



UNIVERSITY OF ALBERTA
FACULTY OF GRADUATE
STUDIES & RESEARCH

**PhD Learning Outcomes
Report to FGSR Council
May 2019**

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Executive Summary (Key Messages)

The following intentions have been realized and are presented in this report:

- Clearly articulated learning outcomes make the implicit explicit, reducing the ambiguity that surrounds what success looks like for students within research-based PhD programs
- PhD learning outcomes support students, programs, and the public in clearly communicating what a PhD graduate knows and is able to do
- A cross-faculty working group has created:
 - An updated calendar entry to differentiate between the learning outcomes of a PhD and Master's-based Thesis
 - A guide and template to support programs that are being created or up for review in clearly articulating their learning outcomes

Why articulate University of Alberta PhD learning outcomes?

Context

As pet peeves go, one very near the top of my list is when I hear a faculty member say something along the lines of “well, we all agreed after the Candidacy exam the candidate is just not performing at a PhD level, we have no concerns with them completing a Master’s.” When asked to define what the difference is, the response is “Come on, we all know what we mean by that? Right?” Maybe we as faculty do, but the student who receives such an assessment likely does not.

Learning outcomes are simple statements of what the learner knows and is able to do following a lesson, course, training activity or program. Defining learning outcomes for PhD programs has the power to clearly communicate expectations to students and take the apparent subjectivity out of assessment. I became something of a zealot on the topic of articulating learning outcomes for thesis-based programs after encountering them in the course of reviewing a graduate program in Ontario almost 10 years ago. I believe using learning outcomes has great potential to produce the best learning environment and to bridge graduate education to the wider world. I see learning outcomes as a necessary part of any healthy learning environment because they facilitate clear communication with students and provide a scaffold for objective assessment. The knock-on effect of communicating learning outcomes to students is to provide them with a vocabulary to explain to potential employers the skills and attributes they bring. This practice may anchor the differentiation of one program from another.

Definition of program learning outcomes are currently required to propose new programs in Alberta and are used by Advanced Education to determine program differentiation and by CAQC in program review. All University of Alberta programs are expected to have defined learning outcomes when they next undergo program review. Expectations for degrees in Alberta are specified in the recently released Degree Framework and Degree Level Standards. BUT, articulating learning outcomes for doctoral programs presents a unique challenge. Our doctoral programs have been well designed and graduates have developed a broad and deep skill set and knowledge base. But rarely are explicit learning outcomes written down anywhere and students are often left unsure of what skills they are developing

at different stages of their degree. At the doctoral level most of the formative activity occurs outside formal coursework guided by the mentor and the outcomes expected are not clearly laid out at the program in many cases or institutional level. Moreover, the guides and tools for developing learning outcomes available focus on programs built on highly structured courses.

We identified a gap in relating FGSR-specified requirements in research programs to learning outcomes and the degree level standards. In fall of 2018, we formed the working group to tackle these problems. I am exceptionally grateful to the team that has worked together to produce this report and the tools that will serve as a practical legacy of their effort and the recommendations to support and facilitate programs to do the work for their own programs.

Sincerely,
Debby Burshtyn
Interim Vice-Provost and Dean, FGSR

Background

Student learning outcomes are statements of 'knowledge, skills, attitudes, competencies and habits of mind' that students are expected to demonstrate at the end of a course or program. In other words, what can a degree candidate expect to know and do as a result of a particular course of study?¹

Program Learning Outcomes are used to assure quality in education programs. Program Learning Outcomes are required by Advanced Education and the Campus Alberta Quality Council and must align with the Provincial Degree Level Standards.

In 2016, the University of Alberta's strategic plan, For the Public Good, was published. Objective 14, "Inspire, model, and support excellence in teaching and learning" included Strategy 2, "Adopt a set of core graduate attributes, skills, and competencies at both the undergraduate and graduate level; develop strategies for implementing them in specific disciplines and programs; and monitor graduate outcomes to ensure continuous improvement." Strategy 2 provided a baseline for the development of program learning outcomes across the institution.

In 2017, FGSR began a collaboration with the Sarah Forgie, Vice Provost Learning Initiatives and Tammy Hopper, Vice Provost Programs to elevate awareness and build capacity for program learning outcomes. A series of workshops and seminars were provided that were open to the university community including two focused on learning outcomes in graduate programs. Supports and resources available within the Centre for Teaching and Learning (CTL) to develop learning outcomes. In December 2018, CTL published an updated version of "A Guide to Learning Outcomes at the University of Alberta." The guide supports learning outcomes in courses and how to map course learning outcomes to program learning outcomes.

¹ Council of Graduate Schools - Articulating Learning Outcomes in Doctoral Education (citation from National Institute for Learning Outcomes Assessment (2012); Lesch (2012))

In the fall of 2018, the Government of Alberta launched the Alberta Credential Framework, a governing document to support new program development and re-accreditation of existing programs. The Alberta Credential Framework presents an overview of the various credentials that are offered through Alberta's post-secondary system. It includes two tables, one which describes the characteristics and criteria related to the credential, and the second lists the knowledge and skills expected to be acquired by students through the process of earning the credential. The Alberta Credential Framework is intended to foster post-secondary system coherence by naming and defining Alberta credentials in a comprehensive structure.

