of biophysical research.

5) receive training and practice in written and verbal communication of biophysical topics suitable for graduate presentations in conference or publication environments.

6) become competent in the use of various advanced level instruments used in pure and applied biophysical research as well as techniques common to biotechnology and medical applications.

Ralph James
Course co-ordinator
Biophysical Science Programme
Outcomes for BSc (Green Chemistry)

Graduating students should possess the general attributes of BSc graduates of UWA and in particular should;

1. Possess a sound knowledge of basic biology, physics, mathematics, chemistry, and green chemistry, delivered at a first year level.

2. Possess knowledge at a second year level that enables further study into chemistry, which includes a focus on green chemistry.

3. Be able to conduct some basic investigations relevant to green chemistry at a third year level that involves knowledge gained in the chemical sciences and green chemistry.

4. Be able to recognize the relevance of these studies to understanding green chemistry and sustainability for improved technological outcomes.

5. Be able to work productively in small teams in the laboratory/field environment.

6. Be able to research green chemistry literature and incorporate this into a written report on a chemical subject.

7. Be able to critically appraise and explain “cutting edge” literature relevant to green chemistry.

8. Be able to predict the direction of future research based on “cutting edge” issues discussed in lecture, tutorials and laboratory settings.

9. Be aware that a sound knowledge learnt from these three levels forms the basis of higher research opportunities.

10. Be aware of the ethical implications involved in green chemistry research.
Graduate Outcomes for BSc (Physical Science)

- demonstrate knowledge of the physical processes relevant to the particular major undertaken (chemistry, geology or physics)
- integrate and apply this knowledge in the solution of problems
- demonstrate relevant quantitative, analytical, laboratory and field skills
- acquire, analyze and critically interpret data
- demonstrate effective oral and written communication skills
- make effective use of IT resources appropriate to the discipline
Bachelor of Science (Science Communication)

Science communication training makes a crucial difference to how scientific and technical knowledge circulates and is received. Controversial science and technology need articulate and skilled communicators to engage in public debates, clarify issues, and respond to real public concern. Science and technology impact every facet of our lives, with knowledge increasing at an ever-increasing rate. It is a democratic right that all people have access to information about scientific developments that affect them. Making this information understandable is a key outcome of science communication training.

Course outcomes
On successful completion of this course, students should:

- have an awareness and understanding of key factors in effective visual, written and oral communication,
- understand the importance of targeting their audience and be familiar with methods to do so,
- be able to identify their objective and key message(s) in any communication activity,
- be familiar with current examples of successful and less successful science communication activities and be able to evaluate those activities,
- be able to choose appropriate strategies for different objectives and audiences,
- gain a greater understanding of constraints and factors that affect successful media outcomes,
- be able to write and speak clearly about complex scientific information in language that the general public can understand,
- have demonstrated information-seeking skills, be able to assess credibility of web-based and other information and be familiar with acceptable methods of citing sources through development of scientific content for assignments,
- have considered the importance and value of science and science communication to the community,
- have improved IT literacy,
- be able to work effectively independently and in a team and
- have reflected on their learning process.
Bachelor of Science (Science Education)

Course Outcomes: Students participating in this course will achieve four broad outcomes of knowledge, communication, experiences and values related to science and science education.

1. Knowledge
   Students will comprehend knowledge and acquire skills from physics, chemistry, biology and mathematics at levels suitable for a bachelor of science. The science knowledge outcome will be focused on the enabling sciences and will suitably place students for a career in the teaching of physical sciences.

2. Communication
   Students will speak and write clearly about complex scientific and mathematical information in engaging and cognitively appropriate ways for a variety of audiences including the general public and school children. They will have an awareness and understanding of key factors in effective communication.

3. Experience
   Through participation in the SEEK peer tutoring program, students will work with school aged children and evaluate the pathways of learning and affective education contexts that they create for those children.

