

Faculty of Sciences – Planning and Rationale for Proposed Structural Changes

Section 1. Introduction	2
1.0 Motivation.....	2
1.1 Document Purpose	2
1.2 Document Structure	2
Section 2. Summary	4
Section 3. The Plan	6
3.1 Requirements	6
3.2 Proposal.....	6
3.3 Positions.....	7
3.3.1 Teaching Positions	7
3.3.2 Technical Positions	11
3.4 Programs	12
Section 4 Analysis and Details	15
4.1 Overall Analysis.....	15
4.2 Discipline-based Analysis.....	17
4.2.1 Biological and Physical Sciences.....	17
4.2.2 Mathematics and Computing	20
Section 5 Implementation Process	22
5.1 Positions potentially no longer required	22
5.2 Teach out.....	22
5.3 Communication.....	22
5.4 Resources	23
5.5 Conclusion	23
Appendix A, Figure 1	24

Section 1. Introduction

1.0 Motivation

This plan has been developed to support the development of a more sustainable and viable suite of academic programs for the Faculty of Sciences, in keeping with the constraints of current and forecast student demand, market directions and University budgetary requirements.

An immediate strategic objective for each Faculty at USQ is to better align the allocation of academic teaching and technical staffing resources with current areas of demand and future strategic developments. This paper presents an approach that has been developed in the context of the Faculty of Sciences to assist in directing this alignment process. The proposal has been developed in order to create a framework for on-going sustainability, responsiveness and ultimately additional growth. The alignments all provide strong opportunities to positively engage with key internal and external stakeholders.

In considering the alignment options for the future, there are two key points that need to be emphasised, namely that:

- *No restructuring is due to the quality of the staff in any area or to their contribution in the prevailing context*, nor does any restructuring relate to performance issues. **All restructuring proposals are based on financial exigency arising from a lack of student demand and changing market forces.**
- Restructuring in response to the prevailing financial exigencies alone would leave the Faculty highly likely to have to address financial and staffing pressures again in the near future. This would be extremely detrimental both internally and externally. It is critical that the staffing and program alignments, and the associated strategic directions, are put in place in a holistic and future focussed way, mindful that, as with any Faculty, ongoing analysis, development, review and improvement will be required – there is no end-point.

1.1 Document Purpose

This document has been written for the University's senior executive in order to present a restructuring proposal and the rationale behind that proposal. The document is also addressed to members of the Faculty, both to present the proposed approach and rationale and to put it in the context of the anticipated future strategic directions of the Faculty. These directions would also be of interest to stakeholders external to the Faculty.

This document has been prepared by the Dean, who accepts full responsibility for its contents. Senior academic staff have been consulted about the general directions of the proposed plan and, where relevant, specific details. Senior administrative staff members have contributed significantly to the underlying data gathering and analysis. The key elements of this proposed plan have been summarised in the Faculty's draft implementation plan, which is now available for wider consultation.

1.2 Document Structure

The remainder of this document has been structured in different layers of detail to explain aspects of the proposed plan.

- **Section 2** is at the level of an executive summary albeit one that is lengthier than usual. After a brief review of the background to this plan, it summarises the key strategic directions and alignments, including the restructuring proposal.
- **Section 3** presents the proposed plan. It expands on the executive summary providing further details of the directions and alignments and their dependency on the proposed restructured profile which is, itself, presented in more detail.
- **Section 4** provides details of the discipline, program and course analysis that underlies (and motivates) the contents of the previous two sections. This also explains the proposed future arrangements of each of these disciplines and programs within the overall plan. In the case of

each affected discipline, a proposed transition option is suggested, in accordance with the USQ ROP Change Management Principles and HR Framework.

- **Section 5** briefly addresses related issues, particularly, transition processes, teach out and communication.

Section 2. Summary

This proposal is intended to meet the key objectives of the ROP project, being namely:

- the University budgetary requirements;
- the restoration of a more acceptable balance between demand and positions across the Faculty's disciplines; and
- to establish a framework for on-going sustainability, responsiveness and ultimately additional growth.

The Faculty's plan proposes a restructured academic staffing profile and a suite of program offerings that align with that new structure. The plan is intended not just to maintain, but indeed to increase the Faculty's service teaching role.

The key aspects of the proposed plan, which are detailed in Sections 3 and 4, are:

- A change in the current Faculty staffing profile with a proposed reduction of 15 continuing academic staff FTE across a range of existing program structures, while four new FTE are proposed to be created in areas of demand and strategic importance. The proposed breakdown of the FTE reductions are in two Departments, Mathematics and Computing, and Biological and Physical Sciences. The proposed new FTE are in other Discipline areas within Biological and Physical Sciences as well as in the Department of Nursing and Midwifery. The fourth Department, Psychology, has already reduced its profile sufficiently through other processes including natural attrition and is not subject to any further changes within this plan.
- A reduction of 3.5 technical staff FTE affiliated with teaching in Physics and Plant Science. The 0.5 position is a fixed-term position that has already been discontinued. Because of the changes in teaching within the "sciences" area, the number of technical support positions has been reduced to two. This proposed reduction has the effect of reducing three technical staff FTE.
- The proposed new technical staff profile will be re-organised as a coherent and cohesive Faculty resource. Existing services to the Departments will be maintained where demand warrants. The new structure will introduce consistencies, efficiencies and flexibilities to enable better responsiveness to demand and priorities. It is anticipated that such a resource model would provide additional opportunities for the professional development of staff, through processes such as multi-skilling and developmental rotations.
- As a result of low or no enrolments, the Bachelor of Science majors in chemistry, physics, mathematics/statistics, plant science, ecology and sustainability and climatology should be discontinued in the BSc. (Service teaching remains an important role for some of these areas.)
- As this would result in the discontinuation of most of its majors, the award of the Bsc would be discontinued, as would any "partner" coursework Masters and the Graduate Certificates.
 - The BSc in Psychology and the related honours degree will be renamed so that it joins the Faculty's suite of allied health degrees
 - A new set of awards will replace the BSc, namely a Bachelor of Technology (<specialization>) and Masters of Technology (<specialization>). The postgraduate course would also have an entry Graduate Certificate. The BTech awards would include professional skills, some basic business and preferably project management. (It seems likely that the restructured BIT would also have a similar structure.)
 - There would be a 3 +1 honours year for the BTech award.
 - The initial specialisations in the BTech would be wine (or wine production), climatology and sustainability, science studies, molecular and cellular biology and, possibly, informatics. It is to be noted that molecular and cellular biology specialisation maintains capacity in plant science, which is an important research area, while also linking into biomedical sciences.
 - The science studies (or liberal science major) would be structured to enable combined degrees so that students with a primary degree focus on another area

such as education, business or law, could obtain a broad-based education in science in order to be science literate

