



The following Motions and Documents were considered by the GFC Academic Planning Committee at its Wednesday, December 11, 2019 meeting:

Agenda Title: Proposed Changes to Entrance and Program Requirements for the Master of Arts in Communications and Technology, Faculty of Extension, and Faculty of Graduate Studies and Research

CARRIED MOTION:

THAT the GFC Academic Planning Committee approve the proposed changes to existing Program Requirements for the Master of Arts in Communications and Technology, as recommended by the GFC Academic Standards Committee, as submitted by the Faculty of Graduate Studies and Research and the Faculty of Extension, and as set forth in Attachment 1, to take effect upon approval and to be published in the 2020-2021 Calendar.

Final Motion: 4.

Agenda Title: Proposed Changes to Existing Entrance Requirements, Academic Standing Requirements and Program Requirements for Graduate Programs in Mathematical and Statistical Sciences, Faculty of Science, and Faculty of Graduate Studies and Research

CARRIED MOTION:

THAT the GFC Academic Planning Committee approve the proposed changes to existing program requirements for graduate programs in the Department of Mathematical and Statistical Sciences, as recommended by the GFC Academic Standards Committee, as submitted by the Faculty of Graduate Studies and Research and the Faculty of Science, and as set forth in Attachment 1, to take effect upon approval and to be published in the 2020-2021 Calendar.

Final Motion: 5.

Agenda Title: Proposed Changes to Existing Entrance Requirements, Academic Standing Regulations and Program Requirements for Graduate Programs in the Department of Surgery, Faculty of Medicine and Dentistry, and Faculty of Graduate Studies and Research

CARRIED MOTION:

THAT the GFC Academic Planning Committee approve the proposed changes to existing program requirements for graduate programs in the Department of Surgery, as recommended by the GFC Academic Standards Committee, as submitted by the Faculty of Graduate Studies and Research and the Faculty of Medicine and Dentistry, and as set forth in Attachment 1, to take effect upon approval and to be published in the 2020-2021 Calendar.

Final Motion: 6.

Agenda Title: **Proposed Changes to Existing Program Requirements and Entrance Requirements for Medical Laboratory Science Programs, Faculty of Medicine and Dentistry**

CARRIED MOTION:

THAT the GFC Academic Planning Committee approve the proposed changes to the program requirements for the Medical Laboratory Science Programs, as recommended by the GFC Academic Standards Committee, as proposed by the Faculty of Medicine and Dentistry, and as set forth in Attachment 1, to take effect for Fall 2020.

Final Motion: 8.

Agenda Title: **Proposed Changes to Program Requirements for the Doctor of Dental Surgery (DDS) Advanced Placement Program, Faculty of Medicine and Dentistry**

CARRIED MOTION:

THAT the the GFC Academic Planning Committee approve the proposed changes to the DDS Advanced Placement program requirements, as recommended by the GFC Academic Standards Committee, as proposed by the Faculty of Medicine and Dentistry, as set forth in Attachments 1-2, to take effect in Fall 2020.

Final Motion: 9.

Governance Executive Summary
Action Item

Agenda Title	Proposed Changes to Entrance and Program Requirements for the Master of Arts in Communications and Technology, Faculty of Extension, and Faculty of Graduate Studies and Research
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Motion I

THAT the GFC Academic Planning Committee approve the proposed changes to existing program requirements for the Master of Arts in Communications and Technology, as recommended by the GFC Academic Standards Committee, as submitted by the Faculty of Graduate Studies and Research and the Faculty of Extension, and as set forth in Attachment 1, to take effect upon approval and to be published in the 2020-2021 Calendar.

Item

Action Requested	<input checked="" type="checkbox"/> Approval <input type="checkbox"/> Recommendation
Proposed by	Brooke Milne, Vice-Provost and Dean, FGSR Maria Mayan, Interim Dean, Faculty of Extension
Presenter(s)	Gordon Gow, Professor and Director, Extension Eileen Crookes, Graduate Programs, Extension Janice Causgrove Dunn, Associate Dean, FGSR Maria Chia, Graduate Governance and Policy Coordinator, FGSR

Details

Responsibility	Provost and Vice-President (Academic)
The Purpose of the Proposal is <i>(please be specific)</i>	The proposal is before the committee to ensure that all Academic Regulations (entrance/admission requirements and program requirements) for this program are listed in the Calendar.
Executive Summary <i>(outline the specific item – and remember your audience)</i>	FGSR Calendar compliance. The following revisions have been made to the existing regulations in the Calendar: <ul style="list-style-type: none"> • Ensuring all entrance requirements are in the calendar, including all supporting documentation and application deadlines • Clarification of all program requirements • Updating formatting and inserting standard calendar wording This Calendar update reflects current practice.
Supplementary Notes and context	<i>The GFC Academic Standards Committee has approved the entrance requirements and academic standing regulations.</i>

Engagement and Routing (Include meeting dates)

Consultation and Stakeholder Participation (parties who have seen the proposal and in what capacity)	<u>Those who are actively participating:</u> <ul style="list-style-type: none"> • Gordon Gow, Professor and Director, Extension • Eileen Crookes, Graduate Programs, Extension
	<u>Those who have been consulted:</u> <ul style="list-style-type: none"> • Maria Chia, Graduate Governance and Policy Coordinator, FGSR • Janice Hurlburt, Graduate Governance and Policy, FGSR

Item No. 4

<For information on the protocol see the Governance Resources section Student Participation Protocol >	<u><i>Those who have been informed:</i></u> •
Approval Route (Governance) (including meeting dates)	Extension Faculty Council October 17, 2019 GFC ASC Subcommittee on Standards, November 7, 2019 GFC Academic Standards Committee, November 21, 2019 GFC Academic Planning Committee, December 11, 2019

Strategic Alignment

Alignment with <i>For the Public Good</i>	Please note the Institutional Strategic Plan objective(s)/strategies the proposal supports.	
Alignment with Core Risk Area	Please note below the specific institutional risk(s) this proposal is addressing.	
	<input type="checkbox"/> Enrolment Management <input type="checkbox"/> Faculty and Staff <input type="checkbox"/> Funding and Resource Management <input type="checkbox"/> IT Services, Software and Hardware <input type="checkbox"/> Leadership and Change <input type="checkbox"/> Physical Infrastructure	<input type="checkbox"/> Relationship with Stakeholders <input checked="" type="checkbox"/> Reputation <input type="checkbox"/> Research Enterprise <input type="checkbox"/> Safety <input checked="" type="checkbox"/> Student Success
Legislative Compliance and jurisdiction	<i>Post-Secondary Learning Act</i> GFC Academic Standards Committee Terms of Reference GFC Academic Planning Committee Terms of Reference	

1. Faculty of Extension MACT Calendar change (pages 1 - 4)

Prepared by: Maria Chia, Graduate Governance and Policy Coordinator, mchia@ualberta.ca

Killam Centre for Advanced Studies
 2-29 Triffo Hall Edmonton AB Canada T6G 2E1
 Tel: 780.492.2816 / Fax: 780.492.0692
 www.gradstudies.ualberta.ca

2020-2021 University of Alberta Proposed Calendar Graduate Program Changes:

Current	Proposed
<p>Graduate Programs</p> <p>Communications and Technology [Graduate] Faculty of Extension University of Alberta Enterprise Square 10230 Jasper Avenue Edmonton, Alberta T5J 4P6 E-mail: mact@ualberta.ca www.mact.ca</p> <p>General Information The multidisciplinary Master of Arts in Communications and Technology (MACT) offers a theoretical, historical, and practical examination of communications. The degree is designed for individuals who seek to provide reflective and informed leadership in the management and use of information and communications technologies in their organizations and fields. These fields include education and training, information technology, marketing, mass media, new media production, program design and development, public affairs, and writing and publishing. Coursework covers small-group and organizational communication; the theory, history, and practice of information and communications technologies; and the research skills associated with analyzing and evaluating these technologies, particularly as they are managed and used in the workplace. The MACT program may be completed through either a course-based or thesis-based route.</p> <p>Graduate Program Requirements</p> <p>The Degree of MA in Communications and Technology (MACT) [Graduate]—</p> <p>Entrance Requirements The normal admission requirements are as follows: a four year degree from a recognized university; a GPA of at least 3.0 (or equivalent);</p>	<p>Graduate Programs</p> <p>Communications and Technology [Graduate] Faculty of Extension University of Alberta Enterprise Square 10230 Jasper Avenue Edmonton, Alberta T5J 4P6 E-mail: mact@ualberta.ca www.mact.ca</p> <p>General Information The multidisciplinary Master of Arts in Communications and Technology (MACT) offers a theoretical, historical, and practical examination of communications. The degree is designed for individuals who seek to provide reflective and informed leadership in the management and use of information and communications technologies in their organizations and fields. These fields include education and training, information technology, marketing, mass media, new media production, program design and development, public affairs, and writing and publishing. Coursework covers small-group and organizational communication; the theory, history, and practice of information and communications technologies; and the research skills associated with analyzing and evaluating these technologies, particularly as they are managed and used in the workplace. The MACT program may be completed through either a course-based or thesis-based route.</p> <p>Entrance Requirements The Faculty's minimum admission requirements are an undergraduate degree with an admission GPA of at least 3.0 on the 4-point scale from the University of Alberta, or an equivalent qualification and standing from a recognized institution. The admission GPA will be calculated on the last ★60 of graded coursework completed, or on the equivalent of the last two years of full-time graded coursework.</p>

at least three years of relevant professional experience;

[moved below]

three letters of reference, and a letter of interest. The letter of interest should state the applicant's academic or professional area of specialization, specify how completion of the program would support the applicant's professional practice, and identify a provisional topic for the final applied research project.

Where applicable a satisfactory score on an approved English language examination as described below is required. TOEFL - minimum score of 600 (paper-based) or a total score of 100 with a score of at least 20 on each of the individual skill areas (Internet-based); MELAB - minimum score of 85; IELTS (Academic) - minimum overall band score of 7.0 with at least 5.5 on each band; CAEL - overall minimum score of 60 with at least 60 on each subtest; PTE (Academic) - overall minimum score of 68.

Up to 25 students, including up to four thesis-based students, are admitted each year to begin their studies in May.

[moved to Program Requirements]

The MACT program may be completed through either a coursebased or thesis-based route.

Program Requirements

It is preferred that applicants have at least three years of relevant professional experience.

Where applicable, applicants must provide proof of English Language Proficiency (refer to [English Language Requirement](#)). Any of the following is acceptable:

- TOEFL - minimum total score of 100 with a score of at least 21 on each of the individual skill areas (Internet-based), or equivalent;
- An equivalent score on an English Language Proficiency test approved by the Faculty of Graduate Studies and Research.

Applicants are also required to submit the following:

- A current CV;
- three letters of reference;
- a letter of interest which states the applicant's academic or professional area of specialization, specifies how completion of the program would support the applicant's professional practice, and identifies a provisional topic for the final applied research project.

Up to 25 students are admitted each year to begin their studies in May.

Graduate Program Requirements

The Degree of MA in Communications and Technology (MACT) [Graduate]

Program Requirements

The MACT program may be completed through either a course-based or thesis-based route.

All students will be admitted to a course-based route. A small number of students may be considered for the thesis route after the completion of the first Spring Institute, and can request a change of program category after consulting with their supervisor.

Applicants from outside of the Alberta capital region, including international applicants, may register in the MACT program without changing their place of residence, except for the required residency of the Spring Institute and for thesis-based students, a combined online and face-to-face residency in Year 1.

The course-based route requires the completion of seven core courses, three electives, and a final applied research project.

The thesis-based route requires the completion of five core courses, up to two electives, and the thesis.

For both routes, four of the core courses are completed during two Spring Institutes, held each May at the University of Alberta, with other core courses offered online. Students may complete approved elective courses offered by the University of Alberta or another recognized university.

Coursework is offered through blended and online formats. Students are required to attend two [Spring Institutes](#), held each May.

Course-based MA

Students are required to complete a minimum of **★36** in coursework, including a **★6** final applied research project.

Core Courses (★21)

Four of the core courses are completed during two [Spring Institutes](#), held each May at the University of Alberta, with other core courses offered online.

- [COMM 501](#)
- [COMM 502](#)
- [COMM 503](#)
- [COMM 504](#)
- [COMM 505](#)
- [COMM 506](#)
- [COMM 509](#)

Elective Courses (★9)

- Three **★3** elective courses chosen in consultation with the advisor.
- Electives taken outside of the MACT program must be approved by the MACT director

Directed Research Project (★6)

- [COMM 900](#)

Thesis-based MA

Students are required to complete a minimum of **★24** in coursework and a thesis

Core Courses (★15)

Three of the core courses are completed during two [Spring Institutes](#), held each May at the University of Alberta, with other core courses offered online.

- [COMM 501](#)
- [COMM 502](#)
- [COMM 503](#)
- [COMM 504](#)
- [COMM 505](#)

Elective Courses (★9)

- Three **★3** elective courses chosen in consultation with the supervisor.
- One elective must be a graduate-level course in research methods
- Electives taken outside of the MACT program must be approved by the MACT director

<p>Length of Program Core courses are scheduled to permit completion of the degree through either the course-based or thesis-based route within two academic years.</p>	<p>Thesis</p> <ul style="list-style-type: none"> Registration in 900-level THES. <p>Length of Program The maximum time to complete the course-based MA program as set by the Faculty of Graduate Studies and Research is six years.</p> <p>The maximum time to complete the thesis-based MA program as set by the Faculty of Graduate Studies and Research is four years.</p> <p>Graduate Courses Graduate courses can be found in Course Listings, under the subject heading Communications and Technology (COMM).</p>
<p>Justification:</p> <ul style="list-style-type: none"> FGSR Calendar compliance. The following revisions have been made to the existing regulations in the Calendar: Ensuring all entrance requirements are in the calendar, including all supporting documentation and application deadlines Clarification of all program requirements Updating formatting and inserting standard calendar wording <p>This Calendar update reflects current practice.</p> <p>Approved by: Extension Faculty Council October 17, 2019</p>	

Governance Executive Summary
Action Item

Agenda Title	Proposed Changes to Existing Entrance Requirements, Academic Standing Requirements and Program Requirements for Graduate Programs in Mathematical and Statistical Sciences, Faculty of Science, and Faculty of Graduate Studies and Research
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Motion I

THAT the GFC Academic Planning Committee approve the proposed changes to existing program requirements for graduate programs in the Department of Mathematical and Statistical Sciences, as recommended by the GFC Academic Standards Committee, as submitted by the Faculty of Graduate Studies and Research and the Faculty of Science, and as set forth in Attachment 1, to take effect upon approval and to be published in the 2020-2021 Calendar.

Item

Action Requested	<input checked="" type="checkbox"/> Approval <input type="checkbox"/> Recommendation
Proposed by	Brooke Milne, Vice-Provost and Dean, FGSR Matina Kalcounis-Rueppell, Dean, Faculty of Science
Presenter(s)	Jochen Kuttler, Associate Chair, Mathematics & Statistical Sciences Janice Causgrove Dunn, Associate Dean, FGSR Maria Chia, Graduate Governance and Policy Coordinator, FGSR

Details

Responsibility	Provost and Vice-President (Academic)
The Purpose of the Proposal is <i>(please be specific)</i>	The proposal is before the committee to ensure that all Academic Regulations (entrance/admission requirements, academic standing requirements and program requirements) for this program are listed in the Calendar
Executive Summary <i>(outline the specific item – and remember your audience)</i>	FGSR Calendar compliance. The following revisions have been made to the existing regulations in the Calendar: <ul style="list-style-type: none"> • Ensuring all entrance requirements are in the calendar, including all supporting documentation and application deadlines • Clarification of Academic Standing requirements • Clarification of all program requirements • Creation of separate calendar entries for each specialization • Updating formatting and inserting standard calendar wording This Calendar update reflects current practice.
Supplementary Notes and context	<i>The GFC Academic Standards Committee has approved the entrance requirements and academic standing regulations.</i>

Engagement and Routing (Include meeting dates)

Consultation and Stakeholder Participation	<u>Those who are actively participating:</u> <ul style="list-style-type: none"> • Jochen Kuttler, Assistant Chair, Faculty of Science - Mathematics & Statistical Sciences
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Item No. 5

(parties who have seen the proposal and in what capacity) <For information on the protocol see the Governance Resources section Student Participation Protocol >	<u>Those who have been consulted:</u>
	<ul style="list-style-type: none"> • Maria Chia, Graduate Governance and Policy Coordinator, FGSR • Janice Hurlburt, Graduate Governance and Policy, FGSR
	<u>Those who have been informed:</u>
	<ul style="list-style-type: none"> •
Approval Route (Governance) (including meeting dates)	Math Department Council October 8, 2019 GFC ASC Subcommittee on Standards, November 7, 2019 GFC Academic Standards Committee, November 21, 2019 GFC Academic Planning Committee, December 11, 2019

Strategic Alignment

Alignment with <i>For the Public Good</i>	Please note the Institutional Strategic Plan objective(s)/strategies the proposal supports.	
Alignment with Core Risk Area	Please note below the specific institutional risk(s) this proposal is addressing.	
	<input type="checkbox"/> Enrolment Management <input type="checkbox"/> Faculty and Staff <input type="checkbox"/> Funding and Resource Management <input type="checkbox"/> IT Services, Software and Hardware <input type="checkbox"/> Leadership and Change <input type="checkbox"/> Physical Infrastructure	<input type="checkbox"/> Relationship with Stakeholders <input checked="" type="checkbox"/> Reputation <input type="checkbox"/> Research Enterprise <input type="checkbox"/> Safety <input checked="" type="checkbox"/> Student Success
Legislative Compliance and jurisdiction	<i>Post-Secondary Learning Act</i> GFC Academic Standards Committee Terms of Reference GFC Academic Planning Committee Terms of Reference	

Attachments (each to be numbered 1 - <>)

1. Department of Mathematical and Statistical Sciences Calendar change (pages 1 - 26)

Prepared by: Maria Chia, Graduate Governance and Policy Coordinator, mchia@ualberta.ca

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www.gradstudies.ualberta.ca

2020-2021 University of Alberta Proposed Calendar Graduate Program Changes:

Current	Proposed
<p>Graduate Programs</p> <p>Mathematical and Statistical Sciences [Graduate] Department of Mathematical and Statistical Sciences 632 Central Academic Building University of Alberta Edmonton, Alberta T6G 2G1 E-mail: mathgrad@ualberta.ca</p> <p>General Information The Department of Mathematical and Statistical Sciences offers graduate programs leading to the degree of Master of Science and Doctor of Philosophy in a number of fields in the general areas of pure mathematics, applied mathematics, mathematical finance, mathematical physics, statistics, biostatistics, and statistical machine learning.</p> <p>Prospective graduate students should consult the Graduate Chair with regard to facilities available and the background required for the field in which they are particularly interested.</p> <p>Entrance Requirements The Department generally does not accept students with an overall grade point average of less than 3.3 in their undergraduate years at the University of Alberta, or an equivalent qualification from another institution.</p> <p>[moved from The Degree of MSc] Candidates for the MSc must have an Honors degree or equivalent from a recognized university, with a strong background in mathematics and/or statistics. Candidates whose background is deemed to be deficient will be</p>	<p>Graduate Programs</p> <p>Mathematical and Statistical Sciences [Graduate] Department of Mathematical and Statistical Sciences 632 Central Academic Building University of Alberta Edmonton, Alberta T6G 2G1 E-mail: mathgrad@ualberta.ca</p> <p>General Information The Department of Mathematical and Statistical Sciences offers graduate programs leading to the degree of Master of Science and Doctor of Philosophy in Mathematics, Applied Mathematics, Mathematical Finance, Mathematical Physics, Statistics, Biostatistics, Statistical Machine Learning, and Modelling, Data, and Predictions.</p> <p>Currently there is no course-based MSc program in Statistical Machine Learning, no thesis-based MSc or PhD programs in Modelling, Data, and Predictions, and no PhD program in Biostatistics.</p> <p>Prospective graduate students should consult the Department about facilities available and the background required for the field in which they are interested.</p> <p>The Regulations and Guidelines for Graduate Programs in the Department of Mathematical and Statistical Sciences (referred to in the following as the "MSS Regulations and Guidelines") provide detailed information about the graduate programs offered at the Department.</p> <p>Entrance Requirements</p> <p>For the MSc, the Department's minimum admission requirements are a four-year undergraduate degree with a strong background in mathematics, physics and/or statistics, with an admission GPA of at least 3.3 on the 4-point scale from the University of Alberta, or an</p>

required to register as qualifying students and take additional courses.

