Program Learning Outcomes
A Guide for University of Ottawa Faculty

BAQ / OQA
Bureau d’assurance de la qualité / Office of Quality Assurance
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What are Program Learning Outcomes?

Ultimately, all professors who teach a course or offer learning activities want their students to gain specific knowledge, perform certain activities related to the discipline, or develop the sensitivities required to practice the discipline.

The same applies to programs of study created and developed by professors, where the organization and sequence of courses allow students to acquire knowledge, competencies and values (the program’s learning outcomes) essential to the discipline as taught in a specific context. These program learning outcomes are considered necessary for students to pursue their studies at a higher level and contribute to society in general.

Program learning outcomes are a description of the knowledge, competencies and values a student displays at the end/conclusion of the program. Program learning outcomes help students understand why this knowledge and these competencies will be useful to them. They highlight the context and potential applications of knowledge and competencies, help students connect their learning to various situations, and guide the selection of evaluation methods. Good learning outcomes focus on knowledge application and integration. Instead of concentrating on the material and content covered, program learning outcomes show how students can make use of the material and content, both inside and outside of the classroom.

Examples of Program Learning Outcomes

At the end of the program, students will be able to:

- **compare** conceptual frameworks for resolving an ethical dilemma.
- **argue** a position in order to **settle** an ethical issue of a theoretical and/or practical nature.
- **formulate** and **analyze** an important public ethics issue and **evaluate** it using acceptable conceptual tools.
- **formulate** an original public ethics notion and **support** it through extensive research and bibliographies
- **identify** and **describe** the political, religious, economic and social uses of art in the Italian Renaissance.
- **evaluate** and **defend** their answers to a range of questions on art history.

Outcomes vs Objectives

Many people seek to understand the difference between learning outcomes and objectives (general or specific). To illustrate this difference, take the game of darts, for example. Imagine that a person is aiming at the target. The player’s goal is to land the dart at a specific location on the target: this is the player’s objective. To achieve the objective, the player stands in a certain way and completes a precise movement. The dart then lands at a particular location on the board (ideally the targeted location). This is the outcome.

Learning objectives can therefore translate to the material that a professor plans to use to cover discipline-related questions discussed in class, as well as the particular educational approach. By contrast, learning outcomes centre on what the student should know and should realistically be able to do by the end of an evaluation, activity or course. The same goals targeted by learning objectives can also be targeted by learning outcomes, but with a focus on applying and integrating the course content; from the student’s point of view, learning outcomes can be increasingly precise and specific.
Why Draft Program Learning Outcomes

“...students already know they want a degree. The challenge is to help students become highly intentional about the forms of learning and accomplishment that the degree should represent.”

College Learning for the New Global Century, AAC&U, p. 29

Almost all quality assurance procedures in the West are centered on program learning outcomes. This reflects different concepts of what quality means in higher education. Registration, retention and degree-granting rates, research intensity, the prestige of the institution or program, graduate job placement rates, etc. are all important criteria. However, there is unanimous agreement that a program’s most important quality indicator is its capacity to transform students so that they acquire the knowledge that their professor considers to be essential. This transformation, this acquisition of knowledge, competencies and values, is defined through program learning outcomes. When program learning outcomes are formalized and communicated, research indicates that there are great benefits for both students and faculty.

For students: By emphasizing application of the knowledge and competencies acquired through a program of study and the integration of knowledge and competencies in other areas of their lives, students become more involved in their learning and in the various types of content. The emphasis on integrating transferrable knowledge and competencies helps students make the link between courses, course evaluations and other types of knowledge, which encourages engagement. Lastly, students gain a better understanding of the conditions for evaluation and objectives of each course.

For professors: The learning outcome development process becomes an opportunity to reflect on course content in terms of its potential application. Developing learning outcomes means that courses focus on knowledge and competencies of considerable use to the student now, in class, and beyond the student's university experience. Learning outcomes clarify the evaluation methods best suited to measuring achievement and indicate the most relevant evaluation criteria.

Courses, Programs and Grades: Various Levels

One major difficulty in identifying and drafting program learning outcomes concerns the various possible descriptive levels. Professors are already familiar with course learning outcomes. The Ontario Council of Academic Vice-Presidents (OCAV) has specifically established the expectations associated with the various diploma levels (Appendix 1). Some universities even go so far as to identify institutional learning outcomes, shared by all of the programs of study they offer. Program learning outcomes fall between course learning outcomes and diploma level expectations. Unlike the latter, however, program learning outcomes are specific to the discipline, but still at a level that precludes the identification of evidence of learning, which can be found, rather, at the course level.
- Identifying and Writing Program Learning Outcomes -
Program learning outcomes are unique in that they result from learning gained in two or more courses. Usually, one course covers two to six program learning outcomes to a relatively detailed degree. A program learning outcome developed through a single course could easily be a course learning outcome. A learning outcome requiring the successful completion of two or more courses is, by definition, a program learning outcome.

**Step-by-Step Development Process for Program Learning Outcomes**

Program learning outcomes form the fundamental core of a program. They identify the most vital knowledge and competencies, and guide educational approach and evaluation choices. Consideration for the setting in which the learning occurs, key elements of the discipline taught, the desired learning and the learning delivery methods help identify your program learning outcomes.

**1. Brainstorming**

Begin with a series of brainstorming sessions in small groups. You can also include a few students nearing the end of the program in your group. Try to answer the following questions:

- What knowledge must a student have gained by the end of a program of study?
- What can students do once the program of study ends?
Then, identify the cognitive level of this learning (memory, comprehension, analysis, creation, etc.). The cognitive level allows you to formulate your program learning outcome so as to start with an associated action verb.