- The introduction of the BTech would be targeted for 2009. It would initially replace the BSc and incorporate, along with its professional skills core, the majors based on those transferred from the BSc. Subsequent majors would be added after feasibility and marketing analysis was completed and agreed.
- An alternative would be to restructure the BSc along the lines proposed above for the BTech, but this may be more difficult to market than a differently named award.
- A further possible offering would be a four year BSc (Hons) or BSc Research (Hons) high achievers' program. This would not be expected to result in significant additional student numbers. There would be a BSc exit point only at the end of the first 24 units for students who either want to exit the program early or students who do not achieve a credit average.
- The Bachelor of Information Technology, in its current or revised form, would no longer be offered on campus at Fraser Coast.

Section 3. The Plan

3.1 Requirements

The University has required that the Faculty achieve a budget reduction as close as possible to \$1.0 million in 2008 and that the Faculty have no operational budget deficit in 2009. This amounts to an overall budget reduction of around \$1.5 million. An initial analysis confirmed that the Faculty could only achieve a budget reduction of this magnitude via a decrease in its permanent and contract staff profile because of the proportion of staff costs to the overall operating budget. Given the staffing structure, this can essentially only be achieved within the academic teaching and technical support areas. (The Faculty is comprehensively auditing all other expenditure but given the prevailing efficiencies and the overall size of the costs associated with the expenditures in these areas, very little savings from these areas is expected.)

This approach to addressing the budget requirement was reinforced when the University subsequently required the Faculty to achieve an academic salary commitment that is 33% of its projected 2009 teaching earnings. This margin is referred to as the “RoP academic salary margin” because it is derived by the University from the analysis behind the major “Realizing Our Potential” initiative.

“Academic salary commitment” takes in the expenditure on permanent, contract and casual teaching staff, as well as technical staff supporting teaching across all three campuses. “Teaching earnings” refers to income from DEST for domestic Commonwealth supported places and from full fee students, domestic and international.

Within the Faculty, certain disciplines have seen a reduction in student demand and, therefore, student load without a proportionate adjustment in academic staff numbers. Other disciplines have seen a dramatic increase in demand and load, again without the corresponding adjustment in academic staff numbers. (Section 4 provides further details.) This imbalance must be addressed to prevent it from affecting growth, reputation and performance into the future. Given the above-mentioned budget constraints, the only effective way to rectify the imbalance is a proposal to reduce positions in some areas in order to create positions in the other areas. This is not an indictment on the quality of the staff in any area or of their contribution in the prevailing context. It is not about performance issues. It is about financial exigency arising from lack of student demand and changing market demands. This better alignment of the staffing profile to student demand is critical to the Faculty’s on-going viability and sustainability. With respect to individual workload, it is also an equity and sustainability issue.

3.2 Proposal

This proposed plan has been developed to provide a reference point for the sustainability and viability of the Faculty’s academic programs and establish the basis for the pursuit of strategic directions within the constraints of University budgetary requirements. As explained further in Section 3.3 and detailed in Section 4, this is anticipated to amount to a proposed 15 continuing academic staff positions being no longer required, 2 of which have been vacated through natural attrition and not replaced leaving a proposed need to reduce by a remaining 13 positions, and 3.5 technical positions, 0.5 of which has already been discontinued. Furthermore, additional positions in areas of minimal demand have been identified as being no longer required in order for additional positions to be created in areas of growth. This currently translates to 4 additional teaching positions being potentially no longer required, two in each of Biological and Physical Sciences and Mathematics and Computing with four new positions being created in other areas, two in Biological and Physical Sciences and two in Nursing and Midwifery. It is proposed that the new positions will all be at Level B or C.

The approach to managing the transitional arrangements associated with the low student numbers in areas currently being considered for reductions would need to be addressed by a re-alignment of staffing resources and programs. As described further in Section 3.4 and detailed in Section 4, the proposed changes will necessitate the discontinuation of the seriously weakened Bachelor of Science. The proposed replacement Bachelor of Technology, through its professional/vocational orientation, is anticipated to better serve future USQ markets. It also enables the current standalone

Bachelor of Wine Science to be integrated into an award framework that aligns with the objectives of the RoP academic programs project.

3.3 Positions

Reflecting the low demand occurring nationally and internationally, the positions proposed as being no longer required are mainly in the physical sciences and computational areas. Within these two general areas, most of the reductions would be in continuing academic staff positions. Due to a number of contracts lapsing at or before the end of 2008 which would not be renewed, combined with two resignations that have been received in the past week, it is proposed that one of the two ongoing positions not be replaced, while the other *must* be replaced. These reductions have been included in the plan and are further commented on in Section 4.

It is to be noted that staff changes are generally measured against the profile at the RoP census date in late 2007. Position classifications are based on the main areas into which the position teaches.

3.3.1 Teaching Positions

Table 1 provides the profile for the Faculty's academic (teaching) fixed-term and continuing positions up to the present while Table 2, over page, outlines the targeted position changes. There is some overlap in the reductions identified in the two tables. The proposal considers only substantive positions. Hence the cross faculty positions identified in the ORMP are not considered in the proposal.

