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MEMORANDUM

ATTENTION: Senate	TEL
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FROM: Peter Keller, Vice-President, Academic and Provost, and Chair, SCUP	
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RE: External Review Mid-Cycle Report for the Department of Statistics and Actuarial Science (SCUP 17-03)

DATE: January 16, 2017	TIME
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At its January 11, 2017 meeting, SCUP reviewed the Mid-Cycle Report for the Department of Statistics and Actuarial Science which resulted from its 2013 external review. The report is attached for the information of Senate.



OFFICE OF THE
VICE-PRESIDENT, ACADEMIC

SCUP 17-03

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MEMORANDUM

ATTENTION: Peter Keller, Chair, SCUP	TEL
FROM: Gord Myers, Vice-Provost and Associate Vice-President, Academic	
RE: External Review Mid-Cycle Report for the Department of Statistics and Actuarial Science	
DATE: December 8, 2016	TIME

The External Review of the Department of Statistics and Actuarial Science was undertaken in April 2013. As per the Senate guidelines, the Unit is required to submit a mid-cycle report describing its progress in implementing the External Review Action Plan. The mid-cycle report, together with a copy of the Action Plan approved by Senate, is attached for the information of SCUP.

- c: Tom Loughin, Chair, Department of Statistics and Actuarial Science
- Claire Cupples, Dean, Faculty of Science

INTEROFFICE MEMORANDUM

TO: GLYNN NICHOLLS, DIRECTOR, ACADEMIC PLANNING AND
QUALITY ASSURANCE
FROM: TOM LOUGHIN 
SUBJECT: MID-CYCLE REPORT FOR STATISTICS AND ACTUARIAL SCIENCE
DATE: DECEMBER 9, 2016

Attached please find the Mid-Cycle Report for the Department of Statistics and Actuarial Science which details our progress with the Action Plan.

External Review Update for the Department of Statistics and Actuarial Science

Action	Progress Made
1. Programming	
1.1.1 Undergraduate	
<ul style="list-style-type: none"> The review committee urged us to do some course development in Actuarial Science. A package of revisions to our major and honours programs in Actuarial Science will be developed. In particular we will consult with the Beedie School of Business as we look for ways to secure reliable access to courses in finance suitable for undergraduate students in ACMA programs. 	<p>These revisions have been completed and approved by the Faculty of Science UCC. They are on their way to Senate. We resolved our access issue with Business by developing new courses that will be taught within the department. These courses teach the requisite material as required on the accreditor's syllabus, but that had previously been available only in pieces in various Business courses. The new courses also cover additional material in Actuarial Science not addressed by the Business courses.</p>
<ul style="list-style-type: none"> The review committee recommended we cancel the undergraduate certificate program in Actuarial Science; we will do so. 	<p>Done with the current package of changes being sent to Senate.</p>
<ul style="list-style-type: none"> The review committee recommended we hire a lecturer in Statistics to increase our teaching capacity and lower our reliance on sessional instructors. We will seek to do so when resources permit. 	<p>We have gone backwards here. Our one lecturer has retired and not been fully replaced. The effects of his loss have been ameliorated somewhat by the hiring of a Lab Instructor to take on part of his capacity, but we have not fully recovered that capacity, much less gained further capacity as the committee suggested. Hiring a lecturer in Statistics has been our #1 hiring priority for the last two years, and we know that Dean Cupples is sensitive to the urgency of this need (we just requested another 11 sessional instructor positions for 2017/8). We await the availability of resources to complete the hire.</p>
<ul style="list-style-type: none"> The review committee recommended that the university adopt policies to prevent the fragmentation of statistics instruction on campus. We whole-heartedly agree and will engage in discussions with our Dean and others around the university on ways to move forward; we acknowledge that service teaching in statistics calls for collaboration between our department and the departments being served and will explore ways to ensure this happens. 	<p>This topic has come up in conversations with Dean Cupples, who supports our efforts. AVPA Gord Myers has indicated a reticence to broach the issue with regard to existing courses that are offered across campus. The sad reality is that, if we were to recover some of these courses, we wouldn't have the inherent teaching capacity to take on the extra load anyway, so we are currently somewhat passive about the matter.</p>