2. Cognitive Level
Bloom’s taxonomy is often used for this purpose. The taxonomy organizes information in a hierarchy, from simple recall to manipulating complex concepts, which often occurs through the so-called “higher” cognitive faculties.

**Remember:** associate, cite, describe, define, duplicate, record, enumerate, label, identify, indicate, list, locate, memorize, name, organize, recall, recognize, repeat, reproduce, summarize, select, etc.

**Understand:** file, compare, convert, demonstrate, distinguish, repeat in one’s own words, illustrate (using examples), explain, express, offer an analogy, generalize, interpret, paraphrase, predict, reformulate, represent, summarize, etc.

**Apply:** administer, apply, assemble, calculate, categorize, compile, construct, control, discover, demonstrate, draw, determine, employ, establish, formulate, provide, manipulate, measure, put in practice, modify, show, perform, participate, prepare, produce, resolve, process, find, use, etc.

**Analyze:** analyze, target, compare, contrast, criticize, break down, deduce, delineate, separate, dissect, distinguish, examine, co-relate, identify, call out, infer, limit, prioritize, relate, break down, organize, contrast, question, separate, subdivide, etc.

**Evaluate:** appraise, argue, attack, select, conclude, criticize, defend, determine, estimate, evaluate, judge, justify, support, etc.

**Create:** adapt, link, anticipate, arrange, assemble, combine, comment, compose, design, connect, construct, create, develop, write, present, incorporate, integrate, establish, organize, plan, prepare, produce, propose, write, structure, synthesize, etc.

3. Formulation and Validity Criteria
Your program learning outcomes should consist of statements that complete the following sentence:

**At the end of the program, students will be able to** ...

+ action verb (Bloom)

+ object

You must ensure that your learning outcomes are:

**A. Observable or measurable:** Students and professors can validate achievement through evaluation or observation.
B. Discipline-specific: An overly generic program learning outcome that can apply to several or all programs is not a program learning outcome.

C. Degree-specific: A program learning outcome applicable to both a bachelor’s degree and a master’s degree is not sufficiently specific, or has excessively high or low requirements, depending on the degree. (Appendix 2 contains examples of program learning outcomes. Appendix 3 includes an evaluation chart for verifying the quality of your program learning outcomes.)

You may prefer to use the SOLO taxonomy if you are more comfortable with it. The SOLO taxonomy is a learning taxonomy developed by Biggs and Collis in 1982 that categorizes signs of student understanding according to response levels. See Appendix 4 for the SOLO taxonomy.

All program faculty should be able to contribute to this activity. Although a first draft can be easier to write in a small committee, we recommend that you circulate it to all professors to gather feedback that is more specific.

How many program learning outcomes does a program have? There are no specific rules or expectations; experts in the field and professors are responsible for determining this number. However, experience has shown that, on average, an undergraduate program includes between 14 and 20 program learning outcomes; a master’s program, between 12 and 18 program learning outcomes; and a doctoral program, between 10 and 16 program learning outcomes.

4. OCAV Categories

The final stage consists of placing your program learning outcomes in the OCAV degree level expectation categories (Appendix 1). Each category must be specified by your program learning outcomes.

5. Curriculum Analysis

Once your program learning outcomes have been identified, you must determine the courses that will lead to their achievement, and the selected evaluation methods. This analysis is necessary primarily for compulsory and optional courses and, ideally and if practical, for all sections of the same courses and in both languages.

The Office of Quality Assurance offers you an online tool available to perform complex analyses, while reducing the time investment required from professors. Follow this link to view and test the tool: https://www.surveymonkey.ca/r/CA-BAQ-OQA. A copy of a completed curriculum analysis is available in Appendix 5. The form takes 15 minutes on average to complete for each course offered. It provides a complete mapping of your program’s learning outcomes and how they are taught and assessed, and makes it possible to identify gaps or redundancies. Feel free to contact us to customize the
tool to your program of study. We also offer meeting facilitation with program professors to explore various questions related to the curriculum analysis (see Appendix 6).

**In Need of Expert Services? We are Here.**

The Office of Quality Assurance can support you at each step of your program learning outcome development process and has other support and self-assessment tools useful for your program assessment. We can help you analyze the strengths and weaknesses of your program by leading group discussions in person or through our online tools: [https:// surveymonkey.ca/r/SWOT-BAQ-OQA](https://surveymonkey.ca/r/SWOT-BAQ-OQA). This online questionnaire can be tailored to your needs and objectives. Appendix 7 contains examples of additional questions that can be included depending on the type of respondents anticipated.

We can also guide and support you through every step of the program evaluation process. Appendix 8 contains a list of Quality Assurance Office members and a description of their main duties.
Appendix 1 – Degree-Level Expectations

Conseil ontarien des vice-présidents aux études (COVPE)
Lignes directrices sur les attentes en matière de grades universitaires

Introduction

The globalization of higher education has led to the need to be able to compare and contrast the variety of qualifications granted by academic institutions for credit transfer, graduate study preparation and professional qualification. Similarly, jurisdictions with decentralized systems are looking for ways to measure academic equivalencies. In addition, in order to be able to evaluate and monitor the effectiveness of all aspects of instruction, institutions, accrediting authorities and funding bodies have begun to clarify the outcomes expected of graduates. OCAV, aware of a national initiative to state degree expectations, has prepared this document to reflect expectations of performance by the graduates of programs of studies of Ontario’s publicly assisted universities.

The degree level expectations presented below elaborate the intellectual and creative development of students and the acquisition of relevant skills that have been widely, yet implicitly, understood.

