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ATTENTION Senate
FROM Catherine Dauvergne, Vice-President,
Academic and Provost and Chair, SCUP
RE: External Review Mid-Cycle Report for the Department of Biomedical Physiology and
Kinesiology
(SCUP 22-10)

DATE March 10, 2022
PAGES 1 of 1 

The External Review of the Department of Biomedical Physiology and Kinesiology was conducted in March 2018. As per Senate guidelines, the Unit is required to submit a mid-cycle report describing its progress in implementing the External Review Action Plan. At its March 9th meeting SCUP reviewed the Department of Biomedical Physiology and Kinesiology's mid-cycle report.

The mid-cycle report, the Unit's assessment of its Educational Goals, and SCUTL's Feedback on the Educational Goals are attached for the information of Senate.

C: M. Donelan

MEMORANDUM

Attention: Catherine Dauvergne, Vice-President, Academic and Provost and Chair, SCUP

From: Wade Parkhouse, Vice-Provost and Associate Vice-President, Academic



Re: External Review Mid-Cycle Report for the Department of Biomedical Physiology and Kinesiology

Date: February 22, 2022

The External Review of the Department of Biomedical Physiology and Kinesiology was undertaken in March 2018. 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 and the assessment of its Educational Goals. The update on the Action Plan has been reviewed by the Faculty Dean. The Senate Committee on University Teaching and Learning (SCUTL) has provided feedback to the Unit on the assessment of its Educational Goals. The recommendations from SCUTL will be incorporated into the Unit's self-study report for the next external review.

The following documents are attached for the information of SCUP:

- Update on the Action Plan
- Assessment of Educational Goals
- SCUTL's Feedback on the assessment of Educational Goals

c: Max Donelan, Chair, Department of Biomedical Physiology and Kinesiology
Michael Silverman, Dean pro tem, Faculty of Science

MEMORANDUM

Date: November 10, 2021
Attn: Wade Parkhouse, Vice-Provost and Associate Vice-President, Academic
From: Max Donelan, Chair
Re: Mid-Cycle Report

Dear Wade,

Please find attached a Mid-Cycle Report and an Assessment Report of our Department's Educational Goals.

Thank you for your attention.

Sincerely,



Max Donelan, PhD
Professor and Chair

External Review Mid-Cycle Report for the Department of Biomedical Physiology and Kinesiology

Action	Progress Made
1. Programming	
1.1.1 Undergraduate	
<p>a) Plan and propose measures to control the number of BPK undergraduate students.</p> <p>From the External Review report: “The Review Committee noted that enrollment management and degree completion time are significant challenges in BPK.This is challenging because there is no certainty on student numbers from year to year (numbers have gone up significantly over the past several years), making long-term course scheduling and planning difficult.”</p> <p>We will plan measures to better match the volume of students to BPK teaching capacity in order to maintain the high quality of the undergraduate programs and limit course access issues. This will include analysis of measures such as increasing the entrance average from secondary schools and maintaining relatively high continuation and internal transfer GPAs. We will work with the Dean of Science and others to adopt an approach that will help achieve better balance for BPK while still meeting the Faculty of Science enrollment targets.</p>	<p>Degree completion time is less of an issue now than it was at the time of review. Time to completion was trending upward at the time data would have been available for the review (2017 report) at ~16 semesters. It is now at 15.2 semesters for the last two years, which is about average for the Faculty of Science. During the period reviewed for this mid-cycle report, BPK has awarded about the same number of credentials per year indicating we are graduating a similar number of students per year in less time. We attribute this faster time to completion to the addition of a new upper division lab-based course that is offered remotely, and the renovation of upper division lab spaces to allow for more students per offering. Enrollment in these lab-based courses was a bottleneck for our students’ graduation.</p> <p>To better control enrollment, we modified our maintenance GPA from 2.2 to 2.5 and BPK’s AFTEs have decreased by ~8% since 2018. While the goal of controlling undergraduate admission from high school is justified, achieving that by regulating grade point average (GPA) at the department level was deemed impractical by the Dean’s office, since admission targets (and thus GPA) are set at the Faculty level and accountability for meeting the targets resides with the Dean.</p>
<p>b) Develop educational goals and conduct course mapping to inform potential revision of curricula.</p> <p>We will develop Educational Goals, conduct course mapping and use this to inform curricular renewal. This process will include consideration of experiential learning, innovation and critical thinking skills.</p>	<p>Developing educational goals and course mapping has been a major focus for our UPC, and particularly it’s chair. The current status of this work is that Program Educational Goals (PEG) were written by discipline specific subcommittees and approved by the Department for each of our undergraduate Major and Minor Programs. Course Learning Objectives (CLO) were established for all BPK courses using a common development model. CLO, included the level of content delivery (Introduces,</p>

