

A Guide to Writing and Assessing Learning Outcomes at Thompson Rivers University

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Acknowledgements

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Introduction

The Learning Outcomes and Assessment (LOA) initiative, housed in the Centre for Student Engagement and Learning Innovation (CSELI), is a product of TRU's Academic Plan (2011) and Strategic Priorities (2014). The LOA Plan and Timeline is available on the CSELI website (http://www.tru.ca/ctl/learning_outcomes.html).

The internal objective of TRU's LOA initiative is to develop and disseminate a process in which all educational programs can productively use a learning outcomes and assessment approach to inform and strengthen effective teaching and student learning. Externally, the initiative and its results will be communicated to accrediting bodies, policy makers and other stakeholders.

A learning outcomes-based approach to student learning is now the norm in determining whether students know and can do what educators intend. Learning outcomes are explicit and concise statements of what students will know, be able to do, and value at the end of an educational experience. Research shows that student learning is most effective when learning outcomes are clearly understood before a learning experience.

The LOA approach to teaching and learning specifies what students are expected to learn in a hierarchy of levels. At the course level, it effectively aligns the learning expectations with appropriate assessments and learning activities. At the program level, it organizes courses to form an integrated curriculum around intended learning outcomes. Program outcomes then contribute to institutional goals.

Program- and institutional-level outcomes are communicated broadly and serve to inform students, parents, employers and other stakeholders of the educational attributes that successful students will possess at the end of their studies. Learning outcomes inform curriculum decisions and form the basis of evaluating the quality and currency of programs.

Benefits of a Learning Outcomes and Assessment Approach

BENEFITS FOR STUDENTS	<ul style="list-style-type: none">• Provides clarity of program and course expectations• Outcomes-oriented language assists understanding of program and course goals• Outcomes-oriented language facilitates understanding of assignments and assessments• Promotes the understanding of a unified and coherent program• Clarifies the connections between courses, program learning outcomes, and institutional goals
BENEFITS FOR FACULTY	<ul style="list-style-type: none">• Clarifies the connection between course and program learning outcomes• Promotes awareness of course contributions to program and institutional goals

	<ul style="list-style-type: none"> • Outcomes-oriented language facilitates communication of course and program goals • Outcomes-oriented language facilitates assignment and assessment design
BENEFITS FOR PROGRAM QUALITY	<ul style="list-style-type: none"> • Increases departmental discussion of program goals and curriculum improvement needs • Increases clarity of program purposes and goals • Facilitates curriculum improvement through integration with the curriculum development cycle
BENEFITS FOR EXTERNAL STAKEHOLDERS	<ul style="list-style-type: none"> • Provides clarity of program goals and intended outcomes to employers and the community • Provides evidence of quality assurance processes to government and accrediting bodies

Essential Definitions

Learning outcomes are specific, measurable statements that describe what successful students will know, be able to do, and value upon completion of an educational experience. Terms like *objective* or *goal* are sometimes used in the same sense. While there are multiple ways to define or differentiate between objectives, outcomes and goals, this guide does not mandate a particular understanding of the terminology, although it will refer to *outcomes* throughout. Programs are encouraged to use the label that best aligns with their discipline or external accrediting body. Your attention should not be concentrated on the label but on the function of the statement, which should be specific, measurable and learner-focused.

Assessment is the process of collecting information to measure achievement of the stated outcomes, and using that information to enhance student learning and for continuous curriculum improvement. Terms like assessment, evaluation, evidencing or measurement are often used to describe the same task. While there are multiple ways to define or differentiate between these terms, programs are encouraged to use the label that best aligns with their discipline as long as the focus is on the measurement of outcomes and continuous curriculum improvement.

The Curriculum Development Process

The development of learning outcomes and assessment plans should be situated in the context of continuous curriculum improvement. Figure 1 illustrates this cycle.