[moved up from the Degree of PhD]

To be admitted as a provisional candidate for the PhD, a student must normally hold the equivalent of an MSc degree in mathematical or statistical sciences from the University of Alberta.

[Moved up from Programs in Mathematical Physics]

The entrance requirement for the Master of Science degree in Mathematical Physics is a four-year degree in Mathematical and Statistical Sciences or Physics with a GPA of 3.0 or better, or equivalent.

Moved up from Programs in Mathematical Finance]

The entrance requirement for the Master of Science degree in Mathematical Finance is a university degree that lasts four years or longer.

Where applicable (see English Language Requirement), a minimum TOEFL score of 600 (paper-based) or 100 (Internet-based) is required for all graduate students. Additional information on specific requirements for admission to the MSc and PhD programs is found below, under the respective degree headings.

equivalent qualification and standing from a recognized institution.

For the PhD, the Department's minimum admission requirements are an MSc degree in mathematical, physical, or statistical sciences, with an admission GPA of at least 3.3 on the 4-point scale from the University of Alberta, or an equivalent qualification and standing from a recognized institution.

Previous credentials for applicants to Mathematical Finance should be in Mathematics, Statistics, Physics, Engineering or Finance.

Previous credentials for applicants to Statistical Machine Learning should be in Mathematical and Statistical Sciences or Computing Science.

The admission GPA will be calculated on the last ★ 60 of graded coursework completed, or on the equivalent of the last two years of full-time graded coursework.

Where applicable, applicants must provide proof of English Language Proficiency (refer to [English Language Requirement](#)). Any one of the following is acceptable:

- a minimum TOEFL score of 100 (Internet-based) with a minimum score of 22 in each individual skill area, or equivalent;
- a minimum IELTS score of 7.0 overall with a minimum of 6.0 on each band;
- a minimum MELAB score of 88;
- a minimum PTE overall score of 68 with a minimum of 59 in each category.

All test scores must be less than two years old.

Applicants are encouraged to contact academic staff before applying and identify professors who would be willing to provide supervision.

Applicants are also required to submit the following

- [A Curriculum Vitae](#)
- A brief (two pages maximum) [Personal Statement](#)
- Three letters of reference
- Publications (up to a maximum of three) may be submitted but are not required
- GRE scores (General and Mathematics) may be submitted but are not required.

Satisfying the minimum entrance requirements does not guarantee admission.

Academic Standing Requirement

Financial Assistance

Graduate teaching assistantships are available for candidates working toward a higher degree. They involve at most 12 hours of work per week including teaching, class preparation and working time. Teaching assistantships will normally be limited to at most five years for students in the PhD program and to two years for students in the MSc program. Support will not be extended to more than a total of six years. Research assistantships are also available.

Graduate Program Requirements

The Degree of MSc (Mathematical and Statistical Sciences) [Graduate]

Entrance Requirements

[moved up to Entrance Requirements]

Candidates for the MSc must have an Honors degree or equivalent from a recognized university, with a strong background in mathematics and/or statistics. Candidates whose background is deemed to be deficient will be required to register as qualifying students and take additional courses.

Program Requirements

The minimum requirement for the MSc degree is either ★18 in graduate courses and a thesis, or ★24 in graduate courses and a project equivalent to ★6. Approval of the

Students are required to maintain a minimum cumulative grade point average of 2.7 throughout the course of the program.

In addition, students are required to achieve a GPA of at least 3.0 on the first three graded courses completed in their programs.

Failure to maintain the required GPA will normally result in a recommendation by the Associate Chair (Graduate Studies) to FGSR that the student be placed on [academic probation](#) or required to withdraw.

Financial Information

For most students in a thesis-based program, the Department provides funding through graduate teaching and research assistantships, as well as scholarships and awards, subject to conditions and limitations set by the Faculty of Science and the MSS Regulations and Guidelines. Detailed funding information will be included in the Departmental Offer Letter, if applicable.

In the MSc and PhD programs in Mathematical Finance, students are required to take MBA courses at the School of Business. These courses have additional fees associated with them which are not covered by the usual program fees in case of MSc (thesis-based) and PhD programs in Mathematical Finance. For the same reason, students in the course-based MSc program in Mathematical Finance may incur additional fees compared to other course-based MSc programs at the Department. In many cases, the Department will assist with (or completely offset) these additional costs for students in a thesis-based MSc or PhD program in Mathematical Finance.

Graduate Program Requirements

The Degree of MSc [with a specialization in Applied Mathematics](#) (Mathematical and Statistical Sciences) [Graduate]

Program Requirements

The MSc with a specialization in Applied Mathematics may be taken as a thesis-based program or a course-based program.

Thesis-based MSc

Students are required to complete a minimum of ★20 in graduate-level coursework, including a colloquium requirement, and a thesis.

[Coursework \(★18\)](#)

Graduate Chair of the Mathematical and Statistical Sciences Department is needed to take graduate courses that are not in mathematical or statistical sciences.

- Six ★3 approved graduate-level courses in Mathematics or Statistics, chosen in consultation with the supervisor.
- All coursework to be counted towards the program requirements must be approved by the Associate Chair (Graduate Studies).
- Additional coursework may be required.

Graduate Colloquium (★2)

- Students must complete two terms of MATH 601 and give a presentation in the Graduate Colloquium.

Thesis

- Registration in 900-level THES

Course-based MSc

Students are required to complete a minimum of ★30 in graduate-level coursework, including a ★6 capping project.

Coursework (★24)

- Eight ★3 approved graduate-level courses in Mathematics or Statistics, chosen in consultation with the advisor.
- All coursework to be counted towards the program requirements must be approved by the Associate Chair (Graduate Studies).
- Additional coursework may be required.

Capping project (★6)

- MATH 900 A/B

Residence Requirement

The minimum period of residence for the course-based and thesis-based MSc programs in Applied Mathematics is two four-month terms of full-time attendance at the University of Alberta.

For part-time students, residence requirements are determined on a case-by-case basis.

The minimum period of residence is two four-month terms of full-time attendance at the University of Alberta.

Length of Program

The MSc program will normally be completed in 20 months; however, it may be done in a minimum of one year. An exception is the course-based MSc in Statistics, which will normally be completed in eight 12 months.

Length of Program

The MSc programs are designed to be completed in 20-24 months.

The maximum time to complete the thesis-based MSc program as set by the Faculty of Graduate Studies and Research is four years.

The maximum time to complete the course-based MSc program as set by the Faculty of Graduate Studies and Research is six years.

The Degree of MSc with a specialization in Biostatistics (Mathematical and Statistical Sciences) [Graduate]

Program Requirements

The MSc with a specialization in Biostatistics may be taken as a thesis-based program or a course-based program.

Thesis-based MSc

Students are required to complete a minimum of ★20 in graduate-level coursework, including a colloquium requirement, a practicum requirement, and a thesis.

Coursework (★18)

- STAT 532
- STAT 562
- STAT 566 OR STAT 664
- At least two of
 - SPH 597
 - OR SPH 596 and a ★1 SPH course in Epidemiology (SPH 561 is recommended)
 - SPH 696
- One of the following
 - STAT 561
 - STAT 568
 - STAT 575
 - STAT 578
 - Other approved options may be taken.
- All coursework must be chosen in consultation with the supervisor
- All coursework to be counted towards the program requirements must be approved by the Associate Chair (Graduate Studies)
- Additional coursework may be required.

Graduate Colloquium (★2)

- Students must complete two terms of MATH 601 and give a presentation in the Graduate Colloquium.

Practicum Requirement

Students must complete a 39 hour practicum at the Training Consulting Centre (or equivalent).

Thesis

- Registration in 900-level THES.

Course-based MSc

Students are required to complete a minimum of ★30 in graduate-level coursework, including a ★6 capping project, and a practicum requirement.

Coursework (★24)

- STAT 532
- STAT 562
- STAT 566 OR STAT 664
- At least two of
 - SPH 597
OR SPH 596 and a ★1 SPH course in Epidemiology (SPH 561 is recommended)
 - SPH 696
- **Three of the following**
 - STAT 561
 - STAT 568
 - STAT 575
 - STAT 578
 - Other approved options may be taken.
- All coursework must be chosen in consultation with the supervisor
- All coursework to be counted towards the program requirements must be approved by the Associate Chair (Graduate Studies)
- Additional coursework may be required.

Practicum Requirement

Students must complete a 39 hour practicum at the Training Consulting Centre (or equivalent).

Capping project (★6)

- STAT 900 A/B

Residence Requirement

The minimum period of residence for the course-based and thesis-based MSc programs in Biostatistics is two four-month terms of full-time attendance at the University of Alberta.

For part-time students, residence requirements are determined on a case-by-case basis.

Length of Program

The MSc programs are designed to be completed in 20-24 months.

The maximum time to complete the thesis-based MSc program as set by the Faculty of Graduate Studies and Research is four years.

[moved up from Programs in Mathematical Finance]
The MSc degree may be obtained in a course-based or thesis-based program. For the course-based program ★24 graduate courses at the 500-level or higher from a list of approved courses must be taken, and a project is required. For the thesis-based program ★18 graduate courses at the 500-level or higher from a list of approved courses must be taken, and a thesis is required. The course work must include courses from both the Faculty of Business and the Department of Mathematical and Statistical Sciences.

The maximum time to complete the course-based MSc program as set by the Faculty of Graduate Studies and Research is six years.

The Degree of MSc with a specialization in Mathematical Finance (Mathematical and Statistical Sciences) [Graduate]

Program Requirements

The MSc with a specialization in Mathematical Finance may be taken as a thesis-based program or a course-based program.

Thesis-based MSc

Students are required to complete a minimum of ★20 in graduate-level coursework, including a colloquium requirement, and a thesis.

Coursework (★18)

- MATH 505
- MATH 508
- MATH 510
- MATH 515
- MATH 520
- FIN 501 or FIN 502 and FIN 503
- All coursework must be chosen in consultation with the supervisor
- All coursework to be counted towards the program requirements must be approved by the Associate Chair (Graduate Studies)
- Additional coursework may be required.

Graduate Colloquium (★2)

- Students must complete two terms of MATH 601 and give a presentation in the Graduate Colloquium.

Thesis

- Registration in 900-level THES

Course-based MSc

Students are required to complete a minimum of ★30 in graduate-level coursework, including a ★6 capping project.

Coursework (★24)

- MATH 505
- MATH 508
- MATH 510
- MATH 515
- MATH 520
- FIN 501 or

[moved up to the Degree of MSc in Mathematical Physics]
The MSc degree may be obtained in a course-based or thesis-based program. For the course-based program ★24 in graduate courses at the 500-level or higher from a list of approved courses must be taken, and a project is required. For the thesis-based program ★18 in graduate courses at the 500-level or higher from a list of approved courses must be taken, and a thesis is required. The course work must include courses from both the Departments of Physics and Mathematical and Statistical Sciences.

FIN 502 and FIN 503

- Two additional ★3 approved graduate-level courses chosen in consultation with the advisor.
- All coursework to be counted towards the program requirements must be approved by the Associate Chair (Graduate Studies)
- Additional coursework may be required.

Capping project (★6)

- MATH 900 A/B

Residence Requirement

The minimum period of residence for the course-based and thesis-based MSc programs in Mathematical Finance is two four-month terms of full-time attendance at the University of Alberta.

For part-time students, residence requirements are determined on a case-by-case basis.

Length of Program

The MSc programs are designed to be completed in 20-24 months.

The maximum time to complete the thesis-based MSc program as set by the Faculty of Graduate Studies and Research is four years.

The maximum time to complete the course-based MSc program as set by the Faculty of Graduate Studies and Research is six years.

The Degree of MSc with a specialization in Mathematical Physics (Mathematical and Statistical Sciences) [Graduate]

Program Requirements

The MSc with a specialization in Mathematical Physics may be taken as a thesis-based program or a course-based program.

Thesis-based MSc

Students are required to complete a minimum of ★20 in graduate-level coursework, including a colloquium requirement, and a thesis.

Coursework (★18)

- Six ★3 approved graduate-level courses in Mathematics or Statistics, chosen in consultation with the supervisor.

- Approved courses in the Department of Physics may be taken to satisfy program requirements, in consultation with the supervisor.
- All coursework to be counted towards the program requirements must be approved by the Associate Chair (Graduate Studies).
- Additional coursework may be required.

Graduate Colloquium (★2)

- Students must complete two terms of MATH 601 and give a presentation in the Graduate Colloquium.

Thesis

- Registration in 900-level THES

Course-based MSc

Students are required to complete a minimum of ★30 in graduate-level coursework, including a ★6 capping project.

Coursework (★24)

- Eight ★3 approved graduate-level courses in Mathematics or Statistics, chosen in consultation with the advisor.
- Approved courses in the Department of Physics may be taken to satisfy program requirements, in consultation with the advisor.
- All coursework to be counted towards the program requirements must be approved by the Associate Chair (Graduate Studies).
- Additional coursework may be required.

Capping project (★6)

- MATH 900 A/B

Residence Requirement

The minimum period of residence for the course-based and thesis-based MSc programs in Mathematical Physics is two four-month terms of full-time attendance at the University of Alberta.

For part-time students, residence requirements are determined on a case-by-case basis.

Length of Program

The MSc programs are designed to be completed in 20-24 months.

The maximum time to complete the thesis-based MSc program as set by the Faculty of Graduate Studies and Research is four years.

The maximum time to complete the course-based MSc program as set by the Faculty of Graduate Studies and Research is six years.

The Degree of MSc with a specialization in Mathematics (Mathematical and Statistical Sciences) [Graduate]

Program Requirements

The MSc with a specialization in Mathematics may be taken as a thesis-based program or a course-based program.

Thesis-based MSc

Students are required to complete a minimum of ★20 in graduate-level coursework, including a colloquium requirement, and a thesis.

Coursework(★18)

- Six ★3 approved graduate-level courses in Mathematics, chosen in consultation with the supervisor.
- Coursework must include courses from at least two different areas of focus.
- All coursework to be counted towards the program requirements must be approved by the Associate Chair (Graduate Studies).
- Additional coursework may be required.

Graduate Colloquium (★2)

- Students must complete two terms of MATH 601 and give a presentation in the Graduate Colloquium.

Thesis

- Registration in 900-level THES

Course-based MSc

Students are required to complete a minimum of ★30 in graduate-level coursework, including a ★6 capping project.

Coursework (★24)

- Eight ★3 approved graduate-level courses in Mathematics, chosen in consultation with the advisor.
- Coursework must include courses from at least two different areas of focus.

- All coursework to be counted towards the program requirements must be approved by the Associate Chair (Graduate Studies).
- Additional coursework may be required.

Capping project (★6)

- MATH 900 A/B

Residence Requirement

The minimum period of residence for the course-based and thesis-based MSc programs in Mathematics is two four-month terms of full-time attendance at the University of Alberta.

For part-time students, residence requirements are determined on a case-by-case basis.

Length of Program

The MSc programs are designed to be completed in 20-24 months.

The maximum time to complete the thesis-based MSc program as set by the Faculty of Graduate Studies and Research is four years.

The maximum time to complete the course-based MSc program as set by the Faculty of Graduate Studies and Research is six years.

[New second-level specialization approved by Dean Burshtyn May 17, 2019 and part of a separate approval process]

The Degree of MSc with a specialization in Modelling, Data and Predictions (Mathematical and Statistical Sciences) [Graduate]

The Degree of MSc with a specialization in Statistical Machine Learning (Mathematical and Statistical Sciences) [Graduate]

Students can alternately apply to the Department of Computing Science to participate in this program.

Program Requirements

Students are required to complete a minimum of ★20 in graduate-level coursework, including a colloquium requirement, and a thesis.

Coursework (★18)

- Two of
 - STAT 571

- STAT 566
- STAT 665
- Two ★3 graduate-level courses from the Department of Computing Science, relevant to machine learning and chosen in consultation with the supervisor.
 - Students taking this program through the Department of Computing Science are required to take CMPUT 603. Students taking this program through the Department of Mathematical and Statistical Sciences may take CMPUT 603.
- Two additional ★3 approved graduate-level courses, to be chosen in consultation with the supervisor.
- All coursework to be counted towards the program requirements must be approved by the Associate Chair (Graduate Studies).
- Additional coursework may be required.

Graduate Colloquium (★2)

- Students must complete two terms of MATH 601 and give a presentation in the Graduate Colloquium.

Thesis

- Registration in 900-level THES

Residence Requirement

The minimum period of residence for the MSc with a specialization in Statistical Machine Learning is two four-month terms of full-time attendance at the University of Alberta.

For part-time students, residence requirements are determined on a case-by-case basis.

Length of Program

The MSc programs are designed to be completed in 20-24 months.

The maximum time to complete the thesis-based MSc program as set by the Faculty of Graduate Studies and Research is four years.

The Degree of MSc with a specialization in Statistics (Mathematical and Statistical Sciences) [Graduate]

Program Requirements

The MSc with a specialization in Statistics may be taken as a thesis-based program or a course-based program.

Thesis-based MSc

Students are required to complete a minimum of ★20 in graduate-level coursework, including a colloquium requirement, and a thesis.

Coursework:

- At least **two** of
 - STAT 566 **OR** STAT 664
 - STAT 665
 - STAT 571
- At least **two** of
 - STAT 512
 - STAT 532
 - STAT 561
 - STAT 568
 - STAT 575
 - STAT 578
 - STAT 679
- Two additional ★3 graduate-level courses, to be chosen in consultation with the supervisor.
- All coursework to be counted towards the program requirements must be approved by the Associate Chair (Graduate Studies).
- Additional coursework may be required.

Graduate Colloquium (★2)

- Students must complete two terms of MATH 601 and give a presentation in the Graduate Colloquium.

Thesis

- Registration in 900-level THES

Course-based MSc

Students are required to complete a minimum of ★24 in graduate-level coursework, including a ★3 capping project, and a practicum requirement.

Coursework (★21)

-
- STAT 513
- STAT 541
- STAT 590
- **Four** ★3 approved graduate-level STAT courses, to be chosen from the following in consultation with the advisor:
 -
 -
 - STAT 512
 - STAT 532
 -
 - STAT 561
 - STAT 566

The Degree of PhD (Mathematical and Statistical Sciences) [Graduate]

Entrance Requirements

[moved up to Entrance Requirements]

To be admitted as a provisional candidate for the PhD, a student must normally hold the equivalent of an MSc degree in mathematical or statistical sciences from the University of Alberta.

- STAT 562
- STAT 568
- STAT 575
- STAT 578
- STAT 580

- All coursework to be counted towards the program requirements must be approved by the Associate Chair (Graduate Studies).
- Additional coursework may be required.

Practicum Requirement

Students are required to complete a 78 hour practicum at the Training Consulting Centre (or equivalent) during the time they are registered in the Capping project courses. The practicum is counted as 6 hours towards the [FGSR Professional Development Requirement](#).

Capping project (★3)

- STAT 901 and STAT 902

Residence Requirement

The minimum period of residence for the course-based and thesis-based MSc programs in Statistics is two four-month terms of full-time attendance at the University of Alberta.

For part-time students, residence requirements are determined on a case-by-case basis.

Length of Program

The thesis-based MSc in Statistics is designed to be completed in 20-24 months. The course-based MSc in Statistics should normally be completed in 12 months.

The maximum time to complete the thesis-based MSc program as set by the Faculty of Graduate Studies and Research is four years.

The maximum time to complete the course-based MSc program as set by the Faculty of Graduate Studies and Research is six years.

The Degree of PhD with a specialization in Applied Mathematics (Mathematical and Statistical Sciences) [Graduate]

Program Requirements

In addition to the examinations called for by the general regulations, the student must successfully complete an entrance year which includes two full terms of course work. The program of a full-time student in each of these terms shall normally include at least three mathematical and statistical sciences courses, or courses in approved or allied fields (graduate or senior undergraduate). In addition, each PhD candidate must satisfy a minimum course requirement specified by the Regulations and Guidelines for Graduate Programs in the Department of Mathematical and Statistical Sciences. In any case, ★6 must be in mathematical and statistical sciences courses at the 500-level or 600-level, in areas other than that of the student's thesis.

The principal requirement for the PhD is a substantial contribution to knowledge, embodied in a thesis.

Program Requirements

Students entering the program with no MSc or with an MSc from this Department must complete a minimum of ★32 in coursework, including a ★2 colloquium requirement, and a thesis. **Courses taken during the MSc in this department may be included in this total.**

Students entering the program with an MSc from outside the Department must complete a minimum of ★20 in coursework, including a ★2 colloquium requirement, and a thesis.