	<p>Emphasizes, Reinforces, Applies) and types of assessment. CLO were mapped onto the PEG for the required BPK courses within each program.</p> <p>Program curriculum maps were analyzed for each educational goal. We assessed whether there was appropriate scaffolding for each goal (gaps, redundancy) paying particular attention to the progression in the level of delivery. The Undergraduate Program Committee (UPC) discussed the analysis and made changes to the Kinesiology Major, Kinesiology Minor and Biomedical Physiology Major programs. These changes are in the Spring 2022 SFU calendar for their respective programs.</p> <p>A subcommittee of the UPC has applied for and received a Teaching and Learning Development Grant to address the delivery and assessment our teamwork related educational goal that is common to all our major programs.</p> <p>The current phase for the BPK EGCMA Project is on the direct and indirect assessment of select goals. Discipline specific subcommittees are identifying target educational goals and specific courses for direct evidence of student learning at various levels of delivery. Indirect evidence of student learning is being gathered from the BC Student Outcomes survey and the BPK Exit Survey that is sent to graduating BPK Major and Honours students. The BPK exit survey may be modified in the future to align with the indirect assessment of our educational goals more clearly.</p>
<p>c) Indigenization</p> <p>We will contribute to SFU’s goal of having culturally safe and welcoming spaces by discussing with the Office of Aboriginal Peoples how to make BPK spaces welcome to Indigenous students. We will show welcome to potential Indigenous students by holding events such as a tour of BPK. Faculty members and staff will be encouraged to take the Student Services’ San’yas Indigenous</p>	<p>We have made less progress on this action than we would like. The progress includes having EDI, including Indigenization, as part of the portfolio of one of our Associate Chairs. This Chair, in collaboration with the rest of BPK’s leadership team, made a conscious decision to follow the lead of SFU and the Faculty of Science, rather than pursuing an individual path for our department, as the University and Faculty appear to be moving quickly and with purpose. We have appointed an Indigenization representative from amongst our faculty members. However, their progress on this action was interrupted by the pandemic.</p>

<p>Cultural Safety Training Program, and Faculty members will be encouraged to take the SFU 'Decolonizing Teaching' course.</p>	<p>This action will be a focus for BPK during the second half of this review period.</p>
<p>1.1.2 Graduate: Graduate program related objectives will be led by the BPK Graduate Program Committee (GPC).</p>	
<p>a) Examine factors influencing MSc time to completion.</p> <p>The GPC will analyze the distribution of MSc degree lengths and will consider the factors influencing it and potential ways to achieve faster completion, while maintaining appropriate standards. Factors to be considered include changes to graduate courses (for example, modular graduate courses are a possibility) and time spent as Teaching Assistants.</p>	<p>To achieve faster completion, we set timelines to complete a degree, including the formation of the supervisory committee, thesis proposal, and thesis defence. These topics have also been added to and emphasized in course content for BPK 801, which is a required course for all BPK MSc students.</p> <p>We continue to design and offer modular grad courses. We have implemented the suite of NEUR courses, which is part of the TRAIN graduate specialization. BPK grad students can elect to enroll in this course, and BPK faculty are centrally involved in teaching it. The BPK graduate program is helping develop additional graduate level BPK courses for implementation in Fall 2022.</p>
<p>b) Develop a contract for expectations and responsibilities between graduate supervisors and graduate students.</p> <p>The contract will include funding and duties of the graduate student and supervisor.</p>	<p>The BPK GPC, in partnership with the BPK Graduate Student Association, developed the BPK Student-Supervisor Expectations and Questionnaire, which is posted on the BPK website. It was informed by an audit of similar tools at other top graduate programs in Kinesiology and Physiology at Canadian universities program.</p>
<p>c) Conduct a systematic assessment of the funding of BPK graduate students in all labs.</p> <p>Financial information from online graduate student progress reports will be individually checked with students.</p>	<p>Financial information (funding received and planned) from online graduate student progress reports was checked individually by the GPC Chair, with support of the BPK Financial Assistant, for all graduate students in the 2018/2019 cycle. In addition, as the annual progress report doesn't populate all funding avenues, the GPC Chair and Financial Assistant drafted a yearly funding form for each graduate student to be completed by the supervisor; the form has not been implemented. BPK increased the minimum graduate student stipend based on the recommendation of our graduate program committee and a</p>