Working Group Formation and Mandate

Ongoing discussions with FGSR Council revealed the desire to have FGSR articulate degree-level outcomes for PhD programs to use to scaffold their program-specific learning outcomes. In Fall 2018, the FGSR Learning Outcomes Working Group formed to explore the issue and develop supports for programs to articulate learning outcomes for thesis-based programs. The working group developed terms of reference and goals (Appendix). The agreed upon goals of the working group were:

1. Develop Guiding Principles and UofA Definitions for Graduate Program Learning Outcomes.
2. Produce an environmental scan indicating the state of Graduate Learning Outcomes documentation within the UofA and external comparators.
3. Articulate learning outcomes for FGSR-mandated program requirements and link these to [UofA Graduate Attributes](#).
4. Establish what is required to support programs in describing, implementing and assessing Program Learning Outcomes.
5. Develop a framework document to support the learning outcomes exercise by program and seek FGSR Council endorsement.
6. Collaborate with campus partners to produce a guide for development and assessment of Program Learning Outcomes in research-based programs.
7. Design a template for potential recruitment materials and student guides that leverage Program Learning Outcomes.
8. Identify other gaps and opportunities to maximize benefits of stating Program Level Learning Outcomes.

The Case for Thesis-Based Graduate Program Learning Outcomes

The basis for learning outcomes in all programs of study follow principles, listed below, which support: 1) the learner (learning and self-assessment), 2) the program to create and manage aligned curricula and frameworks, and 3) a frame by which to assess learning.

Advanced degrees, particularly research-based thesis programs, are distinguished from course-based programs in a number of ways. Most notably, thesis-based programs are set in a 'degree framework' ("a set of reference points that defines general skills and competencies"²):

² Kalan P. Kucera, Vargo Teaching Chair Research Assistant

- Graduate degrees differ from undergraduate degrees in intensity of discipline-specific depth, and in the order of epistemological skills that are used in learning.
- Learning outcomes measure student learning against the reference points provided by a degree framework.
- As students move beyond undergraduate studies, and into graduate work, learning outcomes should provide students more opportunities for reflection on discipline specific knowledge (a greater commitment to the development of epistemological skills), as well as benchmarks of depth-of-knowledge that are in line with the degree framework (e.g., develop epistemic metacognitive knowledge).

We have access to credential frameworks³ that describe the general differences between credentials and degree types, yet such documents do not get into the details, nor do they provide guidance as to how to generate specific program learning outcomes. Research intensive thesis-based graduate degrees differ from undergraduate and course-based degrees because the learning is largely experiential, formative feedback is provided largely outside of formal course structures.

The research degree framework has a variety of deliverables and means of assessment, such as the thesis document, and the thesis defence. Many of the deliverables and assessments in a thesis-based graduate degree do not exist in the traditional course framework, but in the ether that is “research”. Research milestones and assessments are managed and attained through highly independent endeavours on the part of the student with mentoring from the thesis supervisor.

The purpose of this work is to provide a road-map for integrating these commitments into the creation of graduate student learning outcomes and assessment guidelines.

As an institution, we lack capacity, or explicit tools, to guide the creation of comprehensive learner outcomes for all programs that reflect the entire learning experience that culminates in a thesis. Moreover, the articulation of the meaning of an advanced degree, or what one can do having satisfied the requirements of such a degree is challenging to communicate--there is complexity and complications, but why should this be so?

Having a way to guide the creation of learning outcomes for research-based degrees would allow for deeper understanding of the potential values of those holding the credentials, and lessen the confusion surrounding how programs are aligned to assessment of students in said programs. The output from the working on learning outcomes closes the gap in learning outcomes in PhD programs through a guide, and tools to help facilitate creation, implementation, assessment, and continuous improvement of learning outcomes.

³ [Alberta Credential Framework; Council of Ministers of Education, Canada Ministerial Statement on Quality Assurance of Degree Education in Canada.](#)

Guiding Principles⁴

The working group determined that PhD (and all graduate degree) learning outcomes should be written⁵ in such a way as to support:

- Transparency - help students to understand what they will be required to do and how they will be assessed, and to plan and self-assess their progress
- Communication with Employers - provide students with a vocabulary to describe the skills and attributes they acquired through their program to prospective employers
- Setting Expectations - help supervisors be explicit about what they want students to be able to do and how they will be expected to demonstrate it
- Program Assessment - facilitate evaluation of program quality and demonstrate that students meet their program learning outcomes
- Public Understanding - improve employers' and the public's understanding of the value of the program
- Student-Centered Learning - align with the University mission to provide exceptional learning experiences for students

The group also confirmed that learning outcomes should be:

- Measurable
- Observable
- Self-assessable by the learner
- Developed in consultation with students

What tools and content have been created to support programs?

Development of the learning outcomes tools and content

The working group developed the following tools and content to support PhD programs that are either in development or up for quality assurance review with explicitly articulating their learning outcomes:

- A calendar entry describing the program elements and graduate competencies of both Master's and PhD programs
- A template for PhD programs to populate that provides required outcomes for all PhD programs, program-specific outcome language that can be customized, and suggestions for forms of evidence that can be used to assess student success in meeting defined outcomes
- A "how to" guide for PhD programs to use in developing and operationalizing explicit learning outcomes

⁴ Content informed by CGS' Articulating Learning Outcomes in Doctoral Education

⁵ More more detailed information and tools please consult the excellent document "[A Guide to Learning Outcomes at the University of Alberta](#)" by CTL Director J. Miller-Young.

Examples are provided in the Appendix.

PhD and Master's calendar entries

Presently, the University Calendar speaks to requirements associated with program elements of the Master's and PhD programs. There are a few places in the calendar that define competencies, scattered into different sections as the Regulations for Graduate Programs follow the life-cycle of a student. The calendar does not directly speak to what each degree is, and what one can expect to know and be able to do upon completion. The draft calendar entry is intended to remedy this.

The entry was authored by a subcommittee of the working group, after reviewing current calendar language, the Alberta Credential Framework language, and other definitions in use noted within the Glossary (Appendix). It went to the full working group for review and revision, then to FGSR Council for discussion at the April 2019 meeting, followed by further review and comment online in advance of the May 2019 FGSR Council meeting.

Template for programs to articulate learning outcomes

To develop the template document, a subcommittee of the working group searched for examples within Canadian and international PhD programs. The group also reviewed literature regarding learning outcomes and assessment. While many programs present outcomes, examples that provided detail about both program learning outcomes and methods of assessment were quite limited.

