

Internal Academic Review Committee

Report on the Review of the Department of Mathematics and Statistics and the Program in Mathematics and Engineering

The Reports of the External Consultants and the Review Team are consonant in their favourable assessment of the Department of Mathematics and Statistics in the areas of both scholarship and teaching, citing the strong research productivity and excellence in teaching in this unit. Moreover, they both note that the program in Mathematics and Engineering is unique in Canada, attracts exceptional students and enjoys an outstanding reputation. Consistent with the internal academic reviews of other units, the reports on this unit identified resource issues, both human and physical, as being of concern.

Major Recommendations

1. **HIRING:** The Department has very successfully rebuilt its research profile through the hiring choices it has made in the recent past. With several impending retirements and the era of financial constraint showing no sign of abating, the Department has both an opportunity and a challenge as it considers its hiring prospects for the future.

The IARC recommends that the Department, working with both the Faculty of Arts and Science and the Faculty of Applied Science, map a hiring strategy for the next five years. The hiring strategy should take into account continuing financial constraints by including different budgetary scenarios; should demonstrate an ongoing commitment to taking advantage of external funding opportunities such

as the Canada Research Chairs program; should integrate ATOP funding into its hiring plans; and should seek to strike a balance between strengthening the research profile of the Department and meeting teaching demands. Furthermore, the Department should continue its current strategies, while being proactive in devising new ones, to recruit faculty from as broad a demographic base of qualified potential applicants as possible, including members of designated minority groups.

2. TEACHING AND CURRICULUM: The discipline of Mathematics and Statistics already plays a central role in many areas of study including, among others, the Physical, Health and Applied Sciences, Education, Business and the Social Sciences. Furthermore, changes are occurring in certain disciplines such that a Mathematics and Statistics component is now required. This situation of high demand presents the Department with many potential opportunities, but will require that important choices be made.

The IARC recommends that the Department undertake a comprehensive program review on both the undergraduate and graduate levels, which should include, among other things, an examination of service courses; consideration of the number and type of course offerings now available, along with the suitability of current course enrolments; and the viability of the development of new courses and programs.

3. ACCESS TO OPPORTUNITIES PROGRAM (ATOP): Queen's University receives monies through ATOP, a program established by the provincial government, which provides funding based on enrolment growth in certain engineering and computing programs. The program in Mathematics and Engineering, the only one of its kind in Canada, and of great importance to the Department and to the University, has been one of the recipients of this targeted funding.

The IARC recommends that in recognition of the unique link that is created between the Faculties of Arts and Science and Applied Science through the program in Mathematics and Engineering, the Department should work with both Faculties to develop strategic and budgetary plans that will ensure the long-term health of the program.

Other recommendations the Department may wish to consider

1. The Department should give due consideration to the additional resource issues which were identified in the reports; specifically, the number of technical staff and the condition of both computer equipment and the building in which the department is housed.

Outcomes of the Review

The following response has been submitted by the Dean of the Faculty of Arts and Science and the Department Head:

1. HIRING

The Department's plan to hire leading researchers in the period 1995-2003 and to consolidate this in the period 2004-08 is proving successful. The strategy has been to first hire leading researchers, either using CRCs or at the cost of two positions for one. This has resulted in a dramatic increase in research productivity. The Department now plans to continue adding junior faculty to consolidate these gains. A CRC I in Signal Processing and Statistics was recently appointed who will provide leadership needed in statistics and the Department is vigorously pursuing other similar opportunities. Currently, five searches are in progress: two in pure mathematics, one in statistics and two funded by ATOP.

2. TEACHING AND CURRICULUM

The Department is making use of a combination of full-time faculty and double-cohort adjuncts to reduce costs and improve quality in its first and second year service courses. In addition, the ways in which the upper year programme can be made more efficient are being reviewed. The Department has a vigorous programme of support for post-doctoral fellows that also acts to support its teaching needs.

3. ACCESS TO OPPORTUNITIES PROGRAM (ATOP)

The Department, in collaboration with the Faculties of Applied Science and Arts and Science, has increased the complement of faculty members with the P.Eng. qualification. If current hiring initiatives are successful, by July 2003 there should be eight faculty members who either have or are eligible to apply for this designation. The Department is also taking part in extensive discussions with the Faculty of Applied Science to ensure that the Mathematics and Engineering curriculum is consistent with the requirements of the Canadian Engineering Accreditation Board. Both the Department and the Faculty of Arts and Science are committed to preserving and improving this unique link. This initiative has resulted in the accreditation, by the CEAB, of the Mathematics and Engineering Program for three years to June 30, 2006. Finally, the Department has prepared a detailed plan for the use of ATOP funds in other respects.

Other Recommendations

As noted above, the Department's plan for the use of ATOP funds will go some way to addressing additional resource issues.

Follow-up on these recommendations and issues will take place in the annual staffing and budget strategy meetings between the Deans of both the Faculty of Arts and Science and the Faculty of Applied Science, and the Vice-Principal (Academic).