	ratification vote by our department. Online graduate student progress reports were not completed in 2019/20 or 2020/21 cycles, but they will be resumed in Spring 2022.
<p>2. Research</p>	
<p>a) Work with the Faculty of Science and VP Research office to propose to strategically build research capacity in technology and innovation in the area of wearable technology in exercise physiology.</p> <p>One way to build in this important area would be through designation of a CRC Chair, as well as through new Assistant Professor level hire(s). One senior and one junior hire would be ideal to achieve this goal. Such researchers would benefit from joining a department with strong and varied kinesiology and physiology research at the cellular, systems, organ and whole-body levels as well as expertise in innovation, including the founding of successful biotechnology companies. This would augment SFU's already strong research /innovation context and provide critical mass to contribute to SFU's positioning as a leader in wearable technology.</p>	<p>BPK has made wearable technology a central focus. In terms of hiring, we are currently searching for an assistant professor in exercise physiology with a focus on wearable technology. We have established a hiring plan with St. Paul's for a CRC in the same basic area. As a department, we are considering a grant tenure hire also in wearable technology, but with a focus on biomechanics. These new hires will build on an already strong capacity in this area including faculty members Dave Clarke, Sabrina Lee, Max Donelan, Steve Robinovitch, James Wakeling, Andrew Blaber, Victoria Claydon, and Dawn Mackey.</p> <p>More generally, we have aligned BPK with an SFU-wide wearable technology initiative led by Prof Neil Branda. BPK's chair, Max Donelan, is Scientific co-Director of a new university core facility for the innovation of wearable technology called WearTech Labs. BPK has a new remote-taught, hands-on, lab-based course on wearable technology. We have co-ops in place for students to work with local wearable technology companies. Research contracts with wearable technology companies have led to new graduate research projects in this area. Finally, Prof Dave Clarke serves as Co-PI on the interdisciplinary CANSSI-funded Collaborative Research Team in Sports Analytics, a major component of which is player tracking data that involves wearable technology.</p>
<p>b) Seek opportunities to build research strength in Neuroscience to enhance the growing neuroscience emphasis across SFU on multiple campuses.</p> <p>A CRC Chair would be one possible funding source to contribute to this goal, or alternatively a new Assistant Professor position. We will</p>	<p>BPK has also made Neuroscience a central focus. In terms of hiring, Dr. Randy McIntosh will be joining BPK in January from UofT as a new BC LEEF Leadership Chair in Neuroscience. Dr. Martha Holmes, an expert in brain function in children with HIV, will also start in January as a term research faculty member. We have begun to search for a new assistant professor in Neurorehabilitation and will soon begin a search for a Canada Research Chair in Computational Neuroscience. These new hires</p>

<p>work with the Dean of Science and VP Research office to further this goal.</p>	<p>build on an existing strength in neuroscience including faculty members Dan Marigold, Victoria Claydon, Charles Krieger, Andy Hoffer, Dylan Cooke, Sam Doesburg, and Peter Ruben.</p> <p>More generally, BPK is playing a role in several campus-wide initiatives. This includes a new Institute for Neuroscience and Neurotechnology that will be directed by Dr. McIntosh. BPK plays a major role in the Translational and Integrative Neuroscience (TRAIN) graduate specialization developed by Prof. Dan Marigold, which started Fall 2019 and includes BPK and 3 other Departments. We also use and support ImageTech Labs, the university core facility which focuses on brain imaging.</p>
<p>3. Administration</p>	
<p>a) To inform future curriculum planning, analyze data from co-op employers on student gaps and strengths, and continue an annual exit survey.</p> <p>The co-op program carries out ongoing data collection on student performance via employer and student evaluation forms and site visits. This data will be analyzed for indicators that may inform curricular planning. The department will continue to carry out a yearly exit survey, and analyze it for graduating students' perceived curricular gaps.</p>	<p>The department continues to carry out a yearly exit survey, and we analyze it for graduating students' perceived curricular gaps. The survey demonstrates that mental health is a major and growing concern in the BPK Department, students value the practical application of the course material, students need more development of writing skills, and inclusivity is an environmental factor that needs to be properly evaluated and considered in future departmental decisions. The co-op program carries out ongoing data collection on student performance. We have yet to analyze it for curricular planning.</p>
<p>4. Working Environment</p>	
<p>a) Add structure to the existing mentorship program for young research faculty.</p> <p>Currently, each Assistant Professor who wished to participate has had two successfully funded veteran researchers agree to mentor him or her. Going forward, we will (with input from young faculty members) develop a list of aspects of faculty life for which new</p>	<p>To date, there hasn't been a strong need for a mentorship program for young research faculty because we haven't had new hires since the time of the review. The most recent assistant professor hire was prior to the original review. To provide mentorship and guidance, the current department chair (Max Donelan) has been meeting with the only untenured faculty member monthly.</p>

<p>faculty need mentoring, for example, strategies for: grant applications, collaborations, publishing, and in particular selection of and mentoring of graduate students and development of their projects. Veteran researchers who are particularly adept in a certain area will be called on to provide mentorship.</p>	<p>As noted above, we have planned several new hires of junior research faculty. We will initiate the mentorship program for these new faculty.</p>
<p>4b) The BPK Mental Health and Wellness Committee will continue its important work.</p> <p>To date, the BPK Mental Health and Wellness Committee has focused on student mental health and wellness issues; for example, members of this group were among the main advisors regarding design of the new student study space. Going forward, the Committee’s mandate will be expanded to include consideration of faculty and staff wellness.</p>	<p>Initially MWEC's efforts were focused on the physical spaces of the Shrum K building including contributing to the design of the BPK student lounge renovation, which created spaces for students to collaborate and socialize, and areas to house various departmental functions and events. The goal was to encourage productivity for both TAs and students. The MWEC collaborated with SFU Document Solutions in creating graphics for decals and signs for the Shrum K building. The signs can be found on the floors and hallways on the 7000 and 8000-levels for better navigation. Other decals are on the doors of various teaching and research labs to visually indicate and differentiate the spaces.</p> <p>The Committee also hosted Coffee and Conversations events every Thursday (until March 2020), <u>which was</u> open to the entire department, where you could see up to 50 attendees each week. This was another initiative designed to lower the barrier between faculty, staff and students thereby creating meaningful relationships. The committee has plans to continue with these events once the COVID -19 restrictions have been fully lifted.</p> <p>The MWEC also successfully received funding in late 2019 through the Exploring Well-being in Learning Environments ISTLD grant to collect data on the well-being of students with intentions to help create better initiatives for the future. In March 2020, they hosted a BPK Mental Health</p>

