

# Biology Program Review

Faculty of Science

## Dean's Summary

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Submitted by:

Dr. Lucy Lee, Dean of the Faculty of Science

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Accepted by:

Senate in March 2013

Academic Planning and Priorities Committee in February 2013

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**Department of Biology Program Review Implementation Recommendations  
in Response to Reviewers' Suggestions and Unit Responses**

*prepared by Lucy Lee, Dean, Faculty of Science*

21/12/2012

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***Executive Summary***

The mission of the Biology Department at the University of the Fraser Valley is to provide students with a unique appreciation and understanding of the living world. Their vision aims to be an innovative and creative leader in biological sciences education, research, and service.

The Biology Department is a unit of the Faculty of Science, staffed by fourteen permanent biologists, six Lab Technicians, a departmental assistant, and a fluctuating number of three to six sessional instructors. The faculty, assisted by their competent staff, strive to offer hands-on experiences to their students in small classroom settings.

The Biology faculty members view research and scholarship as another mode of learning for their students and an opportunity to engage in one-on-one collaboration with a faculty supervisor. Through research and scholarship, these faculty aim to not only advance various fields of knowledge in the biological sciences but also to develop independent and creative learners that are ready to enter the workforce or pursue future studies.

The Biology Department has a reputation for producing graduates with exceptional laboratory and research skills. Their students have had a high rate of placements either in the workforce or in continuing programs like Master's and Ph.D's, or into professional programs like medicine, dentistry, pharmacy, physiotherapy, veterinary medicine, etc. The department offers its programs under the BSc, BA and BKPE degrees. Only a Biology minor is available through the BA and BKPE degrees, whereas under the BSc degree, students can opt for BSc Honours Biology, BSc Biology major, as well as BSc Biology minor. See attached Self Study Report from the Biology Unit for details.

The External Review Committee reviewed the Biology Program Review documentation and interviewed faculty, staff and students during a site visit on May 14-15, 2012, and submitted their report dated June 1, 2012. Overall, the reviewers commended the Biology Department and the popularity of the programs offered, but did note some deficiencies for which they provided 14 short-term recommendations and 3 long term-recommendations. The unit prepared their responses and implementation plans to the review panel's recommendations and submitted these on Nov 20, 2012. See Review panel recommendations Report.

***Action Plan on Recommendations and Implementation Schedule***

The challenges identified by the department and concurred by the review panel were: 1) lack of space to accommodate program's popularity, 2) commitment to small class sizes and open admittance policy of the university restricts quantity and quality offering of the program, 3) decreasing budget allocations add to problems with waitlists, adequate laboratory teaching and research space and associated equipment.

Thus, the biggest problem identified appears to be the lack of teaching and research space, an issue that is echoed through-out the Faculty of Science, and this is an issue that needs a major infrastructure fundraising campaign. The Biology Department provided a detailed Unit response which includes a tentative schedule for implementation.

## LIST OF RECOMMENDATIONS:

### SHORT-TERM RECOMMENDATIONS

**Recommendation ST1:** that the department critically review its concentrations and consider decreasing the numbers offered

Response: The concentrations are extremely popular with students. Our view is that the existence of the concentrations contributes to retention. We feel the existing concentrations reflect the breadth of course offerings and are an important aspect of our growing reputation in the Fraser Valley as a destination for students. We would prefer to keep these as they exist.

**Recommendation ST2:** that the department review the credits given for courses with laboratories and consider making them consistent with other BC universities.

Response: The issue of credit inflation has been brought up in the past. The department would consider reducing the first year course to 4 credits. One of the strengths of the department is the lab components of second year and some upper level courses. The department would not want reduced first year tuition to impact the number of lab courses offered in the future.

Timeline: Discuss credit value of first year courses and bring recommendations forward to curriculum in 2013

**Recommendation ST3:** that the department implement proposed changes to BIOL 202 and the four core upper level courses to alleviate waitlists and increase student flexibility in course selection

Response: The department curriculum committee is working on this issue at present and hopes to suggest changes to the second year requirements. This will likely include ecology as a core requirement but allow a choice in the additional second year courses to be taken.

Timeline: Suggestions will be discussed at the department meeting early in 2013.

**Recommendation ST4:** that the Biology program continue to focus on providing and enhancing its undergraduate program rather than expending energy on developing a graduate program in the next five years

Response: This year the department hired a replacement Faculty member with expertise in the area of bioinformatics. New courses, many developed by newer faculty members have been offered for the first time in endocrinology, immunology, cancer, mycology, biostatistics, and methods in freshwater ecology. Several members are also actively engaged in expanding our field school opportunities. We hope to put in place a rotation of tropical, island and coastal temperate ecology based field schools. Finally, one thing not really covered in the Department Review is the sustainability of the Field Schools. There are approximately six people who 'volunteer' for these every year (lab faculty make up 50 % of

this component) and therefore are not compensated with teaching credit. By giving teaching credit for these schools, this would eliminate the inevitable 'burnout' that will occur through volunteering (a form of free overloading).

Although interested in a graduate program, the department recognizes that this will likely be realized in the form of a multidisciplinary and/or applied approach.

Timeline: Ongoing course development. Ecuador field school August 2012, Hawaiian field school July 2013.

**Recommendation ST5:** that the Biology department provide a faculty mentor to new sessional instructors

Response: We have hired several new sessional instructors recently and each of these individuals has been paired with a faculty member in a mentoring role.