<ul style="list-style-type: none"> The review committee recommended we develop a framework for course and program assessment. We will engage in consultations with TLC to do so. 	<p>This has not yet begun.</p>
<p>1.1.2 Graduate</p>	
<ul style="list-style-type: none"> The external review committee called on us to consider a number of issues surrounding our graduate program: i) completion times in our MSc program and our PhD program; ii) total enrolments; iii) admissions criteria; iv) formal departmental guidelines for supervisor; and, v) student-supervisor relationships. An ad hoc committee will review these issues and make recommendations. 	<p>The ad hoc committee is actually the graduate program committee, led by Tim Swartz. Some of these issues have been addressed or are being considered: We have reduced course burdens on qualified entrants who have previous experience in upper-division statistics courses, and we have increased our program subscriptions considerably in response to NSERC's emphasis on HQP. Despite this increase, the number of applicants to our programs has been increasing at an even faster rate. Therefore, admissions criteria change (become higher) as the ratio of applications to available positions increases. We have not yet done anything about supervisor guidelines or student-supervisor relationships.</p>
<ul style="list-style-type: none"> The review committee suggested we pursue negotiations with other departments and faculties to develop modularized graduate service courses provided we get suitable resources in compensation for the corresponding loss of teaching capacity in our own programs. We will consult with a variety of other departments to see if such a plan can generate efficiencies and promote better educational outcomes. 	<p>We would love to do this, but we lack capacity to teach anything beyond the core of our own graduate program at the moment. We have added several 300- and 400- level courses recently and have cross-listed these as 600-level grad service courses so that grad students in other departments can take them for credit. Another chair recently approached me because they have a lot of quantitatively oriented students who need more training in certain areas of Statistics. She asked whether we could offer a course in certain areas that her students would flock to. We could not, so they will develop one. A joint hire between the departments would make a lot of sense.</p>
<ul style="list-style-type: none"> The committee supported our development of a PhD program in Actuarial Science. We will design such a program to be implemented when resources permit. 	<p>We have hired a fifth actuary, and there is the possibility of a corporate sponsored chair that would allow hiring a sixth. If this happens, we will certainly be able to offer a PhD program. Meanwhile, we can offer a PhD in Statistics to students who may write a thesis in Actuarial Science.</p>
<ul style="list-style-type: none"> The department put before the committee outlines of proposals for expansions of our graduate programming activities on a number of fronts. By and large the reviewers support all the suggestions but urge us to choose which of them we will push forward. We will seek, for each 	<p>Three initiatives were being considered: Biostat MSc, a coursework-only Applied Stat MSc, and a 5-year BSc/MSc program. When I took over as Chair in 2014, I included these initiatives, along with many others in other areas like undergrad revisions and joint programs, within a survey of the department faculty to identify projects for which there was</p>