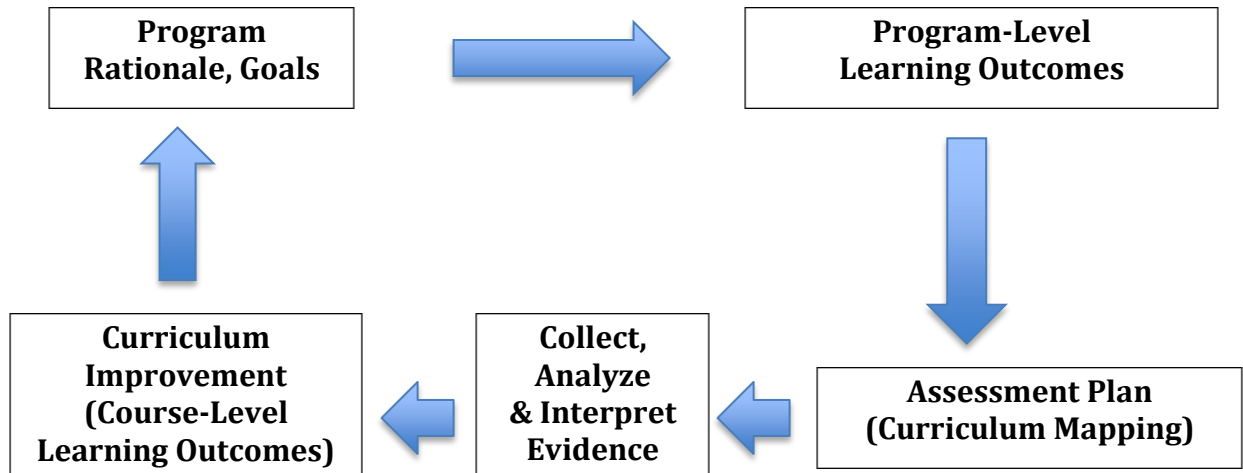


Figure 1. Curriculum Development Continuous Improvement Process

Each department will:

- Use existing statements summarizing the program’s **rationale and goals** as the basis for the curriculum development process.
- Write effective **program-level learning outcomes** to represent the desired attributes of program students.
- Create an **assessment plan** to measure the achievement of the stated outcomes that includes **curriculum mapping** as well as other **direct and indirect assessment tools**.
- **Collect, analyze and interpret evidence** according to the assessment plan to identify gaps, redundancies, and new opportunities for **curriculum improvement**.
- Write effective **course-level learning outcomes** that are linked to the program-level outcomes.

The remainder of this Guide will expand on each phase of the cycle and provide you with specific next steps to implement a continuous improvement cycle for your curriculum.

Writing Effective Learning Outcomes

Learning outcomes are direct statements of what successful students will know, be able to do, and value at the end of a program, course, or other learning experience. They are always learner-focused in their purpose and wording. There is no required number of outcomes for a program, but often eight to twelve are sufficient.

Guiding questions to consider before writing outcomes for your program include:

- How would you describe the attributes of an ideal graduate of the program?
- What are the essential and enduring knowledge, skills, and values that your graduates possess?
- What distinguishes the graduates in your program from graduates in similar programs at other institutions?

Well-written learning outcomes are concise and clearly stated, specific enough to be observable and measurable and thus capable of being assessed. They are broad enough so as not to limit flexibility in achieving them and they are realistic given available time and resources.

The ideal learning outcome has three elements:

1. Action verb(s)
2. Subject
3. Context

Begin your list of outcomes with the statement, "By the end of this program, successful students will be able to ..."

Begin each outcome with an action verb that specifies the desired level of learning based on Bloom's Taxonomy. See Appendix 1 for an extensive listing of verbs in six levels of learning. The action verb is followed by the subject of the learning and context in which the learning occurs. Learning outcomes fall into one of three domains of learning called Knowledge (Cognitive), Physical Skills (Psychomotor), and Values (Affective). Ordinarily, the completed list of program-level outcomes will include items that contribute to each of these domains. The outcomes can be categorized in these domains if desired. Examples of verbs in each domain are available on the CSELI website.

Examples of Program Learning Outcomes

By the end of this program, successful student will be able to:

- **Characterize and select appropriate materials for use in building wood-framed houses**

The verbs are "characterize" and "select," the subject is "materials," and the context is "wood-framed houses."

- **Practice and evaluate group skills in support of team performance**

The verbs are "practice" and "evaluate," the subject is "group skills," and the context is "team performance."

- **Communicate effectively in a professional environment through technical reports and presentations**

The verb is "communicate," the subject is "technical reports and presentations," and the context is "professional environment."

More examples of discipline specific program-level outcomes are available on the CSELI website (<http://www.tru.ca/ctl/learning-outcomes/resources.html>).