Below, they are explicitly stated.
# Ontario Council of Academic Vice Presidents (OCAV)

## Guidelines for University Undergraduate Degree Level Expectations

<table>
<thead>
<tr>
<th>1. Depth and Breadth of Knowledge</th>
<th>Baccalaureate/Bachelor’s Degree</th>
<th>Baccalaureate/Bachelor’s Degree: Honours</th>
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<tbody>
<tr>
<td></td>
<td><em>This degree is awarded to students who have demonstrated:</em></td>
<td><em>This degree is awarded to students who have demonstrated:</em></td>
</tr>
<tr>
<td>a) a general knowledge and understanding of many key concepts, methodologies, theoretical approaches and assumptions in a discipline</td>
<td>a) a developed knowledge and critical understanding of the key concepts, methodologies, current advances, theoretical approaches and assumptions in a discipline overall, as well as in a specialized area of a discipline</td>
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<tr>
<td>b) a broad understanding of some of the major fields in a discipline, including, where appropriate, from an interdisciplinary perspective, and how the fields may intersect with fields in related disciplines</td>
<td>b) a developed understanding of many of the major fields in a discipline, including, where appropriate, from an interdisciplinary perspective, and how the fields may intersect with fields in related disciplines</td>
<td></td>
</tr>
<tr>
<td>c) an ability to gather, review, evaluate and interpret information relevant to one or more of the major fields in a discipline</td>
<td>c) a developed ability to: i) gather, review, evaluate and interpret information; and ii) compare the merits of alternate hypotheses or creative options, relevant to one or more of the major fields in a discipline</td>
<td></td>
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<tr>
<td>d) some detailed knowledge in an area of the discipline</td>
<td>d) a developed, detailed knowledge of and experience in research in an area of the discipline.</td>
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<tr>
<th>2. Knowledge of Methodologies</th>
<th>… an understanding of methods of enquiry or creative activity, or both, in their primary area of study that enables the student to:</th>
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<tbody>
<tr>
<td>a) the ability to review, present, and interpret quantitative and qualitative information to:</td>
<td>• evaluate the appropriateness of different approaches to solving problems using well established ideas and techniques; and</td>
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<tr>
<td>i) develop lines of argument;</td>
<td>• devise and sustain arguments or solve problems using these methods.</td>
</tr>
<tr>
<td>ii) make sound judgments in accordance with the major theories, concepts and methods of the subject(s) of study; and</td>
<td>• describe and comment upon particular aspects of current research or equivalent advanced scholarship.</td>
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<tr>
<td>iii) apply underlying concepts, principles, and techniques of analysis, both within and outside the discipline;</td>
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<td>iv) where appropriate use this knowledge in</td>
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<tr>
<th>3. Application of Knowledge</th>
<th>… an understanding of methods of enquiry or creative activity, or both, in their primary area of study that enables the student to:</th>
</tr>
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<tbody>
<tr>
<td>a) the ability to review, present and critically evaluate qualitative and quantitative information to:</td>
<td>• evaluate the appropriateness of different approaches to solving problems using well established ideas and techniques;</td>
</tr>
<tr>
<td>i) develop lines of argument;</td>
<td>• devise and sustain arguments or solve problems using these methods; and</td>
</tr>
<tr>
<td>ii) make sound judgments in accordance with the major theories, concepts and methods of the subject(s) of study;</td>
<td>• describe and comment upon particular aspects of current research or equivalent advanced scholarship.</td>
</tr>
<tr>
<td>iii) apply underlying concepts, principles, and techniques of analysis, both within and outside the discipline;</td>
<td></td>
</tr>
<tr>
<td>iv) where appropriate use this knowledge in</td>
<td></td>
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</tbody>
</table>
### Identifying and Writing Program Learning Outcomes