<p>suggested program, a champion to take on the task of putting together a more complete picture of the suggested expansion which indicates clearly what work would need to be done and what resources might be required. We will then choose between those proposals that find such a champion after engaging in broad discussions of the sort sought by the review committee.</p>	<p>support, enthusiasm, and potential leadership. Relative to other initiatives within the department, none of these stood out as being of high priority. We have therefore postponed their investigation indefinitely. Should it become apparent at a later time that one or more of these should be a priority, we can reconsider them then.</p>
<p>2. Research</p>	
<ul style="list-style-type: none"> The review committee recommended that we seek a Tier I chair. We applaud the suggestion and argue that we must be the strongest candidates for any such chair when one becomes available. 	<p>CRCs are outside of our control and outside of our dean's control. Information on the process of applying for a CRC does not seem to be available.</p>
<ul style="list-style-type: none"> The committee recommends we look beyond NSERC for research funding. In general terms this is an action for individuals but we will engage in efforts to foster an expansion of our research support. Many of us have funding from a number of non-NSERC sources but an internal exchange of information, facilitated by a few group discussions seems useful. 	<p>This remains up to the individuals, but informally there is exchange of information. All research faculty understand the need for funding to support students, so none need reminders.</p>
<p>3. Administration</p>	
<ul style="list-style-type: none"> The review committee recommended we increase the involvement of junior (recently tenured) faculty in departmental administration and increase the level of formality in our committee structures. We will reach out to those faculty and work to increase their role in order to develop future leadership. We will review and, if necessary, increase the level of formality of various committees. 	<p>An effort has been made to increase involvement of junior faculty in leadership. The Undergrad Studies Committee is now chaired by an AP; we have an AP in the lead on the development of a new Data Science program (a significant new initiative within the department); an AP has recently become coordinator of our Actuarial Science program; an AP is the current seminar chair; an aP is the Fac Sci rep on the Big Data Academic Advising committee; and a recently promoted P is likely to be the next Grad Studies Committee chair. The new leaders are increasing the formality of the respective committee structures.</p>
<ul style="list-style-type: none"> The review committee took the view that we need a strategic plan. The department will undertake broad discussions of the adequacy of our current strategic plans 	<p>We have no formal "strategic plan." Rather, when the new chair took over in September 2014, the department engaged in a prioritization exercise as detailed above. Our strategies and initiatives have largely</p>

<p>during the academic year 2013/14. A new strategic plan will be drafted if there is a consensus that our current five year plan, the plans articulated in our external review self study and our current hiring plan need modification.</p>	<p>arisen from this activity, as well as through opportunism. In addition, our strategies in the short and medium term are expressed annually through our updated hiring plan, which by its nature has a forward-looking focus.</p>
<p>4. Working Environment</p>	
<ul style="list-style-type: none"> The review committee considered that our space is not adequate. We agree. We will work to acquire office space for Visitors, Emeritus Faculty still active in research, Surrey faculty spending time at SFU, Sessional instructors, and postdoctoral fellows. In the next two years we expect to find ourselves unable to find enough offices to house all regular faculty. 	<p>This is an ongoing thorn in our side, as the discipline of Statistics (the original data science) is booming and the need for our courses and other services rides the same wave. Yet there is no available space on our main corridor for growth nor to house visitors and sessional instructors without displacing someone or moving them temporarily during study leaves (even though they are still in town!). The issue has been exacerbated in the extreme by the impending eviction of 20+ grad students from their current home in the former IRMACS. There seems to be no ample, available space anywhere nearby that could house these students. We are at a loss, and the solutions necessarily reside in offices much higher up the ladder than this one.</p>
<ul style="list-style-type: none"> The review committee called on us to provide space for an undergraduate student common area. We will seek resources to do so. 	<p>We have a shared space with Math that is barely adequate. There is no other space available.</p>
<ul style="list-style-type: none"> The review considered that our Statistics Workshop is overcrowded. We will seek to deal with this either by finding a larger room or by using two rooms with two lecturers. The latter possibility would permit the two workshops to specialize more in the courses served in an individual workshop. 	<p>As with other space issues, this remains a pipe dream at the moment. In fact, we are trying to figure out how to get MORE use out of the limited space we currently have to meet the increasing demands.</p>
<p>5. Other</p>	
<ul style="list-style-type: none"> The review committee urges the university to find a more sustainable model for funding our statistical consulting service. We agree that the current model is not clear and that the service should play a bigger role within the university if resources permit. We will undertake 	<p>Following a conversation with the VPR, there is a very strong possibility that the Statistical Consulting Centre will be moved into the new Big Data Hub and merged with services offered there. A formal proposal has been offered to Joy Johnson, and we await word from her on the next moves.</p>