Writing Effective Learning Outcomes Next Steps:

- ✓ Access Learning Outcome Resources on the CSELI website
- ✓ Schedule a Learning Outcome Development Workshop with CSELI
- ✓ Write program-level learning outcomes
- ✓ Self-assess learning outcome statements (see Appendix 2)

Assessment Planning

An assessment plan outlines the procedures for collecting information from a variety of sources (direct, indirect, quantitative, qualitative) to measure student achievement of learning outcomes. Curriculum mapping is a required element of all TRU Assessment Plans. Beyond this, each department will select discipline-appropriate assessment tools to evaluate outcome achievement.

Curriculum Mapping

Curriculum mapping is the process by which a program ensures that its stated program-level learning outcomes are addressed through the curriculum (and, in many cases, the co-curriculum) that it offers students. The mapping process allows faculty to identify which of the program outcomes are introduced, reinforced and mastered in each course leading to program completion, and to reflect on how intentionally and coherently the curriculum advances the stated learning outcomes. Departments can then review completed curriculum maps to identify strengths, gaps, redundancies and opportunities for curricular improvement.

Two curriculum mapping templates are provided: a Semester Progression map and a Program Outcomes map.

The **Semester Progression map** will create a visual representation of student progression through the curriculum to explore curriculum flow, course sequencing, and ratio of required to elective courses to identify a balanced student experience over the duration of the program. It also demonstrates alignment with TRU's institutional outcomes at the course level.

The **Program Outcomes map** will match program-level learning outcomes with individual courses in which specific learning outcomes are intentionally introduced, reinforced or mastered.

Curriculum Mapping Next Steps:

- ✓ Distribute the Curriculum Mapping Preliminary Questionnaire (Appendix 3)
- ✓ Use the results of the questionnaire to complete the Curriculum Mapping Templates (Appendices 4 and 5)
- ✓ Complete the Curriculum Mapping Results Questionnaire (Appendix 6)

Direct and Indirect Assessment Tools

In addition to curriculum mapping, student achievement of learning outcomes can be assessed directly or indirectly. Direct assessment relies on actual demonstrations of students' knowledge, abilities or values, often by the collection of specific examples of student work drawn from existing course requirements. Indirect assessments are based on stakeholders' perceptions of student achievement of learning outcomes or students' perception or experience of the curriculum.

In many cases, you may find that your department is already collecting a variety of direct and indirect assessment data. The Assessment Plan ensures that data collection is linked to the stated outcomes and leads to curriculum improvement. A strong assessment plan will use a combination of direct and indirect assessment tools.

Examples of **direct** assessment tools include but are not limited to:

- Electronic portfolios
- Comprehensive exams
- Pre-/post-tests
- Essays
- Case studies
- Juried performances
- Oral presentations

Examples of **indirect** assessment include but are not limited to:

- Course evaluations
- Student, alumni, faculty or employer surveys
- Stakeholder focus groups
- SWOT analysis
- Enrollment or retention rates
- Job placement rates
- Peer benchmarking

Program Review Process

All TRU programs are currently reviewed on a seven-year cycle. Departments are encouraged to engage in assessment activities on a continuous basis in each of the seven years leading up to the program review. Some assessment tools are most effective when used on an annual basis (e.g.: direct assessments, surveys). Other assessment tools may only be used once or twice in a seven-year period (e.g.: SWOT analysis, focus groups).

Assessment Planning Next Steps:

- ✓ Select direct and indirect assessment tools appropriate to your discipline
- ✓ Complete the Assessment Plan (Appendix 7)

Closing the Continuous Improvement Loop

Information collected through the learning outcomes assessment process is certainly important as a means of demonstrating student learning to stakeholders. It is equally as important as a means to engage faculty in evidence-based discussions about curriculum improvement.

Continuous Curriculum Improvement

As evidence is collected, analyzed and interpreted, faculty and curriculum committees should be able to:

- Articulate the strengths of the program, understand where and why it is succeeding and leverage its strengths in the improvement process
- Identify gaps, redundancies and challenges in the curriculum
- Identify more and less effective educational experiences and assessment strategies
- Take action to improve student learning

Course-level Learning Outcomes

Although most TRU courses have articulated course-level learning outcomes, many still do not. The Curriculum Development Continuous Improvement Process presents an ideal opportunity for departments to revisit their course learning outcomes and ensure that all courses have specific, measurable, learner-focused outcomes that align with and support program outcomes. The LOA initiative plan anticipates that all programs will have articulated course-level outcomes in line with their next scheduled program review.