Timeline: Ongoing

**Recommendation ST6:** that the departmental assistant be given access to student email addresses

Response: Access to student email addresses would greatly improve communication surrounding events and future offerings. This seems to be up to either the Registrar's office or the Marketing and Communications department and is not something we can resolve, but will be pursued.

Timeline: Request access for department assistant

**Recommendation ST7:** that the department establish a lab manager position to more efficiently coordinate technician activity at the Abbotsford and Chilliwack campuses

Response: Recently, it was determined that the lab coordinator model was not working out as well as had been hoped. In agreement with the Dean, the department has reverted back to a model of team decisions through consensus in terms of covering the duties of course assignments, ordering, inspections and time off allocations. If Administration deems additional supervision to be in the best interests of everyone involved, funding for such a new position would be required and could possibly oversee all of Science rather than simply Biology

**Recommendation ST8:** that course content be reviewed periodically to maintain program currency

Response: The department will be having a retreat in May to re-assess our course content at the second year level and align our course learning outcomes with those of the institution. In addition, with several changes and additions to upper level courses with a molecular aspect, we plan to discuss content to manage levels of overlap. This will allow us to build concepts to a greater level of understanding and complexity rather than simply repeating materials.

Timeline: Spring 2013 and continuing on an annual basis

**Recommendation ST9:** that the department take an active role in scouting out suitable co-op opportunities for students and encourage student participation in the program

Response: The department does actively encourage student participation in the co-op program. However, commuting remains one of the biggest challenges as our students seem reluctant to take on opportunities far from home, primarily in the central and upper Fraser valley.

Timeline: 2013 build connections to local firms to increase co-op opportunities

**Recommendation ST10:** that every Biology student be seen by advising at least twice during their undergraduate program

Response: This seems trickier to implement. We have no control over students making appointments. The department would be willing to encourage students to visit advising. In addition, several department members have served terms in the science advising centre and are willing to help students in their course planning.

**Recommendation ST11:** that the department construct a three-year moving timetable for its upper-level courses, and make it easily available on its website.

Response: The department head and assistant will be working on extending our planned courses beyond 2014. This must be done in consultation with Faculty in order to balance instructor's wishes and have multiple instructors experienced with teaching most courses. It is also important to take into account sabbatical leaves during this process. We are also at the point with the addition of several new courses where it may not be possible to offer every course on a 2-year rotation and some may have to be offered less frequently.

Timeline: Lay out courses for 2014/2015 and beyond in winter 2013. Add to the website by Spring 2013.

**Recommendation ST12:** that the Faculty of Science and the University implement the BSc requirement requiring declaration of major after 60 credits.

Response: This should be discussed at faculty curriculum committee and faculty council as this is a general BSc requirement and not Biology as noted in ST12. It would make it easier to track numbers in the majors and even help students so it seems to be a sensible initiative.

**Recommendation ST13:** that the university make improved lab space for upper-level student research a high priority.

Response: Biology is very crowded both for teaching and research space. Our directed studies courses continue to be popular and place significant time demands on faculty who supervise these students. It would be helpful if supervising these courses was given some type of recognition towards instructors'

teaching loads. Otherwise we are at our limit in the number of students that can be accommodated. New lab space is a critical requirement for Biology. Enrolment demand is there but we simply cannot take in additional students without increased lab space. Even CEP is running at full capacity due to sharing the lab with Nursing.

Timeline: That the University find the funding to open an additional Biology lab in 5 years

**Recommendation ST14:** that the university commit to a stable and predictable budget for equipment acquisition, replacement and emergency repair.

Response: We have had to shift our classroom budget several thousand dollars down so that we have a reasonable line item to address equipment maintenance and repair. As an example, several of our spectrophotometers have become unstable and require new bulbs and a cleaning at a cost of over \$200 each. As a result of this recognition and transfer, our classroom operating budget is likely to suffer a shortfall this year.

#### LONG-TERM RECOMMENDATIONS

**Recommendation LT1:** that the department and the university consider increasing class sizes at the first and second year level to reduce waitlists and allow faculty greater opportunity to offer an increased breadth and frequency of upper level courses

Response: This is an issue pertaining to the collective agreement. One of the strengths of the institution and why we rank so high in national surveys is our small class size. Due to program demands, many of our courses are in fact run at 36 or even a few seats higher. The Biology department feels strongly that the current limits ensure our high pedagogical standards are met and we maintain the ability to engage in active learning and group work. Waitlists and access to courses are important concerns but increasing classes above 36 is, in our opinion, not part of the solution. Opening additional sections or limiting admissions are more in line with maintaining our excellent teaching standards. We are by mandate a teaching intensive university and faculty have workloads that reflect that

**Recommendation LT2:** that the university considers implementation of competitive entry to its undergraduate programs and develops maximum numbers per program in order to provide adequate resources for laboratory intensive programs such as Biology

Response: As mentioned above, this recommendation is much more in line with our approach to solving some of the problems. Tightly controlling program access would allow us to manage class sizes and waitlists and continue to offer a program with a substantial and extremely important laboratory experience.

**Recommendation LT3:** that the biology department initiates discussions towards acquiring the agriculture faculty positions with the intent of developing an undergraduate applied biology program and a practical graduate program in applied environmental and agricultural sciences

Response: Department members have been working closely with Agriculture faculty to develop a Bachelor's degree in agriculture.

Timeline: Initiate discussions with Agriculture and the Deans around possibly merging these two departments. With only two permanent faculty members, both of whom are nearing retirement, there should also be a serious effort to hiring additional faculty to run these programs. Major facilities in the form of a greenhouse and a barn are also desperately needed to support teaching and research in these areas and should be a major initiative for the CEP campus.