<p>discussions with the Dean and Vice President Research on the subject.</p>	
<ul style="list-style-type: none"> • The committee expressed concern about the stability of our current arrangements for IT support. We agree that there are grounds for such concern and will engage in discussions with the Faculty of Applied Sciences and the Faculty of Science to ensure that we have secure, appropriate, and effective support. 	<p>Through the Faculty of Sciences computing team we have regular, available support from one particular technician. This person has been able to meet our needs in most cases, or has found resources to do so. The chair has not been made aware of any serious problems or deficiencies in service.</p>



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MEMORANDUM

ATTENTION Tom Loughin
Chair, Department of Statistics and
Actuarial Science


DATE October 20, 2016

FROM Glynn Nicholls
Director, Academic Planning and Quality
Assurance

PAGES 1

COPY Claire Cupples
Dean, Faculty of Science

RE: External Review Update for the Department of Statistics and Actuarial Science



As per Senate guidelines, the Department of Statistics and Actuarial Science is to report on progress being made in the implementation of the Action Plan that resulted from its external review in April 2013. This report will be presented to SCUP and Senate for information. The Chair will be asked to attend the SCUP meeting to provide comment and answer any questions about the update on the Action Plan. The Dean may choose to attend the meeting at her discretion.

Please submit your progress report, using the attached template, by Thursday, December 1, 2016 to Bal Basi at bbasi@sfu.ca. Also attached, for ease of reference, is the Action Plan that was approved by Senate on January 6, 2014.

Although your external review took place prior to the requirement to develop educational goals and assessment beginning with the 2013-14 external review cycle, any progress being made in your Department in defining program and/or course level educational goals for academic programs would be welcome in your progress report.

Please contact me at 2-6702, glynn_nicholls@sfu.ca, or Bal Basi at 2-7676, bbasi@sfu.ca, if you have any questions or concerns regarding the external review update process.

Attach.

EXTERNAL REVIEW – ACTION PLAN

Section 1 – To be completed by the Responsible Unit Person e.g. Chair or Director			
Unit under review Statistics and Actuarial Science	Date of Review Site visit April 10-12, 2013	Responsible Unit person, Richard Lockhart, Chair	Faculty Dean Claire Cupples, Dean of Science
<p>Note: It is <u>not</u> expected that every recommendation made by the Review Team be covered by this Action Plan. The major thrusts of the Report should be identified and some consolidation of the recommendations may be possible while other recommendations of lesser importance may be excluded.</p> <p>Should an additional response be warranted, it should be attached as a separate document.</p>			
1. PROGRAMMING			
1.1 Action/s (description what is going to be done):			
<p>1.1.1 Undergraduate:</p> <ul style="list-style-type: none"> a) The review committee urged us to do some course development in Actuarial Science. A package of revisions to our major and honours programs in Actuarial Science will be developed. In particular we will consult with the Beedie School of Business as we look for ways to secure reliable access to courses in finance suitable for undergraduate students in ACMA programs. b) The review committee recommended we cancel the undergraduate certificate program in Actuarial Science; we will do so. c) The review committee recommended we hire a lecturer in Statistics to increase our teaching capacity and lower our reliance on sessional instructors. We will seek to do so when resources permit. d) The review committee recommended that the university adopt policies to prevent the fragmentation of statistics instruction on campus. We whole-heartedly agree and will engage in discussions with our Dean and others around the university on ways to move forward; we acknowledge that service teaching in statistics calls for collaboration between our department and the departments being served and will explore ways to ensure this happens. e) The review committee recommended we develop a framework for course and program assessment. We will engage in consultations with TLC to do so. <p>1.1.2 Graduate:</p> <ul style="list-style-type: none"> a) The external review committee called on us to consider a number of issues surrounding our graduate program: i) completion times in our MSc program and our PhD program; ii) total enrolments; iii) admissions criteria; iv) formal departmental guidelines for supervision; and, v) student-supervisor relationships. An ad hoc committee will review these issues and make 			

recommendations.

