MSc in Interdisciplinary Medical Sciences Final Assessment Report & Implementation Plan

Faculty / Affiliated University College	Schulich School of Medicine and Dentistry	
Degrees Offered	MSc in Interdisciplinary Medical Sciences (IMS)	
Date of Last Review	*New program not previously reviewed*	
Approved Fields	None	
External Consultants	Reinhart Reithmeier, PhD FCAHS	Department of Biochemistry, University of Toronto
	Edward Ruthazer, PhD	Montreal Neurological Institute, McGill University
Internal Reviewers	Jamie Baxter	Associate Dean, Faculty of Social Science
	Mohammed Estaiteyeh	Ph.D. student, Western University
Date of Site Visit	January 14-15-2020	
Date Review Report Received	January 29, 2020	
Date Program/Faculty Response Received	February 17, 2020	
Evaluation	**Approved to Commence**	
Approval Dates	SUPR-G: March 25, 2020 SCAPA: April 1, 2020 Senate:	
Year of Next Review	2027-2028	

In accordance with Western's Institutional Quality Assurance Process (IQAP), adopted on May 11,2011, revised June 22, 2012, this Final Assessment Report provides a summary of the cyclical review, internal responses and assessment and evaluation of Graduate Program delivered by the Schulich School of Medicine and Dentistry.

This report considers the following documents: the program's self-study, the external consultants' report and the responses from the Department/School and Faculty. The Final Assessment Report identifies the strengths of the program, opportunities for program enhancement and improvement and details and prioritizes the recommendations of the external consultants and prioritizes those recommendations that are selected for implementation.

The Implementation Plan details the recommendations from the Final Assessment Report that are selected for implementation, identifies who is responsible for approving and acting on the recommendations, any action or follow-up that is required and the timeline for completion.

The Final Assessment Report and Implementation Plan is sent for approval through SUPR-G and SCAPA, then for information to Senate and the Ontario Universities' Council on Quality Assurance and is made available on a publicly accessible location on Western's IQAP website The Final Assessment

Report and Implementation Plan is the only document resulting from the Graduate cyclical review process that is made public, all other documents are confidential to the Program/School/Faculty and SUPR-G.

Executive Summary

The Schulich School of Medicine and Dentistry is introducing the MSc in Interdisciplinary Medical Sciences (IMS). It will be a one-year (3 terms, starting in May) course-based Master's program. The degree designation MSc was selected for the proposed program because of the integration of research skills and scientific biomedical research at the core of this interdisciplinary program.

Student teams will be established for the duration of the program. The students will work closely with these members in their coursework and on some assignments and assessments. Therefore, a collaborative learning environment will be established so that students are supported throughout their program. Students will also attend and participate in a continuous seminar series throughout the academic year. The seminar series will offer students the opportunity to attend academic talks related to their research interests as well as professional development workshops. Students will frequently present in different formats and to various audiences at the seminar series. These opportunities will allow students to showcase what they have learned, share and reflect on their experiences, and contribute to thought-provoking discussions.

Having students immersed in various experiential rotations will introduce students to the wider community of scholars in the discipline and also in the community. Students will be expected to discuss their ideas and disseminate findings with researchers and community members.

The MSc in IMS will include consecutive block courses where students will be immersed in a topic. These learning blocks will be the equivalent to 0.5 course credits and are outlined below. The curriculum will be comprised of seven learning blocks (0.5 credits each), three experiential rotations (0.5 credits each), and a continuous seminar series (1.0 credit).

Course Requirements

- 6.0 course credits
    - MEDSCIEN 9501 Scientific Communication in the 21st-Century (0.5)
    - MEDSCIEN 9502 Experimental Design in Medical Science Research (0.5)
    - MEDSCIEN 9503 Research Ethics and Academic Integrity (0.5)
    - MEDSCIEN 9504 Ethics in Human and Animal Research (0.5)
    - MEDSCIEN 9505 Research Excellence Through Diversity (0.5)
    - MEDSCIEN 9506 Biomedical Applications of Artificial Intelligence (0.5)
    - MEDSCIEN 9507 Intellectual Property and Business Challenges of Clinical Translation (0.5)
    - MEDSCIEN 9601 Experiential Rotation 1 (0.5)
    - MEDSCIEN 9602 Experiential Rotation 2 (0.5)
    - MEDSCIEN 9603 Experiential Rotation 3 (0.5)
    - MEDSCIEN 9500 Seminar Series (1.0)

- Milestones (non-course degree requirements)
    - ePortfolio
      All students must maintain an ePortfolio during completion of the program. Students will be expected to submit their ePortfolios at the end of the program and they must meet expectations to graduate.