| 4. Communication Skills | b) the ability to use a basic range of established techniques to:  
  i) analyse information;  
  ii) evaluate the appropriateness of different approaches to solving problems related to their area(s) of study;  
  iii) propose solutions; and  
  c) the ability to make use of scholarly reviews and primary sources. | the creative process; and  
  b) the ability to use a range of established techniques to:  
  i) initiate and undertake critical evaluation of arguments, assumptions, abstract concepts and information;  
  ii) propose solutions;  
  iii) frame appropriate questions for the purpose of solving a problem;  
  iv) solve a problem or create a new work; and  
  c) the ability to make critical use of scholarly reviews and primary sources. |
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<tbody>
<tr>
<td>5. Awareness of Limits of</td>
<td>… the ability to communicate accurately and reliably, orally and in writing to a range of audiences.</td>
<td>… the ability to communicate information, arguments, and analyses accurately and reliably, orally and in writing to a range of audiences.</td>
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</tbody>
</table>
| 6. Autonomy and Professional Capacity | a) qualities and transferable skills necessary for further study, employment, community involvement and other activities requiring:  
  • the exercise of personal responsibility and decision-making;  
  • working effectively with others;  
  b) the ability to identify and address their own learning needs in changing circumstances and to select an appropriate program of further study; and  
  c) behaviour consistent with academic integrity and social responsibility. | a) qualities and transferable skills necessary for further study, employment, community involvement and other activities requiring:  
  • the exercise of initiative, personal responsibility and accountability in both personal and group contexts;  
  • working effectively with others;  
  • decision-making in complex contexts;  
  b) the ability to manage their own learning in changing circumstances, both within and outside the discipline and to select an appropriate program of further study; and  
  c) behaviour consistent with academic integrity and social responsibility. |
<table>
<thead>
<tr>
<th>No.</th>
<th>Guidelines for University Graduate Diplomas Level Expectations</th>
<th>Diplôme d'études supérieures / Graduate diploma: This degree is awarded to students who have demonstrated the following:</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td><strong>Profondeur et étendue des connaissances / Depth and breadth of knowledge</strong></td>
<td>Une compréhension systématique des connaissances du domaine ou de la discipline, et une conscience critique des problèmes actuels ou d'éléments nouveaux, dont la plupart se situent à l'avant-garde de leur discipline, champ d'études ou champ d'exercice professionnel. A systematic understanding of knowledge related to a discipline or profession, and a critical awareness of current problems and/or new insights at the forefront of this academic discipline, field of study or area of professional practice.</td>
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<tr>
<td>2.</td>
<td><strong>Connaissances conceptuelles et compétences méthodologiques / Conceptual and methodological awareness</strong></td>
<td>Une compréhension conceptuelle et de compétence méthodologique : a) permettent une compréhension pratique de la façon dont les techniques de recherche et d'enquête établies sont utilisées afin de créer et d'interpréter les connaissances dans la discipline et/ou dans une sphère de compétence professionnelle; b) permettent une évaluation critique de la recherche actuelle et de la recherche et de l'érudition avancées dans la discipline ou le champ des compétences professionnelles; c) permettent l'analyse de questions complexes et du développement de jugements fondés sur des principes et des techniques établis. A conceptual understanding and methodological competence that: a) enables a working comprehension of how established techniques of research and inquiry are used to create and interpret knowledge in the discipline and/or area of professional competence; b) enables a critical evaluation of current research and scholarship in the discipline and/or area of professional competence; c) enables the analysis of complex issues and development of sound judgments based on current research and established practices and techniques.</td>
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<tr>
<td>3.</td>
<td><strong>Aptitude à la communication / Communication skills</strong></td>
<td>La capacité de communiquer clairement et efficacement des idées, des problèmes et des conclusions aux auditeurs spécialisés et non-spécialisés. The ability to communicate issues and conclusions clearly to specialist and non-specialist audiences.</td>
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<tr>
<td>4.</td>
<td><strong>Mise en œuvre des connaissances / Application of Knowledge</strong></td>
<td>Compétences dans la mise en œuvre d’un corps existant de connaissances dans une analyse critique d’une nouvelle question ou d’une situation ou d'un problème particulier dans un contexte nouveau. Competence in the application of an existing body of knowledge to the critical analysis of a new question or specific problem or issue in a new setting.</td>
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<tr>
<td>5.</td>
<td><strong>Capacité - autonomie professionnelle / Professional capacity - autonomy</strong></td>
<td>Les qualités et les compétences polyvalentes nécessaires aux emplois ou autres études qui exigent : a) un sens de l’initiative et de la responsabilité personnelle; Professional development is often a primary component of graduate diplomas, and will involve: a) qualities and transferable skills necessary for employment or further education, including:</td>
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11
| b) la capacité de prendre des décisions dans des situations complexes;  
| c) l’indépendance intellectuelle requise pour un perfectionnement professionnel continu;  
| d) un comportement éthique conforme à l’intégrité dans les études  
| e) la capacité d’apprécier les enjeux plus vastes de la mise en œuvre des connaissances dans des contextes particuliers.  
| i. the exercise of initiative, and of personal responsibility and accountability;  
| ii. decision-making in complex professional situations;  
| b) the intellectual independence required for continuing professional development;  
| c) ethical behaviour consistent with academic and professional integrity;  
| d) the ability to appreciate the broader implications of applying knowledge to particular contexts.  

| 6. Conscience des limites du savoir / Awareness of limits of Knowledge  
| Connaissance de la complexité du savoir et des contributions possibles d’autres interprétations, méthodes et disciplines.  
| Cognizance of the complexity of knowledge and of the potential contributions of other interpretations, methods and disciplines.  

### Guidelines for University Graduate Degree Level Expectations

<table>
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<tr>
<th></th>
<th><strong>Master’s degree</strong></th>
<th><strong>Doctoral degree</strong></th>
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<tr>
<td><strong>1. Depth and breadth of knowledge</strong></td>
<td>This degree is awarded to students who have demonstrated the following: A systematic understanding of knowledge, including, where appropriate, relevant knowledge outside the field and/or discipline, and a critical awareness of current problems and/or new insights, much of which is at, or informed by, the forefront of their academic discipline, field of study, or area of professional practice;</td>
<td>This degree extends the skills associated with the Master’s degree and is awarded to students who have demonstrated the following: A thorough understanding of a substantial body of knowledge that is at the forefront of their academic discipline or area of professional practice including, where appropriate, relevant knowledge outside the field and/or discipline.</td>
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<tr>
<td><strong>2. Research and scholarship</strong></td>
<td>A conceptual understanding and methodological competence that a) Enables a working comprehension of how established techniques of research and inquiry are used to create and interpret knowledge in the discipline; b) Enables a critical evaluation of current research and advanced research and scholarship in the discipline or area of professional competence; and c) Enables a treatment of complex issues and judgments based on established principles and techniques; and, On the basis of that competence has shown at least one of the following: a) The development and support of a sustained argument in written form; or b) Originality in the application of knowledge.</td>
<td>a) The ability to 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; b) The ability to make informed judgments on complex issues in specialist fields, sometimes requiring new methods; and c) The ability to produce original research, or other advanced scholarship, of a quality to satisfy peer review, and to merit publication.</td>
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<tr>
<td><strong>3. Level of application of knowledge</strong></td>
<td>Competence in the research process by applying an existing body of knowledge in the critical analysis of a new question or of a specific problem or issue in a new setting.</td>
<td>The capacity to a) Undertake pure and/or applied research at an advanced level; and b) Contribute to the development of academic or professional skills, techniques, tools, practices, ideas, theories, approaches, and/or materials.</td>
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<td>4. Professional capacity/autonomy</td>
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<tr>
<td>a) The qualities and transferable skills necessary for employment requiring:</td>
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<td>i) The exercise of initiative and of personal responsibility and accountability; and</td>
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<td>ii) Decision-making in complex situations;</td>
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<td>b) The intellectual independence required for continuing professional development;</td>
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<tr>
<td>c) The ethical behaviour consistent with academic integrity and the use of appropriate guidelines and procedures for responsible conduct of research; and</td>
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<tr>
<td>d) The ability to appreciate the broader implications of applying knowledge to particular contexts.</td>
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<tr>
<td>a) The qualities and transferable skills necessary for employment requiring the exercise of personal responsibility and largely autonomous initiative in complex situations;</td>
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<tr>
<td>b) The intellectual independence to be academically and professionally engaged and current;</td>
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<tr>
<td>c) The ethical behaviour consistent with academic integrity and the use of appropriate guidelines and procedures for responsible conduct of research; and</td>
<td></td>
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<tr>
<td>d) The ability to evaluate the broader implications of applying knowledge to particular contexts.</td>
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<th>5. Level of communication skills</th>
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<tr>
<td>The ability to communicate ideas, issues and conclusions clearly.</td>
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<tr>
<td>The ability to communicate complex and/or ambiguous ideas, issues and conclusions clearly and effectively.</td>
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<table>
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<tr>
<th>6. Awareness of limits of knowledge</th>
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<tbody>
<tr>
<td>Cognizance of the complexity of knowledge and of the potential contributions of other interpretations, methods, and disciplines.</td>
</tr>
<tr>
<td>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.</td>
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Appendix 2 – Program Learning Outcomes / Examples