Resources

TRU's Center for Student Engagement and Learning Innovation Website

http://www.tru.ca/ctl/learning_outcomes.html

On the CSELI website you will find the LOA Initiative Plan and Timeline, this Guide and enclosed appendices, sample templates and forms, and other resources.

TRU's Program Review Website

http://www.tru.ca/vpacademic/academic_program_review.html

On this website there are examples of most of TRU's program review documents, listed on the left under two headings: *Doing Program Review at TRU* and *Status of Program Reviews*. Completed program review reports are password protected, available from Gary Bunney, Program Review Officer.

University of Guelph Website

<http://www.uoguelph.ca/vpacademic/avpa/outcomes/>

The University of Guelph is recognized as a leader in outcomes-based pedagogy. On their website you will find the U of G Guide to Learning Outcomes and other helpful resources for developing and assessing learning outcomes.

Contact Us

CSELI is the support centre for TRU's Learning Outcomes and Assessment Initiative. If you need additional help beyond this Guide or suggested resources, or you would like to schedule a learning outcome development workshop, please contact:

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Appendix 1: Expanded Taxonomy of Learning

Expanded Taxonomy of Learning

Taxonomy	Definition	Related LEARNING VERBS	What the Student Does	What the Teacher Does	Assessments
Remember	Recall specific bits of information	Tell, list, describe, name, repeat, remember, recall, identify, state, select, match, know, locate, report, recognize, observe, choose, who, what, where, when, cite, define, indicate, label, memorize, outline, record, relate, reproduce, underline	Responds Absorbs Remembers Recognizes	Directs Tells Shows Examines	Students recognize, recall or find information.
Understand	Construct meaning from information	Explain, restate, find, describe, review, relate, define, clarify, illustrate, diagram, outline, summarize, interpret, paraphrase, transform, compare similarities and differences, derive main idea, arrange, convert, defend, discuss, estimate, extend, generalize, give examples, locate, report, translate	Explains Translates Demonstrates Interprets Summarizes	Demonstrates Listens Questions Compares Examines	Students organize previously learned material, rephrase it, describe it in their own words, use it for making comparisons, change from one form of representation to another.
Apply	Use methods, concepts, principles, and theories in new situations	Apply, practice, employ, solve, use, demonstrate, illustrate, show, report, paint, draw, collect, dramatize, classify, put in order, change, compute, construct, interpret, investigate, manipulate, modify, operate, organize, predict, prepare, produce, schedule, sketch, translate	Solves novel problems Demonstrates Uses knowledge constructs	Shows Facilitates Observes Criticizes	Students use previously learned information in order to solve a problem or to complete familiar or unfamiliar tasks.
Analyze	Identify how parts relate to one another or to a larger structure/purpose	Analyze, dissect, detect, test, deconstruct, discriminate, distinguish, examine, focus, find coherence, survey, compare, contrast, classify, investigate, outline, separate, structure, categorize, solve, diagram, determine evidence and conclusions, appraise, break down, calculate, criticize, debate, experiment, identify, illustrate, infer, inspect, inventory, question, relate, select	Discusses Uncovers Lists Dissects Compares and contrasts	Probes Guides Observes Acts as a resource	Students will 1) identify reasons, causes, & motives; 2) consider available evidence to reach a conclusion, inference or generalization; 3) analyze a conclusion, inference or generalization to find supporting evidence.
Evaluate	Judge the value of something based on criteria, processes, or standards	Coordinate, judge, select/choose, decide, debate, evaluate, justify, recommend, verify, monitor, measure, the best way, what worked, what could have been different, what is your opinion, test, appraise, assess, compare, conclude, contrast, criticize, discriminate, estimate, explain, grade, interpret, rate, relate, revise, score, summarize, support, value	Judges Disputes Forms opinions	Accepts Lays bare the criteria Harmonizes	Students judge the merit and value of an idea, a solution to a problem, an aesthetic work, etc.
Create	Generate a coherent functional whole; recognize new patterns	Create, hypothesize, design, construct, invent, imagine, discover, present, deduce, induce, bring together, compose, pretend, predict, organize, plan, modify, improve, suppose, produce, set up, what if, propose, formulate, solve (more than one answer), arrange, assemble, categorize, collect, combine, devise, explain, generate, manage, perform, prepare, rearrange, reconstruct, relate, reorganize, revise, argue for	Generate Hypothesize Plan Design Produce Construct Argues	Reflects Extends Analyzes Evaluates	Students will 1) produce original work or communication; 2) make predictions; 3) solve problems; 4) invent, hypothesize, devise a procedure; argue for a position; present a work of art or music to be judged