Significant Strengths of the Program

The Review Process identified the following program strengths:

1. unique in offering accelerated and specialized training for students who seek to work in health and life science disciplines, as policy analysts, fund raisers, not-for-profit administrators, teachers, journalists, managers of clinical trials, etc.

2. Graduates who understand the multidisciplinary nature of research focused on community needs.
3. E-portfolio
4. Interdisciplinary (within the Medical Sciences)
5. Cohort model
6. Three practical rotations interspersed among more formal coursework

Areas of Concern Identified

Reviewers' Recommendation Recommendations requiring implementation have been marked with an asterisk (*). The process for implementation can be found in the Implementation Plan below.	**Program/Faculty Response**
1. * One possible way to eventually dissuade the premed cohort from applying to this program as a way to boost their GPAs for Med school applications would be to adopt a non-numeric grading scheme.	Members of the program committee are in favour of this approach and would like to discuss the possibility of a strictly pass/fail system with SGPS.
2. * Student applicants should not be given false hopes that this MSc program will significantly change their likelihood of medical school admission.	The program will emphasize transferable skills training and experiential learning opportunities at recruitment events, ensuring that we attract a diverse student population, especially for our first cohort, which will set a tone for future cohorts
3. *One pool of ideal applicants that should not be underestimated are international students interested in integrating into the Canadian workforce and who may already hold PhDs or medical degrees	It is currently anticipated that a mix of one third each of local, Canadian from elsewhere, and international students will be admitted to the program.
4. * If possible, some scholarships should be made available to allow economically disadvantaged students or international students from underdeveloped countries to participate.	Scholarships for students in the program will be considered based on need and/or merit. We also hope to develop funding initiatives that align with the goals of the program, such as equity, diversity, and inclusion.
5. *It may also be beneficial for enhancing diversity and interdisciplinarity in the pool of students to expand the criteria for admission beyond those holding health and life science degrees, to include individuals in the humanities in areas such as philosophy, economics, engineering, etc.	We plan to involve other faculties in the design and delivery of the curriculum, and we will therefore consult with members of these faculties about their students being candidates for our program. However, we would like to determine what students would need in terms of background from their undergraduate studies to be successful in our program. Therefore, at least initially, we will recruit students who hold a health or life science degree, as outlined in the brief, but will continue to explore other disciplines for future cohorts
6. * The consultants recommend that there be a sole Director, an Associate Director and a Program Administrator	The program committee agrees with this structure and is in the process of identifying candidates. The plan is to have the Director and Associate Director roles filled by the end of this calendar year.
7. * Regular meetings should be held by an oversight board. We recommend that this board include, in addition to university administrators and faculty members, some members of the community who may have	The program committee agrees with these recommendations.