- b) The review committee suggested we pursue negotiations with other departments and faculties to develop modularized graduate service courses provided we get suitable resources in compensation for the corresponding loss of teaching capacity in our own programs. We will consult with a variety of other departments to see if such a plan can generate efficiencies and promote better educational outcomes.
- c) The committee supported our development of a PhD program in Actuarial Science. We will design such a program to be implemented when resources permit.
- d) The department put before the committee outlines of proposals for expansions of our graduate programming activities on a number of fronts. By and large the reviewers support all the suggestions but urge us to choose which of them we will push forward. We will seek, for each suggested program, a champion to take on the task of putting together a more complete picture of the suggested expansion which indicates clearly what work would need to be done and what resources might be required. We will then choose between those proposals that find such a champion after engaging in broad discussions of the sort sought by the review committee.

1.2 Resource implications (if any):

- The undergraduate program revisions in actuarial science will require 1 to 4 extra sections of actuarial science offerings per year. Our top current hiring priority is in actuarial science; this will provide some of the needed resources. In the case of finance courses we might need resources for two sessional instructors per year to mount our own finance for actuaries courses. Developing our own courses might, in the long run, be more efficient for the university. There might, indeed, be demand from some Business students for a more intense finance sequence and so our courses might add to capacity for Business students.
- The proposed lecturer position would obviously require resources.
- Consolidation of the teaching of service statistics courses would likely save the university resources overall.
- If we develop an extensive formal course and program evaluation process then we will require resources to implement the program. The need will become clear when the development is done.
- We cannot estimate resource implications for our various potential graduate program expansions until we develop detailed proposals. The availability of resources will inform our choices in this process.

1.3 Expected completion date/s:

Undergraduate

- Actuarial Science program revisions will be completed by the end of the 2013/2014 academic year.

- **Hiring a lecturer must wait for resources.**
- **Consolidation of undergraduate teaching in statistics is a long term goal requiring regular discussion and collaboration. We will begin now but no completion date can reasonably be set.**
- **We hope that program and course assessment procedures can be developed by the end of the 2014/2015 academic year.**

Graduate

- **The committee reviewing aspects of our graduate program will be struck in the 2013/2014 academic year with any needed changes to approved by the department during the next academic year.**
- **A program proposal for the PhD program in Actuarial Science will be developed by the end of the 2014/2105 academic year but Implementation may have to wait until the next hire in Actuarial Science.**
- **Discussions concerning modularized course offerings are taking place in the 2013/2014 academic year and we hope to make proposals, if resources permit, during the next academic year.**
- **The program development activities we contemplate will be completed by the end of the 2014/2015 academic year; full development and implementation will require more time but we won't know how much until the development process is complete.**

2. RESEARCH

2.1 Action/s (what is going to be done):

- a) The review committee recommended we seek a Tier I chair. We applaud the suggestion and argue that we must be the strongest candidates for any such chair when one becomes available.
- b) The committee recommends we look beyond NSERC for research funding. In general terms this is an action for individuals but we will engage in efforts to foster an expansion of our research support. Many of us have funding from a number of non-NSERC sources but an internal exchange of information, facilitated by a few group discussions seems useful.

2.2 Resource implications (if any):

- a Tier I CRC.

2.3 Expected completion date/s:

- Unknown – not under our control.

3. ADMINISTRATION

3.1 Action/s (what is going to be done) :

- a) The review committee recommended we increase the involvement of junior (recently tenured) faculty in departmental administration and increase the level of formality in our committee structures. We will reach out to those faculty and work to increase their role in order to develop future leadership. We will review and, if necessary, increase the level of formality of various committees.
- b) The review committee took the view that we need a strategic plan. The department will undertake broad discussions of the adequacy of our current strategic plans during the academic year 2013/14. A new strategic plan will be drafted if there is a consensus that our current five year plan, the plans articulated in our external review self study and our current hiring plan need modification.

3.2 Resource implications (if any):

- None

3.3 Expected completion date/s:

- Committees will be restructured for the 2014/2015 academic year, co-incident with the appointment of a new chair and following broad departmental discussions of the extent to which such change is required.