While some reductions related to contract positions are at level A, a number of the remaining reductions will be at level C or higher. Given that actual separations may fall across different levels it is not possible to give a firm indicative final profile at this point. Furthermore, no academic profile can be considered static due to the impact of regular promotion cycles and also the need to adjust levels when attempting to fill a position to reflect market demand. Nevertheless assuming minimal levels for the separations, the savings arising from the proposed reductions address the necessary budget reductions. ***The Faculty will use any savings additional to the target, such as indicated by an academic salary margin less than the target 33%, for teaching and technical staff to support its strategic directions in allied health, service teaching and professional technical education.***

Table 1. FoS Staffing Profile Fixed-Term and Continuing Positions

		2007 ORMP Oct- 06	2008 ORMP Oct- 07	Currently Identified Changes to 2008 ORMP Profile as at 29/02/2008		2008 ORMP plus Identified Changes
Biological and Physical Sciences		3.5	2.00			2.00
		4	4.00			4.00
		7.75	7.80	1.0	Resignation	6.80
		5.7	3.60			3.60
		1	2.00	0.8	Resignation replaced during 0.2 transition during late 2008	1.20
Total		21.95	19.4			17.6
Mathematics and Computing		3	3.00	2.0	Fixed-term contract expirations	1.00
		12	10.50	0.5	Internal transfer to another Faculty	10.00
		13.25	13.00			13.00
		3	3.50	1.0	Resignation	2.50
		1	1.00			1.00
Total		32.25	31			27.5
Nursing and Midwifery		3	4.42			4.42
		9	9			9
		6	3.92			3.92
		3	4			4
		1.1	1	0.5	0.5 externally funded position	1.5
Total		22.1	22.34			22.84
Psychology		1	1			1
		8.6	10.1	1.0	Separation 2008	9.1
		5	4.6	1.0	Retirement	3.6
		4	4	1.0	Resignation	3
		3	2	1.0	Incumbent returned to substantive position in Faculty	3
Total		21.6	21.7			19.7
Cross Faculty		1.5	0.4			0.4
		0.5	1.9			1.9
Overall		10.5	10.42			8.42
		33.6	33.6			32.1
		33.5	29.72			27.72
		16.2	17			15
		6.1	6			6.7
Total		99.9	96.74			89.94

To achieve strategic directions and address the imbalance mentioned earlier, the positions must also map to the appropriate disciplines. Where positions are no longer required, redeployment or re-employment of staff in these positions will be options for consideration, but may be limited because of

the limited range of affiliated areas. The following text, along with Table 2 over page, summarises the teaching position changes with respect to the disciplines. (Section 4.2 provides further details and rationale.)

For the Department of Biological and Physical Sciences, it is proposed that there are three academic positions potentially no longer required. There are two new positions proposed to be established with a focus on Molecular and Cellular Biology

Associated with these reductions, it is proposed that 3.5 technical positions would be no longer required although technical staff are no longer considered to “belong” to any particular department.

The Discipline specific details are provided in Section 4.2.

In summary, the proposed changes to teaching staff would be:

- Three teaching positions in Plant Science would be potentially no longer required, with two new positions established with a focus on Molecular and Cellular Biology. This would result in an overall reduction of one position.
- Two positions associated with Ecology and Ecophysiology would be replaced by one position in Environmental management. This would result in a reduction of one position.
- Two teaching positions in Chemistry would be replaced with one position in Biological Chemistry. This would result in an overall reduction of one position.
- Two teaching positions in Physics would be potentially no longer required. The current position that includes teaching into astronomy is to be retained. This would result in a reduction of two positions.
- Two new teaching positions are proposed in Biomedical Sciences/Human Biology/Human Physiology. This will address the current situation which has resulted in the five existing staff in this area being responsible, with casual staff support, for over 60% of the department’s teaching. The two positions will also be associated with strategic directions in medical science and allied health.

In relation to the last area, the current Professor in this area (and Head of Department) has indicated his intention to resign as of early 2009 with much of the remaining part of his tenure being taken as LSL. It is critical that this position be filled and the appointment process commence as soon as the resignation has been received.

Table 2. Teaching Staff Position Changes

Discipline	Overall Position Change	Proposed Approach
Plant Science	- 3	3 academic positions in Plant Science potentially no longer required
Molecular and Cellular Biology.	+2	New broader area to replace Plant Science. Discussions will occur with staff from Plant science in relation to these positions in accordance with the HR Implementation Framework.
Ecology	-1	Potentially no longer required
Ecophysiology	-1	Potentially no longer required
Environmental Management	+1	New position to contribute to re-focus of climatology and sustainability programs
Chemistry	-2	Potentially no longer required
Biological Chemistry (medicinal/clinical)	+1	New position to support service teaching but also to better link into biomedical science areas.
Physics	-2	Two positions are potentially no longer required. Astronomy-based position to be retained.
Biomedical Sciences/Human Biology/Human Physiology	+2	Two new positions to address workload issues and also associated with strategic directions in medical science and allied health
Biological and Physical Sciences	-3	
Computing	-4	No current contract positions to be extended beyond 2008. Proposed that the 1.5 positions at Fraser Coast will be reduced to 0.5
Mathematics	-5	5 academic positions in Mathematics potentially no longer required
Statistics	-3	3 academic positions in Statistics potentially no longer required
Mathematics and Computing	-12	
Nursing and Midwifery	+2	To address workload issues and to support new strategic initiatives.
Total Nursing and Midwifery	+2	
Psychology	0	Resignations and pre-RoP separation will reduce staffing by 2 from RoP census staffing profile. <i>These are not part of this plan.</i>
Total Psychology	0	
Total Faculty	-13	-15 if 2 in Psychology included

For the Department of Mathematics and Computing, it is proposed that twelve teaching staff positions would potentially no longer be required.

In summary the proposed changes to the Department's teaching staff are:

- The four specific teaching positions in Statistics would be reduced to one. The teaching focus for the one remaining position would be on contributing to the quality and growth of high level service teaching and possibly an informatics/computation major in the BTech.
- The two positions that teach into statistics and mathematics are to be retained.
- It is also proposed that Computing will not have any of its current contract positions extended beyond 2008. The 1.5 positions at Fraser Coast would be reduced to 0.5, which will cover the Department's service teaching on that campus. This gives an overall reduction of four.
- The number of teaching positions fully located in Mathematics is to be reduced by five to four.
- The positions that teach into multiple areas of service teaching are retained.

For the Department of Nursing and Midwifery, it is proposed that there would be two new positions at Level B.