Good learning outcomes focus on what the student will know or be able to do at the end of a defined period of time and indicate how this knowledge or skill will be demonstrated.

At the end of the astrophysics program, students will be able to:

- **predict** the appearance and movement of visible celestial objects.
- **select and integrate** information from a variety of sources, including electronic and print resources, community resources and personal data, to answer the selected questions.
- **communicate** scientific ideas, procedures, results and conclusions using appropriate SI units, language and formats.
- **describe, evaluate and communicate** the impact of research and other achievements in space technology on our understanding of scientific theories and principles and on other fields of activity.

Program learning outcomes can highlight knowledge, skills and values transmitted by the curriculum.

**KNOWLEDGE**

At the end of the program, students will be able to **rank** macroeconomic policies according to the economic theories from which they emerge.

At the end of the program, students will be able to **describe** the characteristics of the three main types of geological faults (dip, transform and oblique) and **explain** the different types of movement associated with each.

**SKILLS**

At the end of this course, students will be able to **explain** how the data collected support or refute an initial hypothesis through qualitative and quantitative analysis.

At the end of the program, students will be able to **ask** questions about language use with confidence and **seek** effective help from reference sources.

**VALUES**

At the end of the program, students will be able to **work** in small interdisciplinary groups on public health issues.

At the end of this program, students will be able to **identify** and argue their own position on the political spectrum.

The Teaching and Learning Support Service provides a directory of university curriculum learning outcomes from various universities around the world (mainly from Canada and the United States of America, but also, for example, from France, Hong Kong, England, Sri Lanka, Malaysia, etc.). You can consult it here: [https://tlss.uottawa.ca/site/index.php/en/program-development-service](https://tlss.uottawa.ca/site/index.php/en/program-development-service)
## Appendix 3 – Program Learning Outcomes (PLOs) Rubric

<table>
<thead>
<tr>
<th>Category</th>
<th>Developing</th>
<th>Adequate</th>
<th>Excellent</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Student focus</strong> (that is, with students as the primary audience for the PLO’s)</td>
<td>Sense of other faculty as audience for some PLO’s, minimal awareness of student perspective</td>
<td>Inclusion of students as audience although not in a consistent way; students and non-professionals may have difficulty with some terminology</td>
<td>Consistently and clearly student centred in its sense of audience</td>
</tr>
<tr>
<td><strong>Discipline specific</strong> (the PLO’s are consistent with the most important concepts and skills within the field of study)</td>
<td>Some linkages to field of study</td>
<td>Identified general knowledge and skills that students can acquire from the field of study</td>
<td>Effectively articulates the most important knowledge, skills, and dispositions from the discipline with the PLO’s</td>
</tr>
<tr>
<td><strong>Grade-level specific</strong> (within the overall curriculum)</td>
<td>PLO’s might be appropriate for this degree level although not adequately articulated</td>
<td>PLO’s are largely appropriate for this level, although some of them are a still a bit vague</td>
<td>PLO’s are fully and clearly appropriate for this degree level</td>
</tr>
<tr>
<td><strong>Cognitive level</strong> (the extent to which learnings are geared toward an appropriate level e.g. understand, apply, create)</td>
<td>Cognitive levels are not appropriate for the degree and not as specific as they could be</td>
<td>Cognitive levels are varied but questions remain regarding the complexity level of some of the PLO’s</td>
<td>Most PLO’s are clearly defined and describe set of expectations that show variety and increased complexity of cognitive level</td>
</tr>
<tr>
<td><strong>Observable and/or measurable and/or documented</strong> (the extent to which knowledge, skills, abilities or attitudes are observed, measured or documented)</td>
<td>PLO’s are not observed/measured/documented or not being observed/measured/documented in a course</td>
<td>Possible to observe or measure the main elements of the PLO’s, but unclear how or where some of them are being observed/measured/documented</td>
<td>Almost all PLO’s are clearly being observed/measured/documented in specific courses or learning experiences</td>
</tr>
<tr>
<td><strong>Connected (if applicable)</strong> (the PLO’s are linked to broader mission and goals)</td>
<td>Potential for connection, but not clearly stated</td>
<td>Identified basic link to mission and goals of the department or faculty</td>
<td>PLO’s align and are incorporated with the broader mission and goals of the department or faculty</td>
</tr>
</tbody>
</table>