4. WORKING ENVIRONMENT

4.1 Action/s (what is going to be done):

- a) The review committee considered that our space is not adequate. We agree. We will work to acquire office space for Visitors, Emeritus Faculty still active in research, Surrey faculty spending time at SFU, Sessional instructors, and postdoctoral fellows. In the next two years we expect to find ourselves unable to find enough offices to house all regular faculty.
- b) The review committee called on us to provide space for an undergraduate student common area. We will seek resources to do so.
- c) The review considered that our Statistics Workshop is overcrowded. We will seek to deal with this either by finding a larger room or by using two rooms with two lecturers. The latter possibility would permit the two workshops to specialize more in the courses served in an individual workshop.

4.2 Resource implications (if any):

- Space requires resources so this can only be done with the help of the faculty and the university. We have used the same workshop space for nearly 30 years and enrollments have grown very dramatically over that time; there is no way to fix this without resources. A second workshop likely is not a solution unless we hire the lecturer described above. A new, larger, room would be more efficient.

4.3 Expected completion date/s:

- Unknown.

5. Other

5.1 Action/s:

- a) The review committee urges the university to find a more sustainable model for funding our statistical consulting service. We agree that the current model is not clear and that the service should play a bigger role within the university if resources permit. We will undertake discussions with the Dean and the Vice President Research on the subject.
- b) The committee expressed concern about the stability of our current arrangements for IT support. We agree that there are grounds for such concern and will engage in discussions with the Faculty of Applied Science and the Faculty of Science to ensure that we have secure, appropriate, and effective support.

5.2 Resource implications (if any):

- The consulting service fills a very important role in the university and needs a steady funding model but it is not clear how much extra funding is actually required. The main resource issue is: who will pay?

5.3 Expected completion date/s:

- Unknown.

The above action plan has been considered by the Unit under review and has been discussed and agreed to by the Dean.

<p>Unit Leader (signed)</p>  <p>Name: Richard Lockhart Title: Chair, Stat & Act Sci.</p>	<p>Date <i>November 07th</i> 23 September, 2013</p> <p>.....</p>
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Section 2 - Dean's comments and endorsement of the Action Plan:

I am very pleased with the quality and scope of the external review conducted on the Department of Statistics and Actuarial Science. The report is very balanced, pointing out the undoubted strengths of the department as well as the lacunae. The department's action plan is thoughtful and focused, addressing the major issues.

One of the strengths of this department is its collegiality, which includes informal mechanisms for making decisions and setting direction. As the report points out, and the department recognizes, changes in faculty demographics, faculty turnover and an upcoming change of Chair suggest that it is time to become more strategic and considered in planning future directions. The recent rapid growth in student numbers has put stress on resources, including personnel and space; this stress will be exacerbated if the department wishes to take on new initiatives – whether they be new undergraduate or graduate programs, enhanced service teaching or new research directions. This is an opportune time to seek additional resources from the Faculty of Science, including the proposed Lecturer in Statistics, but the department will have to be focused and proactive in presenting its case.

The Actuarial program is a gem but faculty members capable of delivering the program are spread thin. The department has requested a faculty hire in the area; I have given it a high priority in this year's hiring plan. In the meantime, I encourage the department to begin planning the PhD program in anticipation of the hire. My office has put effort into helping solve the problem of access by actuarial students to business courses, so far without measurable success. This problem is critical; I will fully support the department however they wish to proceed.

I recognize the need for space to support the statistical workshops and to accommodate faculty hires, and am working with the department to identify possible solutions. The statistical consulting service also needs support to ensure sustainability; I am happy to work with the department to come up with solutions.

Many of the review team's suggestions were just that – intended to be helpful rather than prescriptive. The department will benefit from the advice while being free to determine its own way forward. I look forward to working with them to that end.

Faculty Dean


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Date

15 Nov. 2013.
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