It is to be noted that, while addressing an existing staff imbalance, the new positions would also be tied to the investigation, and where appropriate, implementation of explicit strategic directions.

- In Biological and Physical Sciences, this would involve the provision of support for the significant growth in demand for biomedical sciences, and to establish the capacity to expand offerings to include other areas of allied health that draw on biochemistry, physiology and molecular and cellular biology. (While it is not intended to move into the “heavy laboratory” side of genetics, there is currently an interesting opportunity to establish a niche in genetic counselling which would draw in the Faculty’s expertise in psychology.)
- In Nursing and Midwifery, this would involve the introduction of a distance education nursing award, the establishment of an articulation Masters to enable graduates from other (related) disciplines to become qualified nurses, and an expansion of the postgraduate qualification suite which may include clinical or hospital management.

3.3.2 Technical Positions

To support the proposed restructured teaching staff profile and the realigned program offerings, the technical staff profile would need to be reduced. The technical support positions for the “general sciences” would be reduced by 3.5. The 0.5 contract position has already been discontinued. The remaining positions that it is proposed are no longer required arise, from the reduced offerings in later year Physics and Chemistry, Ecology and Plant Science. The pool of positions that are associated with the general sciences would therefore be reduced from five to two.

To provide the flexibility and multi-skilling needed to effectively and efficiently support current demands and future development, the technical staff positions would be reorganised such that while providing services to the Departments, they will not “belong” to them. (There are parallels with the RoP Corporate Services project.) A feature of the new structure would be the removal of designated laboratory management positions and the introduction of more broad based support management positions as well as a senior laboratory instructor position, which for the lab-based general sciences areas integrates in-laboratory teaching with technical support.

Table 3 below summarises the recent ORMP technical staff profiles and the target profile. Appendix A, Figure 1 shows the proposed restructured profile within the revised technical staff organisational structure. As discussed above, these are the general sciences technical support positions. While the target positions are indicated as full-time, a number of these are currently 48/52 (0.92). Recognising that the non-teaching periods can reduce demand for technical services, the Faculty would encourage this and other flexible arrangements and would like to incorporate suitable reductions into the terms of new appointments.

Table 3. Technical Staff Profile

HEW	2007 ORMP	2008 ORMP	Target number of positions
2	0.93		0
3	0.81	1.67	1
4	1.74	1.00	
5	8.01	8.33	9
6	5.00	4.83	3
7	2.00	2.00	
8	1.00	1.00	1
9	1.00	0.00	2
10		1.00	1
	20.49	19.83	17

3.4 Programs

As mentioned in the Introduction, given the extent of the proposed staffing reduction and the resultant implications, restructuring alone in response to the prevailing financial exigencies would leave the Faculty highly likely to have to address financial and staffing pressures again in the near future. This would be extremely detrimental both internally and externally. As with any Faculty, ongoing analysis, development, review and improvement will be required. Indeed, independent of budget constraints, an analysis based on student demand considerations (Section 4), leads to the identification of similar strategic directions and staffing profile reductions and realignments.

Under this proposal, once teach out has been achieved, there should be no courses with enrolment markedly below the 2.5 EFTSLs identified in the RoP academic program project as a measure of efficiency. (It is to be noted that because of the amount of (weighted) funding provided for the disciplines covered in the Faculty, the sector norm is much lower than 2.5.) This measure has been used to guide the proposals in this plan but it has not been employed as a mandatory requirement.

The proposed changes to the Faculty's programs are as follows:

- No changes to the current awards in *Nursing and Midwifery* are proposed although the new positions are tied to future expansions in offerings.
- No changes to the current offerings in *Psychology* are proposed except that the Bachelor of Science in Psychology should be renamed to become a standalone award in the Faculty's Allied Health suite of awards.
- Following on from the review undertaken in 2007, it is proposed to discontinue the two existing Bachelor of Information Technology awards (that is the one offered by each of the Faculty of Sciences and of Business). Instead there will be a single award that would have four common courses in first year, two from each Faculty, and four later year courses, again two from each Faculty. Beyond that there would be majors offered by the Faculties separately and, hopefully, at least one jointly. The launching of this revamped award would occur at a time when the accelerating demand for graduates may be starting to fuel an increase in student demand. The new requirements for ACS accreditation, currently being developed, will need to be taken into consideration. It is anticipated that the focus from the Faculty of Sciences would be on applications development, games and creative technologies and internetworking.
- Due to minimal demand, there would be no on-campus delivery of the Bachelor of IT at Fraser Coast.
- Because of low enrolments, a number of majors in the Bachelor of Science would be discontinued. Because of the weakening impact of these discontinuations, this award, and its associated postgraduate coursework, would be discontinued. The few remaining majors in the BSc would move to the technology award. Table 4 summarises the proposed future status of all current majors.

Table 4. Plan for Current Bachelor of Science Majors

Climatology major (16-unit major)	<i>Discontinued.</i> Climatology to be combined with sustainability in new BTech major
Ecology and sustainability major (16-unit major)	<i>Discontinued.</i> Sustainability to be combined with climatology in new BTech major
Human biology (16-unit major)	New major in BTech. Possibly also covered in a new Medical Sciences major in new BTech major
Mathematics and statistics (16-unit major)	<i>Discontinued.</i> Some basic coverage in a new Science Studies major or possible Informatics major in BTech
Plant science major (16-unit major)	<i>Discontinued.</i> Underlying science in new Molecular and Cellular Biology major in BTech
Information technology major (12-unit major)	<i>Discontinued.</i> Some basic coverage in a new Science Studies major or possible Informatics major in BTech
Psychology major study (12-unit major)	New standalone Allied Health award with possible expansion to the equivalent of a 16 unit major
Biology (8-unit major)	New Science Studies major in BTech. Possibly also included in new Medical Sciences major in BTech
Chemistry (8-unit major)	<i>Discontinued.</i> Basic chemistry available in new Science Studies major in BTech
Computing (8-unit major)	<i>Discontinued.</i> Some basic coverage in a new Science Studies major or possible Informatics major in BTech
Human physiology	<i>Discontinued.</i> Possible coverage in new Medical Sciences major in BTech
Mathematics (8-unit major)	<i>Discontinued.</i> Some basic coverage in a new Science Studies major or possible Informatics major in BTech
Physics (8-unit major)	<i>Discontinued.</i> Some basic coverage in a new Science Studies major or possible Informatics major in BTech
Statistics (8-unit major)	<i>Discontinued.</i> Some basic coverage in a new Science Studies major or possible Informatics major in BTech