Adapted from https://www.rit.edu/academicaffairs/outcomes/sites/rit.edu.academicaffairs.outcomes/files/images/Rubric%20for%20the%20Assessment%20of%20SLOs.pdf
Appendix 4 – SOLO Taxonomy (Biggs & Collis, 1982)

The SOLO taxonomy is a learning taxonomy developed by Biggs and Collis in 1982. SOLO is an acronym for Structure of the Observed Learning Outcomes. It classifies the manifestations of the student's understanding according to the level of response. The SOLO taxonomy complements popular taxonomies such as Bloom's taxonomy by observing the student's responses to formative or summative evaluations. The use of this taxonomy leads us to reflect on the level of understanding expected of the student for a knowledge or task. The levels of this taxonomy are as follows:

Prestructural

The student has no understanding of the subject, he is only repeating what he has learned by heart. His knowledge has no connection with others, is poorly organized and has no content. For example, in French, the student repeats the rule he or she has learned, but does not know how to recognize the context in which it applies.

Unistructural

The student deals with only one aspect of knowledge. They can recite, identify, name and follow simple instructions. In mathematics, for example, they can follow steps to solve an equation as long as the problem is simple: they can isolate “x”, but the variable must always be to the left of the equation.

Multistructural

The student can deal with several aspects of a problem, but without making any links between them. They can follow a procedure, describe, classify, etc. For example, on a computer, the student knows how to use styles in word-processing software, but does not know in which context the styles can be used. In addition, the student does not use them when writing a text in French with word-processing software.

Relational

At this level, the student makes connections with the knowledge, sees many aspects of a situation and knows how to approach it in many ways. He can explain his understanding and the links between information. For example, when writing a text, the student builds a plan, does the research, takes notes and writes the text simultaneously, while maintaining a well-defined structure. He has a global view, he organizes his text while keeping his objective.

Extended abstract

At this level, new information generates further comprehension or opens the door to new exploration. The student understands, and then transfers their learning to other contexts or other fields. The student can formulate hypotheses, generalize and formulate theories. The student can also make inductions with a high level of abstraction. For example, in the contemporary world, the student may understand an event by making analogies with another event that took place at another time or in a different context. They explain the similarities and differences through cause and effect and the consequences that result from it. In addition, the student generalizes by assuming that such a type of event in such a context can cause such and such consequences.
SOLO Taxonomy (Biggs & Collis, 1982)

Define
Identify
Make simple procedures

Define
Describe
List
Combine

Compare
Explain causes
Sequence
Classify
Analyse
Apply
Formulate questions

Evaluate
Theorize
Generalize
Predict
Create
Imagine

Prestructural
Unistructural
Multistructural
Relational
Extended Abstract
## Appendix 5 – Curriculum Analysis / Example