participated in community engaged learning rotations such as local non-for-profits or funding agencies.	
8. * Because of the importance of the community engagement component, and the likelihood of a heavy reliance on services from the Community Engaged Learning Centre, it is strongly recommended that the university create a new position of Graduate Liaison for Community Engaged Learning, probably to be located at the Community Engaged Learning Centre itself.	The program had not considered this role but agrees that it would be beneficial for the success of the program and the community rotation.
9. * In general the 8 weeks allocated for the rotation will permit only superficial hands-on research experience and is not enough time to learn more than a few new techniques. We therefore recommend that the rotations be designed to give the students more of a consultant type role (e.g., creating a website based on interviews with lab members and the PI that highlights the research program for the lab).	We will work closely with our lab rotation partners and recruit them early so that we are aware of the general lab needs for the rotations.
10. * It will be important that the specific goals and plan for implementation of each rotation be formally agreed to by student and host upon the start of each of the 3 rotations to avoid wasted time and miscommunication.	The program committee agrees strongly with this statement and will ensure that onboarding and offboarding training be completed by both the mentee and mentor. While maintaining different options in terms of how rotation students get immersed in the lab work, a clear framework of expectations, time commitment, deliverables and responsibilities will be established that all parties need to agree to.
11. * We urge the organizers to provide some sample ePortfolios to the students at the beginning of the year so that they will have a clear idea what they can include in their own portfolios.	We will ensure that we provide a template for students as well as examples of ePortfolios. Every year, we will also ask students for their permission to share their ePortfolios with future cohorts.
12. * In some cases, the ePortfolios may contain privileged information about IP or patient details which should not be placed in the public domain. It would be wise for any ePortfolios to be restricted initially to local consumption by students and instructors in the program.	We do not plan to have the ePortfolios be open to the public. Instead, we will work with platforms that can be made private and only shared with members within the program. We will also make sure we discuss public versus private domains in the communication block and work through case study examples.
13. * The reviewers were slightly concerned about the large amount of independent work time incorporated into the block course curriculum. Effectively, classroom interactions will take place on Mondays and Fridays with Tuesday through Thursday involving small group work and self-study. The value of the flipped classroom has been brought into question in recent studies. However, it seems to be a useful component of this program and several of the instructors and administrators have extensive experience with this format for active learning. At least in the initial years, it will be	We agree with the reviewers and together with the curriculum developer have recently revised the weekly schedule. We will solicit regular feedback from students and hope to incorporate scholarly research by members of the Faculty for Education and/or CERI for quality assurance and improvement.

critical to solicit regular feedback from the students about whether they agree that this format is serving their needs adequately.	
14. * Guest lecturers from outside this discipline (e.g., philosophers, law school faculty, Ivey Business School lecturers, etc.) could be invited to participate occasionally with greater involvement perhaps evolving over time in a bottom up manner.	The program committee completely agrees and is working diligently on building relationships and expand the network.
15. * If independent self- and small team-study will be a core aspect of the teaching model it would be valuable for a physical cohort space to be set aside for these students to facilitate safe and unfettered interactions with their classmates outside of fixed hours.	We agree that a physical space would benefit students in the program. This is something that will be discussed by senior leadership and with the CFO of Schulich. We will ensure that at minimum, students have rooms booked to work with their teams and independently on their coursework.
16. * The so-called Phase 2 online version of this program, as described in the brief, does not seem to adequately benefit from the many interactive and interdisciplinary strengths of the program. We recommend it be abandoned, at least until the degree program has been successfully running for several years.	In what form and to what extent an online version of this program, or of parts of the program, will be developed in the future, will be determined once this program is established.
17. * It would be nice to have an occasion for the students to all present their Capstone projects to the entire group. Clear examples of what constitutes a good Capstone project should be provided at the beginning of the year.	We are very fortunate to be working with a curriculum designer who has expertise in this area. Therefore, the capstone projects are being defined so that clear expectations will be provided to students. We have also included a Capstone Showcase for the end of the year, where students will have opportunities to present their work to the Schulich community and beyond.
18. * There might be some merit in students engaging with community partners to identify an interest or need and then to consult with basic scientists and clinicians working in the area to come up with a policy paper, a strategic plan, a grant proposal, etc. as the Capstone Project	The program committee agrees with this statement and will consider this comment during design and implementation stages of the program over the next year.
ITEMS BELOW ALREADY COVERED IN THE BRIEF (i.e. will be implemented)	
19. A great deal of consideration be put into regulating class size. Because of the active learning, flipped-classroom and hands-on rotation structure of the program there is likely a number of students per class (perhaps 30) above which the quality of training and supervision will suffer	The program committee agrees with this recommendation and we will ensure that we monitor the program carefully to determine the maximum number of students that can be accommodated without sacrificing the quality of the experience
20. There was some discrepancy about the learning objective of the rotations. We agree that that the 3 rotations should be required to be spread across basic, clinical and community engagement areas.	Students are required to participate in a basic science lab, clinical or translational lab, and with a community partner

Implementation Plan

The Implementation Plan provides a summary of the recommendations that require action and/or follow-up. The Graduate Program Chair and/or Department Chair/Director, in consultation with SGPS and the Dean of the Faculty will be responsible for enacting and monitoring the actions noted in Implementation Plan. The details of progress made will be presented in the Deans' Annual Planning Document.