A new set of awards is proposed to replace the BSc, namely a Bachelor of Technology (<specialisation>) and Masters of Technology (<specialisation>) with the postgraduate course also having an entry Graduate Certificate. It is believed that these awards sit better with the professional/vocational orientation of the current and future USQ market. The case for an associate degree is not currently evident, although it could be considered at a later date along with clear articulation paths from TAFE. The technology awards would include a professional skills core, notably basic business and possibly project management. There would be a 3 +1 honours year for the BTech.

The science studies (or liberal science) would be structured to enable combined degrees so that students with a primary degree focus on another area such as education, business or law, could obtain a broad-based education in science in order to be science literate. This major would not necessarily provide a pathway into the honours year of the BTech.

The new USQ wine science award currently under development would be a BTech (Wine) or BTech (Wine Production). The proposed sustainability award would appear as BTech (Sustainability) and the business courses could include the triple bottom line accounting.

The reduced staff numbers in Mathematics and Statistics, along with the staff in Computing/IT, could look to offer a major in Informatics (or Computation) within the BTech.

To provide wider access to the BTech and associate postgraduate programs, the award prerequisites would not be those of the BSc. Inclusion of Foundation Mathematics, and possibly a new Introduction to Chemistry course, would further broaden the accessibility.

There is a strong opportunity for marketing and developing positive community sentiment from the restructuring and separations and the impact on the BSc by introducing the new awards, in that it could further build and enhance the relationship with schools and the TAFE.

The introduction of the BTech would be targeted for 2009. It would initially replace the BSc and incorporate, along with its professional skills core, the majors based on those transferred from the BSc. Subsequent majors would be added after feasibility and marketing analysis.

- A further possible offering – not a high priority and probably the least well developed concept – would be to also offer a four year BSc (Hons) high achievers program. This would not be expected to result in significant additional student numbers. There would be a BSc exit point only at the end of the first 24 units for students who either want to exit the program early or students who do not achieve a credit average.

Section 4 Analysis and Details

This section outlines the analysis behind the proposed plan, the restructured position profiles and the re-aligned program offerings. In Section 4.1, the top level analysis is outlined. (The analysis behind the budget constraints imposed by the University is not included since that is covered elsewhere, for instance, they are in the RoP documents.)

Section 4.2 goes through the analysis and details behind the discipline specific recommendations which are summarised in Table 5.

Every effort has been taken to ensure the latest and most reliable data have been used throughout. Furthermore, data represent a snapshot at a particular point in time and so, wherever possible, the relevant date is specified for any data presented and changes since are acknowledged.

4.1 Overall Analysis

A range of analysis exercises have been carried out to arrive at the current proposed set of Faculty arrangements. Those outlined here has been chosen because they focus on the alignment between student demand and resultant income earned and the teaching profile which is arguably the most critical consideration.

Table 5, over page, summarises the student staff ratio trends in the four departments over the last 5 years. The last three columns highlight the percentage changes between the respective years. Staffing numbers do not include technical staff. The notable points are that:

- The overall student load in Biological and Physical Sciences has increased substantially. (A subsequent analysis will show that this is not across the whole department.) At the same time, staff numbers have reduced from a high in 2003 and 2004.
- Despite a dramatic drop in student demand from 2003, Mathematics and Computing has, up to 2007, actually increased its staffing numbers. It appears that new staff were in the area of student demand (Computing/IT). *This indicates the need to reduce staff in the non-computing areas.*
- In 2007, and it would appear continuing in 2008, Nursing and Midwifery have experienced a dramatic growth in demand while staffing numbers have stayed fairly static. *This indicates the possible need to increase staff.*
- Psychology has experience a general downward trend in demand but this has been accompanied by some reductions in staffing numbers. (The figures in the table do not reflect a recent resignation, a staff on pre-retirement leave and an individual separation currently in train. *There is no indication that Psychology needs any further reduction in staff.*

Taking into consideration the relative proportions in funding arising from the relative funding model, the 2007 figures in Table 5 show that two departments, Nursing and Midwifery plus Mathematics and Computing, earn about the same amount of overall teaching income, which when combined, amounts to about 58% of the Faculty total. However the second of these has about 13 positions, or 12%, more of the overall teaching positions. Another department, Biological and Physical Sciences, earns the least overall (despite earning the most per EFTSL) but has more positions than Psychology. In this context, however, Psychology earns about 5% more than Biological and Physical Sciences.

Therefore, at a macro level, to redress the mismatch between load (and earnings) and staffing numbers, as well as the imposed budget constraints:

- Biological and Physical Sciences need to reduce by three academic positions.
- Mathematics and Computing need to reduce by at least ten positions.
- Nursing and Midwifery needs to gain two positions.
- Psychology remains as is.

Table 5 Student-Staff Ratios in the FOS by Course Load (Prepared 18/01/08)