	<p>Workshop for students and faculty. They also collaborated with the BPK Graduate Student Association in surveying and receiving feedback from graduate students on their mental wellness and the impact of COVID-19.</p> <p>The MWEC also surveyed faculty members for advice and anecdotes to be shared with students. These faculty profiles are posted outside of their respective offices, so that professors and lecturers are more approachable.</p> <p>In the fall of 2020, the Committee pivoted their efforts in communicating and engaging the department online, both via social media and email. MWEC now has mental wellness campaigns on Instagram, using quotes and advice from undergraduate and graduate students. These social media posts encourage mental wellness, provide links to mental health resources, and emphasize the importance of taking care of yourself alongside schoolwork. Monthly emails are sent to BPK faculty, staff and students where various mental health topics are stressed alongside tips with the research to support suggestions.</p> <p>During 2020, amidst the COVID -19 pandemic and remote learning, a panel discussion was hosted by the MWEC with faculty members addressing issues about how to do well academically while still maintaining a work-life balance. This was very well received and another session is planned for the near future. As the pandemic created extra stress for students, MWEC encouraged regular video messages from the BPK Chair addressing isolation and the importance of self-care. These videos have created an increased feeling of belonging and commitment within the department. MWEC continues to highlight resources for student as well as faculty and staff mental health at faculty meetings.</p>

Educational Goals, Curriculum Mapping and Assessment (EGCMA) in BPK

Ryan Dill - October 2021

Objectives

Implement multi-year plan to engage in the ongoing refinement of educational goals and curriculum maps for each program in Biomedical Physiology and Kinesiology. Utilize direct and indirect evidence of learning to demonstrate where educational goals are being met. Use evidence to suggest improvements to programs and courses, and to inform faculty members and students about program expectations.

Educational Goal Assessment Team Members

BC Student Outcomes Survey and BPK EG Assessment – Ryan Dill

BPK Exit Survey and BPK EG Assessment – Victoria Claydon, Nicole Whittle, Ryan Dill

Biomedical Physiology EG Assessment – Nadine Wicks, Jim Carter, Ryan Dill

Kinesiology EG Assessment – Mike Rosenblat, Dave Clarke, Ryan Dill

Behavioural Neuroscience EG Assessment – Dan Marigold, Dylan Cooke, Ryan Dill

Team Based Learning (TBL) in BPK – Nadine Wicks, Diana Bedoya, Peter Ruben, Ryan Dill

Progress (completion date)

Course Learning Objectives (CLOs) were developed for all BPK courses, following a BPK specific template. CLOs included the level of content delivery (Introduces, Emphasizes, Reinforces, Applies) and methods of assessment. (Fall 2018)

Educational Goals (EGs) for each of our Major and Minor programs were approved by the Department (Spring of 2019). (See Appendix.) These were developed by subcommittee in 2018 from our prioritized Degree Level Expectations that were submitted for External Review in 2017.

Course Learning Objectives were mapped onto the Program Educational Goals including the level of content delivery (Introduces, Emphasizes, Reinforces, Applies) for all required BPK courses in each program. Maps were approved by the Department for each program after incorporating individual feedback from course instructors (Fall 2019).

Curriculum maps for each program were then analyzed. Key areas of analysis included appropriate progression in the level of delivery, balanced delivery expectations at each program level, sufficient support for each goal throughout the program, redundancy in addressing goals, and required courses that did not address sufficient program level goals (2020).

Curriculum map analysis was discussed at the Undergraduate Program Committee (UPC- Fall 2020). Modifications in delivery level expectations were recommended and adopted by course instructors to improve progression through the program. Curriculum changes were recommended by the UPC to solve larger concerns about appropriate progression and level of delivery.

Educational Goals, Curriculum Mapping and Assessment (EGCMA) in BPK

Ryan Dill - October 2021

Box 1 – Curricular Change

An Educational Goal Common to all BPK majors is 'Demonstrate command of material that probes current research within one or more of the subdisciplines...'

A requirement of a minimum 4th year BPK course within the prescribed BPK elective list was added for all majors to ensure this educational goal is delivered at the R and A levels in more courses within each program. These changes were approved by the BPK Department (Fall 2020 and Spring 2021) and will be in the Spring 2022 SFU calendar.

Clear curricular solutions to improve how we explicitly teach and assess some educational goals within our programs were not evident to the UPC.

Box 2 – Team Based Learning (TBL) – Teaching and Learning Development Grant

An Educational goal common to all BPK Majors is 'Work effectively as part of a team and provide leadership when appropriate'. A subcommittee of the UPC has applied for and received a Teaching and Learning Development Grant to address the following questions around Team Based Learning (TBL) within BPK (Fall 2021).