The group collaborated in the development of template language, with the intent being to capture what University of Alberta PhD programs presently deliver, while also offering some progressive options for programs to consider. The template document that was created is intended to be customizable by programs, supporting them in aligning what they deliver to what the Alberta Credential Framework requires. The working group recognizes that programs with external accreditation bodies may already have such templates in use, and honours program agency to use the template which best suits their needs and meets the Alberta Credential Framework requirements.

Once the template content had been developed, it was taken through rounds of consultation with both students and FGSR Council. 10 current and prospective students provided feedback via a focus group, survey and drop-in session in the first week of May. FGSR Council was invited to provide feedback at the April 2019 meeting and via review and comment online in advance of the May 2019 FGSR Council meeting.

Once feedback has been incorporated, the present vision for the template is that it will live on the FGSR and Centre for Teaching and Learning websites and be provided to programs working through accreditation or re-accreditation by FGSR's Vice Dean. The future vision is that the content could be integrated into an online tool that would improve ease of use and could potentially generate a simpler and more visually appealing student-facing version to be shared with both current and future PhD students.

Program Guide

FGSR engaged the support of the Centre for Teaching and Learning to develop a “how to” guide for programs that mimics the format of the existing guide that helps faculty members develop learning objectives at the course level. The process has included review of literature and external examples and interviews with programs at the University of Alberta that have articulated their PhD learning outcomes regarding their process and format. The guide is presently under development. A table of contents is available in the Appendix of this document.

What's next?

A motion will be presented at the May FGSR Council meeting to approve the calendar entry and move it through relevant governance bodies to be integrated into the calendar.

By fall 2019, the PhD learning outcomes template and how to guide will be posted to the Centre for Teaching and Learning and FGSR websites.

The following suggestions are provided regarding next steps around the broader initiative:

- Explore the build or procurement of an online tool that would improve ease of use of the template and generate a streamlined and visually appealing student-facing version of program learning outcomes
- Develop a learning outcomes template for Thesis-based Master's programs
- Develop a calendar entry for Course based Master's programs that defines the program elements and graduate competencies in a format similar to the one for research-based programs
- Realign language within all sections of the calendar to remove duplication of and amalgamate content that speaks to program elements and graduate outcomes of PhD programs
- Integrate learning outcomes language into program marketing, recruitment, new student orientation and ongoing assessment
- Make programs aware of the templates and calendar entry as they embark on the review process, via the Vice Dean FGSR

Appendix

Draft thesis-based Master's vs. PhD calendar entry

The table below defines the elements and learning outcomes of the University of Alberta's research-focused degrees in alignment with the Alberta Credential Framework. A Master's degree enables students to develop mastery within a discipline, and to learn how to do research via guided discovery. A PhD degree enables students to develop mastery of research and advanced expertise within a specialist field via designing and conducting original research of broader scope and greater depth than within a Master's degree.

	Thesis-Based Master's	PhD*
Program Elements		
Designed to prepare graduates for...	careers requiring specialized expertise, evidence-based judgment, personal responsibility and initiative, in complex and unpredictable professional environments.	leadership roles in research-oriented careers requiring a high degree of autonomy, the ability to make informed judgments on complex issues in specialist fields, navigation of ambiguity, and innovation in tackling and solving problems.
Students will acquire knowledge and develop skills through a combination of...	<ul style="list-style-type: none"> • directed learning • formative experiences in writing • formative experiences presenting a research project • executing advanced research or creative work • working with experts 	<ul style="list-style-type: none"> • self-directed learning • formative experiences in writing • presenting and defending research proposals and results • designing and executing original research or creative work • working with experts
The program requires creation of...	a thesis or thesis-equivalent that, at a minimum, should reveal that the student is able to work in a scholarly manner and is acquainted with the principal works published on the subject of the thesis. As far as possible, it should be an original contribution.	original research, or other advanced scholarship, culminating with a thesis or thesis-equivalent that a minimum, must embody the results of original investigations and analyses and be of such quality as to merit publication, meeting the standards of reputable scholarly publications. It must constitute a substantial contribution to the knowledge in the student's field of study.
At a minimum programs will ...	<ul style="list-style-type: none"> • monitor student skills development and progress through ongoing supervision of research • assess student competencies through assessment of the student's knowledge in the field, ability to reason with new information and the quality of the thesis or thesis-equivalent at the final examination 	<ul style="list-style-type: none"> • monitor student skills development and progress via ongoing interaction with the supervisor and through annual supervisory committee meetings • assess the student's competencies during a candidacy examination and assessment of the thesis or thesis-equivalent at the final examination

	Thesis-Based Master's	PhD*
Graduate Competencies Graduates of each program will be able to...		
Knowledge	<ul style="list-style-type: none"> a systematic understanding of knowledge, and critical awareness of current problems and/or new insights, informed by the forefront of the student's academic discipline or field of study demonstrate awareness of the complexity of knowledge and of the potential contributions of other interpretations, methods, and disciplines 	<ul style="list-style-type: none"> demonstrate thorough understanding of a substantial body of knowledge with expertise that is at the forefront of an academic discipline or area of professional practice demonstrate awareness of: the limitations of one's own work and discipline, the complexity of knowledge, and the potential contributions of other interpretations, methods, and disciplines
Research Competency	<ul style="list-style-type: none"> critically evaluate existing research and scholarship within a discipline or field of study demonstrate development and support of a sustained argument or originality in the application of knowledge 	<ul style="list-style-type: none"> conceptualize, design and implement advanced level research for the generation of new knowledge, applications, or understanding make informed judgments on complex issues, in specialist fields
Communication Skills	<ul style="list-style-type: none"> communicate ideas, issues, and conclusions clearly and effectively to specialist and non-specialist audiences 	<ul style="list-style-type: none"> communicate complex and/or ambiguous ideas, issues, and conclusions clearly and effectively to specialist and non-specialist audiences
Professional Capacity / Autonomy	<ul style="list-style-type: none"> research, reflect upon, and take ownership of the development of skills and career goals demonstrate personal accountability, initiative, and decision-making in complex situations demonstrate the intellectual independence required for continuing professional development 	<ul style="list-style-type: none"> research, reflect upon, and take ownership of the development of skills and career goals demonstrate personal accountability and autonomous initiative and decision-making in complex situations demonstrate the intellectual independence required to be academically and professionally engaged and remain current
Ethics	identify, explain, analyze, and propose solutions to <i>existing</i> ethical issues particularly as they pertain to the conduct of research in the field of study	identify, explain, analyze, and propose solutions to <i>existing and new</i> ethical issues particularly as they pertain to the conduct of research in the field of study