4. Values
   Students will value science as a human endeavour and high quality science education as an essential aspect of modern society.
Graduate Outcomes - BSc (Scientific Computation)

This program is fundamentally science based and it develops skills in critical thinking, problem solving and analysis of abstract systems. Therefore, most of the opportunities available to regular science graduates remain open. In addition, the specially developed scientific computational skills make the graduates an attractive prospect for employers both within the scientific community and in other professions. Specifically, students will:

- acquire a strong science background with an in-depth understanding of the principles in science and engineering;
- learn the necessary applied mathematics as well as programming languages;
- become familiar with a variety of visualization and data analysis techniques;
- learn to use networked computer systems, shared resources and a variety of parallel operating systems, and
- gain experience with high-performance parallel supercomputers.
PROPOSALS FOR A NEW COMBINED COURSE LEADING TO TWO DEGREES
This proforma is to be used only where the proposed course is a combination of two existing approved courses.

CORE QUESTIONS FOR CHECKLISTS USED BY FACULTIES

All faculties should use the questions below in their checklists. Faculties may add other questions as they see fit.

1. **Course Details**

   (1) Please provide the following information:

   (a) Combination proposed; **Bachelor of Music and Bachelor of Science**

   (b) the proposed abbreviated form of the course or programme name (see http://www.secretariat.uwa.edu.au/page/59472 for policy on Degree Abbreviations); **BMus, BSc**

   (c) the proposed annual intake to the course (in student numbers); **5-7**

   (d) (i) total number of points required for completion: **258-264**

   (ii) number of points in each component: **BMus 144; BSc 114-120**

   (e) expected completion time for full-time student taking standard load; **5.5 years**

   (f) (i) delivery mode (ie. Internal, external, multi-mode, online-only). **Internal**

   (ii) are any units taught by any kind of non face-to-face instruction? **No**

   (Note: Where a course is delivered less than 75% face-to-face (ie more than 25% by distance learning or similar), there may be implications for international student visas. Please contact the International Centre for more information.)

   (g) is any part of the course taught away from the Crawley campus? **No**

   (h) is any part of the course delivered by or taught in collaboration with another organisation? If yes, please state the name and address of the other organisation. **No**

   (i) is honours available in this course? If yes, please explain how students undertake honours study. is study towards honours open to international students? **BMus Honours – concurrent style – same number of points as pass degree BSc end-on honours available (48 points) Open to international students**

(2) Please give a succinct summary of the academic objectives of the proposed new combination. **Proficiency in studies relevant to the 2 degree courses; also possible interfaces such as music technology, acoustics studies etc.**

(3) Please indicate whether the proposal is the outcome of a school, course or other review, or a request from individual students. **School of Music Review 2006-2007. Also requests from prospective students at EXPO etc.**

(4) Does this course complement any major research activities and/or centres? □ Yes □ No (If yes, please elaborate)

2. **Demand**

**Notes:**

(i) The Chair of the Admissions Committee and the Manager, Admissions Centre are available to offer advice on estimating student numbers. (Please note that decisions on any quotas applicable to this course will be made by the Working Party on Admission and Quota Policy.)

(ii) For new undergraduate courses to be listed in the TISC guide, they need to be approved by Academic Council by May at the latest. Please advise the Executive Officer, Admissions Committee, as early as possible of proposed new undergraduate courses.

(1) Estimate the annual number of sufficiently qualified applications expected for this course. Please state the number of Australian and international student admissions separately.

**Approx. 3-5 Australian students per intake; 1-2 international students per intake.**
(2) What is the expected impact on applications for admission to other courses? Please provide separate figures for Australian and international students.

No implications for Science, possible increase in BMus enrolments as a result of new combination available.

3. Employment Outcomes

What do you believe will be the principal employment destinations for graduates and on what basis have you estimated this?

The normal employment destinations for Music and Science graduates – also such areas as music technology and music production/broadcasting etc.

4. Consultation

(1) Please provide details of consultations you have had with various groups and individuals during the development of this proposal, including the following:

(a) other schools of the University which may have an interest in the course, including relevant academic staff; Faculty administration of LPS Faculty

(b) students and graduates; Informal requests from students and prospective students (at EXPO etc.) – several students undertaking 1st year BMus in 2008 with a view to transferring to combined course in 2009.