Core Courses (★12)

Core courses must be completed in the Entrance Year of the doctoral program

- MATH 536
- MATH 538 **OR** MATH 539
- Two additional ★3 approved graduate-level courses, to be chosen from the following in consultation with the supervisor
 - Math 524
 - Math 527
 - Core course from the Statistics PhD program
 - Core courses from the Mathematics PhD program
 - Core courses from the Mathematical Finance PhD program

Optional courses

- All coursework must be chosen in consultation with the supervisor
- Graduate courses offered by other departments may be used as deemed appropriate
- All coursework to be counted towards the program requirements must be approved by the Associate Chair (Graduate Studies).
- Additional coursework may be required.

Graduate Colloquium (★2)

- Students must complete two terms of MATH 601 and give a presentation in the Graduate Colloquium, unless this requirement was fulfilled as an MSc student in the Department.

Thesis

- **Registration in 900-level THES.** The principal requirement for the PhD is a substantial contribution to knowledge, embodied in a thesis.

Candidacy Exam

To satisfy the residence requirement for the PhD, candidates must spend at least two years in advanced study and research after the master's degree.

Length of Program

The time required to complete the program will vary according to the previous training of the applicant and the nature of the research undertaken; however, a minimum of three years is normally required after the BSc or two years after the MSc.

[this section moved up from below Mathematical Physics]

Programs in Mathematical Finance (Mathematical and Statistical Sciences) [Graduate]—

The Master of Science and Doctor of Philosophy degrees in Mathematical Finance may be taken in the Department of Mathematical and Statistical Sciences.

[Moved up to entrance requirements]

The entrance requirement for the Master of Science degree in Mathematical Finance is a university degree that lasts four years or longer.

[moved up to the MSc in Mathematical Finance]

The MSc degree may be obtained in a course-based or thesis-based program. For the course-based program ★ 24 graduate courses at the 500-level or higher from a list of approved courses must be taken, and a project is required. For the thesis-based program ★18 graduate

It is strongly recommended that students take their candidacy exam before the end of their second year in the PhD program. All course requirements should have been met prior to the candidacy exam.

Entrance Year Academic Standing Requirement

By the end of the second term in the program, PhD students must have passed four core courses with a minimum GPA of 3.6. Core courses taken as an undergraduate or MSc student are included in this calculation.

Failure to meet the required GPA may result in a recommendation by the Associate Chair (Graduate Studies) to FGSR that the student be placed on academic probation or required to withdraw.

Residence Requirement

To satisfy the residence requirement for the PhD, students must spend at least two years in full-time study.

For part-time students, residence requirements are determined on a case-by-case basis.

Length of Program

The program is designed to be completed within four years.

The maximum time to complete the PhD program as set by the Faculty of Graduate Studies and Research is six years.

The Degree of PhD with a specialization in Mathematical Finance (Mathematical and Statistical Sciences) [Graduate]

courses at the 500-level or higher from a list of approved courses must be taken, and a thesis is required. The course work must include courses from both the Faculty of Business and the Department of Mathematical and Statistical Sciences.

The entrance requirement for the PhD program in Mathematical Finance is normally an MSc degree, or equivalent. The PhD program requirements are essentially the same as those for the PhD in Mathematical Sciences with certain modifications in the required course work, advisory examination and entrance year as outlined in the Faculty of Graduate Studies and Research Regulations. These modifications are meant to enhance the interdisciplinary nature of the program.

Program Requirements

Students entering the program with no MSc or with an MSc from this Department must complete a minimum of ★32 in coursework, including a ★2 colloquium requirement, and a thesis. **Courses taken during the MSc in this department may be included in this total.**

Students entering the program with an MSc from outside the Department must complete a minimum of ★20 in coursework, including a ★2 colloquium requirement, and a thesis.

Core Courses (★12)

Core courses must be completed in the Entrance Year of the doctoral program

- MATH 515
- MATH 520
- MATH 510
- **One of the following:**
 - STAT 571
 - STAT 580
 - MATH 505
 - MATH 508

Optional courses

- If available, MATH 625 and FIN 654 must be included in the program
- All coursework must be chosen in consultation with the supervisor
- Graduate courses offered by the School of Business may be used as deemed appropriate
- All coursework to be counted towards the program requirements must be approved by the Associate Chair (Graduate Studies).
- Additional coursework may be required.

Graduate Colloquium (★2)

- Students must complete two terms of MATH 601 and give a presentation in the Graduate Colloquium, unless this requirement was fulfilled as an MSc student in the Department.

Thesis

- **Registration in 900-level THES.** The principal requirement for the PhD is a substantial contribution to knowledge, embodied in a thesis.

Candidacy Exam

**Programs in Mathematical Physics
(Mathematical and Statistical Sciences)
[Graduate]**—

The Master of Science and Doctor of Philosophy degrees in Mathematical Physics may be taken in the Department of Mathematical and Statistical Sciences. The program emphasizes interdisciplinary investigations of the mathematical and physical aspects of theories and mathematical models used in physics.

[Moved up to Entrance Requirements]

The entrance requirement for the Master of Science degree in Mathematical Physics is a four-year degree in Mathematical and Statistical Sciences or Physics with a GPA of 3.0 or better, or equivalent.

[moved up to the Degree of MSc in Mathematical Physics]

The MSc degree may be obtained in a course-based or thesis-based program. For the course-based program ★24 in graduate courses at the 500-level or higher from a list of approved courses must be taken, and a project is required. For the thesis-based program ★18 in graduate

It is strongly recommended that students take their candidacy exam before the end of their second year in the PhD program. All course requirements should have been met prior to the candidacy exam.

Entrance Year Academic Standing Requirement

By the end of the second term in the program, PhD students must have passed four core courses with a minimum GPA of 3.6. Core courses taken as an undergraduate or MSc student are included in this calculation.

Failure to meet the required GPA may result in a recommendation by the Associate Chair (Graduate Studies) to FGSR that the student be placed on [academic probation](#) or required to withdraw.

Residence Requirement

To satisfy the residence requirement for the PhD, students must spend at least two years [in full-time study](#).

For part-time students, residence requirements are [determined on a case-by-case basis](#).

Length of Program

The program is designed to be completed within four years.

The maximum time to complete the PhD program as set by the Faculty of Graduate Studies and Research is six years.

The Degree of PhD with a specialization in Mathematical Physics (Mathematical and Statistical Sciences) [Graduate]

courses at the 500-level or higher from a list of approved courses must be taken, and a thesis is required. The course work must include courses from both the Departments of Physics and Mathematical and Statistical Sciences.

The entrance requirement for the PhD program in Mathematical Physics is, normally, an MSc degree in Mathematical and Statistical Sciences or Physics, or equivalent. The PhD program requirements are essentially the same as those for the PhD in Mathematical Sciences with certain modifications in the required course work, advisory examination and entrance year as outlined in the Faculty of Graduate Studies and Research Regulations. These modifications are meant to enhance the interdisciplinary nature of the program.

Program Requirements

Students entering the program with no MSc or with an MSc from this Department must complete a minimum of ★32 in coursework, including a ★2 colloquium requirement, and a thesis. **Courses taken during the MSc in this department may be included in this total.**

Students entering the program with an MSc from outside the Department must complete a minimum of ★20 in coursework, including a ★2 colloquium requirement, and a thesis.

Core Courses (★12)

Core courses must be completed in the Entrance Year of the doctoral program

- MATH 521
- **Three of the following, including at least one MATH course:**
 - MATH 506
 - MATH 516
 - MATH 527
 - MATH 524
 - MATH 535
 - MATH 581
 - PHYS 511
 - PHYS 530
 - PHYS 610

Optional courses

- All coursework must be chosen in consultation with the supervisor
- Graduate courses offered in the Department of Physics may be used as deemed appropriate
- All coursework to be counted towards the program requirements must be approved by the Associate Chair (Graduate Studies).
- Additional coursework may be required.

Graduate Colloquium (★2)

- Students must complete two terms of MATH 601 and give a presentation in the Graduate Colloquium, unless this requirement was fulfilled as an MSc student in the Department.

Thesis

- Registration in 900-level THES. The principal requirement for the PhD is a substantial

contribution to knowledge, embodied in a thesis.

Candidacy Exam

It is strongly recommended that students take their candidacy exam before the end of their second year in the PhD program. All course requirements should have been met prior to the candidacy exam.

Entrance Year Academic Standing Requirement

By the end of the second term in the program, PhD students must have passed four core courses with a minimum GPA of 3.6. Core courses taken as an undergraduate or MSc student are included in this calculation.

Failure to meet the required GPA may result in a recommendation by the Associate Chair (Graduate Studies) to FGSR that the student be placed on [academic probation](#) or required to withdraw.

Residence Requirement

To satisfy the residence requirement for the PhD, students must spend at least two years in full-time study.

For part-time students, residence requirements are determined on a case-by-case basis.

Length of Program

The program is designed to be completed within four years.

The maximum time to complete the PhD program as set by the Faculty of Graduate Studies and Research is six years.

The Degree of PhD with a specialization in Mathematics (Mathematical and Statistical Sciences) [Graduate]

Program Requirements

Students entering the program with no MSc or with an MSc from this Department must complete a minimum of ★32 in coursework, including a ★2 colloquium requirement, and a thesis. Courses taken during the MSc in this department may be included in this total.

Students entering the program with an MSc from outside the Department must complete a minimum of ★20 in coursework, including a ★2 colloquium requirement, and a thesis.

Core Courses (★12)

Core courses must be completed in the Entrance Year of the doctoral program

- **At least one of:**
 - MATH 581
 - MATH 582
- **At least one of**
 - MATH 516
 - MATH 542
- **At least two of the following if required:**
 - MATH 506
 - MATH 521
 - MATH 530
 - MATH 524
 - MATH 527

Optional courses

- All coursework must be chosen in consultation with the supervisor
- Graduate courses offered by the School of Business may be used as deemed appropriate
- All coursework to be counted towards the program requirements must be approved by the Associate Chair (Graduate Studies).
- Additional coursework may be required.

Graduate Colloquium (★2)

- Students must complete two terms of MATH 601 and give a presentation in the Graduate Colloquium, unless this requirement was fulfilled as an MSc student in the Department.

Thesis

- Registration in 900-level THES. The principal requirement for the PhD is a substantial contribution to knowledge, embodied in a thesis.

Candidacy Exam

It is strongly recommended that students take their candidacy exam before the end of their second year in the PhD program. All course requirements should have been met prior to the candidacy exam.

Entrance Year Academic Standing Requirement

By the end of the second term in the program, PhD students must have passed four core courses with a minimum GPA of 3.6. Core courses taken as an undergraduate or MSc student are included in this calculation.

Failure to meet the required GPA may result in a recommendation by the Associate Chair (Graduate

Studies) to FGSR that the student be placed on academic probation or required to withdraw.

Residence Requirement

To satisfy the residence requirement for the PhD, students must spend at least two years in full-time study.

For part-time students, residence requirements are determined on a case-by-case basis.

Length of Program

The program is designed to be completed within four years.

The maximum time to complete the PhD program as set by the Faculty of Graduate Studies and Research is six years.

The Degree of PhD with a specialization in Statistical Machine Learning (Mathematical and Statistical Sciences) [Graduate]

Students can alternately apply to the Department of Computing Science to participate in this program.

Program Requirements

Students entering the program with no MSc or with an MSc from this Department must complete a minimum of ★32 in coursework, including a ★2 colloquium requirement, and a thesis. Courses taken during the MSc in this department may be included in this total.

Students entering the program with an MSc from outside the Department must complete a minimum of ★20 in coursework, including a ★2 colloquium requirement, and a thesis.

Core Courses (★12)

Core courses must be completed in the Entrance Year of the doctoral program

- **Two** of the following:
 - STAT 571
 - STAT 566 **OR** STAT 664
 - STAT 665
- **Two**
- **Two** ★3 courses at the Department of Computing Science chosen in consultation with the supervisor.

Optional courses

- **All coursework must be chosen in consultation with the supervisor**

- Approved graduate courses offered by the Department of Computing Science may be used as deemed appropriate
 - Students taking this program through the Department of Computing Science are required to take CMPUT 603. Students taking this program through the Department of Mathematical and Statistical Sciences may take CMPUT 603.
- All coursework to be counted towards the program requirements must be approved by the Associate Chair (Graduate Studies).
- Additional coursework may be required.

Graduate Colloquium (★2)

- Students must complete two terms of MATH 601 and give a presentation in the Graduate Colloquium, unless this requirement was fulfilled as an MSc student in the Department.

Thesis

- Registration in 900-level THES. The principal requirement for the PhD is a substantial contribution to knowledge, embodied in a thesis.

Candidacy Exam

It is strongly recommended that students take their candidacy exam before the end of their second year in the PhD program. All course requirements should have been met prior to the candidacy exam.

Entrance Year Academic Standing Requirement

By the end of the second term in the program, PhD students must have passed four core courses with a minimum GPA of 3.6. Core courses taken as an undergraduate or MSc student are included in this calculation.

Failure to meet the required GPA may result in a recommendation by the Associate Chair (Graduate Studies) to FGSR that the student be placed on [academic probation](#) or required to withdraw.

Residence Requirement

To satisfy the residence requirement for the PhD, students must spend at least two years in full-time study.

For part-time students, residence requirements are determined on a case-by-case basis.

Length of Program

The program is designed to be completed within four years.

The maximum time to complete the PhD program as set by the Faculty of Graduate Studies and Research is six years.

The Degree of PhD **with a specialization in Statistics** (Mathematical and Statistical Sciences) [Graduate]

Program Requirements

Students entering the program with no MSc or with an MSc from this Department must complete a minimum of ★32 in coursework, including a ★2 colloquium requirement, and a thesis. **Courses taken during the MSc in this department may be included in this total.**

Students entering the program with an MSc from outside the Department must complete a minimum of ★20 in coursework, including a ★2 colloquium requirement, and a thesis.

Core Courses (★18)

At least ★12 of the core courses must be completed in the Entrance Year of the doctoral program

- STAT 664
- STAT 665
- STAT 571
- Three of the following:
 - STAT 512
 - STAT 532
 - STAT 561
 - STAT 562
 - STAT 568
 - STAT 575
 - STAT 578

Optional courses

- All coursework must be chosen in consultation with the supervisor
- All coursework to be counted towards the program requirements must be approved by the Associate Chair (Graduate Studies).
- Additional coursework may be required.

Advisory Exams

All doctoral students in Statistics must take Advisory Exams at the beginning of the first term of their program. Students who obtained an MSc degree in Statistics from this University are exempt. Students who changed program category from the MSc in Statistics to the PhD in

<p>[...]</p> <p>Graduate Courses Graduate courses can be found in Course Listings, under the following subject headings:</p> <p>Mathematics (MATH)</p>	<p>Statistics are exempt provided they meet their Entrance year requirement.</p> <p>Graduate Colloquium (★2)</p> <ul style="list-style-type: none"> Students must complete two terms of MATH 601 and give a presentation in the Graduate Colloquium, unless this requirement was fulfilled as an MSc student in the Department. <p>Thesis</p> <ul style="list-style-type: none"> Registration in 900-level THES. The principal requirement for the PhD is a substantial contribution to knowledge, embodied in a thesis. <p>Candidacy Exam It is strongly recommended that students take their candidacy exam before the end of their second year in the PhD program. All course requirements should have been met prior to the candidacy exam.</p> <p>Entrance Year Academic Standing Requirement By the end of the second term in the program, PhD students must have passed four core courses with a minimum GPA of 3.6. Core courses taken as an undergraduate or MSc student are included in this calculation. Failure to meet the required GPA may result in a recommendation by the Associate Chair (Graduate Studies) to FGSR that the student be placed on academic probation or required to withdraw.</p> <p>Residence Requirement To satisfy the residence requirement for the PhD, students must spend at least two years in full-time study.</p> <p>For part-time students, residence requirements are determined on a case-by-case basis.</p> <p>Length of Program The program is designed to be completed within four years.</p> <p>The maximum time to complete the PhD program as set by the Faculty of Graduate Studies and Research is six years.</p> <p>[...]</p> <p>Graduate Courses Graduate courses can be found in Course Listings, under the following subject headings:</p>
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Mathematical Physics (MA PH) Statistics (STAT)	Mathematics (MATH) Mathematical Physics (MA PH) Statistics (STAT)
<p>Justification:</p> <p>FGSR Calendar compliance. The following revisions have been made to the existing regulations in the Calendar:</p> <ul style="list-style-type: none"> • Ensuring all entrance requirements are in the calendar, including all supporting documentation and application deadlines • Clarification of Academic Standing requirements • Clarification of all program requirements • Creation of separate calendar entries for each specialization • Updating formatting and inserting standard calendar wording <p>This Calendar update reflects current practice.</p> <p>Approved by: Math Department Council Oct 8 2019</p>	

**Governance Executive Summary
Action Item**

Agenda Title	Proposed Changes to Existing Entrance Requirements, Academic Standing Regulations and Program Requirements for Graduate Programs in the Department of Surgery, Faculty of Medicine and Dentistry, and Faculty of Graduate Studies and Research
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Motion I

THAT the GFC Academic Planning Committee approve the proposed changes to existing program requirements for graduate programs in the Department of Surgery, as recommended by the GFC Academic Standards Committee, as submitted by the Faculty of Graduate Studies and Research and the Faculty of Medicine and Dentistry, and as set forth in Attachment 1, to take effect upon approval and to be published in the 2020-2021 Calendar.