*PhD program elements and graduate competencies are inclusive of and cumulative to those of Master's programs

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Template for programs to articulate learning outcomes

Alberta Credential Framework for PhD Programs

Developed by the Government of Alberta

Post-secondary programs in Alberta must meet specific criteria that is defined by the Government of Alberta. This oversight helps ensure learning opportunities for post-secondary students are guided by Alberta's adult learning system principles.

The Alberta Credential Framework defines the following outcomes for PhD program graduates:

PHD GRADUATE COMPETENCY	DESCRIPTION
DEPTH AND BREADTH OF KNOWLEDGE	Able to independently undertake pure or applied research and professional skills at an advanced level, and translate knowledge to research or practice settings. A thorough understanding of a substantial body of knowledge with expertise in a specialized field that is at the forefront of an academic discipline or area of professional practice.
CONCEPTUAL AWARENESS AND/OR KNOWLEDGE OF RESEARCH	<p>A conceptual understanding and methodological competence that provides the graduate with the ability to:</p> <ul style="list-style-type: none"> • Conceptualize, design, and implement research for the generation of new knowledge, applications, or understanding at the forefront of the discipline and to adjust the research design or methodology in the light of unforeseen problems. • Make informed judgments on complex issues in specialist fields, sometimes requiring new methods. • Produce original research, or other advanced scholarship, of a quality to satisfy peer review, and to merit publication.
APPLICATION OF KNOWLEDGE	<p>The capacity to:</p> <ul style="list-style-type: none"> • undertake pure and/or applied research at an advanced level, and • contribute to the development of academic or professional skill, techniques, tools, practices, ideas, theories, approaches, and/or materials.
AWARENESS OF LIMITS OF KNOWLEDGE	An appreciation of the limitations of one's own work and discipline, of the complexity of knowledge, and of the potential contributions of other interpretations, methods, and disciplines.
COMMUNICATIONS SKILLS	The ability to communicate complex and/or ambiguous ideas, issues, and conclusions clearly and effectively.
PROFESSIONAL CAPACITY/AUTONOMY	<ul style="list-style-type: none"> • The qualities and transferable skills necessary for employment requiring the exercise of personal responsibility and largely autonomous initiative in complex situations. • The intellectual independence to be academically and professionally engaged and current. • The ability to evaluate the broader implications of applying knowledge to particular contexts.

DRAFT - University of Alberta PhD Learning Outcomes and Forms of Evidence

Developed by the University of Alberta, in addition to or in support of Alberta Credential framework

KNOWLEDGE The ability to apply and exercise awareness of limits of advanced level knowledge in a specialized field	
University of Alberta PhD Learning Outcomes	<p>Knowledge learning outcomes are specifically defined within programs, in alignment with these requirements from the Alberta Credential Framework:</p> <ol style="list-style-type: none"> Depth and Breadth of Knowledge – Students will be able to independently undertake pure or applied research and professional skills at an advanced level, and translate knowledge to research or practice settings. Students will demonstrate a thorough understanding of a substantial body of knowledge with expertise in a specialized field that is at the forefront of an academic discipline or area of professional practice. Application of Knowledge – Students will have the capacity to: <ul style="list-style-type: none"> undertake research at an advanced level, and contribute to the development of academic or professional skill, techniques, tools, practices, ideas, theories, approaches, and/or materials. Awareness of Limits of Knowledge – Students will have an appreciation of the limitations of one's own work and discipline, of the complexity of knowledge, and of the potential contributions of other interpretations, methods, and disciplines.
Program-Specific Learning Outcomes	<p>Depth and Breadth of Knowledge</p> <p>Students will demonstrate:</p> <ol style="list-style-type: none"> advanced-level knowledge of the general field of [name of field] and specific field(s) of [name of field(s)] expert knowledge in their field of specialization <p>Application of Knowledge</p> <p>Students will demonstrate the capacity to:</p> <ol style="list-style-type: none"> undertake [pure/applied/other/NA] research at an advanced level, and contribute to the development of academic or professional skill, techniques, tools, practices, ideas, theories, approaches, and/or materials. <p>Awareness of Limits of Knowledge</p> <p>Students will demonstrate:</p> <ol style="list-style-type: none"> an appreciation of the limitations of one's own work and discipline, of the complexity of knowledge, and of the potential contributions of other interpretations, methods, and disciplines. an ability to critically evaluate current research and research techniques and methodologies.
Forms of Evidence	<p>Knowledge will be <u>assessed</u> and students provided with <u>regular oral and written formative feedback</u> in programs through the appropriate supervisor meetings, supervisory committee meetings, proposal and final thesis defense, specifically:</p> <p>Depth and Breadth of Knowledge</p> <ol style="list-style-type: none"> Topic presentation and discussion during yearly supervisory committee meetings. The successful completion of [list of course work or learning activities, broken down in specific courses with specific learning outcomes] Passing the [candidacy/qualifying/ comprehensive] examination or completing all explicitly detailed and justified, in writing, committee requirements of a conditional pass in this examination.