(c) employers and/or employer groups, and professional bodies; N/A

(d) other universities in WA which offer courses in similar fields; N/A

(e) leading universities in Australia and overseas which offer courses in similar fields; N/A

(2) Have you given consideration to the alternative of introducing a new programme/major within an existing course or existing combination? Please elaborate. N/A

(3) If the proposal is similar to offerings in other institutions in WA, have you considered whether there is scope for a co-operative/collaborative approach? Please elaborate. N/A

5. Cross Crediting:

Please detail the cross-crediting arrangements that have been agreed for this combined course:

36 Science points have been cross-credited to the BMus in addition to the 12 non-Music points already required in the single BMus. 24-30 points have been cross-credited from BSc.

6. Fees

Note: Courses must not be offered or advertised in any way to international students until after they have been registered through the International Centre with CRICOS. Please ensure that you consult with the Director, International Centre about the suitability of a course for international students and any conditions that may be required.

(1)(a) Is the course to be registered on CRICOS as available to international fee-paying students on Student Visas? YES

(b) what fee per annum is proposed for international fee-paying students? $21,500

(2)(a) (Postgraduate coursework degrees/diplomas/certificates only) Is the course to be registered with DEST as available on a fee-paying basis to local students? YES

(b) If so, what fee is proposed? Please state: fee per annum, the total number of points and the fee per point.

(c) Please comment on consultations you have had with other institutions, both national and local, in determining that fee.
6. **Explanation of how the proposed course fits with the University’s and the Faculty’s Strategic and Operational Priorities Plans**

An explanation as to how the proposed course fits with the University’s and the Faculty’s Strategic and Operational Priorities Plans must be attached to this checklist. The maximum length of the explanation is one A4 page. 
**Comment at this stage is premature owing to the imminent outcomes of the UWA Course structures Review. However the proposed combination is in line with the University’s present policy of encouraging combined courses.**

7. **Information Flow**

(1) Please confirm by ticking the boxes and entering the date of action, that you have forwarded a copy of this proposal, either in hard copy, or electronically, to:

**External to the Faculty**
- The Deans of all faculties which resource schools responsible for teaching units in the course.

  - Faculty of AHSS
    - Date Feb 2008
  - Faculty of LPS
    - Date Feb 2008
  - Faculty of _____________
    - Date _____________

- The Head and relevant academic staff of any school which will be teaching in the course.

  - School of _____________
    - Date _____________
  - School of _____________
    - Date _____________
  - School of _____________
    - Date _____________

- The Head and relevant academic staff of any school which is not involved in the course, but which teaches in a cognate area.

  - School of _____________
    - Date _____________
  - School of _____________
    - Date _____________
  - School of _____________
    - Date _____________

- **The Librarian**
  - Date Feb 2008

- Where the course proposed involves indigenous issues, the Dean of the School of Indigenous Studies
  - Date _____________

- Where the course proposed is postgraduate and includes 66.6% or more research, the Pro Vice-Chancellor (Research and Research Training)
  - Date _____________

- **Executive Officer, Admissions Committee (for new undergraduate courses only)**
  - Date Feb 2008

- Where the course proposed is to be available to international students, the Director, International Centre
  - Date Feb 2008

**Internal to the Faculty**
- The Head and relevant academic staff of any school which will be teaching in the course:

  - School of Music
    - Date Feb 2008
  - School of _____________
    - Date _____________
  - School of _____________
    - Date _____________
• The Head and relevant academic staff of any school which is not involved in the course, but which teaches in a cognate area.