Item

Action Requested	<input checked="" type="checkbox"/> Approval <input type="checkbox"/> Recommendation
Proposed by	Brooke Milne, Vice-Provost and Dean, FGSR Dennis Kunimoto, Interim Dean, Faculty of Medicine and Dentistry
Presenter(s)	Fred Berry, Associate Professor and Director, Graduate Education, Department of Surgery Janice Causgrove Dunn, Associate Dean, FGSR Maria Chia, Graduate Governance and Policy Coordinator, FGSR

Details

Responsibility	Provost and Vice-President (Academic)
The Purpose of the Proposal is <i>(please be specific)</i>	The proposal is before the committee to ensure that all Academic Regulations (entrance/admission requirements, academic standing requirements, and program requirements) for these programs are listed in the Calendar.
Executive Summary <i>(outline the specific item – and remember your audience)</i>	FGSR Calendar compliance. The following revisions have been made to the existing regulations in the Calendar: <ul style="list-style-type: none"> • Ensuring all entrance requirements are in the calendar, including ELP, all supporting documentation and application deadlines • Clarification of Academic Standing requirements • Clarification of all program requirements, including course load, ethics and professional development, and residence requirements. • Updating formatting and inserting standard calendar wording This Calendar update reflects current practice.
Supplementary Notes and context	<i>The GFC Academic Standards Committee has approved the entrance requirements and academic standing regulations.</i>

Engagement and Routing (Include meeting dates)

Consultation and Stakeholder Participation	<u>Those who are actively participating:</u> <ul style="list-style-type: none"> • Fred Berry, Director Grad Education, Faculty of Medicine & Dentistry - Surgery Dept
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Item No. 6

(parties who have seen the proposal and in what capacity) <For information on the protocol see the Governance Resources section Student Participation Protocol >	<ul style="list-style-type: none"> Tracey Zawalusky, Research and Graduate Program Administrator, Faculty of Medicine & Dentistry - Surgery Dept
	<u><i>Those who have been consulted:</i></u> <ul style="list-style-type: none"> Maria Chia, Graduate Governance and Policy Coordinator Janice Hurlburt, Graduate Governance and Policy
	<u><i>Those who have been informed:</i></u> <ul style="list-style-type: none">
Approval Route (Governance) (including meeting dates)	FoMD Graduate Program Committee: Sept 18, 2019 FoMD Faculty Learning Committee: Sept 30, 2019 FoMD Faculty Council Committee: Oct 15, 2019 GFC ASC-SOS November 7, 2019 GFC Academic Standards Committee November 21, 2019 GFC Academic Planning Committee December 11, 2019

Strategic Alignment

Alignment with <i>For the Public Good</i>	Please note the Institutional Strategic Plan objective(s)/strategies the proposal supports.	
Alignment with Core Risk Area	Please note below the specific institutional risk(s) this proposal is addressing.	
	<input type="checkbox"/> Enrolment Management <input type="checkbox"/> Faculty and Staff <input type="checkbox"/> Funding and Resource Management <input type="checkbox"/> IT Services, Software and Hardware <input type="checkbox"/> Leadership and Change <input type="checkbox"/> Physical Infrastructure	<input type="checkbox"/> Relationship with Stakeholders <input checked="" type="checkbox"/> Reputation <input type="checkbox"/> Research Enterprise <input type="checkbox"/> Safety <input checked="" type="checkbox"/> Student Success
Legislative Compliance and jurisdiction	<i>Post-Secondary Learning Act</i> GFC Academic Standards Committee Terms of Reference GFC Academic Planning Committee Terms of Reference	

Attachments (each to be numbered 1 - <>)

1. Attachment 1 Department of Surgery Calendar Change (Pages 1-7)

Prepared by: Maria Chia, Graduate Governance and Policy Coordinator, mchia@ualberta.ca

Killam Centre for Advanced Studies
2-29 Triffo Hall Edmonton AB Canada T6G 2E1
Tel: 780.492.2816 / Fax: 780.492.0692
www.gradstudies.ualberta.ca

2020-2021 University of Alberta Proposed Calendar Graduate Program Changes:

Current	Proposed
<p>Graduate Programs</p> <p>Surgery [Graduate] Department of Surgery 3-002 Li Ka Shing Centre University of Alberta Edmonton, Alberta T6G 2E1 E-mail: surggrad@ualberta.ca www.surgery.ualberta.ca</p> <p>General Information The Department offers research facilities in the Surgical-Medical Research Institute (SMRI), the Alberta Diabetes Institute, the Heritage Medical Research Centre [HMRC Li Ka Shing Centre for Health Research Innovation (LKS)], Medical Sciences Building (MSB), Katz Building, and the Cross Cancer Institute for graduate students who wish to register for the degree of MSc or PhD in Surgery.</p> <p>The Department has several core facilities including surgical suites, simulation facilities, an electron microscopy unit, clinical biochemistry and histology laboratory, and computer graphics and photography with technical staff in these laboratories who are able to assist graduate students who wish to carry out research projects. These facilities are well equipped to meet all the requirements of both the basic and clinical investigators from the Department of Surgery.</p> <p>Facilities are available for the following projects which are presently being carried out: islet transplantation, the immunology of diabetes, perinatal physiology, burns/wound healing, xenotransplantation, stem cells, tolerance induction and immunoregulation, virology, neurological oncology, orthopaedics, surgical education, urological oncology, ischemia-reperfusion and organ preservation/transplantation, surgical simulation and surgical education.</p> <p>Inquiries should be directed to the department prior to admission into the MSc or PhD program.</p> <p>Entrance Requirements</p>	<p>Graduate Programs</p> <p>Surgery [Graduate] Department of Surgery 3-002 Li Ka Shing Centre University of Alberta Edmonton, Alberta T6G 2E1 E-mail: surggrad@ualberta.ca www.surgery.ualberta.ca</p> <p>General Information The Department offers research facilities in the Ray Rajotte Surgical-Medical Research Institute (SMRI), the Alberta Diabetes Institute, the Heritage Medical Research Centre [HMRC Li Ka Shing Centre for Health Research Innovation (LKS)], Medical Sciences Building (MSB), Katz Building, and the Cross Cancer Institute for graduate students who wish to register for the degree of MSc or PhD in Surgery.</p> <p>The Department has several core facilities including surgical suites, simulation facilities, an electron microscopy unit, clinical biochemistry and histology laboratory, and computer graphics and photography with technical staff in these laboratories who are able to assist graduate students who wish to carry out research projects. These facilities are well equipped to meet all the requirements of both the basic and clinical investigators from the Department of Surgery.</p> <p>Facilities are available for the following projects which are presently being carried out: islet transplantation, the immunology of diabetes, perinatal physiology, burns/wound healing, xenotransplantation, stem cells and regenerative medicine, tolerance induction and immunoregulation, virology, neurological oncology, orthopaedics, surgical education, urological oncology, ischemia-reperfusion and organ preservation/transplantation, surgical simulation and surgical education.</p> <p>Inquiries should be directed to the department prior to admission into the MSc or PhD program.</p> <p>Entrance Requirements</p>

Normally, an MD or BSc degree will be considered an entrance requirement for the MSc program. Applicants for the PhD program must be medical graduates or hold a master's degree. The minimum requirements include a grade point average of 3.0 in the last two years of undergraduate work (or graduate work) at the University of Alberta, or an equivalent qualification from a recognized institution,

and a minimum TOEFL score of 550 (paper-based) or 88 (Internet-based) where applicable (see English Language Requirement).

Applicants who are graduates of programs, including MD programs, where grades are not assigned will be assessed on an individual basis.

For the MSc program, the department's minimum admission requirements are an MD or BSc degree with an admission GPA of at least 3.0 on the 4-point scale from the University of Alberta, or an equivalent qualification and standing from a recognized institution. The admission GPA will be calculated on the last ★60 of graded coursework completed, or on the equivalent of the last two years of full-time graded coursework.

For the PhD program, the department's minimum admission requirements are a master's degree or a medical degree with an admission GPA of at least 3.0 on the 4-point scale from the University of Alberta, or an equivalent qualification and standing from a recognized institution. The admission GPA will be calculated on the last ★60 of graded coursework completed, or on the equivalent of the last two years of full-time graded coursework.

Applicants who are graduates of programs, including MD programs, where grades are not assigned will be assessed on an individual basis.

Where applicable, applicants must provide proof of English Language Proficiency (refer to [English Language Requirement](#)). Any one of the following is acceptable:

- A minimum TOEFL score of 96 (internet-based) or equivalent;
- A minimum overall IELTS score of 7.0, with a minimum score of 6.0 on each band;
- an equivalent score on an English Language Proficiency test approved by the Faculty of Graduate Studies and Research.

All applicants are required to have secured a supervisor who is able to support them for graduate work.

Applicants are also required to submit the following

- Three letters of reference
- An outline of the proposed research project

See [How to Apply](#) on the Department website for further information.

The deadlines for submitting applications are June 1 for Fall admission and October 1 for Winter admission.

Academic Standing Requirement

Students are required to maintain a minimum cumulative grade point average of at least 2.7, with no grade less than B-.

Failure to maintain the required academic standing will normally result in a recommendation by the Graduate Coordinator to FGSR that the student be placed on [academic probation](#) or required to withdraw.

Financial Assistance

Funding is typically from supervisors' operating grants. Candidates are encouraged and fully supported in applying to major granting agencies for financial assistance.

Graduate Program Requirements

The Degree of MSc (Surgery) [Graduate]

Program Requirements

Requirements for the MSc degree include preparation and defence of a thesis based on research performed by the candidate; in addition, all candidates must include some coursework specified by their supervisory committee in the program. A minimum of ★24 are required for the MSc, of which ★9 will be graduate level courses.

Students are encouraged to take graduate-level courses in other departments that complement their specific research area; courses are approved in consultation with their supervisory committee and the departmental graduate coordinator.

Required Courses

MED 650 - Fundamentals for Clinical Investigators
SURG 530 - Directed Reading in Biology and Medicine
SURG 600 - Research Seminar

Financial Assistance

Students enrolled in the graduate program may receive financial assistance typically from supervisors' operating grants. Candidates are encouraged and fully supported in applying to major granting agencies for financial assistance.

Graduate Program Requirements

The Degree of MSc (Surgery) [Graduate]

Program Requirements

Students are required to complete a minimum of ★11 in coursework and a thesis.

Coursework

- SURG 530 - Directed Reading in Biology and Medicine
- SURG 600 - Research Seminar
- One ★3 graduate level statistics course; one of the following courses offered by the School of Public Health is recommended
 - SPH 531 Statistical Methods in Health Research
 - SPH 519 Biostatistics I
- One ★3 graduate-level graded course
 - Students in Clinician Investigator Program (CIP) must take MED 650 - Fundamentals for Clinical Investigators
 - Students are encouraged to take graduate-level courses in other departments that complement their specific research area
 - Courses are approved in consultation with the supervisory committee and the departmental graduate coordinator

Thesis

- Registration in 900-level THES. Preparation and defense of a thesis based on research performed by the candidate

Professional Development and Ethics Requirements

Students are required to fulfill the FGSR Professional Development Requirement and the FGSR Academic Integrity and Ethics Training Requirement.

Residence Requirement

The minimum period of residence is two four-month terms of full-time registration at the University of Alberta.

Length of Program

The time required to complete the MSc will vary according to the candidate's previous training and the nature of the research undertaken; however, a minimum of 24 months is normally required.

The Degree of MSc in Surgery with a specialization in Surgical Education

The purpose of this degree is to provide graduate students in advanced training in surgical education, with a specific focus on how surgeons are trained for their roles as expert practitioners.

A minimum of ★24 are required for the MSc. In addition to the three courses required for the MSc in Surgery. The student must also take:

one course (★3) on educational research methodology from the approved list:

EDEL 665
EDPY 501
EDPY 505
EDPY 597
EDPY 604
EDPY 605

two elective courses (★6) in an area of education relevant to their thesis project from the approved list of courses that includes:

EDPS 521
EDPY 510
EDPY 524
EDPY 597
EDPY 615
SURG 520

Length of Program

The time required to complete the MSc will vary according to the candidate's previous training and the nature of the research undertaken; however, 24 months of study is normally required.

The maximum time to complete the thesis-based MSc program as set by the Faculty of Graduate Studies and Research is four years.

The Degree of MSc in Surgery with a specialization in Surgical Education (Surgery)[Graduate]

The purpose of this degree is to provide graduate students in advanced training in surgical education, with a specific focus on how surgeons are trained for their roles as expert practitioners.

Program Requirements

Students are required to complete a minimum of ★17 in coursework and a thesis.

Coursework

- SURG 530 - Directed Reading in Biology and Medicine
- SURG 600 - Research Seminar
- One ★3 graduate level statistics course; one of the following courses offered by the School of Public Health is recommended
 - SPH 531 Statistical Methods in Health Research
 - SPH 519 Biostatistics I
- One ★3 graduate level course in research methodology, chosen from the following:
 - EDEL 665 Qualitative Research Methods in Education
 - EDPY 501 Introduction to Methods of Educational Research
 - EDPY 505 Quantitative Methods I
 - EDPY 604 Mixed Methods Approaches to Educational Research
 - EDPY 605 Quantitative Methods II
- Two ★3 graduate level courses relevant to the field of study, chosen from the following:
 - EDPS 521 Adult Learning and Development
 - EDPY 524 The Psychology of Technology-based Learning
 - EDPY 597 Special Seminars: Assessment and Evaluation in the Health Sciences
 - EDPY 597 Integrating Technology Across the Curriculum

Additional courses that are deemed relevant to the research project may be approved on an individual basis.

The Degree of PhD (Surgery) [Graduate]

Program Requirements

Requirements for the PhD degree include preparation and defence of a thesis and successful completion of courses taken for graduate credit, as specified by the supervisory committee. Students in the doctoral program must register in and be assessed fees for a minimum of ★36, which may consist of a combination of courses and thesis research.

Students are encouraged to take graduate-level courses in other departments that complement their specific

- EDPY 597 Special Seminars: Philosophy of Teaching
- EDPY 597 Special Seminars: Curriculum studies in the Health Sciences
- EDPY 615 Program Evaluation
- Additional courses that are deemed relevant to the research project may be approved on an individual basis.

Thesis

- Registration in 900-level THES. Preparation and defense of a thesis based on research performed by the candidate

Professional Development and Ethics Requirements

Students are required to fulfill the FGSR Professional Development Requirement and the FGSR Academic Integrity and Ethics Training Requirement.

Residence Requirement

The minimum period of residence is two four-month terms of full-time registration at the University of Alberta.

Length of Program

The maximum time to complete the thesis-based MSc program as set by the Faculty of Graduate Studies and Research is four years.

The Degree of PhD (Surgery) [Graduate]

Program Requirements

Students are required to complete a minimum of ★14 in coursework and a thesis.

Coursework

- SURG 530 - Directed Reading in Biology and Medicine
- SURG 600 - Research Seminar
- One ★3 graduate level statistics course; one of the following courses offered by the School of Public Health is recommended
 - SPH 531 Statistical Methods in Health Research
 - SPH 519 Biostatistics I
- Two ★3 graduate-level graded courses
 - Students in Clinician Investigator Program (CIP) must take MED 650 - Fundamentals for Clinical Investigators
 - Students are encouraged to take graduate-level courses in other

<p>research area; courses are approved in consultation with their supervisory committee and the departmental graduate coordinator.</p> <p>Length of Program The time required to complete the PhD will vary according to the previous training of the applicant and the nature of the research undertaken; however, a minimum of 36 months of study and research is normally required.</p> <p>Graduate Courses Graduate courses can be found in Course Listings, under the heading Surgery (SURG).</p>	<p>departments that complement their specific research area</p> <ul style="list-style-type: none"> ○ Courses are approved in consultation with the supervisory committee and the departmental graduate coordinator <p>Thesis</p> <ul style="list-style-type: none"> • <u>Registration in 900-level THES. Preparation and defense of a thesis based on research performed by the candidate</u> <p>Candidacy Exam <u>PhD students are required to take a candidacy exam within three years (36 months) of the start of their program.</u></p> <p>Professional Development and Ethics Requirements <u>Students are required to fulfill the FGSR Professional Development Requirement and the FGSR Academic Integrity and Ethics Training Requirement.</u></p> <p>Residence Requirement <u>The minimum period of residence is four terms (four months each) of full-time registration at the University of Alberta.</u></p> <p>Length of Program The time required to complete the PhD will vary according to the previous training of the applicant and the nature of the research undertaken; however, a minimum of 36 months of study and research is normally required.</p> <p><u>The maximum time to complete the PhD program as set by the Faculty of Graduate Studies and Research is six years.</u></p> <p>Graduate Courses Graduate courses can be found in Course Listings, under the heading Surgery (SURG).</p>
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Justification: Additional information added to meet FGSR Calendar compliance:

- Clarification of program description, entrance requirements (including all required supporting documentation), ELP requirements, and academic standing requirements, to bring calendar entry in line with current practice.
- Program requirements were adjusted to include course load, ethics and professional development, residency requirements. The time frame for completing the Candidacy exam was added. Course load for PhD program was reduced by 3 credits (reduced from 17 to 14). The move was made to ensure students can complete course requirements before taking the candidacy exam and also reflects current practice.

Approved by:

FoMD Graduate Program Committee: Sept 18, 2019

FoMD Faculty Learning Committee: Sept 30, 2019

FoMD Faculty Council Committee: Oct 15, 2019

**Governance Executive Summary
Action Item**

Agenda Title	Proposed Changes to Existing Program Requirements and Entrance Requirements for Medical Laboratory Science Programs, Faculty of Medicine and Dentistry
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Motion I

THAT the GFC Academic Planning Committee approve the proposed changes to the program requirements for the Medical Laboratory Science Programs, as recommended by the GFC Academic Standards Committee, as proposed by the Faculty of Medicine and Dentistry, and as set forth in Attachment 1, to take effect for Fall 2020.

Item

Action Requested	<input checked="" type="checkbox"/> Approval <input type="checkbox"/> Recommendation
Proposed by	Dennis Kunimoto, Interim Dean, Faculty of Medicine and Dentistry
Presenter(s)	Mia Lang, Associate Dean, Faculty of Medicine and Dentistry Lisa Purdy, Director, Medical Laboratory Science Program

Details

Responsibility	Provost and Vice-President (Academic)
The Purpose of the Proposal is (<i>please be specific</i>)	The proposal is before the committee to update and amend the Program of Courses for the BSc in Medical Laboratory Science and BSc in Medical Laboratory Science Post-Professional Certification degree completion programs.
Executive Summary (<i>outline the specific item – and remember your audience</i>)	<p><i>MLS began strategic planning in 2015. One goal of that process was to overhaul the curriculum. Curriculum 2020 is a multi-year, multi-phase project. These calendar changes outline the changes to the first year of the program (last year pre requisite requirement changes were approved).</i></p> <ul style="list-style-type: none"> • <i>Address need increase the amount of foundational inheritance genetics in order to offer advanced molecular diagnostics (outcome of stakeholder engagement was to ensure the emerging workforce has solid knowledge of emerging technologies)</i> • <i>no financial implications, the current phase 1 (year 2) curriculum was repackaged – for example MLSCI 280 and MLSCI 210 are not new course content but we have packaged the knowledge into different discreet courses rather than leaving this foundational knowledge in discipline specific courses. The curriculum changes are meant to create courses that work for the content / knowledge necessary for medical laboratory technologists. Total credit load on the program will increase by 2.5 credits, therefore there will be a tuition implication for students.</i> • <i>next steps will be curriculum changes to the calendar for year 4 (to be implemented (2022-23))</i>
Supplementary Notes and context	<This section is for use by University Governance only to outline governance process.>

Item No. 8

Engagement and Routing (Include meeting dates)

<p>Consultation and Stakeholder Participation (parties who have seen the proposal and in what capacity)</p> <p><For information on the protocol see the Governance Resources section Student Participation Protocol></p>	<p><u><i>Those who are actively participating:</i></u></p> <ul style="list-style-type: none"> • MLS Strategic Planning committee, September 17, 2016 • MLS Divisional Faculty meeting, Nov 16, 2016.
	<p><u><i>Those who have been consulted:</i></u></p> <ul style="list-style-type: none"> • MLS External Advisory Committee, April 16, 2019 • FoMD Faculty Learning Committee – approval – August 19, 2019 • FoMD Faculty Council Committee – review/consultation – September 5, 2019 • Office of the Registrar, Calendar Production – consulted/informed • Anna Vocioni, Assistant Registrar
	<p><u><i>Those who have been informed:</i></u></p> <ul style="list-style-type: none"> • Anna Vocioni was consulted
<p>Approval Route (Governance) (including meeting dates)</p>	<ul style="list-style-type: none"> • MLS Curriculum Renewal approval dates: <ul style="list-style-type: none"> ○ MLS Advisory Committee - Dec 7, 2016 ○ FLC - Jan 30, 2017 ○ Dean's Exec Committee (DEC) - Feb 13, 2017 ○ Faculty Council - March 21, 2017 • 2019-20 MLS Program Prerequisite changes approved via Governance e-Circulation, December 12, 2018 • GFC ASC SOS, November 7, 2019 • GFC ASC, November 21, 2019 • GFC APC, December 11, 2019

Strategic Alignment

<p>Alignment with <i>For the Public Good</i></p>	<p><i>For the Public Good</i> GOAL: SUSTAIN our people, our work, and the environment by attracting and stewarding the resources we need to deliver excellence to the benefit of all Albertans.</p> <p>Objective 21: Encourage continuous improvement in administrative, governance, planning and stewardship systems, procedures, and policies that enable students, faculty, staff, and the institution as a whole to achieve shared strategic goals</p>		
<p>Alignment with Institutional Risk Indicator</p>	<p>Please note below the specific institutional risk(s) this proposal is addressing.</p> <table border="0"> <tr> <td> <input type="checkbox"/> Enrolment Management <input checked="" type="checkbox"/> Faculty and Staff <input type="checkbox"/> Funding and Resource Management <input type="checkbox"/> IT Services, Software and Hardware <input type="checkbox"/> Leadership and Change <input type="checkbox"/> Physical Infrastructure </td> <td> <input checked="" type="checkbox"/> Relationship with Stakeholders <input type="checkbox"/> Reputation <input type="checkbox"/> Research Enterprise <input type="checkbox"/> Safety <input checked="" type="checkbox"/> Student Success </td> </tr> </table>	<input type="checkbox"/> Enrolment Management <input checked="" type="checkbox"/> Faculty and Staff <input type="checkbox"/> Funding and Resource Management <input type="checkbox"/> IT Services, Software and Hardware <input type="checkbox"/> Leadership and Change <input type="checkbox"/> Physical Infrastructure	<input checked="" type="checkbox"/> Relationship with Stakeholders <input type="checkbox"/> Reputation <input type="checkbox"/> Research Enterprise <input type="checkbox"/> Safety <input checked="" type="checkbox"/> Student Success
<input type="checkbox"/> Enrolment Management <input checked="" type="checkbox"/> Faculty and Staff <input type="checkbox"/> Funding and Resource Management <input type="checkbox"/> IT Services, Software and Hardware <input type="checkbox"/> Leadership and Change <input type="checkbox"/> Physical Infrastructure	<input checked="" type="checkbox"/> Relationship with Stakeholders <input type="checkbox"/> Reputation <input type="checkbox"/> Research Enterprise <input type="checkbox"/> Safety <input checked="" type="checkbox"/> Student Success		
<p>Legislative Compliance and jurisdiction</p>	<p><i>Post-secondary Learning Act</i> GFC Academic Standards Committee Terms of Reference GFC Academic Planning Committee Terms of Reference</p>		