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DRAFT - University of Alberta PhD Learning Outcomes and Forms of Evidence

Developed by the University of Alberta, in addition to or in support of Alberta Credential framework

	<p>Application of Knowledge</p> <ol style="list-style-type: none"> 1. Research progress during yearly supervisory committee meetings. 2. The review, defence and approval of a PhD proposal by a [exam committee name]. 3. The defence of a PhD thesis. <p>Awareness of Limits of Knowledge</p> <p>Conducting [field appropriate] review of the state of the art [literature, techniques, standards, works of art] and developing [relationships, networks, collaborations] to identify and explain the [history, theory, research, techniques, paradigms] which is reviewed, defended and approved during of a PhD proposal by a [exam committee name] and at the PhD defence examination.</p> <p><i>It is the responsibility of the supervisor to provide written, detailed and justified formative feedback, and corrective actions for deficiencies, if identified, in Knowledge to the student following each meeting and examination; it is the responsibility of the student to plan and undertake actions to address the feedback.</i></p>
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RESEARCH COMPETENCY	
The ability to conceptualize, design and implement research for the generation of new knowledge; to make informed judgments on complex issues, in a specialized field	
University of Alberta PhD Learning Outcomes	<p>Research Competency learning outcomes are specified below and are to be augmented in programs using field specific requirements, as appropriate.</p> <p>Students will be able to:</p> <ol style="list-style-type: none"> 1. Conceptualize, design, and implement research for the generation of new knowledge, applications, or understanding at the forefront of the discipline and to adjust the research design or methodology in the light of unforeseen problems. 2. Make informed judgments on complex issues in specialist fields, sometimes requiring new methods, such as being able to: <ul style="list-style-type: none"> • Generate research questions/hypotheses based on experience, discipline specific expertise, and scholarly literature. • Conceptualize, design, and implement a research project of significant scope to complete a thesis. • Assess strengths and weaknesses of various methodological approaches relevant to a research question. • Select, defend, and apply a methodological approach to answer a research question. • Locate and/or generate information/data relevant to a research question. • Situate a research question within the existing field specific knowledge and where appropriate outside the field and/or discipline. • Organize information/data to reveal patterns/themes. • Analyze information/data and synthesize information to generate new knowledge/understanding. • Monitor research progress, refine, and pivot approach as needed.
Program-Specific Learning Outcomes	Students will be able to produce original research, or other advanced scholarship, of a quality to satisfy peer review, and to merit publication in their field.
Forms of Evidence	<p>Research Competency will be <u>assessed</u> and students provided with <u>regular oral and written formative feedback</u> in programs through the appropriate committee meetings, proposal and final thesis defense, specifically:</p> <ul style="list-style-type: none"> • Topic presentation and discussion during yearly supervisory committee meetings. • The review, defence and approval of a PhD proposal by a <u>[exam committee name]</u>. • The review, defence and approval of a PhD thesis by a <u>[exam committee name]</u>. • The completion, as first author, of papers or creative works for peer review, in volume and form as appropriate for the field. • Presentations to field appropriate stakeholders at <u>[local, national and/or international conferences, industry, clinics venues appropriate in the field]</u>. <p><i>It is the responsibility of the supervisor to provide written, detailed and justified formative feedback, and corrective actions for deficiencies, if identified, in Research Capacity to the student following each meeting and examination; it is the responsibility of the student to plan and undertake actions to address the feedback.</i></p>

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Developed by the University of Alberta, in addition to or in support of Alberta Credential framework

COMMUNICATION SKILLS The ability to demonstrate written communication, oral communication, and listening skills, and to communicate effectively and professionally with a broad audience	
University of Alberta PhD Learning Outcomes	<p>Communication Skills learning outcomes are specified below and are to be augmented in programs using field specific requirements as appropriate.</p> <p>Students will be able to communicate complex and/or ambiguous ideas, issues, and conclusions clearly and effectively to specialist and non-specialist audiences, using:</p> <ol style="list-style-type: none"> 1. written communication 2. oral communication <p><u>Beneficial Options</u></p> <p>Students will be able to:</p> <ol style="list-style-type: none"> 3. communicate using technical, digital, or other methods 4. use active listening skills
Program-Specific Learning Outcomes	<p>Students will demonstrate the ability to write field appropriate publications aimed at peer review.</p>
Forms of Evidence	<p>Communication Skills will be <u>assessed</u> and students provided with <u>regular oral and written formative feedback</u> in programs through the appropriate committee meetings, proposal and final thesis defense, and publications. Mandatory forms of evidence include:</p> <ol style="list-style-type: none"> 1. Thesis Proposal <ul style="list-style-type: none"> ● Student successfully wrote their doctoral research proposal. ● Student successfully presented and orally defended their doctoral research proposal. 2. Thesis Defence <ul style="list-style-type: none"> ● Student successfully wrote their doctoral thesis. ● Student successfully presented and orally defended their doctoral thesis. 3. Communication with specialist and non-specialist audiences - in manners relevant to the field of study, such as: <ul style="list-style-type: none"> ● Clear and effective documentations for course work, grant proposals, and/or manuscripts, as appropriate for the program ● Discipline-related communications using technical (eg. schematic), media (eg. video), or digital (eg. code) formats for academic and non-academic audiences ● Presentations or lectures at conferences ● Teaching of courses, guest lecturing, etc. ● Drafts of publications for internal and peer review <p><u>Beneficial Options</u></p> <ol style="list-style-type: none"> 4. Completing active listening professional development and/or applying active listening in professional settings 5. Completing general communication and/or social media professional development or assessment <p><i>It is the responsibility of the supervisor to provide written, detailed and justified formative feedback, and corrective actions for deficiencies, if identified, in Communication Skills to the student following each meeting and examination; it is the responsibility of the student to plan and undertake actions to address the feedback.</i></p>