0 School of __________________________  □ Date __________

0 School of __________________________  □ Date __________

0 School of __________________________  □ Date __________

(2) Please confirm, by ticking the box, that you have completed a Faculty Checklist for each new unit introduced as a result of this proposal. N/A □

(3) Please confirm, by ticking the box, that the proposed course rules are attached. □

**Please note that the BMus component of this combined course is identical to those for all combined degrees with BMus**

(4) Please confirm, by ticking the box, that you have sent a course overview to Publications. □

(5) Please confirm, by ticking the box that you have consulted with Student Administration about the degree abbreviation □

8. **Faculty approval**

Where available, the relevant minute extract from both faculties must be attached as set out below:

Faculty of __________________________ Date of meeting __________ Extract attached □ Yes □ No

Faculty of __________________________ Date of meeting __________ Extract attached □ Yes □ No

Where a Faculty’s minute extract is not yet available, the Dean of the other Faculty is asked to sign below to indicate that his/her Faculty is satisfied with the proposal.

Signature of Dean

[Signature]

Faculty of

9. **Confirmation by Dean of originating faculty**

I confirm that the process leading to the proposal for the introduction of the following course:

Name of course:

has included appropriate consultation with all other faculties with a potential interest in the proposed course and that the course will not overlap significantly with any existing combined course.

Have any objections to this proposal been raised during the consultation process? □ Yes □ No

(If yes, please attach details of objection and response)

Signature of Dean

[Signature]

Faculty of

10. **Confirmation by Dean of the School of Indigenous Studies**

Where the course proposed involves indigenous issues, the Dean of the School of Indigenous Studies must confirm the school’s support.

I confirm that the indigenous issues involved in the proposal for the following course:

Name of course:

have been discussed with me and I confirm the support of the School of Indigenous Studies for the introduction of this course.

Signature of Dean of the School of Indigenous Studies
11. Certification that the proposal is acceptable to the International Centre

Where it is proposed to offer the course to international students, or offshore, the Director, International Centre (or delegate) must confirm the proposal is acceptable to the International Centre

I confirm that the International Centre has been consulted on the introduction of this course/programme, and is satisfied that the fee proposed to be charged to international students is appropriate.

Name of course/programme

Signature of Director, International Centre (or delegate)

April 2007

[Checklist-combined-crs]
11.1.61 BACHELOR OF MUSIC AND BACHELOR OF SCIENCE (4XXX)

Note: The Bachelor of Science component of this course is derived from the Bachelor of Science (50110) course.

Applicability of the General Provisions
11.1.61.1 The General Provisions in 11.1.1 apply to the course.

Course Structure
11.1.61.2 The combined course for the degrees of Bachelor of Music and Bachelor of Science consists of units to a total value of at least 158 and no more than 164 points, comprising a Bachelor of Music component to the value of 144 points and a Bachelor of Science component to the value of 114-120 points.

Bachelor of Music Component
11.1.61.3 The Bachelor of Music component consists of units to a total value of 144 points comprising—

(a) all units in Table 11.1.61a (Bachelor of Music Combined Course Component Core Units)—84 points and

(b) units to the value of 60 points comprising one of the following streams:
(i) the Applied Music (Pass Degree) stream as set out in Rule 11.1.8.5;
(ii) the Applied Music (Honours Degree) stream as set out in Rule 11.1.8.6;
(iii) the Music Studies (Pass Degree) stream as set out in Rule 11.1.8.7;
(iv) the Music Studies (Honours Degree) stream as set out in Rule 11.1.8.8.

11.1.61.4 The Applied Music (Pass Degree) stream comprises all units in Table 11.1.61b [Applied Music (Pass Degree) Core Units]—60 points.

11.1.61.5 The Applied Music (Honours Degree) stream comprises all units in Table 11.1.61c (Applied Music [Honours Degree] Core Units)—60 points.

11.1.61.6 The Music Studies (Pass Degree) stream comprises—

(a) MUSC2010 Music in the Community and MUSC2610 Introduction to Music Teaching—12 points and

(b) units to the value of 48 points from Table 3.2.12e (Bachelor of Music Options) including—
(i) at least three units from Group D; and
(ii) at least one unit from each of Groups A to C.