Recommendation	Proposed Action and Follow-up	Responsibility
List recommendations requiring implementation	Describe the action and/ or follow-up required to implement the recommendation	Identify those responsible for implementation
1. * One possible way to eventually dissuade the premed cohort from applying to this program as a way to boost their GPAs for Med school applications would be to adopt a non-numeric grading scheme.	Members of the program committee are in favour of this approach and would like to discuss the possibility of a strictly pass/fail system with SGPS.	Director, Program Committee
2. * Student applicants should not be given false hopes that this MSc program will significantly change their likelihood of medical school admission.	The program will emphasize transferable skills training and experiential learning opportunities at recruitment efforts, ensuring to attract a diverse student population, especially for our first cohort, which we acknowledge will set a tone for future cohorts	Director, Program Committee
3. *One pool of ideal applicants that should not be underestimated are international students interested in integrating into the Canadian workforce and who may already hold PhDs or medical degrees	It us currently anticipated that a mix of one third each of local, Canadian from elsewhere, and international students will be admitted to the program.	Director, Program Admissions Committee
4. * If possible, some scholarships should be made available to allow economically disadvantaged students or international students from underdeveloped countries to participate.	Scholarships for students in the program will be considered based on need and/or merit. We also hope to develop funding initiatives that align with the goals of the program, such as equity, diversity, and inclusion.	Director, Program Committee, Dean, Faculty Development Coordinator

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5. *It may also be beneficial for enhancing diversity and interdisciplinarity in the pool of students to expand the criteria for admission beyond those holding health and life science degrees, to include individuals in the humanities in areas such as philosophy, economics, engineering, etc.	We plan to involve other faculties in the design and delivery of the curriculum, and we will therefore consult with members of these faculties about their students being candidates for our program. However, we would like to determine what students would need in terms of background from their undergraduate studies to be successful in our program. Therefore, at least initially, we will recruit students who hold a health or life science degree, as outlined in the brief, but will continue to explore other disciplines for future cohorts	Director, Program Admissions Committee
6. * The consultants recommend that there be a sole Director, an Associate Director and a Program Administrator	The program committee agrees with this structure and is in the process of identifying candidates. The plan is to have the Director and Associate Director roles filled by the end of this calendar year.	Dean
7. * Regular meetings should be held by an oversight board. We recommend that this board include, in addition to university administrators and faculty members, some members of the community who may have participated in community engaged learning rotations such as local non-for-profits or funding agencies.	The program committee agrees with these recommendations.	Dean, Director
8. * Because of the importance of the community engagement component, and the likelihood of a heavy reliance on services from the Community Engaged Learning Centre, it is strongly recommended that the university create a new position of Graduate Liaison for Community Engaged Learning, probably to be located at the Community Engaged Learning Centre itself.	The program had not considered this role but agrees that it would be beneficial for the success of the program and the community rotation.	Dean, Director, CEL

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17. * It would be nice to have an occasion for the students to all present their Capstone projects to the entire group. Clear examples of what constitutes a good Capstone project should be provided at the beginning of the year.	We are very fortunate to be working with a curriculum designer that has expertise in this area. Therefore, the capstone projects are being defined so that clear expectations will be provided to students. We have also included a Capstone Showcase for the end of the year, where students will have opportunities to present their work to the Schulich community and beyond.	Director, Course instructors
18. * There might be some merit in students engaging with community partners to identify an interest or need and then to consult with basic scientists and clinicians working in the area to come up with a policy paper, a strategic plan, a grant proposal, etc. as the Capstone Project	The program committee agrees with this statement and will consider this comment during design and implementation stages of the program over the next year.	Director, Program Committee, Course Instructor

Other Opportunities for Program Improvement and Enhancement
The Internal reviewers suggest that while the review is very positive, and the program fills a clear niche, that a report on all of the above items be provided to SUPR-G after the first cohort has completed much of their program – e.g. January 2022 – this will allow time to implement adjustments for the second cohort.

Personnel Issues (Confidential and If Applicable)
None.