Attachments (each to be numbered 1 - 5)

1. MLS Calendar Changes 2020-2021 (pages 1 - 8)
2. MLS Load Change Proposal (pages 1 - 4)
3. MLS Load Change – Appendix 1 – Course Listings (pages 1 - 8)
4. MLS Load Change – Appendix 2 – Stakeholder Report #1 (pages 1 - 1)
5. MLS Load Change – Appendix 3 – Strategic Initiatives Report #2 (pages 1 - 3)

Prepared by: Jocelyn Plemel, Executive Assistant to the Vice-Dean, Education, jplemel@ualberta.ca

Faculty of Medicine & Dentistry
Division of Medical Laboratory Science

Proposed University Calendar Changes

CURRENT	PROPOSED
Degree of BSc in Medical Laboratory Science	
<p>General Information</p> <p>The Faculty of Medicine and Dentistry offers an undergraduate degree program in Medical Laboratory Science. The program is designed to develop competent, critical thinking, reflective medical laboratory technologists who effectively contribute to the care of patients and who are committed to excellence in professional practice.</p> <p>This degree also prepares graduates to pursue post-baccalaureate or graduate programs that may lead to advanced practice opportunities.</p> <p>The preprofessional year and Phases I and III of the program are normal university years. In Phase I foundational concepts are taught. Phase II consists of clinical hospital laboratory training under the direct supervision of the Faculty of Medicine and Dentistry. In Phase III students explore advanced concepts in laboratory medicine. If successful in all competency based objectives, students may write certification examinations with the Canadian Society for Medical Laboratory Science, general certification.</p> <p>Note: Because individuals working in hospital laboratories run some risk of infection from materials they handle, all students in the Medical Laboratory Science program must take a series of immunizations approved by the Office of the Dean of Medicine and Dentistry and the Health Sciences Council before beginning Phase I. See University Infectious Diseases Regulation.</p> <p>Orientation</p> <p>It is mandatory that each student, after acceptance into the program, attend Orientation. This is scheduled immediately before the beginning of the first term.</p>	<p>General Information</p> <p>The Faculty of Medicine and Dentistry offers an undergraduate degree program in Medical Laboratory Science. The program is designed to develop competent, critical thinking, reflective medical laboratory technologists who effectively contribute to the care of patients and who are committed to excellence in professional practice.</p> <p>This degree also prepares graduates to pursue post-baccalaureate or graduate programs that may lead to advanced practice opportunities.</p> <p>Students complete a preprofessional year before applying to the program. Years Two and Four of the program are normal university years. Interession following Year Two may be required. In Year Two foundational concepts are taught. Year Three consists of clinical hospital laboratory training under the direct supervision of the Faculty of Medicine and Dentistry. In Year Four students explore advanced concepts in laboratory medicine. If successful in all competency based objectives, students may write the general certification examination with the Canadian Society for Medical Laboratory Science.</p> <p>Note: Because individuals working in hospital laboratories run some risk of infection from materials they handle, all students in the Medical Laboratory Science program must take a series of immunizations approved by the Office of the Dean of Medicine and Dentistry and the Health Sciences Council before beginning Year Two. See University Infectious Diseases Regulation.</p> <p>Orientation</p> <p>It is mandatory that each student, after acceptance into the program, attend Orientation. This is scheduled immediately before the beginning of the first term.</p>

Program of Courses

Phase I

MLSCI 200 - Transition to Clinical Practice
MLSCI 230 - Hematology
~~MLSCI 235 - Hemostasis~~
MLSCI 242 - Pathogenic Microbiology I
~~MLSCI 243 - Pathogenic Microbiology II~~
MLSCI 250 - Human Histology and Histotechnology
MLSCI 262 - Clinical Biochemistry
MLSCI 263 - Clinical Biochemistry
MLSCI 270 - Transfusion Science
MLSCI 290 - Foundations of Indigenous Health I
PHYSL (★6)
Arts Option (★3)

Phase II - Clinical Rotation (See Note 1)

~~BIOCH 200 - Introductory Biochemistry~~
~~BIOCH 330 - Nucleic Acids and Molecular Biology~~
MLSCI 320 - Analysis and Communication of Biomedical Information
MLSCI 330 - Clinical Hematology
MLSCI 340 - Clinical Microbiology
MLSCI 350 - Histopathology
MLSCI 360 - Clinical Biochemistry
MLSCI 370 - Transfusion Science
~~MLSCI 390 - Foundations of Indigenous Health II~~

Phase III (See Note 2)

~~MLSCI 295 - Foundations of Interprofessional Collaborative Practice~~
~~MLSCI 480 - Molecular Genetic Approaches to the Study and Diagnosis of Disease~~
~~MLSCI 410 - Introduction to Clinical Laboratory Management~~
Arts option (★3)
★12 chosen from
MLSCI 420 - Emerging Trends in Medical Laboratory Science
MLSCI 430 - Advanced Hematology
MLSCI 460 - Clinical Biochemistry
MLSCI 466 - Applied Toxicology
MLSCI 475 - Clinical Immunology
MLSCI 481 - Techniques in Molecular Biology

Program of Courses

Year 2

MLSCI 200 - Transition to Clinical Practice
~~MLSCI 210 - Foundations of Instrumentation & Analysis~~
~~MLSCI 230 - Hematology & Hemostasis~~
MLSCI 242 - Pathogenic Microbiology I
MLSCI 250 - Human Histology and Histotechnology
MLSCI 262 - Clinical Biochemistry
MLSCI 263 - Clinical Biochemistry
MLSCI 270 - Transfusion Science
~~MLSCI 280 - Introduction to Immunology~~
MLSCI 290 - Foundations of Indigenous Health I
~~MLSCI 295 - Foundations of Interprofessional Collaborative Practice~~
PHYSL (★6)

Spring Intersession

~~BIOCH 200 - Introductory Biochemistry~~

Year 3 - Clinical Rotation (See Note 1)

~~MLSCI 300 - Professional Practice~~
MLSCI 320 - Analysis and Communication of Biomedical Information
MLSCI 330 - Clinical Hematology
MLSCI 340 - Clinical Microbiology
MLSCI 350 - Histopathology
MLSCI 360 - Clinical Biochemistry
MLSCI 370 - Transfusion Science

Year 4 (See Note 2)

~~MLSCI 410 - Introduction to Clinical Laboratory Management~~
~~MLSCI 480 - Molecular Genetic Approaches to the Study and Diagnosis of Disease~~
Arts option (★3)
~~Approved MLS option (★3)~~
★12 chosen from
MLSCI 420 - Emerging Trends in Medical Laboratory Science
MLSCI 430 - Advanced Hematology
MLSCI 460 - Clinical Biochemistry
MLSCI 466 - Applied Toxicology
MLSCI 475 - Clinical Immunology
MLSCI 481 - Techniques in Molecular Biology
MMI 405 - Advanced Microbial Pathogenicity OR
MMI 415 - Advanced Viral Pathogenesis OR

<p>MMI 405 - Advanced Microbial Pathogenicity OR MMI 415 - Advanced Viral Pathogenesis OR MMI 426 - Medical Parasitology Project course: MLSCI 491 - Research Project OR MLSCI 409 - Research Project AND Science option (★3)</p> <p>Notes During the Phase II clinical rotation, students are assigned to hospital laboratories approved for this purpose by the Council of the Faculty of Medicine and Dentistry. ★3 in a Science option are required if a ★3 project is completed. ★0 in a science option are required if a ★6 project is attempted.</p>	<p>MMI 426 - Medical Parasitology Project course: MLSCI 491 - Research Project OR MLSCI 409 - Research Project AND Science option (★3)</p> <p>Notes 1. During the Year Three clinical rotation, students are assigned to hospital laboratories approved for this purpose by the Council of the Faculty of Medicine and Dentistry. 2. ★3 in a Science option are required if a ★3 project is completed. ★0 in a science option are required if a ★6 project is attempted.</p>
<p>Rationale: Update program map to reflect changes to curriculum. Name change to years (from phases) to differentiate new curriculum from old. See Curriculum 2020 justification at the end of this document. Course changes are in a separate document.</p>	

CURRENT	PROPOSED
BSc in Medical Laboratory Science Post-Professional Certification degree completion	
<p>General Information</p> <p>The Faculty of Medicine and Dentistry offers a program for degree completion for Canadian Society for Medical Laboratory Science general certificate holders. Because of the changing nature of the field, there is a practise requirement that must be met (see Admission).</p> <p>The program requires ★75 additional study post-diploma and ★60 must be completed through the University of Alberta.</p> <p>Program of Courses</p> <p>Year 1</p> <p>BIOL 107 - Introduction to Cell Biology CHEM 101 - Introductory University Chemistry I CHEM 102 - Introductory University Chemistry II</p> <p>CHEM 164 - Organic Chemistry I OR CHEM 261 - Organic Chemistry I</p> <p>CHEM 263 – Organic Chemistry II MLSCI 244 – Pathogenic Microbiology I MLSCI 245 – Pathogenic Microbiology II</p>	<p>General Information</p> <p>The Faculty of Medicine and Dentistry offers a program for degree completion for Canadian Society for Medical Laboratory Science general certificate holders. Because of the changing nature of the field, there is a practise requirement that must be met (see Admission).</p> <p>The program requires ★72 additional study post-diploma and ★60 must be completed through the University of Alberta.</p> <p>Program of Courses</p> <p>Year 1</p> <p>BIOL 107 - Introduction to Cell Biology BIOL 207 - Molecular Genetics and Heredity CHEM 101 - Introductory University Chemistry I CHEM 102 - Introductory University Chemistry II</p> <p>CHEM 164 - Organic Chemistry I OR CHEM 261 - Organic Chemistry I</p> <p>MLSCI 280 - Introduction to Immunology MLSCI 290 - Foundations of Indigenous Health I</p>

<p>MLSCI 320 - Analysis and Communication of Biomedical Information</p> <p><u>STAT 141 OR</u> <u>STAT 151— Introduction to Applied Statistics I OR</u> <u>STAT 337— Biostatistics</u></p> <p><u>Approved MLS options (★6)</u> <u>Spring/Summer</u> <u>BIOCH 200 - Introductory Biochemistry</u> <u>BIOCH 330— Nucleic Acids and Molecular Biology</u> <u>Arts options (★6)</u></p> <p>Year 2</p> <p><u>MLSCI 295— Foundations of Interprofessional Collaborative Practice</u> MLSCI 410 - Introduction to Clinical Laboratory Management MLSCI 480 - Molecular Genetic Approaches to the Study and Diagnosis of Disease <u>Arts option (★3)</u> Project course MLSCI 491 - Research Project OR</p> <p>MLSCI 409 - Research Project AND Science option (★3) ★12 chosen from MLSCI 420 - Emerging Trends in Medical Laboratory Science MLSCI 430 - Advanced Hematology MLSCI 460 - Clinical Biochemistry MLSCI 466 - Applied Toxicology MLSCI 475 - Clinical Immunology MLSCI 481 - Techniques in Molecular Biology MMI 405 - Advanced Microbial Pathogenicity OR MMI 415 - Advanced Viral Pathogenesis OR MMI 426 - Medical Parasitology</p>	<p><u>MLSCI 295 - Foundations of Interprofessional Collaborative Practice</u> MLSCI 320 - Analysis and Communication of Biomedical Information <u>Approved Statistics (★3)</u> <u>Approved MLS option (★3)</u></p> <p><u>Spring/Summer</u> <u>BIOCH 200 - Introductory Biochemistry</u> <u>English options (★6)</u></p> <p>Year 2</p> <p>MLSCI 410 - Introduction to Clinical Laboratory Management MLSCI 480 - Molecular Genetic Approaches to the Study and Diagnosis of Disease <u>Approved MLS option (★9)</u> Project course MLSCI 491 - Research Project OR</p> <p>MLSCI 409 - Research Project AND Science option (★3) ★12 chosen from MLSCI 420 - Emerging Trends in Medical Laboratory Science MLSCI 430 - Advanced Hematology MLSCI 460 - Clinical Biochemistry MLSCI 466 - Applied Toxicology MLSCI 475 - Clinical Immunology MLSCI 481 - Techniques in Molecular Biology MMI 405 - Advanced Microbial Pathogenicity OR MMI 415 - Advanced Viral Pathogenesis OR MMI 426 - Medical Parasitology</p>
<p>Rationale: del</p>	

CURRENT	PROPOSED
BSc in Medical Laboratory Science Post- Professional Certification degree completion	
<p>All students enrolled in the BSc MLS program are bound by and shall comply with the Professional Code of Ethics governing the profession. The Professional Code of Ethics refers to all relevant</p>	<p>Academic Standings and Graduation</p> <p>All students enrolled in the BSc MLS program are bound by and shall comply with the Professional Code of Ethics governing the profession. The Professional Code of Ethics refers to all relevant</p>

<p>professional codes and practice standards for medical laboratory technology including:</p> <ul style="list-style-type: none"> • Code of Applicant Behaviour • Code of Student Behaviour • College of Medical Laboratory Technologists of Alberta Code of Ethics • College of Medical Laboratory Technologists of Alberta Standards of Practice • Canadian Society for Medical Laboratory Science Code of Ethics • Professional Standards for Students in the Faculty of Medicine and Dentistry <p>Academic Standings</p> <p>[...]</p>	<p>professional codes and practice standards for medical laboratory technology including:</p> <ul style="list-style-type: none"> • Code of Applicant Behaviour • Code of Student Behaviour • College of Medical Laboratory Technologists of Alberta Code of Ethics • College of Medical Laboratory Technologists of Alberta Standards of Practice • Canadian Society for Medical Laboratory Science Code of Ethics • Professional Standards for Students in the Faculty of Medicine and Dentistry
<p>Rationale: Format error – title was in the wrong spot</p>	

CURRENT	PROPOSED
BSc in Medical Laboratory Science	
<p>Admission Requirements</p> <p>The current quota for Phase I students is 29.</p> <p>I. Preprofessional Year</p> <p>Those wishing to enrol in the BSc Medical Laboratory Science program must complete a preprofessional year before applying for admission to the Faculty. The required courses or their transfer equivalents are available at various postsecondary institutions in Alberta. Students should where possible take these courses (equivalent to ★30 at the University of Alberta) as one year of full-time study.</p> <p>II. Academic Requirements</p> <p>The following ★30 are required: English ★6 General Chemistry ★6 Organic Chemistry ★6 Biology ★3 (cell biology) ★3 from Biology, Genetics, Microbiology, or Zoology</p>	<p>Admission Requirements</p> <p>The current quota for Year Two students is 29.</p> <p>I. Preprofessional Year</p> <p>Those wishing to enrol in the BSc Medical Laboratory Science program must complete a preprofessional year before applying for admission to the Faculty. The required courses or their transfer equivalents are available at various postsecondary institutions in Alberta. Students should where possible take these courses (equivalent to ★30 at the University of Alberta) as one year of full-time study.</p>

Statistics ★3
★3 options (any Faculty)

**NOTE EFFECTIVE FOR SEPTEMBER 2020
ADMISSION the Academic Requirements will be:**

The following ★30 of preprofessional course work are required.

English ★6
General Chemistry ★6
Organic Chemistry ★3
Biology ★3 (cell biology)
Biology ★3 (molecular genetics and inheritance)
★3 from Biology, Genetics, Microbiology, or Zoology
Statistics ★3
★3 options (any Faculty)

III. Other Requirements

[...]

I. Aboriginal Applicants

The Division of Medical Laboratory Science will provide admission to the BSc MLS program to all qualified Aboriginal applicants not to exceed the current quota for **Phase I** students (see above). Students of Aboriginal identity within the meaning of the Constitution Act, 1982, Section 35, Part 2, or a person accepted by one of the Aboriginal peoples of Canada as a member of their community, will be considered in this category.

Candidates will be subject to normal minimum admission requirements as outlined in BSc in Medical Laboratory Science and approval by the Divisional Admissions Committee.

II. For More Information

Individuals considering entering the preprofessional year should contact the Division of Medical Laboratory Science, 5-411 Edmonton Clinic Health Academy, University of Alberta, Edmonton, AB T6G 1C9.

II. Academic Requirements

The following ★30 of preprofessional course work are required.

English ★6
General Chemistry ★6
Organic Chemistry ★3
Biology ★3 (cell biology)
Biology ★3 (molecular genetics and inheritance)
★3 from Biology, Genetics, Microbiology, or Zoology
Statistics ★3
★3 options (any Faculty)

III. Other Requirements

[...]

IV. Aboriginal Applicants

The Division of Medical Laboratory Science will provide admission to the BSc MLS program to all qualified Aboriginal applicants not to exceed the current quota for **Year Two** students (see above). Students of Aboriginal identity within the meaning of the Constitution Act, 1982, Section 35, Part 2, or a person accepted by one of the Aboriginal peoples of Canada as a member of their community, will be considered in this category.

Candidates will be subject to normal minimum admission requirements as outlined in **the** BSc in Medical Laboratory Science **above** and approval by the Divisional Admissions Committee.

V. For More Information

Rationale:
MLS new curriculum begins in September 2020. Old prerequisite requirements deleted from calendar.
Formatting error with numbering system

CURRENT	PROPOSED
BSc in Medical Laboratory Science Post-Professional Certification completion	BSc in Medical Laboratory Science Post-Professional Certification <u>degree</u> completion
I. Admission Requirements	I. Admission Requirements
<p>In order to be eligible for admission to the Post-Professional <u>Certificate</u> degree completion program applicants must have:</p> <ol style="list-style-type: none"> 1. Successfully completed the Canadian Society for Medical Laboratory Science (CSMLS) General Certification. 2. Within the last five years either completed the CSMLS general certification or have related work experience. 	<p>In order to be eligible for admission to the Post-Professional <u>Certification</u> degree completion program applicants must have:</p> <ol style="list-style-type: none"> 1. Successfully completed the Canadian Society for Medical Laboratory Science (CSMLS) General Certification. 2. Within the last five years either completed the CSMLS general certification or have related work experience. <u>3. Language Proficiency Requirements: All applicants must meet the English Language Proficiency and Spoken English requirements (see Language Proficiency Requirements).</u> <u>4. A minimum GPA of 2.0 is required on all post secondary coursework completed after CSMLS General Certification.</u>
II. Other Requirements	II. Other Requirements
<ol style="list-style-type: none"> 1. Official transcripts from technical institutes and clinical training sites, CSMLS certification, and other postsecondary institutions, 2. Resumé, 3. Letter indicating history of employment as a medical laboratory technologist with particular attention paid to the description of the type of work in which the applicant was involved. In this letter a statement of career goals and reasons for seeking admission to the BSc in Medical Laboratory Science program should be included. 	<ol style="list-style-type: none"> 4. Official transcripts from technical institutes and clinical training sites, CSMLS certification, and other postsecondary institutions, 5. Resumé, 6. Letter indicating history of employment as a medical laboratory technologist with particular attention paid to the description of the type of work in which the applicant was involved. In this letter a statement of career goals and reasons for seeking admission to the BSc in Medical Laboratory Science program should be included.
III. For More Information	III. For More Information
<p>Individuals considering entrance to the Post-Professional Certification degree completion program should contact the Division of Medical Laboratory Science, 5-411 Edmonton Clinic Health Academy, University of Alberta, Edmonton, AB T6G</p>	<p>Individuals considering entrance to the Post-Professional Certification degree completion program should contact the Division of Medical Laboratory Science, 5-411 Edmonton Clinic Health</p>

1C9 or by e-mail medlabsc@ualberta.ca. Paper application is required after March 1.	Academy, University of Alberta, Edmonton, AB T6G 1C9 or by e-mail medlabsc@ualberta.ca.
Rationale: Ensuring students have proper university admission requirements, clarifying UAlberta requirements. With the implementation of the new admissions system (Slate) paper applications for the post-professional certification degree completion program will no longer be required.	

Curriculum 2020 justification MLS curriculum renewal looked at content and sequencing of curriculum. The philosophical approach was to deliver the didactic information the students need for the national certification examination in year 2. Year 3 is the clinical practicum meant to practice the techniques and skills learned in year 2. Year 4 is an advanced training year.

Currently MLSCI 242 is fall and MLSCI 243 is winter term. Most of the content of MLSCI 243 is not relevant to the national certification exam so 243 will no longer be offered in year 2. A new course MLSCI 440 is under development and will cover some of the 243 content to be delivered in the final year of the program. The timing of this content makes more sense in the final year of the MLS program.