	2002	2003	2004	2005	2006	2007	07 cf 02	07 cf 04	07 cf 06
FOS002	Biological & Physical Sciences								
U/G	246	248	317	270	292				
P/G	6	5	7	7	10				
Total EFTSL	252	253	324	277	302	272	107.94%	83.95%	90.07%
Academic	20.48	24.42	23.39	21.24	20.06	20.63			
*Unallocated	1.31								
Casual	0.80	0.51	0.64	0.51	0.60	0.40			
Total FTE Staff	22.59	24.93	24.03	21.75	20.66	21.03	93.09%	87.52%	101.79%
Student/Staff	11.16	10.15	13.48	12.74	14.62	12.93	115.94%	95.93%	88.48%
FOS003	Maths & Computing								
U/G	995	919	781	683	611				
P/G	46	31	43	54	59				
Total EFTSL	1040	950	824	736	670	651	62.60%	79.00%	97.16%
Academic	31.68	37.24	37.91	37.76	38.65	34.91			
*Unallocated	2.35								
Casual	1.67	0.53	0.36	0.81	0.32	0.25			
Total FTE Staff	35.70	37.77	38.27	38.57	38.97	35.16	98.49%	91.87%	90.22%
Student/Staff	29.13	25.15	21.53	19.08	17.19	18.52	63.56%	85.99%	107.69%
FOS004	Nursing & Midwifery								
U/G	481	472	494	496	503				
P/G	60	61	62	69	70				
Total EFTSL	541	533	557	565	573	708	130.87%	127.11%	123.56%
Academic	16.75	21.98	20.83	21.18	19.86	19.57			
*Unallocated	1.56								
Casual	3.90	4.01	3.65	3.29	2.95	3.13			
Total FTE Staff	22.21	25.99	24.48	24.47	22.81	22.70	102.21%	92.73%	99.52%
Student/Staff	24.36	20.51	22.75	23.09	25.12	31.19	128.04%	137.08%	124.16%
FOS005	Psychology								
U/G	530	568	522	482	487				
P/G	44	43	47	44	43				
Total EFTSL	575	611	569	526	530	508	88.35%	89.28%	95.85%
Academic	17.39	19.72	20.14	19.27	19.28	18.72			
*Unallocated	1.31								
Casual	1.38	0.85	0.60	0.25	0.64	0.62			
Total FTE Staff	20.08	20.57	20.74	19.52	19.92	19.34	96.31%	93.25%	97.09%
Student/Staff	28.64	29.70	27.43	26.95	26.61	26.27	91.73%	95.74%	98.72%

References: EFTSL- P&QO Pivot Tables at 14 01 08; Staff - InfoHRM at 31/12/ 07

*Staff on a superannuation arrangement such as salary sacrifice. Post 2002 HR did not identify these staff separately.

As already mentioned, any restructured teaching profile needs to align with areas of demand and strategic potential which is reflected in the revamped program offerings. The technical support needs to also align with these. Furthermore, the proposed changes more than adequately address the budget constraints imposed by the University. *The Faculty expects that any savings additional to the target, such as indicated by an academic salary margin less than the target 33%, will be used for teaching and technical staff to support its strategic directions in allied health, service teaching and professional technical education.*

Because of the multi-disciplinary nature of the first two departments, a further course-code level analysis is required to identify the profile of any positions that would be no longer required. The general details of the positions that may be affected by this proposal, and the consequential target staffing profile, have already been given in Section 3.3.

In Section 4.2, an analysis for those disciplines potentially directly affected by the proposal is presented. Because only two Departments have reductions, only those two Departments, Biological and Physical Sciences plus Mathematics and Computing, are covered.

4.2 Discipline-based Analysis

4.2.1 Biological and Physical Sciences

The areas are presented in alphabetic order.

Bioinformatics

The Bachelor of Science (Bioinformatics) has been discontinued. The only dedicated undergraduate course offered by this Department has been discontinued and is available only in the Master of Science (Bioinformatics) and as an elective in the Master of Biomedical Science. An Informatics major in the BTech may be introduced – this would include the core computational and statistical aspects of informatics and allow specialisation into a range of informatics areas experiencing significant growth such as health (or nursing) informatics, bioinformatics or geoinformatics (which would link with climatology).

Biology

The 8 unit biology major in the BSc has strong enrolments, mainly from students who are wishing to progress to secondary teaching or if combining this with a second major such as Chemistry. For this reason, it is proposed that it will either be part of the Science Studies major in the BTech or a standalone major.

Biomedical Science/Human Biology/Human Physiology

Biomedical Science currently has 5 full time staff (including the current HoD who is only effectively 0.4 teaching.) In addition, there is one staff member (teaching only) based at Fraser Coast.

This is the major load (income) area of the Department. The load comes primarily from:

- A large service teaching commitment in the Bachelor of Nursing program.
- The Bachelor of Biomedical Science which continues to grow with enrolments averaging 40.6 EFTSL per year over the last several years. In addition, there has been a large increase (190%) in QTAC offers for Biomedical Science in 2008. The Accelerated Biomedical Science Program also will bring increased enrolments in 2009.
- The Human Biology major in the BSc has averaged 10 EFTSL per year over the last several years and like B Biomed Sci, QTAC offers for this major are up to 180% on 2007.

The Human Physiology major was established as an 8 course major to compliment the 12 course major in Psychology. It was considered that this would be useful for students interested in clinical psychology. Enrolments in this major have been very low (1 EFTSL per year).

It is proposed to increase the staff in this area by two positions. Both positions will contribute to the current teaching. To align with strategic directions, it is proposed that the positions should be in molecular/clinical pharmacology and human movement/physiology.

The current Professor (and Head of Department) has indicated his intention to resign as of early 2009 with much of the remaining part of his tenure being taken as LSL. It is critical to the momentum of the area and the overall viability and strategic growth of the department that this position be filled. The process to fill the position should commence as soon as the resignation has been received.

Chemistry

Chemistry is currently staffed by 2 full-time academics and 1 technician.

There have been low enrolments in the Chemistry major over several years. Most of the teaching is in the two courses, Chemistry 1 and 2, which are core subjects in other majors.

It is proposed to close the Chemistry major.

As a result, it is proposed that both teaching positions in Chemistry would be no longer required. It is proposed to introduce one new position in Biological Chemistry with a specific focus on medicinal or clinical chemistry. This position would support the Bachelor of Biomedical Science and a proposed Bachelor of Technology (Medical Science). As well as the two Chemistry courses, this position could also contribute to Biochemistry 1 & 2. (These courses are currently taught by staff in Wine Sciences.)

It is proposed that the technical position will be moved into the new technology support team and will involve supporting the two Chemistry courses as well as other science courses.

Climatology

Climatology currently has 1 staff member.

The Climatology major has had good enrolments with an average of 13 EFTSL in the program over several years. There are currently 4 dedicated Climatology courses. As mentioned above, the discontinuation of the Physics major may require some reconsideration of the major.

It is proposed to retain the position in Climatology.