### Analyse curriculaire - Exemple / Curriculum Analysis - Example

<table>
<thead>
<tr>
<th>DLE</th>
<th>PLO</th>
<th>Cours</th>
<th>Mode de livraison</th>
<th>Int.</th>
<th>Rém.</th>
<th>Adv.</th>
<th>Étendue Spatiale</th>
<th>Étendue Temporelle</th>
<th>Études</th>
<th>Compétences transférables</th>
<th>Moyenne</th>
<th>Taux de réussite</th>
</tr>
</thead>
<tbody>
<tr>
<td>Depth of breadth of knowledge</td>
<td>Understand and analyze some of the main theories, research methodologies, and debates/controversies in the following four areas of LSI: The Psychology of Human Aging, Cognitive Psychology, Developmental Psychology, and Social Psychology</td>
<td>LS1101 Présentiel</td>
<td>X</td>
<td>Inclus</td>
<td>Terminale</td>
<td>Project (group or individual)</td>
<td>Communication Skills</td>
<td>68%</td>
<td>88%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Analyze and evaluate the main theories and research methodologies in their own area of study (e.g., Developmental Psychology)</td>
<td>LS1250 Présentiel</td>
<td>X</td>
<td>Inclus</td>
<td>Terminale</td>
<td>Test / Quiz / Exam</td>
<td>Problem Solving</td>
<td>73%</td>
<td>92%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Knowledge of Methodologies</td>
<td>Determine which methodologies and statistical techniques are appropriate to answer a broad array of research questions</td>
<td>LS1101 Présentiel</td>
<td>X</td>
<td>Inclus</td>
<td>Terminale</td>
<td>Case studies</td>
<td>Data Analysis</td>
<td>82%</td>
<td>90%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Conceptualize, design and implement research for the generation of new knowledge both within their specialized area of study (thesis topic) and in at least one other related area</td>
<td>LS1250 Présentiel</td>
<td>X</td>
<td>Inclus</td>
<td>Terminale</td>
<td>Case studies</td>
<td>Data Analysis</td>
<td>58%</td>
<td>73%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Application of Knowledge</td>
<td>Design and conduct psychological studies to address research questions</td>
<td>LS1101 Présentiel</td>
<td>X</td>
<td>Inclus</td>
<td>Terminale</td>
<td>Journal / lab notebook / portfolio</td>
<td>Communication Skills</td>
<td>71%</td>
<td>91%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Apply knowledge of statistical theory to choose of appropriate analyses</td>
<td>LS1101 Présentiel</td>
<td>X</td>
<td>Inclus</td>
<td>Terminale</td>
<td>Journal / lab notebook / portfolio</td>
<td>Data Analysis</td>
<td>63%</td>
<td>55%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Use statistical packages to analyze and interpret data</td>
<td>LS1101 Présentiel</td>
<td>X</td>
<td>Inclus</td>
<td>Terminale</td>
<td>Journal / lab notebook / portfolio</td>
<td>Communication Skills</td>
<td>83%</td>
<td>78%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Communication Skills</td>
<td>Synthesize disparate facts and theories in the primary area of study</td>
<td>LS1101 Présentiel</td>
<td>X</td>
<td>Inclus</td>
<td>Terminale</td>
<td>Journal / lab notebook / portfolio</td>
<td>Data Analysis</td>
<td>68%</td>
<td>88%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Apply the research methods, experimental designs, and analysis techniques commonly used to investigate questions in the primary area of study</td>
<td>LS1101 Présentiel</td>
<td>X</td>
<td>Inclus</td>
<td>Terminale</td>
<td>Journal / lab notebook / portfolio</td>
<td>Data Analysis</td>
<td>82%</td>
<td>90%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Describe multiple areas within psychology (e.g., social, cognitive, clinical, developmental, etc.), including theoretical perspectives, research findings, and their applications.</td>
<td>LS1101 Présentiel</td>
<td>X</td>
<td>Inclus</td>
<td>Terminale</td>
<td>Journal / lab notebook / portfolio</td>
<td>Communication Skills</td>
<td>73%</td>
<td>92%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Awareness of Limits of Knowledge</td>
<td>Identify theory, research, and applications in related disciplines (e.g., genetics, computer science, etc.)</td>
<td>LS1101 Présentiel</td>
<td>X</td>
<td>Inclus</td>
<td>Terminale</td>
<td>Project (group or individual)</td>
<td>Data Analysis</td>
<td>58%</td>
<td>73%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Explain diverse experimental paradigms used in psychology and related research areas</td>
<td>LS1101 Présentiel</td>
<td>X</td>
<td>Inclus</td>
<td>Terminale</td>
<td>Project (group or individual)</td>
<td>Data Analysis</td>
<td>71%</td>
<td>91%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Discuss the history of psychology within the primary area of study, including the impact of scientific revolutions, theory shifts, etc. on the choice of research questions, methods, etc.</td>
<td>LS1101 Présentiel</td>
<td>X</td>
<td>Inclus</td>
<td>Terminale</td>
<td>Project (group or individual)</td>
<td>Data Analysis</td>
<td>67%</td>
<td>82%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Describe ethical issues in conducting research</td>
<td>LS1101 Présentiel</td>
<td>X</td>
<td>Inclus</td>
<td>Terminale</td>
<td>Project (group or individual)</td>
<td>Data Analysis</td>
<td>63%</td>
<td>55%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Autonomy and Professional Capacity</td>
<td>Apply frontier tools from the social sciences, particularly microeconomics, to understand policy decisions and outcomes and demonstrate how to write and speak about social science theories of individual and social behavior arising in economics, decision</td>
<td>LS1101 Présentiel</td>
<td>X</td>
<td>Inclus</td>
<td>Terminale</td>
<td>Journal / lab notebook / portfolio</td>
<td>Communication Skills</td>
<td>83%</td>
<td>78%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Solve/explain unstructured real-world problems that require teamwork and contributions from diverse disciplines</td>
<td>LS1101 Présentiel</td>
<td>X</td>
<td>Inclus</td>
<td>Terminale</td>
<td>Journal / lab notebook / portfolio</td>
<td>Data Analysis</td>
<td>68%</td>
<td>88%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Demonstrate independent learning skills and enthusiasm for the field.</td>
<td>LS1101 Présentiel</td>
<td>X</td>
<td>Inclus</td>
<td>Terminale</td>
<td>Journal / lab notebook / portfolio</td>
<td>Data Analysis</td>
<td>73%</td>
<td>92%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Appendix 6 – Questions to Better Understand a Curriculum Analysis

Learning outcomes

✔ What are the learning outcomes that we focus on the most or least?
✔ What are the strengths and gaps in teaching and evaluation throughout the program that affect the achievement of the established learning outcomes?
✔ Do the teaching and assessment methods we use best match the expected learning outcomes?
✔ Are these learning outcomes appropriate? Are there any omissions? Is there a need for clarification?

Teaching and assessment methods

✔ What are the teaching and assessment strategies we use most or least?
✔ Are the teaching and assessment methods used in the courses consistent with the discipline and mission/vision of our program/institution?
✔ Are the teaching and assessment methods used in the courses consistent with discipline-specific pedagogy?
✔ With regard to student learning support, to what extent do the teaching and assessment methods we use actually work?

Workload and progress

✔ How was the student workload distributed over the entire semester?
✔ Have students/professors expressed concerns about workload at specific times during the semester? Is it possible to distribute the workload more fairly?
✔ How is student learning progressing for each of the learning outcomes?
✔ Do students have the opportunity to progress towards the achievement of each learning outcome?

General

✔ Which data presented surprised you the most? Why?
✔ Where are your strengths? What are we doing right?
✔ Do these results agree or conflict with other curriculum evaluation results or with the latest program reviews (e.g., feedback from students, professors and employees)? Why? What are the points of convergence or divergence?
✔ What are the next steps we can take to improve, align and integrate our curriculum?

Adapted from University of Guelph
Resources for curriculum mapping
Instructions

Please only select the questions most relevant for your context of program evaluation. Keep in mind that these questions will be added to the Strengths and Weaknesses analysis template that contains open-ended questions. We suggest that you do not select more than 5-6 unless you are offering a participation prize (which usually improves the completion rate).