1. How to most effectively integrate TBL into a variety of BPK courses?
2. Does the TBL in BPK template achieve the BPK Program Educational Goal?
3. Do students find TBL enhances their learning?
4. Do students enjoy the TBL experience?
5. Do instructors find TBL enhances their teaching?
6. Do instructors enjoy the TBL experience?

Our objective is to integrate TBL within each level of BPK programs to facilitate progressive and explicit development and assessment of teamwork and leadership skills.

The current phase for BPK EGCMA Project is the direct and indirect assessment of select goals. Discipline specific subcommittees are identifying target educational goals and specific courses for direct assessment at various levels of delivery (Foundational Knowledge, Application of Knowledge, and Integration of Knowledge).

Educational Goals, Curriculum Mapping and Assessment (EGCMA) in BPK

Ryan Dill - October 2021

Box 3 – Direct Evidence

Foundational Knowledge within each Major will be assessed within specific courses.

For the Biomedical Physiology Major (BIF)

1. Explain the individual and interactive structure, metabolism, function and regulation of major organs and organ systems from the molecular to the behavioural level as they pertain to an individual's health and adaptation to physiological challenges, e.g. exercise, environmental challenges, diseases, aging.

BPK 205 Emphasizes and BPK 305, BPK 306 and BPK 307 Reinforce and Apply specific aspects of this Goal. We are currently working on questions within each course that will be utilized to assess components of this goal.

Indirect evidence of student learning is being gathered from the BC Student Outcomes survey and the BPK exit survey that is sent to graduating BPK Major and Honours students. The BPK exit survey may be modified in the future to align with the indirect assessment of our educational goals more clearly.

Educational Goals, Curriculum Mapping and Assessment (EGCMA) in BPK

Ryan Dill - October 2021

Box 4 – Indirect Evidence

The External Review Committee recommended that BPK infuse creative/innovative thinking more broadly into the educational goals and that they be considered critically important during the educational goal setting process.

BPK added the following Educational Goal to all BPK Majors within Autonomy and Professional Capacity 'Demonstrate critical, creative, and practical thinking to function autonomously as a self-directed learner throughout life.'

Data will be collected yearly to assess change in the indirect evidence of the achievement of this goal from two sources. See indications for meeting the EG for each source below.

BC Student Outcomes Surveys – We will evaluate the percentage of students indicating 'very helpful' or 'helpful'. 2018-2020 data is specific for each BPK Major program.

Skill Development

How helpful their program was in their development of a number of skills % very helpful or helpful in developing the skill.

Learn independently

Analyze and think critically

Resolve issues or problems

BPK Exit Survey

We will evaluate the percentage of students stating 'quite a bit' or 'very much' every year, as well as compare BPK to the National Survey of Student Engagement (NSSE) data from 2017.

Q15. How much has your experience with the department of BPK contributed to your knowledge, skills, and personal development in the following areas?

Thinking critically and analytically

Solving complex real-world problems

Being an informed and active citizen

BPK Exit Survey

We will evaluate the percentage of students stating 'often' or 'very often' every year, as well as compare BPK to the National Survey of Student Engagement (NSSE) data from 2017.

Q21. During your undergraduate degree, about how often have you done the following?

Connect your learning to societal problems or issues

Include diverse perspectives

Examined the strength and weaknesses of you own views on a topic or issue

Tried to better understand someone else's views by imagining how an issue looks from his or her perspective

Learned something that changed the way you understand an issue or concept

Educational Goals, Curriculum Mapping and Assessment (EGCMA) in BPK

Ryan Dill - October 2021

The next phase of the BPK EGCM project will look at both the Educational Goals and the Curriculum map to incorporate updates and changes to courses implemented by individual instructors and changes to programs recommended by the UPC. (2022)

Timeline and Assessment Plan (updated from January 2018 BPK self-study submission)

Start Date	Target Completion	Steps in Educational Goals Process (actual completion date) Changes in bold underline or crossed out.
October 2017	January 2018	Prioritize degree level expectation for development as educational goals, incorporate into external review self-study along with preliminary assessment plan. (January 2018)
February 2018	April 2018	Collect course level learning outcomes from all BPK courses. Provide workshops for faculty who did not develop outcomes for courses during workshops in 2013. (Fall 2018) <u>Incorporated requirement for level of delivery (Introduces, Emphasizes, Reinforces, Applies) (IERA) and types of assessment into BPK CLOs. (Fall 2018)</u> Acquire curriculum mapping program. (not available) Initial surface mapping of prioritized expectations.
May 2018	December 2018	Incorporation of recommendations from external review. (recommended timeline for project completion by 2019 unrealistic) Revision of Program Educational goals <u>by discipline specific subcommittees. (Fall 2018)</u> Determination of main objectives for first phase of educational goal assessment process. Prioritization of which courses and methods to assess achievement of goals.
January 2019	December 2019	Deeper evaluation of first three goals using Fink's taxonomy Foundational Knowledge, Application of Knowledge and Integration of Knowledge. (F, A, I) <u>Curriculum mapping of all Educational Goals to required BPK courses for each Undergraduate Program, incorporated individual course instructor feedback. (Fall 2019)</u>
January 2020	December 2020	Deeper evaluation of remaining goals using Fink's taxonomy Foundational Knowledge, Application of Knowledge and Integration of Knowledge. (F, A, I) <u>Curriculum Map Analysis for appropriate scaffolding (gaps, redundancy) in the level of delivery (IERA). (Fall 2020)</u> <u>Course level changes recommended by UPC, approved by instructors (Fall 2020)</u> <u>Program changes recommended by UPC, approved by Department for Spring 2022 Calendar. (Fall 2020)</u>
January 2021	December 2021	Analyze data and propose action for four-year update. (Fall 2020) Consider constructing separate analysis for delivery to Administration, Departmental Subcommittees and Students. Compare to similar programs at other institutions. Address recommendations from External Review using evidence from assessment process. (see box 4)