Adapted from L. W. Anderson and D. R. Krathwohl (eds). *A Taxonomy for Learning, Teaching and Assessing* (based on Bloom's Taxonomy), 2001. Retrieved 1/15/08 from <http://www.ntlf.com/Library/Expanded%20Taxonomy%20of%20Learning.doc>

Appendix 2: Self-Assessment of Learning Outcome Statements

Self-assessment of individual program-level learning outcome statements		
Each program-level learning outcome statement...	Yes	No
1. Completes the phrase, "By the end of this program, successful students will be able to..."		
2. Starts with an action verb that specifies the depth of learning expected.		
3. Avoids terms that are too vague for assessment such as <i>know</i> , <i>understand</i> , <i>learn</i> , <i>appreciate</i> , and <i>be aware of</i> .		
4. States the subject of the knowledge, skills, or values/attitudes to be demonstrated.		
5. Is specific enough to be observable, measurable, and capable of being assessed.		
6. Has a breadth and depth that will not limit flexibility and adaptability in the curriculum.		
7. Uses language consistent with disciplinary norms and standards.		
8. Is concise, direct, clearly stated and understandable by multiple audiences.		

Self-assessment of a list of program-level learning outcomes		
The scope of my list of learning outcomes...	Yes	No
1. Captures the disciplinary knowledge, skills, and values that are important in the program, including...		
a. Depth and breadth of knowledge		
b. Knowledge of methodologies		
c. Application of knowledge		

	d. Awareness of limits to their own knowledge		
	e. Autonomy and professional capacity		
	f. Ethics and professional capacity		
2. Addresses the needs of employers.			
3. Addresses the intellectual and practical skills of the discipline, including...			
	a. Scholarly inquiry		
	b. Independence of thought, critical thinking and problem solving		
	c. Language literacy		
	i. Reading		
	ii. Writing		
	iii. Oral communication		
	d. Quantitative literacy		
	e. Information literacy		
	f. Teamwork		
	g. Professional ethical reasoning		
	h. Historical development of the discipline		
4. Includes outcomes that support experiential learning experiences.			
5. Includes outcomes that intentionally contribute to TRU institutional learning outcomes, Academic Plan and Strategic Plan.			

Appendix 3: Curriculum Mapping Preliminary Questionnaire

- What methods of instruction do you use in your course?
- What methods of assessment are used in your course?
- Which institutional learning outcomes are developed in your course? Indicate if the outcome is 1. Taught, Assessed; 2. Taught, Not Assessed; 3. Not Taught, Assessed; 4. Not Taught, Not Assessed
 - [Institutional outcome 1]
 - [Institutional outcome 2]
 - [Institutional outcome 3 etc.]
- Which program-level learning outcomes are developed in your course? Indicate if the outcome is 1. Taught, Assessed; 2. Taught, Not Assessed; 3. Not Taught, Assessed; 4. Not Taught, Not Assessed
 - [Learning outcome 1]
 - [Learning outcome 2]
 - [Learning outcome 3 etc.]
- What level of complexity/depth is expected for each of the learning outcomes? Indicate if the outcome is 1. Introduced; 2. Reinforced; 3. Mastered; 4. N/A
 - [Learning outcome 1]
 - [Learning outcome 2]
 - [Learning outcome 3 etc.]
- Please specify how each of the learning outcomes are taught and assessed in your course.

Appendix 4: Semester Progression Map for [name & type of program]

Contact: _____

Semester 1	Semester 2	Semester 3	Semester 4	Semester 5	Semester 6	Semester 7	Semester 8
<div style="border: 2px solid green; border-radius: 15px; padding: 5px;"> ABCD 1234-COURSE XYZ Lower Level Required Course (3,0,3) 1 2 </div>	<div style="border: 2px solid orange; border-radius: 15px; padding: 5px;"> ABCD 1234-COURSE XYZ Outside Discipline (4,0,0) 3 </div>	<div style="border: 2px dashed orange; border-radius: 15px; padding: 5px;"> ABCD 1234-COURSE XYZ (3,0,0) 1 3 5 </div>	<div style="border: 2px solid red; border-radius: 15px; padding: 5px;"> ABCD 1234-COURSE XYZ Upper Level Required Course (3,0,0) 1 2 </div>	<div style="border: 2px dashed red; border-radius: 15px; padding: 5px;"> ABCD 1234-COURSE XYZ Upper Level Required (3,0,0) 1 5 8 </div>	<div style="border: 2px solid red; border-radius: 15px; padding: 5px;"> ABCD 1234-COURSE XYZ Upper Level Required Course (3,0,0) 1 5 8 </div>	<div style="border: 2px solid blue; border-radius: 15px; padding: 5px;"> ABCD 1234-COURSE XYZ Upper Level Lab (0,1,3) 1 2 </div>	