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Developed by the University of Alberta, in addition to or in support of Alberta Credential framework

PROFESSIONAL CAPACITY/AUTONOMY The ability to research, reflect upon, and take ownership of the development of skills and career goals	
University of Alberta PhD Learning Outcomes	<p>Professional Capacity/Autonomy learning outcomes are specified below and are to be augmented in programs using field specific requirements as appropriate.</p> <p>Students will be able to demonstrate:</p> <ol style="list-style-type: none"> The qualities and transferable skills necessary for employment requiring the exercise of personal responsibility and largely autonomous initiative in complex situations The intellectual independence to be academically and professionally engaged and current, developed in part through the Individual Development Plan process of: <ul style="list-style-type: none"> researching potential career options reflecting upon skills and competencies in the areas of creativity, communication, confidence, scholarship, ethical responsibility, critical thinking, and collaboration; creating timelines and milestones for professional development, academic, and personal commitments reviewing progress regularly The ability to evaluate the broader implications of applying knowledge to particular contexts. The ability to receive, handle and act upon, and provide constructive feedback. <p><u>Beneficial Options</u></p> <p>Students will be able to demonstrate:</p> <ol style="list-style-type: none"> The ability to take initiative to identify need and provide service to a community. The ability to acquire new, or enhance existing leadership skills, including those required to teach or supervise students. The ability to take initiative to bring about positive change in academic, professional and personal contexts, guided by the principles of equity, diversity and inclusion (EDI).
Program-Specific Learning Outcomes	<p>Students will demonstrate:</p> <ol style="list-style-type: none"> self-direction and originality in tackling and solving problems, and autonomy in planning and executing research. <p><u>Beneficial Options</u></p> <ol style="list-style-type: none"> the capability to teach a course and/or be a teaching assistant in the field of [name of field] (e.g. of field specific teaching requirements) field specific communication and networking skills (e.g. field specific professional requirements) [program specific professional development requirements]
Forms of Evidence	<p>Professional Capacity/Autonomy will be assessed and students provided with regular oral and written formative feedback in programs through:</p>

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DRAFT - University of Alberta PhD Learning Outcomes and Forms of Evidence

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	<ol style="list-style-type: none"> 1. Presenting and defending degree progress during yearly (or more frequent) formal supervisory committee meetings; progress and performance are to be kept in the minutes of the meeting and within program designated forms 2. Documenting, and reviewing with their supervisor, feedback received during supervisor meetings, supervisory committee meetings and candidacy exam, and addressing identified issues. <p><u>FGSR Professional Development Requirement</u></p> <ol style="list-style-type: none"> 3. Completing FGSR or program-specific Individual Development Plan 4. Completing 8 hours of professional development activities <p><u>Beneficial Options</u></p> <ol style="list-style-type: none"> 5. Providing feedback to other team members, staff, as appropriate and/or through peer reviewing of field appropriate publications. 6. Completing some of the mandatory 8 hours of PD activities in the areas of: <ul style="list-style-type: none"> • Equity, Diversity, and Inclusion • leadership • professional behaviors, the workplace, and career management • communication and networking 7. Completing service activities within the community. 8. Successfully teaching or being a Graduate Teaching Assistant, and receiving evaluative feedback, for at least an undergraduate course in [field] 9. [Program specific professional development requirements assessments] <p><i>It is the responsibility of the supervisor to provide written, detailed and justified formative feedback, and corrective actions for deficiencies, if identified, in Professional Capacity/Autonomy to the student following each meeting and examination; it is the responsibility of the student to plan and undertake actions to address the feedback.</i></p> <p><i>Programs are accountable for assessment of professional development and service activities.</i></p>
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DRAFT - University of Alberta PhD Learning Outcomes and Forms of Evidence

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ETHICS The ability to identify, explain, analyze, and propose solutions to ethical issues	
University of Alberta PhD Learning Outcomes	<p>Ethics learning outcomes are specified below and are to be augmented in programs using field specific requirements as appropriate.</p> <p>Students will be able to:</p> <ol style="list-style-type: none"> 1. Identify ethical concerns specific to their field of research, such as treatment of human and animal subjects, interdisciplinary research, and Indigenous research. 2. Recall, recognize, analyze, discuss and act in ethical matters in: <ul style="list-style-type: none"> • the subject field under investigation including those specific to course work, capstone project, thesis, scholarship and funding applications, • academic conduct, and • interactions with others in the community as stipulated in the code of student behaviour. 3. Propose solutions to ethical dilemmas and articulate what makes a particular course of action ethically defensible. 4. Identify ethical concerns in academic integrity, use and citation of sources, the misrepresentation of data and/or facts. 5. Recognize the importance of information and data handling (confidentiality, transparency, not falsifying data, etc). <p><u>Beneficial Options</u></p> <ol style="list-style-type: none"> 6. Explain, recognize, and analyze ethical areas of responsibility held when teaching or mentoring within their field.
Program-Specific Learning Outcomes	<p>Students will complete program specific ethics requirements in [add requirements]</p>
Potential Methods of Assessment	<p>Ethics will be <u>assessed</u> and students provided with <u>regular oral and written formative feedback</u> in programs through student records of:</p> <ol style="list-style-type: none"> 1. In the first year of their program, completing program course/workshops, or FGSR workshops, or other approved formal activities in the area of ethics, which have embedded assessments and may include: <ul style="list-style-type: none"> • Student code of conduct, • Plagiarism, • Copyright, and • Sexual violence 7. Beyond the first year of their program, completing program specific ethics training as appropriate, including elements listed in the ethics learning outcomes 8. Demonstrating field-appropriate application of ethics principles within the research proposal, thesis, and thesis defence. <p><i>It is the responsibility of the supervisor to provide written, detailed and justified formative feedback, and corrective actions for deficiencies, if identified, in Ethics to the student following each meeting and examination; it is the responsibility of the student to plan and undertake actions to address the feedback.</i></p>