Educational Goals, Curriculum Mapping and Assessment (EGCMA) in BPK

Ryan Dill - October 2021

		<u>UPC subcommittee applied for Teaching and Learning Development Grant to develop teaching and assessments tools around Team Based Learning in BPK. (Fall 2021 – projected completion Fall 2022)</u> <u>Direct and indirect assessment of select Educational Goals within course and through BPK Graduate Exit Survey. (Ongoing – see Boxes 3 and 4) (Fall 2022)</u>
May 2022	Fall 2022	Updates to Educational Goals and Curriculum Maps
External Review 2025		

Biomedical Physiology and Kinesiology – Program Level Educational Goals

Behavioural Neuroscience Major Educational Goals

"A graduate from this program is able to"

A] Foundational Knowledge

1. Explain how neurons communicate and how the nervous system senses, codes, transforms, and stores information.
2. Explain the function of different brain regions and how they work together to produce or control behaviour and cognition.
3. Explain the fundamental concepts underlying disciplines related to behavioural neuroscience, including neuroanatomy, physiology, and psychology.

B] Application of Knowledge

4. Apply foundational knowledge to common behavioural neuroscience phenomena across the life-span, environmental challenges, and neurological conditions.
5. Apply foundational knowledge to critically analyze current approaches or design new ways to maintain or improve brain health and function.
6. Identify major methods of inquiry in behavioural neuroscience and utilize these approaches and techniques to identify and address problems.
7. Demonstrate command of material that probes current research within one or more of the behavioural neuroscience subdisciplines; e.g., learning and memory, plasticity, attention, sensorimotor control, biological rhythms, neuroimaging, neurophysiology, and neuroendocrinology.

C] Integration of Knowledge

8. Demonstrate ability to integrate and synthesize a broad range of knowledge and skills and apply these to diverse and novel challenges in behavioural neuroscience.
9. Evaluate the strengths and limitations of various experimental approaches and justify the choice of mode of inquiry and analysis to solve problems.
10. Integrate principal methods of inquiry in behavioural neuroscience to evidence-based practice.
11. Critically evaluate the scientific integrity of information by detecting logical flaws and misdirection in an argument and selecting information for decision-making based on its validity.

Biomedical Physiology and Kinesiology – Program Level Educational Goals

D] Communication Skills

12. Demonstrate the ability to read, critically appraise, and present information in discipline specific forms.

13. Communicate evidence-based engaging scientific arguments in oral presentations, class discussions, and written papers.

14. Use relevant scientific, technological, and statistical concepts, data and skills to explain and clarify ideas to diverse target audiences.

15. Demonstrate empathy, understanding, and ethical conduct when considering or performing neurological evaluations/research involving healthy humans or patient populations.

E] Autonomy and Professional Capacity

16. Demonstrate critical, creative, and practical thinking to function autonomously as a self-directed learner throughout life.

17. Work effectively as part of a team and provide leadership when appropriate.

18. Demonstrate personal responsibility, ethical decision-making, academic integrity, and social responsibility.

19. Demonstrate knowledge of appropriate care, treatment, and use of animals in science.

Biomedical Physiology and Kinesiology – Program Level Educational Goals

Educational Goals - Biomedical Physiology Major

"A graduate from this program is able to"

A] Foundational Knowledge

1. Explain the individual and interactive structure, metabolism, function and regulation of major organs and organ systems from the molecular to the behavioural level as they pertain to an individual's health and adaptation to physiological challenges, e.g. exercise, environmental challenges, diseases, aging.
2. Explain the fundamental concepts underlying disciplines related to physiology and health such as anatomy, kinesiology, molecular and cell biology, exercise physiology, biomechanics, neuromechanics, rehabilitation, motor learning, motor control, and nutrition.

B] Application of Knowledge

3. Apply foundational knowledge to common physiological phenomena across the life-span, environmental challenges, and pathophysiological disorders.
4. Apply foundational knowledge and skills to the laboratory, clinical, or community setting to investigate physiological phenomena and design and interpret appropriate experiments or tests.
5. Identify major methods of inquiry in physiology, and utilize these approaches and techniques to identify, isolate, and address problems.
6. Apply foundational knowledge to critically analyze current issues in physiology and/or healthcare.
7. Demonstrate command of material that probes current research within one or more of the physiological subdisciplines e.g. cardiovascular physiology, chronic disease, exercise physiology, environmental physiology, neuroscience, neuromechanics.