Contextual / Demographic information

1. You are: woman / man / non-binary identity
2. You graduated in: (year option) / or You are in (year options)
3. You were enrolled in: (program options) / You are currently enrolled in: (program options)
4. What is the proportion of courses in English / French that you have taken in the program at this point?
5. What language did you mainly study in during your undergraduate program?
6. Is your current career path related to your degree in (name of degree)?
7. Could you please let us know about the kind of studies or/and work you are currently doing?

Communication / Appreciation section

1. Over the course of your studies, what would be the most important knowledge, skills or attitudes (values) that you have learned (did not possess when entering the program)? List three main items.
2. What are your career aspirations?
3. To what extent has the program in (name of program) helped you realize these aspirations.
4. What were your expectations of the program before starting it?
5. To what extent has the program met your expectations?
6. Which expectations have not been met by the program?
7. From your perspective, do you think there are topics, subjects or courses related to the program that could have been useful to you in your current or future career but are not currently offered? Link to website for course details
8. Identify the THREE (3) most valuable courses that you took in your program and explain what made them valuable to you.
9. Do you have any additional comments about your program of study that you would like to share?
10. Would you recommend this program to a friend? If so, why? If not, why not?
11. There has been a suggestion to (fill in the blank). Are you in favour? Why or why not?
Continuing education program evaluation questions for professors

1. My program is intellectually stimulating (Likert scale options). Can you give us details about what kind of activities you find intellectually stimulating?

2. Teaching in my program suits the way I learn (Yes/ No/ Somewhat). Can you outline what you appreciate the most and the least?

3. The overall workload of my program this year has been: low, medium, high or too high. Please give us details.

4. Course content across the program do not present too many redundancies and when they do it helps me build on prior knowledge (agree / disagree). Please explain.
# Identifying and Writing Program Learning Outcomes

## Appendix 8 – Who Does What at the Office of Quality Assurance

<table>
<thead>
<tr>
<th>TEAM</th>
<th>HOW THEY CAN HELP YOU</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mawy Bouchard</strong></td>
<td>Mawy Bouchard will meet with you in the summer or in early fall to present the University of Ottawa’s quality assurance process, its philosophy and procedures.</td>
</tr>
<tr>
<td>Director</td>
<td>• Provides support for the preparation of the self-study brief instituting elements of the IQAP for the program being evaluated.</td>
</tr>
<tr>
<td>Phone: 613-562-5800 ext. 7895</td>
<td>• Supports the unit in identifying the program’s strengths in relation to the University’s strategic development priorities.</td>
</tr>
<tr>
<td>Email: <a href="mailto:baq-oqa@uOttawa.ca">baq-oqa@uOttawa.ca</a></td>
<td>• Provides support in identifying challenges and developing an action plan.</td>
</tr>
<tr>
<td>Associate Professor</td>
<td></td>
</tr>
<tr>
<td>Faculty of Arts, Département de français</td>
<td></td>
</tr>
<tr>
<td><strong>Isabelle Paquet</strong></td>
<td>For graduate programs:</td>
</tr>
<tr>
<td>Coordinator, Evaluation of Programs</td>
<td>• Contact person for questions on the self-study brief and the submission of volumes II (professor CVs) and volume III (proposed external evaluators).</td>
</tr>
<tr>
<td>613-562-5800 ext. 8305</td>
<td>• Contact person for communicating with quality assurance partners such as Institutional Research and Planning, the Library, the Curriculum and learning outcomes analyst, etc.</td>
</tr>
<tr>
<td>Email: <a href="mailto:ipaquet@uOttawa.ca">ipaquet@uOttawa.ca</a></td>
<td>• Follows-up on the status of files (cyclical review periods, submission of the three volumes, follow-up with the units, organizing site visits by external examiners, submission of progress and follow-up reports, etc.).</td>
</tr>
<tr>
<td><strong>Graciela Dancose</strong></td>
<td>For undergraduate programs:</td>
</tr>
<tr>
<td>Coordinator, Evaluation of Programs and Courses</td>
<td>• Contact person for questions on the self-study brief and the submission of volumes II (professor CVs) and volume III (proposed external evaluators).</td>
</tr>
<tr>
<td>613-562-5800 ext. 1076</td>
<td>• Contact person for communicating with quality assurance partners such as Institutional Research and Planning, the Library, the Curriculum and learning outcomes analyst, etc.</td>
</tr>
<tr>
<td>Email: <a href="mailto:gdancose@uOttawa.ca">gdancose@uOttawa.ca</a></td>
<td>• Follows-up on the status of files (cyclical review periods, submission of the three volumes, follow-up with the units, organizing site visits by external examiners, submission of progress and follow-up reports, etc.).</td>
</tr>
<tr>
<td><strong>Geneviève Gauthier</strong></td>
<td>• Helps to write or modify the program’s learning outcomes.</td>
</tr>
<tr>
<td>Curriculum and Learning Outcomes Analyst</td>
<td>• Conducts an online <strong>SWOT analysis</strong> of programs, for various parties, such as students, professors, graduates, internship coordinators, employers, etc.</td>
</tr>
<tr>
<td>613-562-5800 ext. 4310</td>
<td>• Conducts <strong>Curriculum analyses</strong> allowing programs to have a detailed view of their curriculum, course sequence, pedagogical approaches, evaluation methods, etc.</td>
</tr>
<tr>
<td>Email: <a href="mailto:gen.gauthier@uOttawa.ca">gen.gauthier@uOttawa.ca</a></td>
<td></td>
</tr>
</tbody>
</table>