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Program guide: Draft table of contents

Section 1: Background on LO's in PhD Programs

- What are LO's?
- Why should they be articulated in PhD programs?
 - Value of LO's
 - Meeting degree framework requirements
 - Differences between thesis-based Masters and PhD programs and course-based or other programs
- How should LO's be used?
 - Program admittance / advertisement / as means to differentiate our programs from peers
 - Throughout a program
 - Upon completion of a program
 - For program review and to improve program quality

Section 2: The Process of Developing Learning Outcomes in PhD Programs:

- Overview of this process - How long would you expect it to take? What would you need? How many people would you need? What would the product(s) be? How will it be shared?
- Preparation
 - Starting point: Reference guiding documents (ACF; FGSR documents / Calendar)
 - Outline goals of development (why?)
 - Outline overall deliverables and deadlines (what? when?)
- Development
 - Initial meeting with stakeholders, students, faculty, graduates, and employers
 - What would be discussed?
 - What would be the outcomes of this meeting?
 - Working groups
 - Compiling draft document
 - Focus groups / feedback on draft
 - Revisions and completion of document
- Implementation & Review
 - Completion of final document
 - Location of final document
 - Sharing final document - explicit reference / link for program admissions; graduate student expectations

Section 3: Reference Documents and Supports (CTL and elsewhere)

- Guiding Documents for Developing LO's in PhD Programs at the University of Alberta
 - Government of Alberta - Alberta Credential Framework
 - FGSR LO's (University of Alberta)
 - Infographic Mapping ACF to FGSR LO's
 - CAQC site
- Supports and Contacts:
 - FGSR Associate Dean Teaching and Learning
 - Centre for Teaching and Learning

Case Studies - Examples of LO development at U of A

- Case Study 1 - Law
- Case Study 2 - Science - DERTS
- Case Study 3 - Arts
- Case Study 4 - Engineering (MECE)
- Case Study 5 - Medicine (Medical Microbiology & Immunology)

Glossary of terms

Program / Specialization	<p>Program of study E.g. Master of Science in Biology, PhD in English</p> <p>*Conversely, both PaPRS (GoA Program Code) and Campus Solutions (UofA student data base, Academic Program) use “Program” to refer to the degree or credential for graduate programs</p>
Degree Level	Eg. bachelors, masters, doctoral
Degree	<p>Degree credential awarded - Eg. Master of Science, Master of Arts, Master of Coaching</p> <p>“The term “degree” will be understood to include all GFC-approved degrees, diplomas and certificates offered by the University of Alberta.”</p> <ul style="list-style-type: none"> • UAPPOL Degree Policy
Degree Framework	<p>“A doctoral degree framework is a set of reference points that defines general skills and competencies expected of all doctoral recipients... degree frameworks refer to the broader set of tools used to align degree-level requirements across disciplines and institutions in higher education.”</p> <ul style="list-style-type: none"> • Council of Graduate Schools - Articulating Learning Outcomes in Doctoral Education
Doctoral Degree	<p>“The essential requirement for a doctoral degree is the planning and carrying out of research of high quality leading to an advance in knowledge in the student’s field of study.”</p> <ul style="list-style-type: none"> • U of A Calendar
PhD	[See draft calendar entry]
Master’s Degree	[See draft calendar entry]
Program Requirements	<p>The courses and other milestones required to complete the Degree Program.</p> <p>“All departments are responsible for developing and publishing a clear statement of all program requirements to be completed by the student in addition to the thesis. These requirements will vary from department to department, but will likely include a number of required and optional course requirements, the academic integrity and ethics requirement, a candidacy examination requirement, and in some disciplines, written comprehensive examinations.”</p> <ul style="list-style-type: none"> • U of A Calendar
Learning Outcome	<p>“...Student learning outcomes are statements of ‘knowledge, skills, attitudes, competencies and habits of mind’ that students are expected to demonstrate at the end of a course or program.¹ In other words, what can a degree candidate expect to know and do as a result of a particular course of study?”</p> <ul style="list-style-type: none"> • Council of Graduate Schools - Articulating Learning Outcomes in Doctoral Education (citation from National Institute for Learning Outcomes Assessment (2012); Lesch (2012))
Learning Attribute	Graduate attributes are the qualities, skills and understandings a university community agrees its students should develop during their time with the institution.

	<p>These attributes include, but go beyond, the disciplinary expertise or technical knowledge that has traditionally formed the core of most university courses. They are qualities that also prepare graduates as agents of social good in an unknown future</p> <p>Atlay, Mark. "Skills Development: Ten Years of Evolution from Institutional Specification to a More Student-Centered Approach," in Paul Hager & Susan Holland (eds.). <i>Graduate Attributes, Learning and Employability</i>. (Dordrecht: Springer, 2006): 169-186.</p>
Learning Objectives or Goals	<p>"...broad statements indicating the overall purpose of the course or program and indicate the instructor's overall intention in teaching the course. They are statements that focus on the instructor's intention(s) for teaching. Learning objectives can be phrased 'The purpose of this course is to.....'"</p> <p>Glossary, U of A CTL Guide to Learning Outcomes</p>
Candidacy Exam	<p>Exam within a PhD where students "must demonstrate to the satisfaction of the examining committee that they possess:</p> <ol style="list-style-type: none"> 1. An adequate knowledge of the discipline and of the subject matter relevant to the thesis 2. The ability to pursue and complete original research at an advanced level; and 3. The ability to meet any other requirements found in the department's published policy on candidacy examinations" <p style="text-align: right;">- U of A Calendar</p>
Comprehensive or Specialization Exam	<p>Example: "The Comprehensive Examination is a written examination that will occur following the completion of coursework, and is normally completed after the first year, and within the first two years of the PhD program. The Comprehensive Examination is primarily intended to examine the student to determine whether they have achieved competency in contextualization of the thesis within <i>public health</i>, specific content area of thesis, and specific methodological issues relating to the proposed thesis."</p> <ul style="list-style-type: none"> • U of Calendar, PhD in Public Health in the research area of Epidemiology
Master's Thesis	<p>"At a minimum, should reveal that the student is able to work in a scholarly manner and is acquainted with the principal works published on the subject of the thesis. As far as possible, it should be an original contribution."</p> <p style="text-align: right;">- U of A Calendar</p>
Doctoral Thesis	<p>"At a minimum, must embody the results of original investigations and analyses and be of such quality as to merit publication, meeting the standards of reputable scholarly publications. It must constitute a substantial contribution to the knowledge in the student's field of study."</p> <p style="text-align: right;">- U of A Calendar</p>
Template	<p>A form document that departments can fill in sections of to document and articulate their learning outcomes.</p>
Tool	<p>Worksheets, guidelines, or other documents that aid in the completion of the template.</p>