C] Integration of Knowledge

8. Demonstrate ability to integrate and synthesize a broad range of knowledge and skills and apply these to diverse and novel challenges.
9. Evaluate the strengths and limitations of various approaches and justify the choice of mode of inquiry and analysis to solve problems.
10. Integrate principal methods of inquiry in physiology to evidence-based practice.
11. Critically evaluate the scientific integrity of information by detecting logical flaws and misdirection in an argument and selecting information for decision-making based on its validity.

Biomedical Physiology and Kinesiology – Program Level Educational Goals

D] Communication Skills

12. Demonstrate the ability to read, critically appraise, and present information in discipline specific forms.

13. Communicate evidence-based engaging scientific arguments in oral presentations, class discussions and written papers.

14. Use relevant scientific, technological, and statistical concepts, data and skills to explain and clarify ideas to diverse target audiences.

15. Demonstrate empathy, understanding and ethical conduct when considering or performing physiological evaluations/research involving healthy humans or patient populations.

E] Autonomy and Professional Capacity

16. Demonstrate critical, creative, and practical thinking to function autonomously as a self-directed learner throughout life.

17. Work effectively as part of a team and provide leadership when appropriate.

18. Demonstrate personal responsibility, ethical decision-making, academic integrity, and social responsibility.

19. Demonstrate knowledge of appropriate care, treatment, and use of animals in science.

Biomedical Physiology and Kinesiology – Program Level Educational Goals

Educational Goals - Biomedical Physiology Minor

"A graduate from this program is able to"

A] Foundational Knowledge

1. Explain the individual and interactive structure, metabolism, function and regulation of major organs and organ systems from the molecular to the behavioural level as they pertain to an individual's health and adaptation to physiological challenges, e.g. exercise, environmental challenges, diseases, aging.
2. Explain some of the fundamental concepts underlying disciplines related to physiology and health such as anatomy, kinesiology, molecular and cell biology, exercise physiology, biomechanics, neuromechanics, rehabilitation, motor learning, motor control, and nutrition.

B] Application of Knowledge

3. Apply foundational knowledge to common physiological phenomena across the life-span, environmental challenges, and pathophysiological disorders.
4. Identify major methods of inquiry in physiology, and utilize these approaches and techniques to identify, isolate, and address problems.
5. Apply foundational knowledge to critically analyze current issues in physiology and/or healthcare.

C] Integration of Knowledge

6. Evaluate the scientific integrity of information for decision-making based on its validity.

D] Communication Skills

7. Demonstrate the ability to read, critically appraise, and present information in discipline specific forms.

E] Autonomy and Professional Capacity

8. Demonstrate critical and practical thinking while developing as a self-directed learner.
9. Work effectively as part of a team.
10. Demonstrate personal responsibility, academic integrity, and social responsibility.

Biomedical Physiology and Kinesiology – Program Level Educational Goals

Educational Goals - Kinesiology Major

"A graduate from this program is able to"

A] Foundational Knowledge

1. Explain the individual and interactive structure, metabolism, function and regulation of major organs and organ systems as they pertain to an individual's health, ability to perform physical tasks, and ability to adapt to diverse environments.
2. Explain the fundamental concepts underlying disciplines related to kinesiology and health such as anatomy, physiology, exercise physiology, biomechanics, neuromechanics, rehabilitation, motor learning, motor control, psychology, nutrition and ergonomics.

B] Application of Knowledge

3. Apply appropriate techniques to assess personal histories, fitness and risks and assess and coach movement technique, related to health and injury.
4. Apply foundational knowledge to design and deliver exercise programs for healthy and unhealthy individuals or groups to prevent or manage injury, promote physical literacy, and enhance physical performance.
5. Apply foundational knowledge to deliver counseling, active rehabilitation or nutrition programs for healthy, unhealthy and at-risk individuals or groups, to prevent dysfunction and/or enhance physical performance.
6. Apply foundational knowledge to critically analyze organizational health promotion, ergonomic, or rehabilitation strategies and policies.
7. Identify major methods of inquiry in kinesiology, and utilize these approaches and techniques to identify, isolate, and address problems.
8. Demonstrate command of material that probes current research within one or more of the kinesiology subdisciplines e.g. anatomy, physiology, exercise physiology, environmental physiology, biomechanics, neuromechanics, rehabilitation, motor control, ergonomics.

C] Integration of Knowledge

9. Integrate principal methods of inquiry in kinesiology to evidence-based practice and scientific problem solving of discipline-specific questions and challenges.
10. Critically evaluate the scientific integrity of information by detecting logical flaws and misdirection in an argument and selecting information for decision-making based on its validity.

Biomedical Physiology and Kinesiology – Program Level Educational Goals

D] Communication Skills

11. Demonstrate the ability to read, critically appraise and present information in discipline-specific forms.
12. Communicate evidence-based engaging scientific arguments in oral presentations, class discussions and written papers.
13. Use relevant scientific, technological, and statistical concepts, data and skills to explain and clarify ideas to diverse target audiences.
14. Demonstrate empathy and effective interviewing skills in counseling behaviour change as it pertains to a healthy lifestyle.
15. Demonstrate empathy, understanding and ethical conduct when considering or performing evaluations/research involving healthy humans or patient populations.