It is proposed to offer a climatology and sustainability major in the new BTech. This revised major will focus on a more applied climatology that informs policy and decision making. It is proposed to look at one new position spanning climatology, sustainability and basic ecology which could contribute to this refocusing. (See Ecology and Sustainability sub-section for details.) This would be much more attractive in terms of gaining enrolments. A funding submission to the Department to Environment and Water Resources was submitted in December 2007 to support this initiative.

Ecology and Sustainability

This is currently staffed by 2 staff and a staff member from Ecophysiology.

The discipline has had enrolments of approx. 10 EFTSL per year over the last several years. Currently, there is a proposal for the development of a revised offering in Sustainability.

It is proposed that the position in Ecophysiology is no longer required.

The staff member in Ecology has recently resigned. It is not proposed to fill this position as an Ecology position. Instead, one new position in Environmental management spanning Climatology, Sustainability and basic Ecology is proposed. The purpose of this position would be to contribute to the refocusing of the new Climatology and Sustainability major in the BTech on professional rather than research graduates.

Physics

Physics currently has 3 academic positions and 1 technician. One of the current appointees is Associate Dean (0.4).

The Physics major has had low enrolments over several years (average EFTSL per year - 2 in Physics major and 6.3 in double majors with one being Physics). There have been a very small number of BEng/BSc students with most enrolling in Physics. These students have typically been very good students (2007 – 2 University medallists). From a load perspective, the critical Physics teaching is as follows:

- *Physics Concepts*. This course will be core in the Science Studies and Climatology and Sustainability major in the BTech. It is a recommended elective in the Bachelor of Biomedical Sciences.
- *Astronomy 1 and 2* are both popular electives in the Physics major (2007 enrolments: Astronomy 1 - 10 ONC, 27 EXT; Astronomy 2 - 22 EXT). Enrolments come from a diversity of disciplines and programs. At least Astronomy 1 will be core in the new Science Studies major.
- Service teaching in the Bachelor of Engineering. However a significant portion of this is supported by casual staff (PGs in Physics).

It is proposed to discontinue the Physics major.

It is proposed to maintain one position in Physics.

An issue that arises from this proposal concerns the role of Physics within a Climatology major. The current format of the Bachelor of Science (Climatology) includes 7 courses in Physics (Astronomy 1, Physics Concepts, Remote Sensing and Meteorology, Physics of Climate, Physics & Instrumentation, Advanced Topics in Physics and Electromagnetics). The Physics major's discontinuation has a major impact on the Climatology major if it is not appropriately modified. One solution may lie in more use of the courses offered by the spatial sciences group in Engineering. For instance, the course, SVY3202 Photogrammetry and Remote Sensing (FOENS), would appear to address the needs in the remote sensing area.

Plant Science

Plant Science is currently staffed by 3 staff members, one of whom is 0.5 Director of a Research Centre and another is 0.8 Associate and Deputy Dean.

The Plant Science major has had very low undergraduate enrolments over several years (average 2 EFTSL per year enrolled in this major). Of the four courses with Plant content which are core in other majors, the most significant (with respect to load) of these are quite general, being *Biology 1* and *Biology 2*.

It is proposed to no longer offer a major in Plant Science.

It is proposed to introduce an offering in Molecular and Cellular Biology. This area, along with Informatics and Climatology, underpins a great deal of professional employment and research in the plant area as well as the animal and human areas. Consequently, Molecular and Cellular Biology retains a connection with plant research as well as adding to the Biomedical Sciences coverage offered by the Faculty.

It is proposed to replace the three Plant Sciences positions with two positions in Molecular and Cellular Biology. The staff in the new positions should be able to teach the Plant Physiology components in Biology 1 and 2, and preferably teach Genetics and Bioinformatics.

It is proposed that the technical position will be moved into the new technology support team and will involve supporting the two Chemistry courses as well as other science courses.

Wine Science

There are currently three staff members in Wine Science. The program only commenced in 2006. It has had low enrolments, although there has been a marked improvement this year.

Two of the staff contribute extensively in other disciplines. There is a well advanced planned redevelopment to provide a whole wine program offered at USQ and via external mode which could increase EFTSL significantly. For these reasons, no reductions are proposed for this area; however this decision will be reviewed again at some point in the future.

4.2.2 Mathematics and Computing

This Department has been treated as having three areas; namely, Mathematics, Statistics and Computing. Arguably, the last one could be further sub-divided but that would not impact on the current considerations. Some positions teach into more than one of these areas at the service teaching level. Courses are still offered in operations research but demand is very low and the courses are only offered in alternate years.

Aside from the undergraduate and postgraduate awards, the Department is critically dependent on service teaching for its load (income). This is expanded on further in the area-specific comments that follow. The percentages quoted in the following are from the final 2007 figures. The 2008 figures are not expected to change substantially except that it is evident that the service teaching load will be increased because of enrolment growth in the awards serviced.

Computing

Computing has already had two position reductions in that two contracts end in the next month or so. There are 13 positions remaining in Computing. One is a contract position that terminates at the end of the year and will not be renewed. Another is an 0.5 position at Fraser Coast which is being transferred to the Faculty of Arts. It is proposed that the remaining full-time position at Fraser Coast would become 0.5 with respect to service teaching, mathematics and computing, on that campus. (The position may be made full time by including teaching into external offerings.) A computing staff member teaches the operations research topics that are under the MAT (Mathematics) code.

Computing courses contribute over 44% of the Department's load and while about 29% of that load is in the service teaching course, the remainder is spread across a range of later year and postgraduate courses that generally exceed the efficiency measure of 2.5 EFTSLs. The Computing majors in the BSc would be discontinued but this is not a major source of students and contributions in the BTech should compensate for the discontinuation.

It is not proposed that there be any further position reductions beyond those mentioned above. However, when by natural attrition vacancies occur, they will need to be filled against the strategic areas. The first of these should arguably be in the internetworking area.

Mathematics

There are nine Mathematics positions. Some Mathematics teaching is also covered by staff from Computing.