11.1.61.7 The Music Studies (Honours Degree) stream comprises—
(a) all units in Table 11.1.61d [Music Studies (Honours Degree) Core Units]—36 points and

(b)(i) MUSC7530 Music Honours Project 2 and one unit from Table 3.2.12e (Bachelor of Music Options)—12 points or
(ii) units to the value of 12 points comprising units from at least two of Groups A to D in Table 3.2.12e (Bachelor of Music Options);
and
(c) units to the value of 12 points from Table 3.2.12e (Bachelor of Music Options) with at least six points from Group D.
Table 11.1.61a—Bachelor of Music Combined Component Core Units
All units have a value of six points unless otherwise stated.

S1  MUSC1010  Introduction to World Music Cultures
S2  MUSC1100  Western Art Music (1500–1750)
S1  MUSC1201  Techniques of Music 1
S2  MUSC1202  Techniques of Music 2
S1, S2 MUSC1401  Practical Studies 1
S1, S2 MUSC1402  Practical Studies 2
N/A MUSC2110  Western Art Music (1750–1890)
N/A MUSC2120  Western Art Music (1890–1945)
S1  MUSC2201  Techniques of Music 3
S2  MUSC2202  Techniques of Music 4
S1, S2 MUSC2401  Practical Studies 3
S1, S2 MUSC2402  Practical Studies 4
S2  MUSC3010  Popular Music and Culture
S1  MUSC3100  Western Art Music Since World War II

Table 11.1.61b—Applied Music (Pass Degree) Core Units
All units have a value of six points unless otherwise stated.

S1  MUSC2010  Music in the Community
S2  MUSC2610  Introduction to Music Teaching
S1, S2 MUSC3401  Practical Studies 5 (12 points)
S1, S2 MUSC3402  Practical Studies 6 (12 points)
S1, S2 MUSC4401  Practical Studies 7 (12 points)
S1, S2 MUSC4402  Practical Studies 8 (12 points)

Table 11.1.61c—Applied Music (Honours Degree) Core Units
All units have a value of six points unless otherwise stated.

S1, S2 MUSC3401  Practical Studies 5 (12 points)
S1, S2 MUSC3402  Practical Studies 6 (12 points)
S1, S2 MUSC7401  Practical Studies Honours 1 (12 points)
S1, S2 MUSC7402  Practical Studies Honours 2 (12 points)
S1  MUSC7510  Musicology (Honours Minor)
S1, S2 MUSC7520  Music Honours Project 1

Table 11.1.61d—Music Studies (Honours Degree) Core Units
All units have a value of six points unless otherwise stated.

S1  MUSC2010  Music in the Community
S2  MUSC2610  Introduction to Music Teaching
S1  MUSC7501  Musicology Honours 1 (12 points)
S1, S2 MUSC7502  Musicology Honours 2 (12 points)

Bachelor of Science Component

11.1.61.8(1) The Bachelor of Science component consists of units to a total value of 114-120 points from Table 9.2.2a [Recognised Units for the Bachelor of Science (50110)] in the Science Faculties' Rules, comprising—

(a) Level 1 units to the value of 24 to 36 points, chosen in consultation with a Faculty Adviser from one of the Bachelor of Science foundation packages in 9.2.5 of the Science Faculties' Rules, leading to at least two science majors in different disciplines;

and

(b) Level 2 units to a minimum value of 24 points from at least two science subject areas and leading to at least one of the majors in Science Faculties' Rule 9.2.6.2;

and

(c) subject to (2), Level 3 units to the value of 24 to 48 points leading to completion of at least one of the majors in Science Faculties' Rule 9.2.6.2.
(2) In the case of a major in anthropology, archaeology or linguistics, the required number of Level 3 units may be replaced by Level 2 units to a maximum value of 66 points in any of those subject areas.

(3) Students who have not passed TEE Applicable Mathematics or equivalent must complete MATH1050 Calculus C.

(4) Units chosen for the Bachelor of Science component must be approved by a Faculty adviser.
Proposal for the Administration of BSc Honours Offshore

Background
On April 25, 2008 the first cohort of students from the PSB Academy-based BSc programmes will complete their degree. A number of these students have a desire to continue in their undergraduate studies by enrolling in an Honours programme, commencing in July, 2008, with some intending to spend an academic year on-campus and others wishing to remain in Singapore. Those students wishing to undertake Honours onshore enroll in their respective Honours programmes via established processes for international students. However, for those wishing to undertake Honours in Singapore, procedures need to be established for their participation in assessment, and a fee structure devised.