E] Autonomy and Professional Capacity

16. Demonstrate critical, creative, and practical thinking to function autonomously as a self-directed learner throughout life.
17. Work effectively as part of a team and provide leadership when appropriate.
18. Demonstrate personal responsibility, ethical decision making, academic integrity, and social responsibility.
19. Complete the academic and practical requirements of discipline-specific provincial, national and international certifications.
20. Differentiate the primary professional settings in which kinesiologists operate, e.g. personal training, group fitness, ergonomics, exercise physiology, active rehabilitation, and strength and conditioning.

Biomedical Physiology and Kinesiology – Program Level Educational Goals

Educational Goals - Kinesiology Minor

"A graduate from this program is able to"

A] Foundational Knowledge

1. Explain the basic structure, metabolism, function and regulation of major organs and organ systems as they pertain to an individual's health and ability to perform physical tasks.
2. Explain basic fundamental concepts underlying disciplines related to kinesiology and health such as, anatomy, physiology, exercise and nutrition.
3. Explain basic fundamental concepts underlying one of the following disciplines related to kinesiology and health; biomechanics, sensorimotor control and learning, sports injuries.

B] Application of Knowledge

4. Apply basic foundational knowledge to design exercise programs to promote physical fitness in healthy individuals.
5. Apply basic foundational knowledge to critically analyze organizational health promotion.

C] Integration of Knowledge

6. Evaluate claims and make decisions regarding exercise, nutrition, and health using principles and knowledge derived from science.

D] Communication Skills

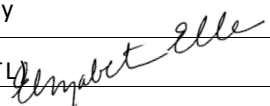
7. Demonstrate the ability to read, critically appraise and present information in discipline-specific forms.

E] Autonomy and Professional Capacity

8. Demonstrate critical and practical thinking while developing as a self-directed learner.
9. Work effectively as part of a team.
10. Demonstrate personal responsibility, academic integrity, and social responsibility.



MEMORANDUM

ATTENTION:	Max Donelan, Chair, Biomedical Physiology and Kinesiology
FROM:	Elizabeth Elle, Vice-Provost, Learning & Teaching (for SCUTL) 
RE:	BPK Mid-cycle Educational Goals Assessment
DATE:	February 11, 2022

The Senate Committee for University Teaching and Learning has recently been charged with providing feedback to units in their mid-cycle assessment of Educational Goals. Ryan Dill, and the entire EG Assessment Team from BPK, is to be commended for having such a thoughtful approach and for using the opportunity of EG assessment to improve the BPK curriculum.

There are many items that are especially strong in your mid-cycle report. It's clear that your faculty have been engaged throughout what has been an ongoing process of articulating, mapping, and revising your EGs, considering the scaffolding of each EG through your degree, and even pursuing a Teaching and Learning Development Grant as a way to better understand how to assess an important goal, "teamwork". We appreciated that you are using existing surveys to gather indirect evidence of student achievement as part of your approach. It's great to see that what has been learned through this process has already resulted in changes, for example addition of a new 4th year course requirement for your EG on research. The approach appears to be a sustainable team effort, which likely means that the insights generated will be both useful, and used.

There are a few items where we'd recommend some further thought.

- In your Action Plan from 2018, degree level expectations are identified with the expectation these would evolve into a smaller number (~10) of assessable EGs for each program. In the midcycle report submitted, however, there are about twice as many EGs for each program. A smaller number of EGs for each of your programs (6-10 is more typical) would be less cumbersome for your unit to assess. As noted in the next bullet, at a minimum identifying which of the many EGs will be your priority as you head into your next external review (beyond the very few specifically identified in the report) would help you as you continue this work.
- Collection of direct evidence could be improved and simplified. In Box 3, you note that you will frame some questions to assist with direct assessment of one of your EGs; Box 4 relies completely on indirect assessment. We recommend considering how to include more direct assessments, and building out your assessment plan beyond Fall 2022 where it now stops. A more sustainable way forward (vs. framing new questions that students or faculty would need to answer) is to use existing assignments within relevant courses (test questions, written work) and existing rubrics to assess a subset of your EGs. Normally this is done in the courses that Reinforce/Apply (there is no need to also do assessment within courses that introduce a skill or

form of knowledge). A plan for deciding which EGs are most important for you to learn more about, and a timeline for collecting existing data from relevant courses identified in your curriculum map, would greatly improve what you know about your students' achievement without being especially onerous.

- Given the curricular change described in box 1, once that change is implemented, it may be helpful to assess how well the students are achieving this EG.

Your unit has developed a collegial model and has been sharing and acting on findings throughout the process, which is exemplary. Some subcommittee members wondered if you would be willing to share your mid-cycle EG report, as it would be useful for other units to see what could be considered an exemplar of how to do this work well. Please let me know.

Finally, if you could use any additional support, please reach out to the [Learning Experiences Assessment and Planning](#) group in my portfolio (email them at: leap@sfu.ca). I've added people to the team with expertise in assessment and survey analysis, and they are here to help you.