MLSCI 242 credit load is increased and offered as a variable term as some of the content from 243 needs to be delivered in this year of the program. It will be offered over 15 weeks (final 2 weeks of term in fall and all of winter). Credit load was determined using a standard 3 (3-0-3) credit science lab course as a benchmark.

MLSCI 230 and 235 are being combined into one course. In the mid 1990's a large 6 credit full year course was dismantled into separate 3 (230), 2 (270), and 1 (235) credit courses; this decision was to fit the courses in a university term but doesn't fit the content of the courses. The topics of hemostasis (235) and hematology (230) go together and are delivered together in MLSCI 330 and MLSCI 430. The clinical laboratory does not differentiate these 2 areas as separate (hemostasis is –part of hematology). Credit load as adjusted to reflect 3-0-6 over 17 weeks of instruction. credit load of MLSCI 270 increasing from 2 to 3 to reflect the instructional time.

MLSCI 210 and MLSCI 280 – new courses for the MLS curriculum. Other changes to course determined by sequencing of curriculum to teach national professional competencies required of medical laboratory technologists.

Program Credit load:

Old Curriculum	Curriculum 2020
Phase 1 – 34.5	Year 2 - 37
Phase 2 - 30	Year 3 - 30
Phase 3 - 28	Year 4 - 30

FoMD Approvals:

Faculty Learning Committee – August 19, 2019

Faculty Council Committee (for review only) – September 5, 2019

Proposal Template: Load Change

This template is for the presentation of proposals for changes in specialization load characteristics, including Program Length, Terms, Instructional Credits/Hours and Practicum Credits/Hours.

For degree programs, substantive changes to curriculum resulting in load changes may require referral to the Campus Alberta Quality Council.

Basic Information

Institution	University of Alberta
Program/specialization title	Medical Laboratory Science
Credential awarded	Bachelor of Science
Proposed Implementation Date	July 1, 2020

1. *Specify the change(s) to load characteristics being proposed. In cases where load changes reflect changes to existing curriculum, please attach revised course lists including calendar-level information (course titles, descriptions, weights).*

The increase in course load is mainly due to changing the credit weighting of some courses. Traditionally MLS courses were structured around the university 13 week/term system but this often does not fit the content we are required to teach as a professional program. The program’s new curriculum described in detail in this document has made courses that fit the content and not necessarily the university term. This has changed the credit load of some courses. For example MLSCI 230 was a 3-0-6 one term course that was 3 credits. It will now be a 3-0-6 course that is 17 weeks long and is MLSCI 230 combined with MLSCI 235. Using a ratio of instructional time and duration this course should be 6 credits, there has been no change in the amount of content added.

MLSCI 242 is now 15 weeks in duration and will run from mid-October until the end of March. It is longer to add in required competencies from MLSCI 243 (243 will no longer be offered). MLSCI 280 content was removed from MLSCI 242 to create a standalone immunology course that teaches immunology from the framework of all the MLS disciplines.

MLSCI 210 is content pulled from other MLS first year courses to highlight technology in a multi-disciplinary format rather than related to one discipline only as was previously taught.

Program Credit load:

Old Curriculum	Curriculum 2020
Phase 1 – 34.5	Year 2 - 37
Phase 2 - 30	Year 3 - 30

See appendix 1 for the calendar information for each course.

2. *Describe the institution's approval process for the proposed change(s).*

The institutional approval process for the proposed changes is as follows:

- Departmental/Divisional Planning Committee Meeting(s)
- Departmental/Divisional Faculty Meeting(s)
- Divisional External Advisory Committee: consultation
- Faculty of Medicine & Dentistry Faculty Learning Committee (FLC)
- Faculty of Medicine & Dentistry Faculty Council Committee: review and consultation
- University of Alberta Academic Standards Committee Subcommittee on Standards (SOS)
- University of Alberta Academic Standards Committee (ASC)

3. *Provide a rationale for the proposed change(s). (Factors may include, but need not be limited to changes in the relevant body of knowledge and/or technology, changes in regulatory and/or professional standards, feedback from students or employers, or alignment with similar/related programs at other institutions.)*

Any major curriculum changes are informed by: UAlberta expectations and policies through the Faculty of Medicine & Dentistry, the Canadian Society for Medical Laboratory Science and College of Medical Laboratory Technology of Alberta competency profiles, feedback from students, graduates, alumni and employers, CSMLS examination results, outcomes from the MLS Advisory Committee meetings, and MLS strategic initiatives.

CSMLS competency profile was updated for 2019.

Proposed changes were the outcome of strategic planning described in #5 below.

4. *Describe anticipated impacts on students, and plans to ameliorate any such impacts.*

Impact on students will be financial as extra tuition will be assessed. Having the course load changes in the UAlberta calendar will allow Alberta Student Aid to reflect these increases in loan amounts students are eligible for. There is a MLS student bursary and a new bursary program for first year Indigenous students in the Faculty of Medicine & Dentistry.

5. *Where appropriate, provide evidence of consultation with external stakeholders (e.g. employers, professional/ regulatory organizations) and describe any anticipated impacts on those stakeholders.*

External stakeholders - Annual MLS Advisory meeting allows external stakeholders to provide input and feedback on program improvement, clinical laboratory developments and educational initiatives. Committee membership includes:

- College of Medical Laboratory Technology of Alberta (regulatory organization),
- Director, Division of MLS
- Chair of the Dept of Lab Medicine & Pathology
- Coordinator - MLS Program
- Vice Dean Education Faculty of Medicine & Dentistry
- Chair of the Education Committee, Dept of MMI
- Alberta Public Laboratories Representative
- DynaLIFEDX Representative
- Academic Staff of MLS
- MLS Students
- MLS Recent Graduate
- NAIT MLT Program Representative
- SAIT MLT Program Representative
- Industry Representative
- Grad Studies Coordinator, LMP
- AHS Clinical Coordinator
- Advanced Education Representative
- APL Zone Clinical Department Head

There will be no impact of course load changes on stakeholders as the program duration will not change. Curriculum 2020 changes were driven by stakeholder input and will change the entry level medical laboratory technologist's skill set so graduates will be positioned to better integrate into a quickly evolving clinical laboratory setting.

Strategic Planning 2015-2020

The last restructuring of the Bachelor of Science in Medical Laboratory Science (MLS) program was done in the mid 1990s. In 2015, the MLS Division developed a new strategic plan. As the Division goes forth with the implementation of the plan, we continue to draw on the ideas and feedback from program stakeholders. In 2015 program stakeholders help set the strategic goals. To begin a survey was developed and sent out to all program stakeholders – 189 individuals responded (32%). **See Appendix 2 and 3.**

The strategic plan identified 3 goals:

1. Informed redesign of the curriculum
2. Create a network of new clinical experiences
3. Develop post-certification training

At each phase of implementation the program has solicited feedback from stakeholders in the form of surveys, focus groups and updates requesting comments.

Employers are surveyed annually to explore the level of preparedness of new graduates (called Employer Survey). The responses of employers has given the program valuable data on the addition of new senior level courses.

Alumni survey and total program survey are a venue for recent and current graduates to give impact into the program.

6. *Discuss any anticipated impacts of the proposed change(s) on institutional operations and resources (e.g. operating budget, staffing, student services, information technology, library, classroom and lab space).*

Changes to junior MLS courses are repackaging existing curriculum and will not impact university operations. New senior (year 4) courses will be blended learning. They will be offered concurrently with the Faculty of Extension (non-credit option for current health professionals wishing continuing education). The didactic components will be offered on e-class through on-line modules and the laboratory components will be “wet labs” done as a residency (most likely over a weekend) at the University of Alberta. Equipment exists within the Faculty of Medicine & Dentistry CORE lab facilities for researchers and within Alberta Public Labs clinical laboratories. No lab or classroom space will be required.

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CURRENT	PROPOSED
Degree of BSc in Medical Laboratory Science	
<p>Program of Courses</p> <p>Phase I</p> <p>MLSCI 200 - Transition to Clinical Practice MLSCI 230 - Hematology MLSCI 235 - Hemostasis MLSCI 242 - Pathogenic Microbiology I MLSCI 243 - Pathogenic Microbiology II MLSCI 250 - Human Histology and Histotechnology MLSCI 262 - Clinical Biochemistry MLSCI 263 - Clinical Biochemistry MLSCI 270 - Transfusion Science MLSCI 290 - Foundations of Indigenous Health I PHYSL (★6) Arts Option (★3)</p> <p>Phase II – Clinical Rotation (See Note 1)</p> <p>BIOCH 200 – Introductory Biochemistry BIOCH 330 – Nucleic Acids and Molecular Biology MLSCI 320 - Analysis and Communication of Biomedical Information MLSCI 330 - Clinical Hematology MLSCI 340 - Clinical Microbiology MLSCI 350 - Histopathology MLSCI 360 - Clinical Biochemistry MLSCI 370 - Transfusion Science MLSCI 390 – Foundations of Indigenous Health II</p> <p>Phase III (See Note 2)</p> <p>MLSCI 295 – Foundations of Interprofessional Collaborative Practice MLSCI 480 - Molecular Genetic Approaches to the Study and Diagnosis of Disease MLSCI 410 - Introduction to Clinical Laboratory Management Arts option (★3) ★12 chosen from MLSCI 420 - Emerging Trends in Medical Laboratory Science MLSCI 430 - Advanced Hematology</p>	<p>Program of Courses</p> <p>Year 2</p> <p>MLSCI 200 - Transition to Clinical Practice MLSCI 210 – Foundations of Instrumentation & Analysis MLSCI 230 - Hematology MLSCI 235 - Hemostasis MLSCI 242 - Pathogenic Microbiology I MLSCI 250 - Human Histology and Histotechnology MLSCI 262 - Clinical Biochemistry MLSCI 263 - Clinical Biochemistry MLSCI 270 - Transfusion Science MLSCI 280 - Introduction to Immunology MLSCI 290 - Foundations of Indigenous Health I MLSCI 295 - Foundations of Interprofessional Collaborative Practice PHYSL (★6)</p> <p>Spring Intersession</p> <p>BIOCH 200 - Introductory Biochemistry</p> <p>Year 3 – Clinical Rotation (See Note 1)</p> <p>MLSCI 300 – Professional Practice MLSCI 320 - Analysis and Communication of Biomedical Information MLSCI 330 - Clinical Hematology MLSCI 340 - Clinical Microbiology MLSCI 350 - Histopathology MLSCI 360 - Clinical Biochemistry MLSCI 370 - Transfusion Science</p> <p>Year 4 (See Note 2)</p> <p>MLSCI 410 - Introduction to Clinical Laboratory Management MLSCI 480 - Molecular Genetic Approaches to the Study and Diagnosis of Disease Arts option (★3) ★12 chosen from MLSCI 420 - Emerging Trends in Medical Laboratory Science MLSCI 430 - Advanced Hematology MLSCI 460 - Clinical Biochemistry MLSCI 466 - Applied Toxicology MLSCI 475 - Clinical Immunology</p>

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<p>MLSCI 460 - Clinical Biochemistry MLSCI 466 - Applied Toxicology MLSCI 475 - Clinical Immunology MLSCI 481 - Techniques in Molecular Biology MMI 405 - Advanced Microbial Pathogenicity OR MMI 415 - Advanced Viral Pathogenesis OR MMI 426 - Medical Parasitology</p> <p>Project course: MLSCI 491 - Research Project OR MLSCI 409 - Research Project AND Science option (★3)</p> <p>Notes During the Phase II clinical rotation, students are assigned to hospital laboratories approved for this purpose by the Council of the Faculty of Medicine and Dentistry. ★3 in a Science option are required if a ★3 project is completed. ★0 in a science option are required if a ★6 project is attempted.</p>	<p>MLSCI 481 - Techniques in Molecular Biology MMI 405 - Advanced Microbial Pathogenicity OR MMI 415 - Advanced Viral Pathogenesis OR MMI 426 - Medical Parasitology</p> <p>Project course: MLSCI 491 - Research Project OR MLSCI 409 - Research Project AND Science option (★3)</p> <p>Notes 1. During the Year Three clinical rotation, students are assigned to hospital laboratories approved for this purpose by the Council of the Faculty of Medicine and Dentistry. 2. ★3 in a Science option are required if a ★3 project is completed. ★0 in a science option are required if a ★6 project is attempted.</p>
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MLSCI Course Listings 2020-2021	
Current	Proposed
<p>MLSCI 230 - Hematology ★3 (fi 6) (first term, 3-0-6) An introduction to the theory and practise of hematology, this course will include the morphology, structure, and function of red cells, white cells, and platelets, malignant and benign conditions that affect each cell type, and tests to distinguish among disease states including anemia and leukemia. Restricted to Medical Laboratory Science students</p>	<p>MLSCI 230 – Hematology & Hemostasis ★6 (fi 12) (variable term, 3-0-6) An introduction to the theory and practice of hematology and hemostasis. Topics include the morphology, structure, and function of red cells, white cells, and platelets, malignant and benign conditions that affect each cell type, and tests to distinguish among disease states including anemia, leukemia, and coagulation disorders. Restricted to Medical Laboratory Science students.</p>
<p>MLSCI 231 - Hematology ★3 (fi 6) (first term, 3-0-0) This course is designed for students who are excused from the laboratory component of the normal MLSCI course. An introduction to the theory and practice of hematology, this course will include the morphology, structure, and function of red cells, white cells, and platelets, malignant and benign conditions that affect each cell type, and tests to distinguish among disease states</p>	<p>MLSCI 231 – Hematology & Hemostasis ★4 (fi 8) (variable term, 3-0-0). An introduction to the theory and practice of hematology and hemostasis. This course will include the morphology, structure, and function of red cells, white cells, and platelets, malignant and benign conditions that affect each cell type, and tests to distinguish among disease states including anemia, leukemia, and coagulation disorders. This course is designed for students</p>

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<p>including anemia and leukaemia. Prerequisite: CSMLS general certification or consent of the department. Credit granted for only one of MLSCI 230 or 231.</p>	<p>who are excused from the laboratory component of the normal MLSCI course. Prerequisite: CSMLS general certification or consent of the department. Credit granted for only one of MLSCI 230 or 231.</p>
<p>MLSCI 235 – Hemostasis ★ 1 (fi 2) (second term, 3-0-6 in 4 weeks) Four weeks. This course will present the theory and practice of hemostasis. Topics include the vascular, platelet, clotting factor, fibrinolytic, and inhibitor systems: coagulation disorders; tests that identify factor deficiencies, monitor anticoagulant therapy, and assess thrombolytic states; disorders of hemostasis. Prerequisite: MLSCI 230 or consent of Department. Restricted to Medical Laboratory Science students.</p>	<p>Enveloped into MLSCI 230</p>
<p>MLSCI 236 – Hemostasis ★ 1 (fi 2) (second term, 3-0-0 in 4 weeks) Four weeks. This course is designed for students who are excused from the laboratory component of the normal MLSCI course. This course will present the theory and practice of hemostasis. Topics include the vascular, platelet, clotting factor, fibrinolytic and inhibitor systems: coagulation disorders; tests that identify factor deficiencies, monitor anticoagulant therapy, and assess thrombolytic states; disorders of hemostasis. Prerequisite: MLSCI 230 or MLSCI 231 or consent of Department. Restricted to Medical Laboratory Science students.</p>	<p>Enveloped into MLSCI 231</p>
	<p>MLSCI 210 – Foundations of Instrumentation ★ 2 (fi 4) (either term, 1-0-4 in 10 weeks) Introduction to principles and techniques that form the basis of both automated and manual analytical measurement in the clinical laboratory. Students will perform various methods including, but not limited to: microscopy, spectrophotometry, electrophoresis, immunoassay and chromatography. Various components of the analytical process such as the use of routine laboratory equipment, laboratory mathematics and reagent preparation will be emphasized. Students will analyze and interpret laboratory generated data for conformance with quality standards. Restricted to Medical Laboratory Science students. Content moved from MLSCI 200, 230, 262</p>

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<p>MLSCI 242 - Pathogenic Microbiology I ★ 3 (fi 6) (first term, 3-0-4) As an introduction to clinical immunology and bacteriology, this course considers the most common and notorious pathogenic bacteria and the fundamentals of the human immune response that are critical to our health. The lecture portion of the course will focus on microbial pathogenic mechanisms and ways these pathogens get established and avoid destruction by the immune response. The laboratory portion of the course will focus on diagnostic procedures, such as isolation and characterization of these pathogenic microorganisms. Restricted to Medical Laboratory Science students. May not be taken for credit if credit already received in MMID 240 or MMI 240 or MLSCI 240.</p>	<p>MLSCI 242 - Pathogenic Microbiology I ★ 4.5 (fi 9) (variable term, 3-0-5) As an introduction to clinical bacteriology, this course considers the most common and notorious pathogenic bacteria and the fundamentals of the human immune response that are critical to our health. The lecture portion of the course will focus on microbial pathogenic mechanisms and ways these pathogens get established and avoid destruction by the immune response. The laboratory portion of the course will focus on diagnostic procedures, such as isolation and characterization of these pathogenic microorganisms. Restricted to Medical Laboratory Science students. May not be taken for credit if credit already received in MLSCI 240.</p>
<p>MLSCI 243 – Pathogenic Microbiology II ★ 3 (fi 6) (second term, 3-0-4) Continuation to the introduction to Pathogenic Microbiology I, this course considers the most common and notorious pathogenic anaerobic bacteria, viruses, fungi, and parasites in human disease. The lecture portion of the course will focus on pathogenic mechanisms and ways these pathogens get established and avoid destruction by the immune response. The course will also cover the mechanisms of antimicrobial action. The laboratory portion of the course will focus on diagnostic procedures, such as isolation and characterization of these pathogens. Prerequisite: MLSCI 242. Restricted to Medical Laboratory Science students. May not be taken for credit if credit already received in MMID 240 or MMI 240 or MLSCI 240.</p>	<p>Mandatory competencies moved to MLSCI 242 – remaining content will be included in MLSCI 440 to be offered fall 2022.</p>
<p>MLSCI 244 - Pathogenic Microbiology I ★ 3 (fi 6) (first term, 3-0-0) As an introduction to clinical immunology and bacteriology, this course considers the most common and notorious pathogenic bacteria and the fundamentals of the human immune response that are critical to our health. The lecture portion of the course will focus on microbial pathogenic mechanisms and ways these pathogens get established and avoid</p>	<p>MLSCI 244 - Pathogenic Microbiology I ★ 3 (fi 6) (variable term, 3-0-0) As an introduction to clinical bacteriology, this course considers the most common and notorious pathogenic bacteria and the fundamentals of the human immune response that are critical to our health. The lecture portion of the course will focus on microbial pathogenic mechanisms and ways these pathogens get established and avoid</p>

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<p>destruction by the immune response. Prerequisite: CSMLS general certification or consent of the department. May not be taken for credit if credit already obtained in MMID 241 or MMI 241 or MLSCI 241.</p>	<p>destruction by the immune response. Prerequisite: CSMLS general certification or consent of the department. May not be taken for credit if credit already obtained in MLSCI 241.</p>
<p>MLSCI 245 – Pathogenic Microbiology II ★ 3 (fi 6) (second term, 3-0-0) Continuation to the introduction to Pathogenic Microbiology I, this course considers the most common and notorious pathogenic anaerobic bacteria, viruses, fungi, and parasites in human disease. The lecture portion of the course will focus on pathogenic mechanisms and ways these pathogens get established and avoid destruction by the immune response. The course will also cover the mechanisms of antimicrobial action. Prerequisite: MLSCI 244 and CSMLS general certification or consent of the department. May not be taken for credit if credit already received in MMID 241 or MMI 241 or MLSCI 241.</p>	<p>Mandatory competencies moved to MLSCI 242 – remaining content will be included in MLSCI 440 to be offered fall 2022.</p>
<p>MLSCI 250 - Human Histology and Histotechnology ★ 3 (fi 6) (either term, 3-0-4) This course is primarily designed to provide an understanding of human histology and of the techniques used in its study. It will also include, in part, basic pathology (including the nature of malignant disease) and the application of histological and histochemical techniques to demonstrate the diagnostic features of human disease processes. The goal of the course is for students to understand the structure and functions of the cell, and the components and functions of organ systems. The course will also teach students to recognize human tissues at the light and electron microscopical levels. Lectures will be used to illustrate basic principles, and the ability to recognize tissues and organ systems will be acquired in the laboratory. Students will be expected to acquire a detailed knowledge of the subject both from a theoretical and practical level. Restricted to Medical Laboratory Science students or consent of Department.</p>	<p>MLSCI 250 - Human Histology and Histotechnology ★ 3 (fi 6) (either term, 2-0-4) This course is primarily designed to provide an understanding of human histology and of the techniques used in its study. The goal of the course is for students to understand the structure and functions of the cell, and the components and functions of organ systems. The course will also teach students to recognize human tissues at the light microscope level. Lectures will be used to illustrate basic principles, and the ability to recognize tissues and organ systems will be acquired in the laboratory. Students will be expected to acquire a foundational knowledge of the subject both from a theoretical and practical level. Restricted to Medical Laboratory Science students or consent of Department.</p>
<p>MLSCI 262 - Clinical Biochemistry ★ 3 (fi 6) (first term, 3-0-3) This course considers how the analysis of samples from the body for</p>	<p>MLSCI 262 - Clinical Biochemistry ★ 3 (fi 6) (first term, 3-0-0) This course considers how the analysis of samples from the body for</p>