This course supports these TRU Institutional Learning Outcomes (Official Institutional Outcomes will be added once approved)

- 1 Institutional Outcome 1
2 Institutional Outcome 2
3 Institutional Outcome 3
4 Institutional Outcome 4
5 Institutional Outcome 5
6 Institutional Outcome 6
7 Institutional Outcome 7
8 Institutional Outcome 8

Lower Level from Within Discipline = —— Upper Level from Within Discipline = —— Laboratory Course = ——	[Elective = - - - -] [Elective = - - - -] [Elective = - - - -]	Course from Outside Discipline = —— [Elective = - - - -] Course Based on Directed Study = ==== Course Based on Experiential Learning =
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Appendix 5: Program Outcomes Map for [name & type of program]

Contact: _____

		Program-wide Student Learning Outcomes							
		Program Learning Outcome #1 Learning Outcome: Action Verb + Subject + Context	Program Learning Outcome #2 Learning Outcome: Action Verb + Subject + Context	Program Learning Outcome #3 Learning Outcome: Action Verb + Subject + Context	Program Learning Outcome #4 Learning Outcome: Action Verb + Subject + Context	Program Learning Outcome #5 Learning Outcome: Action Verb + Subject + Context	Program Learning Outcome #6 Learning Outcome: Action Verb + Subject + Context	Program Learning Outcome #7 Learning Outcome: Action Verb + Subject + Context	Program Learning Outcome #8 Learning Outcome: Action Verb + Subject + Context
Prerequisite Courses	COURSE 1234								
	COURSE 1234								
	COURSE 1234								
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Labs & Fieldwork	COURSE 1234								
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Notes Such as: course alternatives, course suggestions, course limitations, course offerings, special notes					Notes Such as: course alternatives, course suggestions, course limitations, course offerings, special notes				

I=Introduce - key concepts and skills introductory level of understanding **R=Reinforce** - student increasingly proficient; learning reinforced and practiced with feedback
M=Master - student demonstrates learning at a sophisticated and independent level **A=Major Assessment Points**

Appendix 6: Curriculum Mapping Results Questionnaire

Instructional & Assessment Methods

- What instructional/assessment strategies are we most/least using?
- Are the instructional and assessment methods used in the courses congruent with the discipline and our program's/Faculty's/Institution's mission/vision?
- Are the instructional and assessment methods used in the courses congruent with the discipline's signature pedagogies?
- In terms of supporting student learning, how well are the instructional and assessment methods that we use actually working?

Learning Outcomes

- What learning outcomes are we most/least emphasizing?
- Where are the strengths and gaps in the teaching and assessment of these learning outcomes?
- Do the instructional and assessment methods that we are using best align with the intended learning outcomes?
- Are these learning outcomes appropriate? Are there any omissions? Is clarification warranted?

Workload and Progression

- How is student workload distributed across the semester?
- Have students/faculty expressed concern over workload at particular times of the semester? Is there opportunity to more evenly distribute the workload?
- How is student learning progressing for each of the learning outcomes?
- Are students provided adequately with an opportunity to progress towards their achievement of each learning outcome?

General

- What data presented most surprised you? Why?
- Where are our strengths? What are we doing well?
- Do these results align or conflict with any other curriculum assessment results or past program reviews (e.g. student/faculty/employee feedback)? Why? How so? Where are there areas of congruency or divergence?
- What are the next steps we can take improve, align, and integrate our curriculum?

Appendix 7: Assessment Plan for [name & type of program]

Contact: _____

Objectives What questions do you have about student learning? What objectives do you hope to achieve?	Activity What activity or data will you need to answer this question? Use a combination of direct and indirect assessment tools.	Participants What key participants will provide you data best suited to answer your questions (e.g. students, instructors, employers, analogous programs)?	Timeline What are the key milestones and when would they be due?	Additional Resources Who or what will help support this process (e.g. graduate research assistant, CSELI, Program Review Officer, IPA)?