Working group membership and terms of reference

TERMS OF REFERENCE: FGSR Learning Outcomes Working Group

1. Purpose and Mandate

Learning Outcomes are the skills and attributes a student gains through a learning experience. Statement of program learning outcomes are required for new program approval and all programs undergoing cyclical program review as of 2019/2020. Articulation of program learning outcomes is new to many graduate programs. The FGSR Learning Outcomes Working Group is the Working Group on FGSR Degree Level Learning Outcomes Framework. The purpose of this working group is to develop a framework to articulate FGSR learning outcomes for FGSR mandated requirements such as Ethics and Professional Development, tools for articulating program level learning outcomes and map them to degree standards and points of assessment (eg. Candidacy Examination, Thesis,). The committee will consult periodically with FGSR Council and other stakeholders.

The working group will:

1. Develop Guiding Principles and UofA Definitions for Graduate Program Learning Outcomes.
2. Produce an environmental scan indicating the state of Graduate Learning Outcomes documentation within the UofA and external comparators.
3. Articulate learning outcomes for FGSR-mandated program requirements and link these to UofA [Graduate Attributes](#).
4. Establish what is required to support programs in describing, implementing and assessing Program Learning Outcomes.
5. Develop a framework document to support the learning outcomes exercise by program and seek FGSR Council endorsement.
6. Collaborate with campus partners to produce a guide for development and assessment of Program Learning Outcomes in research-based programs.
7. Design a template for potential recruitment materials and student guides that leverage Program Learning Outcomes.
8. Identify other gaps and opportunities to maximize benefits of stating Program Level Learning Outcomes.

2. Committee Composition

The Committee will consist of the following members:

- Vice-Provost and Dean, FGSR (Chair)
- Associate Dean, FGSR (Vice Chair)
- A member of the FGSR Professional Development Team
- 4 Associate Deans - Graduate, from diverse faculties
- 2 Associate Chairs - Grad from varying faculties
- The VP Academic from the Graduate Students Association
- 1-2 additional students or recent graduate
- CTL representative

3. Meetings and Conduct of Business

The LO Working Group will meet monthly for the academic year.

The Administrative Office for the committee will be the office of the Dean, Faculty of Graduate Studies and Research, and agendas will be managed by the Chair. Normally, materials shall be circulated in advance to all members. Action Summaries of Committee meetings will be circulated to the current membership only unless otherwise determined by the Chair.

4. Committee Support

- Executive Assistant to the Dean, FGSR
- Professional Development Instructional Design Specialist, FGSR
- Senior Officer - Strategic Initiatives, FGSR
- Centre for Teaching and Learning

5. Additional Reporting Requirements

The Chair will keep the Provost and the Vice Provost Learning Initiatives informed of progress. Recommendations will flow through FGSR Council as required.

6. Membership

- Debby Burshtyn (Chair)
- John Nychka (Vice Chair)
- Normand Boule (Associate Dean, KSR)
- Samira ElAtia (Associate Dean, CSJ)
- Trish Manns (Associate Dean, Rehab Medicine)
- Hanne Ostergaard (Associate Dean, FoMD)
- Jason Carey (Associate Dean, Engineering)
- Albert Braz (Associate Chair, EFS)
- Jorge Sousa (Associate Chair, Ed Pol Studies)
- Masoud Aliramezani (GSA, VP Academic 2018-19)
- Dylan Ashley (GSA, VP Academic 2019-20)
- Saima Rajabali (FGSR Council Student Rep)
- Deanna Davis (FGSR Instructional Design Specialist)
- Janice Miller-Young (Director, Centre for Teaching and Learning)
- Kalan Kucera (Vargo Teaching Chair Student)
- Andrea Riewe (Support)
- Maxine Clarke (FGSR, Senior Officer Strategic Initiatives)

Timeline

May 2, 2017

U of A Learning Outcomes Conference

- CAQC: Peter Mahaffy and Art Quinney - Range of outcomes from institutional, to programs, to courses.
- CARI Session: Quality Assurance and Learning Outcomes in Graduate Programs

Nov. 14, 2017

Harvey Weingarten, HEQCO

- Presented on the usefulness of learning outcomes in a research-intensive university
- Take home message - reframe learning outcomes as skills

March 2018

Brenda Bower, Dean School of Graduate Studies, Queen's University

- Great messaging is key with regard to mapping programs and what will be learned.
- Queen's [Example](#)

October 2018

- Release of [Alberta Credential Framework](#)

November 2018 – May 2019

- Cross-faculty working group development of:
 - Master's and PhD calendar entry
 - Template for programs to articulate learning outcomes, including universal content and suggestions for program-specific content and forms of evidence to be used in assessment
 - "How to" guide for programs