Appendix One

<p>various constituents can give insight into pathological processes. Included are the principles for tests routinely carried out in a clinical biochemistry laboratory, and the biological understanding of test results. Specific subjects considered are carbohydrates, renal function, blood proteins and electrolytes, and acid-base balance. Restricted to Medical Laboratory Science students.</p>	<p>various constituents can give insight into pathological processes. Included are the principles for tests routinely carried out in a clinical biochemistry laboratory, and the biological understanding of test results. Specific subjects considered are carbohydrates, renal function, blood proteins and electrolytes, and acid-base balance. Restricted to Medical Laboratory Science students.</p> <p>*Lab content moved to MLSCI 210</p>
<p>MLSCI 270 - Transfusion Science ★ 2 (fi 4) (second term, 3-0-6 in 9 weeks) Nine weeks. This course will present the theory and practice of transfusion science. Topics covered include the genetics of blood groups pretransfusion testing, blood donation and component therapy, adverse effects of transfusion, hemolytic disease of the newborn, and autoimmune hemolytic anemia Prerequisite: MLSCI 230 or consent of Department. Restricted to Medical Laboratory Science students.</p>	<p>MLSCI 270 - Transfusion Science ★ 3 (fi 6) (second term, 3-0-6 in 9 weeks) Nine weeks. This course will present the theory and practice of transfusion science. Topics covered include the genetics of blood groups pretransfusion testing, blood donation and component therapy, adverse effects of transfusion, hemolytic disease of the newborn, and autoimmune hemolytic anemia Prerequisite: MLSCI 230 or consent of Department. Restricted to Medical Laboratory Science students</p>
	<p>MLSCI 280 – Introduction to Immunology ★ 1 (fi 2) (either term, 1-0-0) Overview of the immune system and function: cells, molecules and mechanisms of innate and adaptive immunity. Topics include antigens and antibodies, lymphocytes, granulocytes, NK cells, antigen presenting cells, Toll-like receptors and complement. Restricted to MLS students. May not be taken for credit if credit already received in MLSCI 242.</p> <p>*Content moved from MLSCI 242</p>
<p>MLSCI 290 – Foundations of Indigenous Health I ★ 1.5 (fi 3) (either term, variable) Introduction to Aboriginal peoples' histories, experiences and knowledge systems. Students will explore the connections between these concepts and health professional practice. Aboriginal educators, faculty members, professional practitioners and Elders will be engaged in the learning process.</p>	<p>MLSCI 290 – Foundations of Indigenous Health I ★ 1.5 (fi 3) (either term, variable) Introduction to Aboriginal peoples' histories, experiences and knowledge systems. Students will explore the connections between these concepts and health professional practice. Aboriginal educators, faculty members, professional practitioners and Elders will be engaged in the learning process.</p>
<p>MLSCI 295 - Foundations of Interprofessional Collaborative Practice ★ 1 (fi 2) (either term, variable) This course provides foundational knowledge, skills and</p>	<p>MLSCI 295 - Foundations of Interprofessional Collaborative Practice ★ 1 (fi 2) (either term, variable) This course provides foundational knowledge, skills and</p>

Appendix One

<p>experience in interprofessional health care competencies, including collaborative teamwork development. May not be taken for credit if credit already received in INT D 410.</p>	<p>experience in interprofessional health care competencies, including collaborative teamwork development. May not be taken for credit if credit already received in INT D 410.</p>
	<p>MLSCI 300 – Professional Practice ★3(fi6) (two term, clinical rotation) <u>Self development of requisite skills and abilities for medical laboratory professionals. There will be emphasis on reflective professional practice, sample procurement, and other laboratory skills.</u></p>
<p>MLSCI 320 - Analysis and Communication of Biomedical Information ★ 3 (fi 6) (two term, 1-0-2) Lectures, seminars, and assignments address the following components of writing a literature review: library searches, critical analysis, organizing, writing and editing. Speaking skills are developed through oral presentation of case studies. Prerequisite: consent of Division.</p>	<p>MLSCI 320 - Analysis and Communication of Biomedical Information ★ 6 (fi 12) (two term, 1-2-0) Seminars, online learning, and assignments address understanding the research process and preparing a literature review to support a research proposal. Topics include types of literature, experimental design, data management, library searches, critical analysis, extracting information, writing and editing. Prerequisite: consent of Division</p> <p>*Expanded to give students increased biostatistics</p>

MLS curriculum renewal looked at content and sequencing of curriculum. The philosophical approach was to deliver the didactic information the students need for the national certification examination in year 2. Year 3 is the clinical practicum meant to practice the techniques and skill learned in year 2. Year 4 is an advanced year; all information that is “value added or applicable more to the BSc “.

Currently MLSCI 242 is fall and MLSCI 243 is winter term. Most of the content of MLSCI 243 is not relevant to the national certification exam so 243 will no longer be offered in year 2. A new course MLSCI 440 is under development and will cover some of the 243 content to be delivered in the final year of the program. The timing of this content makes more sense in the final year of the MLS program.

MSLCI 242 credit load is increased and offered as a variable term as some of the content from 243 needs to be delivered in this year of the program. It will be offered over 15 weeks (final 2 weeks of term in fall and all of winter). Credit load was determined using a standard 3 (3-0-3) credit science lab course as a benchmark.

MLSCI 230 and 235 are being combined into one coursed. In the mid 1990’s a large 6 credit full year course was dismantled into separate 3 (230),2 (270), and 1 (235) credit courses; this decision was to fit in a university term but doesn’t fit the content of the courses. The topics of hemostasis (235) and hematology (230) go together and are delivered together in MLSCI 330 and MLSCI 430. The clinical laboratory does not differentiate these 2 areas as separate (hemostasis is –part of hematology). Credit load as adjusted to reflect 3-0-6 over 17 weeks of instruction). Credit load of MLSCI 270 increasing from 2 to 3 to reflect the instructional time.

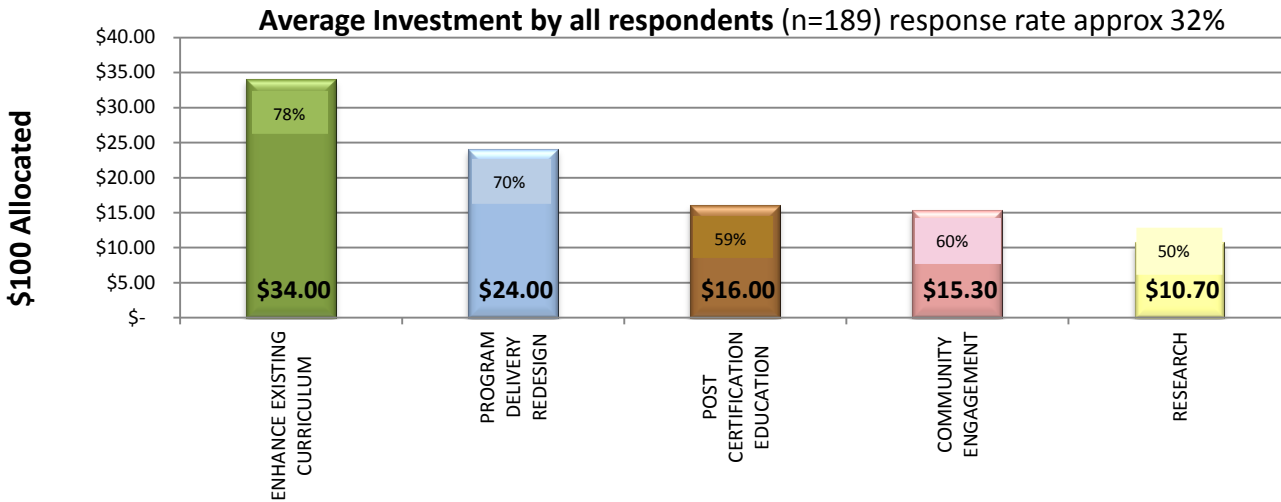
Appendix One

MLSCI 210 and MLSCI 280 – new courses for the MLS curriculum. Other changes to course determined by sequencing of curriculum to teach national professional competencies required of medical laboratory technologists.

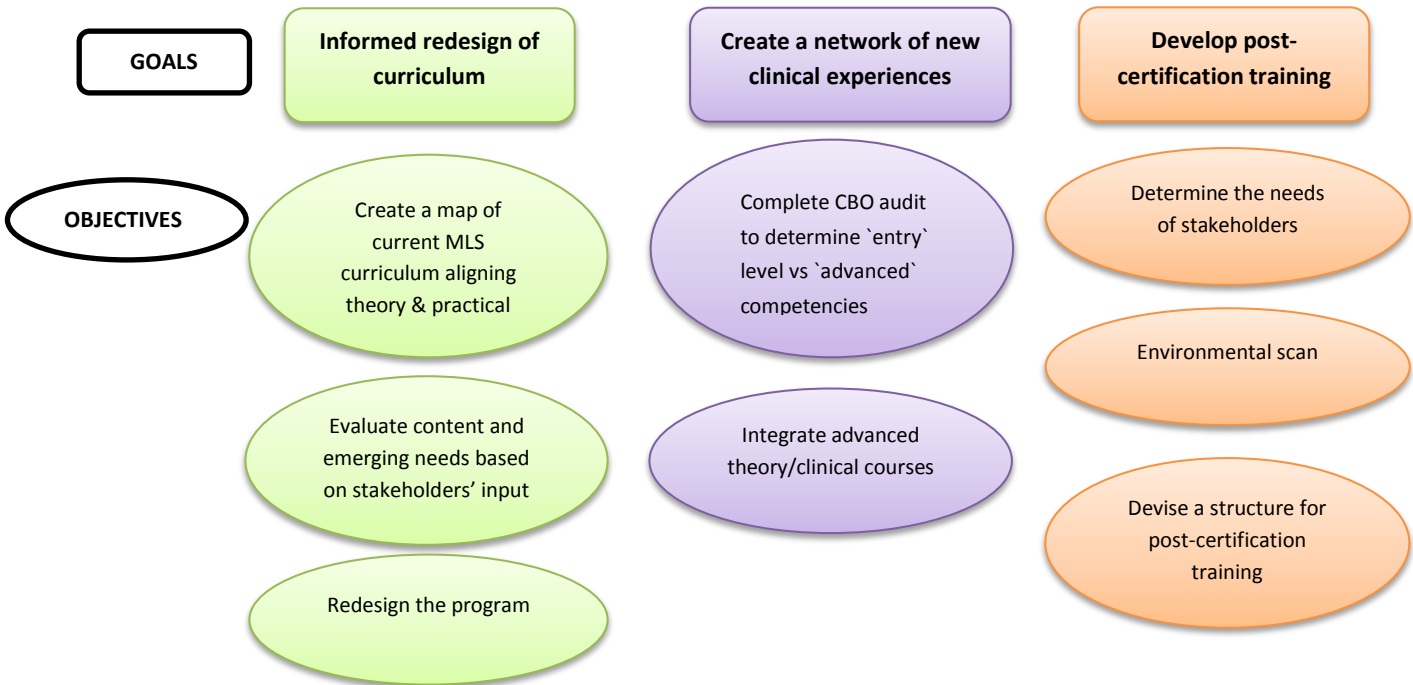
Appendix Two
Division of Medical Laboratory Science Strategic Planning Report #1 Winter 2016

In September the Division requested input from stakeholders to guide the beginning of a strategic planning exercise. We asked, ``If you were given \$100 to invest in Medical Laboratory Science where would you invest?``

Results:



These results have guided the first 4 months of planning. The Division has identified 3 goals for the next 5 years that align well with responses to the survey.


Next Steps:

- Mapping our curriculum and auditing the competencies used in clinical training.
- Soliciting feedback from stakeholders throughout the process. We will ask you what advanced training or clinical experiences we should create and get your advice on post-certification training.

Thanks to everyone for your energy, support and contributions.

Appendix Three

Strategic Initiatives Report #2 Winter 2017

Explanation of Changes to Medical Laboratory Science Program Map

Design guiding principles:

- Essential transferable skills and professionalism are core foundational elements of the MLS program.
- Teach the information when it is required and provide opportunities to practice and apply information immediately. Curriculum is based on building and advancing knowledge rather than re-teaching and reviewing.
- Make explicit entry level CSMLS competences vs BSc advanced requirements.

Preprofessional year

The second organic chemistry requirement will be removed and Biology 207 added.

The organic chemistry is a prerequisite for Biochem 330 which will be deleted from the program. Biol 207 includes more genetics and is better aligned with our program goals and the foreseeable workforce needs. Biol 207 is a prerequisite for bioinformatics.

Phase 1 →Year 2

Many concepts are common across all the disciplines in laboratory medicine; however, students are not transporting learning across the program. The proposal is to re-bundle the curriculum to teach foundational concepts in three introductory courses and each discipline specific course will build on this foundational knowledge.

1. MLSCI 210 Introduction to Laboratory Instrumentation: This maps well to the CSMLS competency profile as competencies are not discipline specific. The majority of MLSCI 262 introductory clinical biochemistry labs will move to this course.
2. MLSCI 280 Introductory Immunology: currently each discipline teaches relevant aspects of immunology; however, students are not able to utilize the information across disciplines.
3. MLSCI 200 Foundations of Laboratory Practice: This course will begin with how clinical labs function. The course maintains essential transferable skill development currently taught in 200 and will also encompass foundational aspects of laboratory medicine as the underpinning of professional practice. Phlebotomy will remain as an integral component as patient care experiences are important for early learners.

Other changes to Phase 1 include removing the laboratory sessions from introductory clinical biochemistry MLSCI 262 as most of these labs will be covered in Instrumentation.

MLSCI 243 Pathogenic Microbiology is deleted. Antimicrobials and anaerobes will move into MLSCI 242. The rest of the content is to be taught in an advanced microbiology course in phase 3.



INTD 410 will move from Phase 3 to Phase 1. INTD 410 is designed for health professional students to learn intraprofessional competencies (role clarification, communication, collaboration, reflection) at the beginning of their practice. These are also part of the CSMLS 2015 competency profile.

The arts option will be deleted in order to balance the credits in this year.

Phase 2 → Year 3

MLSCI 300 Professional Practice in Laboratory Medicine: This course will be a continuation of learning essential transferable skills and professional practice. It will allow students to continue working on a professional eportfolio and communication competencies.

MLSCI 320 will expand to include biostatistics, the pathway to publication and proposal writing. Students will learn the fundamentals of scientific communication and complete the CSMLS research competencies in this course.

With changes to clinical laboratory services in the Edmonton Zone it is probable that more changes will be required to Year 3. These changes are not reflected in this program map.

Phase 3 → Year 4

Students will write CSMLS exam in October of their last year. Year 4 will be a specialization year. The expanded course menu is to increase flexibility and the ability to specialize.

All specialization courses will be 400/500 level to allow for graduate student enrollment. The advanced concepts will be taught in a practical and applied manner. Class sizes will be limited to ensure quality instruction.

Pre-Professional													Phase 1													Phase 2													Phase 3													June
Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June							
CHEM 101 (3) - Introductory University Chemistry I													MLSCI 200 (3) - Transition													BIOCH 200 (3) - Intro Biochem													MLSCI 480(3) - Molecular Genetic Approaches													
OPTION (3)													MLSCI 230 (3) - Hematology													BIOCH 330 (3) - Molec Bio																										MLSCI 410 (3) - Introduction to Clinical Laboratory Management
BIOL 107 (3) - Introduction to Cell Biology													MLSCI 242 (3) - Pathogenic Microbiology													MLSCI 320 (3) - Analysis and Communication of Biomedical Information																										INT D 410 (3) - Interdisciplinary Health Team Environment
ENGL (3)													MLSCI 250 (3) - Human Histology and Histotechnology													MLSCI 330 (5) - Clinical Hematology																										MLSCI 409 (3) - Research project plus Science option (3)
STAT 141, 151 or 337													MLSCI 262 (3) - Clinical Biochemistry													MLSCI 340 (5) - Clinical Microbiology													MLSCI 491 (3) - Research project plus Science option (3)													
CHEM 102 (3) - Introductory University Chemistry I													MLSCI 200 (3) - Transition to Clinical Practice													MLSCI 350 (3) - Histopathology													AND 12 credits chosen from:													
CHEM 164 OR 261 (3) - Organic Chemistry I													MLSCI 243 (3) - Pathogenic Microbiology													MLSCI 360 (5) - Clinical Biochemistry													MLSCI 430 (3) - Advanced Hematology													MLSCI 420 (3) - Emerging Trends in Medical Laboratory Science
BIOL, GENET, ZOOL or MICRB (3)													MLSCI 263 (3) - Clinical Biochemistry													MLSCI 370 (3) - Transfusion Science													MLSCI 466 (3) - Applied Toxicology													MLSCI 460 (3) - Clinical Biochemistry
ENGL (3)													MLSCI 235 (1) - Hemostasi													MLSCI 270 (2) - Transfusion Science													MLSCI 481 (3) - Techniques in Molecular Biology													MLSCI 475 (3) - Clinical Immunology
													PHYSL (6) - Physiology																										MMI 405 (3) - Mechanisms of Pathogenicity													MMI 415 (3) - Mechanisms of Pathogenicity
CHEM 263 (3) - Organic													Arts Option (3)																										MMI 426 (3) - Medical Parasitology													
																																							Arts option (3)													

Proposed Model

Year One Pre-Professional - 30 credits													Year 2 - 31 credits													Year Three - 30 credits													Year Four - 30 credits													
CHEM 101 (3) - Introductory University Chemistry I													MLSCI 280 Immunology (1) Lecture Only													MLSCI 300 (3) -Essential transferable skills, Professionalism,continuing competence + Blood Collection													MLSCI 480(3) - Molecular Genetic Approaches [revamp to include BIOCH 330 loss]													
ARTS OPTION (3)													MLSCI 210 (2) - Instrumentation Lecture and Lab													MLSCI 320 (6) - Analysis and Communication of Biomedical Information [biomedical statistics, research pathway, proposal]													MLSCI 410 (3) - Introduction to Clinical Laboratory Management													
BIOL 107 (3) - Introduction to Cell Biology													MLSCI 200 (2) - Foundations of Lab Practice Lecture & Lab & Clinical													MLSCI 330 (5) - Clinical Hematology													MLSCI 409 (3) - Research project plus Science option (3)													
ENGL (3)													MLSCI 230 (3) - Hematology													MLSCI 340 (5) - Clinical Microbiology													Arts option (3)													
STAT 141, 151 or 337 (3)													MLSCI 250 (3) - Human Histology and Histotechnology													MLSCI 350 (3) - Histopathology													MLSCI 491 (3) - Research project plus Science option (3)													
CHEM 102 (3) - Introductory University Chemistry II													MLSCI 262 (2) - Clinical Biochemistry (Labs move to MLSCI 210)													MLSCI 360 (5) - Clinical Biochemistry													AND minimum of 15 credits chosen from:													
CHEM 164 OR 261 (3) - Organic Chemistry I													MLSCI 242 (3) - Clinical Bacteriology + antimicrobials and anaerobes													MLSCI 370 (3) - Transfusion Science													MLSCI 430 (3) - Advanced Hematology													MLSCI 420 (3) - Emerging Trends in Medical Laboratory Science
BIOL, GENET, ZOOL or MICRB (3)													MLSCI 263 (3) - Clinical Biochemistry													Option for Rural Rotation													MLSCI 466 (3) - Applied Toxicology													MLSCI 460 (3) - Clinical Biochemistry
ENGL (3)													MLSCI 235 (1) - Hemostasi													MLSCI 270 (2) - Transfusion Science													MLSCI 481 (3) - Techniques in Molecular Biology													MLSCI 475 (2 or 3) - Clinical Immunology / Transplantation
BIOL 207 (3) - Pre req = BIOL 107 or SCI 100													INT D 410 (3) - Interdisciplinary Health Team Environment																										MMI 405 (3) - Mechanisms of Pathogenicity													MMI 415 (3) - Mechanisms of Pathogenicity
													PHYSL (6) - Physiology online preferred																										MMI 426 (3) - Medical Parasitology													
Legend - blue is an addition of substantive change																										Spring Session BIOCH 200 (3) - Intro Biochem													New Advanced 400/500 Courses - Each with varying credits based on content. Small enrollment													
																																							Advanced Micro (3) [clinical virology, mycology Public Health Strategies, Epidemiology]													
																																							Advanced Histo (1) [IHC/IAP]													
																																							Advanced Flow Cytometry (1) - or lab component in 430 or 475													
																																							Clinical Bioinformatics (2)													

Governance Executive Summary
Action Item

Agenda Title	Proposed Changes to Program Requirements for the Doctor of Dental Surgery (DDS) Advanced Placement Program, Faculty of Medicine and Dentistry
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Motion

THAT the the GFC Academic Planning Committee approve the proposed changes to the DDS Advanced Placement program requirements, as recommended by the GFC Academic Standards Committee, as proposed by the Faculty of Medicine and Dentistry, as set forth in Attachments 1-2, to take effect in Fall 2020.