Mathematics contributes about 36% of the Department's load but, like Statistics, significantly more of the Department's academic salary bill. Nearly 60% of the Mathematics load is derived from two basic service teaching courses, one for Nursing and the other for Engineering. (In 2009 a further Engineering service course will be introduced.) Much of the teaching in these two courses is provided by staff who teach into two areas or casual staff. A further 27% of the Mathematics load is provided by another two courses that particularly service Engineering. The remaining courses with any effective load are in discrete mathematics, operations research, differential equations, random processes and modelling.

It is proposed that the Mathematics/Statistics major and the Statistics major be discontinued. All postgraduate offerings are to be discontinued unless based on a viable undergraduate course. The focus of the area will remain its service teaching as well as providing more advanced Mathematic courses in areas of sufficient demand such as those listed above.

Based on the amount of teaching to be retained, it is proposed that the Mathematics positions be reduced to four. The focus of these positions would be on contributing to the quality and

growth of the service teaching as well as to the higher level courses in the areas listed above and possibly an Informatics/Computation major in the BTech.

Statistics

In Statistics, the multiple offerings of a single course constitute over 90% of the area's load. A significant proportion of the teaching in this course is covered by staff who teach into multiple areas at the service teaching level or casuals.

It is proposed that the Mathematics/Statistics major and the Statistics major be discontinued. All postgraduate offerings would be discontinued unless based on a viable undergraduate course. The focus of the area would remain its service teaching as well as providing more advanced statistics courses in support of other areas such as in experimental design and inference.

Based on the amount of teaching to be retained, it is proposed that two mathematics/statistics positions be retained and one of the statistics positions be retained. The first two positions are flexible because they can teach across two areas of service teaching. For the other position, the focus will be on contributing to the quality and growth of the service teaching as well as to the higher level service teaching and possibly an Informatics/Computation major in the BTech.

Section 5 Implementation Process

This Section briefly looks at implementation issues arising from the plan covered in the preceding sections.

5.1 Positions potentially no longer required

The area-specific recommendations in Section 4.2 have indicated the general nature of the transition processes recommended to achieve the indicated reductions. These would be implemented within the University's identified processes.

All transition processes should be in place by mid-year in order to achieve the necessary reductions. This may necessitate additional casual teaching expenditure in Semester 2, 2008 but this is considered a preferable option to a lingering transition period.

Where new positions have to be filled externally, this process needs to be completed in as timely a manner as possible. Should the fore-warned resignation occur, the need to fill the professorship in Biomedical Sciences in the second half of 2008 is also strongly emphasised.

5.2 Teach out

The Faculty is in the process of carrying out an analysis of which courses would need to be taught out based on this proposal. Aside from courses with negligible or zero enrolments identified for discontinuation, such as the postgraduate offerings in Mathematics and Statistics, few courses would need teach out since most areas are not being closed.

The material for the courses to be taught out will already be available therefore the main tasks of teach out will be delivery and assessment.

If a course is core in a program and no alternative (continuing) course is a suitable alternative, teach out may be required. At most, two offerings of the course will be taught out and all students likely to require the course at any point in the future should be advised of the limitation on offerings.

If a course is not core in any program, teach out is not required.

If multiple offerings of a course have to be taught out, only external delivery will be used. If there are sufficient on-campus enrolments, this delivery will be supported by a supervised study group.

Where needed, teach out will be covered by:

- Permanent staff remaining after an area has been restructured. Given that very few areas are being closed, this would be feasible in most cases.
- Casual staff
- Cross institutional enrolments into suitable courses.

The usual practices that apply when an academic supervisor takes up a position elsewhere will apply to teach out. When a final decision is made, employees whose positions are no longer required will be able to arrange to continue to supervise any project or research students that they have. If this is not feasible, an alternate supervisor will have to be arranged. As a possible option for consideration as a last resort, an academic at another institution may be paid to take on the supervision.

5.3 Communication

The first priority is internal communication to both justify the positions identified as potentially no longer being required as much as they can be, and to locate them within a strategic plan

that indicates the directions for the future sustainability and growth of the Faculty. It is intended to have meetings of the Faculty, Faculty Board, Faculty Executive, Departments and technical staff to present and discuss the plan. As well as these organised meetings, individuals or groups will be able to meet with the Dean to discuss their issues, concerns etc.

The second priority is to minimise any negative external perceptions of the proposed changes to the Faculty. The strategic directions identified in the increased support for the Allied Health suite of awards, as well as the introduction of the Technology awards and the revision of the IT awards, ie, professional scientific/technical education, provide a strong opportunity for marketing and developing positive community sentiment. It could maintain, and possibly enhance, the relationship with schools and the TAFE. This could be further reinforced by the use of the CASR funding for a first year science building to establish a technical service teaching hub which also provides a single reference point for first year students in the Faculty and a venue for interactions with the public and special groups such as teachers and industry.

A critical indirect aspect to this is the manner in which any affected staff are managed. The above mentioned open communication is important here, as is ensuring they are aware of, and access, the support provided. Processes that are executed sensitively and in a timely manner are also important.

5.4 Resources

The Faculty is auditing all expenditure to ensure all possible efficiencies are in place.

It is proposed that once separations and appointments have been completed, the Faculty will audit its space and resources. If conducted before then, this could be seen as provocative.

5.5 Conclusion

In conclusion, it is important to reiterate that this plan involves extensive change for the Faculty. The change will be challenging and, at times, difficult but hopefully the strategic basis for the change will provide motivation for its successful implementation.

This proposed plan has been developed to ensure the sustainability and viability of the Faculty's academic programs within the constraints of University budgetary requirements. The restructured academic profile aligns with areas of demand and strategic potential which is reflected in the revamped program offerings. The technical support reorganisation aligns with these. Furthermore, the changes more than adequately address the budget constraints imposed by the University.

The Faculty expects that any savings additional to the target, such as indicated by an academic salary margin less than the target 33%, will be used for teaching and technical staff to support its strategic directions in allied health, service teaching and professional technical education.

Appendix A. Figure 1. Restructured Technical Staff Profile

Important Note: Classification levels are indicative only. No decisions have been made in relation to individual positions, and no decisions will be made until future required duties have been confirmed, position descriptions finalised and formal job evaluation processes undertaken.