Supervision
Currently, it is already common practice for Honours students to be based remotely at research institutes within Western Australia, and at least one student has undertaken their Honours year in Europe, with UWA academics being the co-supervisors, and students attending the Crawley campus only as required for assessment purposes. As such, a precedent has already been established for co-supervision of Honours students with non-UWA academics at research institutes remote from Perth. A working party of senior academic staff from the School of Biomedical, Biomolecular and Chemical Sciences, who coordinate each of the Honours programmes into which these students may be eligible to enroll, offered no objections to the principle of offshore-based research projects.

There are two proposed mechanisms by which co-supervision of Singapore-based Honours students can occur. A number of research collaborations between UWA academic staff and Singaporean-based researchers already exist, and as such the co-supervision of students to be based in Singapore can occur via these existing collaborations. It should however be noted that the number of projects are likely to be fewer in number than the number of students desiring to undertake projects in Singapore. Alternatively students studying in the programme, most of whom are already working in research laboratories in Singapore, can propose a co-supervised project of a Singapore-based researcher and a UWA academic. If the UWA-based academic agrees to the project and the research collaboration and both are approved by the relevant School and the Faculty, the project can proceed. It should be noted that this alternate mechanism not only has the advantage of increasing the number of available Honours projects in Singapore, but also to increasing the number of collaborations between UWA Academic staff and their Singaporean counterparts, and as such will increase the potential for UWA academics to access the numerous, and generous research funding mechanisms in Singapore.

Assessment
Consultation with senior academic staff who coordinate each of the Honours programmes into which these students can enroll, resulted in the working party recommending that offshore students be required to participate in assessment onshore in order to ensure equity between the onshore and offshore assessment of the combined Honours cohort. It seems fair, therefore, when deciding upon a fee structure for the Singaporean-based students to consider the travel costs for these students when coming to Perth to attend for their on-campus assessment sessions.
Fees
Yet to be decided upon is the fee structure for the Singapore-based student. There are a number of factors that need to be considered when deciding upon a fee for those students who are not, and never have been, based at the Crawley campus. Not only do these students access resources at their placement institute rather than those onshore (eg, some guild facilities, student services, and infrastructure such as internet access), they are exposed to competitive market forces whereby the annual fee in Singapore for a BSc, inclusive of Honours, is SGD$12,000. As previously stated, Singapore-based Honours students will also be expected to pay for their own travel, accommodation and expenses to attend the assessment for their respective Honours programme.

Proposal
Approval is now sought for students in Singapore who qualify for BSc Honours to be able to undertake their Honours course offshore if they wish, subject, of course, to the approval by the School and the Faculty of a suitable project and offshore supervisor, and compulsory attendance in Perth to participate in the BSc Honours assessment process. Due to the differences in circumstance for the Singapore-based Honours students in relation to the perceived value in the Singapore market for an Honours degree, the additional travel expenditure, the high value of the Australian Dollar, and the use of non-UWA infrastructure, it is proposed to set the fee for the Singapore-based Honours programme at AUD$15,000 (approx SGD$19,500). Currently, PSB Academy-based students pay SGD$12,000 (approx AUD$9,500) per annum for their 3-year undergraduate BSc degree. Although the proposed fee for Honours is high by Singapore standards, particularly with a view to the additional costs of travel, this fee will retain a relative equity with onshore student fees, in that inclusive of travel expenditure, the total cost to the student will be equitable to that of the onshore international student where the average fee is currently AUD$24,200 (due to rise to AUD$25,000 from 2009).

If the Board approves the above arrangements it is proposed to forward the proposal through the LPS Faculty Board to the International Strategies Committee for approval of the proposed fee for the offshore Honours course. There is some urgency about this issue as the first group of graduates from the offshore programme at PSB Academy will be due to commence their Honours programmes in July this year.

M D Cregan
Director, Faculty Offshore Programmes
31/3/08