Item

Action Requested	<input checked="" type="checkbox"/> Approval <input type="checkbox"/> Recommendation
Proposed by	Dennis Kunimoto, Interim Dean, Faculty of Medicine and Dentistry
Presenter(s)	Mia Lang, Associate Dean, Faculty of Medicine and Dentistry Steven Patterson, Associate Chair, Academic, School of Dentistry

Details

Responsibility	Provost and Vice-President (Academic)
The Purpose of the Proposal is <i>(please be specific)</i>	This proposal is before the committee to obtain approval for the attached changes to the program duration, course requirements and academic regulations for the Advanced Placement DDS program curriculum.
Executive Summary <i>(outline the specific item – and remember your audience)</i>	<p>The proposed changes for the AP program entail the following:</p> <ol style="list-style-type: none"> 1) The removal of DDS 829 – Introduction to DDS Advanced Placement, as a part of the admission review, and the gap training program. 2) Students accepted into the program would enter the newly designed DDS curriculum at the beginning of second year as fully registered students at the U of A. This allows students to be eligible for student loans, and would make the program a three year program. 3) The academic regulations that have been accepted for the new DDS curriculum will also be applied to the new AP program including amendments and additions to the wording around re-examinations and reassessment, newly proposed conditional standing and probation categories of academic standing, and updates regarding the eligibility for repeat years or a continuation of the 4th and final year of the Advanced Placement DDS program. <p>The benefits of these proposed changes are perceived to be as follows:</p> <ul style="list-style-type: none"> • Students would be officially registered as DDS students in September of Year 2 and could apply for student loans. • Students would benefit from the extra time to develop competencies in all areas expected of a beginning dental practitioner. This will include better accommodation to the university, the dental program and culture. It will also support better integration with the other students in their class.

Item No. 9

	<ul style="list-style-type: none"> ● With the early integration of fundamental concepts within the curriculum, the AP students would be able to participate in the foundational materials not previously available to AP students and which are needed to build success throughout their program of study. ● Students will benefit from the new academic regulations, including the addition of clarity related to reassessment and reexaminations. Also, if a student is in need of additional time, a probationary year, or the continuation of the 4th year would be available. ● Students would benefit during the additional year from extra training in a number of areas such as clinic software management, Radiology, Removable Prosthodontics, Periodontics, Operative and Fixed Prosthodontics. ● The application process timeline will also align now with the DDS program, with a deadline of Nov. 1 prior to the year of acceptance into the program, reducing the application timeline from the current 18 months to 10 months. <p>Financial implications for students: Currently AP students are spending approximately 15 weeks on the U of A campus during their admissions process (gap training and DDS 829). This is the equivalent of a half-year of the DDS curriculum. The cost of the various activities required for admission total approximately \$23500, with additional travel, accommodation and living expenses for those 15 weeks.</p> <p>The financial implications of increasing the program to three full years would be an additional tuition/fees payment of approximately \$64015 (based on our current fee structure). The overall increase would be \$40515 over the financial commitments currently being required of the existing admissions process. Students will also be eligible for student loans for all of this as opposed to none of the \$23500 plus that they currently have to spend.</p>
Supplementary Notes and context	<This section is for use by University Governance only to outline governance process.>

Engagement and Routing (Include meeting dates)

<p>Consultation and Stakeholder Participation (parties who have seen the proposal and in what capacity)</p> <p><For information on the protocol see the Governance Resources section Student Participation Protocol></p>	<p><u>Those who are actively participating:</u></p> <ul style="list-style-type: none"> ● Director, Advanced Placement Course ● Admissions Officer ● Associate Chair, Academic, School of Dentistry ● School of Dentistry faculty members <p><u>Those who have been consulted:</u></p> <ul style="list-style-type: none"> ● Approval by Dentistry Curriculum Committee - July 4, 2019 <ul style="list-style-type: none"> ○ Includes Alberta Dental Association representation ○ Includes Dentistry Student Association representation ● Review by Dentistry Executive Committee - July 8 & 22, 2019 ● FoMD Faculty Learning Committee – approval – July 22, 2019 ● FoMD Faculty Council Committee – review/consultation – August 9, 2019
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Item No. 9

	<ul style="list-style-type: none"> Office of the Registrar, Calendar Production – consulted/informed Current Advanced Placement Students - consultation - June 2019 Recent Graduate Advanced Placement Students - consultation - June 2019
	<p><u>Those who have been informed:</u></p> <ul style="list-style-type: none"> School of Dentistry faculty, staff, students
Approval Route (Governance) (including meeting dates)	<ul style="list-style-type: none"> GFC ASC SOS, November 7, 2019 GFC ASC, November 21, 2019 GFC APC, December 11, 2019

Strategic Alignment

Alignment with <i>For the Public Good</i>	<p>The proposed changes to the Advanced Placement program align with the <i>For the Public Good</i> addressing key strategic goals and objectives:</p> <p><i>Objective 7</i> <i>Objective 14</i> <i>Objective 19</i> <i>Objective 21</i></p>													
Alignment with Institutional Risk Indicator	<p>Please note below the specific institutional risk(s) this proposal is addressing.</p> <table border="0"> <tr> <td><input checked="" type="checkbox"/> Enrolment Management</td> <td><input type="checkbox"/> Relationship with Stakeholders</td> </tr> <tr> <td><input type="checkbox"/> Faculty and Staff</td> <td><input type="checkbox"/> Reputation</td> </tr> <tr> <td><input type="checkbox"/> Funding and Resource Management</td> <td><input type="checkbox"/> Research Enterprise</td> </tr> <tr> <td><input type="checkbox"/> IT Services, Software and Hardware</td> <td><input type="checkbox"/> Safety</td> </tr> <tr> <td><input type="checkbox"/> Leadership and Change</td> <td><input checked="" type="checkbox"/> Student Success</td> </tr> <tr> <td><input type="checkbox"/> Physical Infrastructure</td> <td></td> </tr> </table>		<input checked="" type="checkbox"/> Enrolment Management	<input type="checkbox"/> Relationship with Stakeholders	<input type="checkbox"/> Faculty and Staff	<input type="checkbox"/> Reputation	<input type="checkbox"/> Funding and Resource Management	<input type="checkbox"/> Research Enterprise	<input type="checkbox"/> IT Services, Software and Hardware	<input type="checkbox"/> Safety	<input type="checkbox"/> Leadership and Change	<input checked="" type="checkbox"/> Student Success	<input type="checkbox"/> Physical Infrastructure	
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<input type="checkbox"/> IT Services, Software and Hardware	<input type="checkbox"/> Safety													
<input type="checkbox"/> Leadership and Change	<input checked="" type="checkbox"/> Student Success													
<input type="checkbox"/> Physical Infrastructure														
Legislative Compliance and jurisdiction	<p><i>Post-secondary Learning Act</i> GFC Academic Standards Committee Terms of Reference GFC Academic Planning Committee Terms of Reference</p>													

Attachments (each to be numbered 1 - 2)

1. DDS AP Program Changes 2020-2021 (page(s) 1 - 3)
2. DDS AP Program Changes – Background Information (page(s) 1 – 3)

Prepared by: Jocelyn Plemel, Executive Assistant to the Vice-Dean, Education, jplemel@ualberta.ca

Comparison Table – Dentistry Calendar Changes 12JULY2019

CURRENT	PROPOSED
<p data-bbox="224 352 542 382">DDS Advanced Placement Program</p> <hr/> <p data-bbox="203 464 430 489">General Information</p> <p data-bbox="203 531 760 879">The Department of Dentistry offers an advanced placement DDS degree to a selected number of students who already possess a dental degree from a dental program recognized by the World Health Organization. After admission into the program, these students will enter the third year of the program and will be fully integrated with the third year students. The purpose of the program is to enable these students to write the National Dental Examining Board examinations for certification to practice dentistry in Canada.</p> <p data-bbox="203 995 704 1020">Curriculum for Advanced Placement Students</p> <p data-bbox="203 1062 764 1316">Prior to entry into the program, students will be required to participate in and complete <u>DDS 829 – Introduction to DDS Advanced Placement</u>. Upon completion of <u>DDS 829</u>, students will follow the third year DDS curriculum, including assignments to treat patients in the University's Department of Dentistry clinics under the supervision of the clinical faculty.</p> <p data-bbox="203 1358 764 1581">The curriculum for second year Advanced Placement students will follow the fourth year-DDS curriculum which will include assignments to the Satellite Dental Clinic in northern Alberta and external hospitals. Thus students are able to relate their field of health service to the science and art of preventing, treating, and alleviating disease.</p> <p data-bbox="203 1623 423 1648">Technical Standards</p> <p data-bbox="203 1690 769 1845">The School of Dentistry Technical Standards Policy defines the necessary knowledge, skills, professional behaviors, and attitudes expected of students. Please see the School of Dentistry website for further information.</p>	<p data-bbox="820 352 1138 382">DDS Advanced Placement Program</p> <hr/> <p data-bbox="799 464 1026 489">General Information</p> <p data-bbox="799 531 1378 850">The Department of Dentistry offers an advanced placement DDS degree to a selected number of students who already possess a dental degree from a dental program recognized by the World Health Organization. After admission into the program, these students will enter the second year of the DDS program. The purpose of the program is to enable these students to write the National Dental Examining Board examinations for certification to practice dentistry in Canada.</p> <p data-bbox="799 892 1300 917">Curriculum for Advanced Placement Students</p> <p data-bbox="799 959 1308 1020">The curriculum for the three-year Advanced Placement (AP) Program students is as follows:</p> <p data-bbox="799 1062 1382 1220">Year 1- . AP students will be participating with DDS year two students in the second year DDS curriculum, along with additional necessary foundational courses encompassing content not available in DDS program year two courses.</p> <p data-bbox="799 1262 1386 1581">Years 2 and 3- The Advanced Placement Program, students will be enrolled in the same courses as the DDS students, and will follow the <u>third and</u> fourth year DDS curriculum, which will include <u>all the same rotation</u> assignments <u>available to the DDS students</u>, <u>including</u> the Satellite Dental Clinic in northern Alberta and external hospitals. Thus students are able to relate their field of health service to the science and art of preventing, treating, and alleviating disease.</p> <p data-bbox="799 1623 1019 1648">Technical Standards</p> <p data-bbox="799 1690 1382 1845">The School of Dentistry Technical Standards Policy defines the necessary knowledge, skills, professional behaviors, and attitudes expected of students. Please see the School of Dentistry website for further information.</p>

Course Requirements

CURRENT	
Year 1	Year 1
<ul style="list-style-type: none"> • DDS 541 – Dental Pharmacology • DDS 545 – Clinical Practice I • DDS 547 – Geriatrics • DDS 555 – Practice Management 	<ul style="list-style-type: none"> • DDS 501 – Oral Health Foundations • DDS 502 – Diagnosing and Managing Oral Disease • DDS 504 – Diagnosing and Managing Advanced Conditions I • DDS 505 – Diagnosing and Managing Advanced Conditions II • DDS 527 – Clinical Practice I
Year 2	Year 2
<ul style="list-style-type: none"> • DDS 565 – Clinical Practice II 	<ul style="list-style-type: none"> • DDS 530 – Clinical Practice II • DDS 531 – Clinical Treatment Skills
	Year 3
	<ul style="list-style-type: none"> • DDS 540 – Clinical Practice III • DDS 542 – Advanced Elective Experiences

New Course Additions:

	Year 1
NEW	<p>DDS 501 Oral Health Foundations ★9 (fi18) (either term, 6 weeks) Oral Health delves into the physiology and biochemistry of the mouth. A progressive focus on patient assessment and direct restorative treatment skills is introduced. Open only to students registered in the DDS-AP program</p>
NEW	<p>DDS 502 Diagnosing and Managing Oral Disease ★13 (fi26) (either term, 10 weeks) Diagnosing and Managing Oral Disease provides a deeper understanding of oral diseases. Strategies and methods to assess and maintain health of the periodontium are introduced as well as methods for indirect restoration of teeth. Skill development progresses to include administration of Anesthesia and direct restorations for pediatric patients. Open only to students registered in the DDS-AP program</p>
NEW	<p>DDS 504 Diagnosing and Managing Advanced Conditions I ★10 (fi20) (either term, 7 weeks) Diagnosing and Managing Advanced Conditions I continues to develop knowledge of oral conditions and diseases. Treatment skill</p>

	development extends to introduce treatments for more urgent and advanced conditions. Open only to students registered in the DDS-AP program
NEW	<p>DDS 505 Diagnosing and Managing Advanced Conditions II</p> <p>★12 (fi24) (either term, 7 weeks)</p> <p>Diagnosing and Managing Advanced Conditions II continues to develop knowledge of oral conditions and diseases. Treatment skill development extends to introduce treatments for more urgent and advanced conditions. Open only to students registered in the DDS-AP program</p>
NEW	<p>DDS 527 Clinical Practice I</p> <p>★12 (fi24) (either term, 9 weeks)</p> <p>Clinical Practice I is designed to develop simulated skill in preparation for clinical experiences. This course prepares students to navigate common patient assessment and treatment requirements. Open only to students registered in the DDS-AP program</p>

FoMD Approval:

Faculty Learning Committee – July 22, 2019

Faculty Council Committee (for review only) – August 9, 2019

WHY?

The proposed calendar changes for a revised Advanced Placement (AP) dental undergraduate program structure, courses, and the accompanying academic regulations better suited to these program changes, are a result of a review of the AP program and identification of three key factors:

1) A curriculum renewal process undertaken by the School of Dentistry (SoD) initiated in spring of 2015 with intent to begin implementation in the fall of 2019 for the Doctor of Dental Surgery (DDS) program's 2019-2020 academic year. A newly revised DDS program has been approved by GFC and implementation has begun this Fall of 2019. The AP program has been aligned with the previous DDS curriculum as follows:

- a) AP applicants, as part of their admission process, participated in DDS 829 which was the intersession semester (May-July) of the DDS second year.
- b) AP students, accepted into the program, participated fully in the DDS third and fourth years for completion of their degree.

As a result of the revision to the DDS curriculum, the current AP program, which was previously aligned with the previous DDS second-fourth year curriculum, will as of May 2021, when AP students would normally join with second year students in their DDS 829 course, no longer align as the new second year of the DDS curriculum will be in full implementation. Consequently, changes are required to the Advanced Placement curriculum to properly align with a new DDS curriculum.

2) The increased enrolment of AP students that has occurred (originally 4 students, increasing to 8 in 2014 and as of 2018 now 12 students per year), and the experience gained teaching these students over the past 18 years has identified a changing need related to their curriculum. It has become more apparent that many of the AP students, even with the two-year program have struggled to meet all expectations to become competent in the full range of expected competencies for a beginning dental practitioner in Canada (Association of Canadian Faculties of Dentistry Educational Framework for the Development of Competency in Dental Education- 2016). Many of the AP programs across Canada have identified similar needs and have increased the curriculum to meet those needs and ensure their achievement of the full range of competencies and success in the National Dental Board Examinations.

3) Students applying for the AP program are required to participate in a variety of admission activities prior to being fully accepted, all of which bear a cost and time factor, and none of which allow the student to apply for student loans as they are technically applicants and not students until they enter into the third year of the DDS program. This has been a financial and family burden that is often difficult for many students. The following activities were required during the 18 months prior to their admission into the program (none of which qualified them as students and eligibility for student loans):

- a. Clinical selection examination- 1 week, cost approximately \$2000 (not including travel, accommodation, living expenses)
- b. Gap training course- 6 weeks, cost approximately \$9789 (not including travel, accommodation, living expenses)
- c. DDS 829- 9 weeks, cost approximately \$11696 (not including travel, accommodation, living expenses)

HOW?

In alignment with the DDS program curriculum review, and the newly sequenced dental content, the SoD determined the best timing for the AP program students to receive the required experience to allow them to properly achieve the necessary educational outcomes to successfully complete their dental degree. This was a review process that involved SoD leadership, including those who oversee the AP program, faculty, students and staff. Special interaction occurred with those who teach AP students directly and observe their progress as clinicians in patient-care settings. The detailed

calendar change document highlights the extensive curriculum review process for the new DDS curriculum and the changes that will also affect the AP program with a greater involvement in that curriculum.

Additionally, given the potential for change, a survey was conducted that reached out to the other AP programs in Canada. The findings show that two newly approved AP programs are three years in length (University of Western Ontario and Dalhousie), one AP program is 2.5 years (University of Toronto), and one AP program has an 8 week course prior to the students beginning the two-year program (University of Manitoba). The trend across Canada is toward longer programs providing a more robust and comprehensive education and allowing students to be eligible for student loans.

Recent AP graduates and current AP students were also surveyed regarding proposed changes to the program. The consensus of these groups supported the rationale and the potential shift to a longer program.

The proposed changes for the AP program entail the following:

- 1) The removal of DDS 829 – Introduction to DDS Advanced Placement, as a part of the admission review, and the gap training program.
- 2) Students accepted into the program would enter the newly designed DDS curriculum at the beginning of second year as fully registered students at the U of A. This allows students to be eligible for student loans, and would make the program a three year program.
- 3) The academic regulations that have been accepted for the new DDS curriculum will also be applied to the new AP program including amendments and additions to the wording around re-examinations and reassessment, newly proposed conditional standing and probation categories of academic standing, and updates regarding the eligibility for repeat years or a continuation of the 4th and final year of the Advanced Placement DDS program.

The benefits of these proposed changes are perceived to be as follows:

- Students would be officially registered as DDS students in September of Year 2 and could apply for student loans.
- Students would benefit from the extra time to develop competencies in all areas expected of a beginning dental practitioner. This will include better accommodation to the university, the dental program and culture. It will also support better integration with the other students in their class.
- With the early integration of fundamental concepts within the curriculum, the AP students would be able to participate in the foundational materials not previously available to AP students and which are needed to build success throughout their program of study.
- Students will benefit from the new academic regulations, including the addition of clarity related to reassessment and reexaminations. Also, if a student is in need of additional time, a probationary year, or the continuation of the 4th year would be available.
- Students would benefit during the additional year from extra training in a number of areas such as clinic software management, Radiology, Removable Prosthodontics, Periodontics, Operative and Fixed Prosthodontics.
- The application process timeline will also align now with the DDS program, with a deadline of Nov. 1 prior to the year of acceptance into the program, reducing the application timeline from the current 18 months to 10 months.

Financial implications for students:

Currently AP students are spending approximately 15 weeks on the U of A campus during their admissions process (gap training and DDS 829). This is the equivalent of a half-year of the DDS curriculum. The cost of the various activities required for admission total approximately \$23500, with additional travel, accommodation and living expenses for those 15 weeks.

FoMD – Dentistry Advanced Placement Program Calendar Change – Background Information

The financial implications of increasing the program to three full years would be an additional tuition/fees payment of approximately \$64015 (based on our current fee structure). The overall increase would be \$40515 over the financial commitments currently being required of the existing admissions process. Students will also be eligible for student loans for all of this as opposed to none of the \$23500 plus that they currently have to spend.