Program Costing Methodology

Nova Scotia Academic Program Review

December 17, 2025

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Agenda

1. *Introductions*
2. *Program Costing Methodology – 7 Step Overview*
3. *Feedback and Q&A: Initial Categorization & Template 1, and APR Guide Overview*
4. *Next Steps*

Why do Program Costing?

Program costing generates financial metrics supporting both evaluation of individual programs and strategic dialogue about the health and balance of the academic portfolio as a whole—where mission-driven "loss leaders" are and what strategic levers can be pulled to sustain them.

1 Requirement of Academic Program Review

- Give Province a strong foundation for data-informed decisions and public investment in education.
- Support institutional academic planning, resource allocation, and continuous improvement.

2 Standardization of methodology across institutions

- Align program financial analysis with program-level approvals, QA reviews, funding requests.
- Institutions' academic structures vary. Program-level costing analysis enables a standardized approach across the province.

3 Greater insight into program financial performance

- Supplement budget analysis by faculty & department with cross-cutting program analysis.
- Equitable treatment of service teaching and interdisciplinary programs.
- Connects financial analysis directly to student-focused measures – like enrolment, retention, graduation trends, and regional workforce needs.

Program Costing Overview

Today's workshop will cover the key elements of the program costing review. Our goal is to build a shared understanding of the necessary data, the overall methodology, and the type of reporting expected.

1. **Methodology and Insights**
2. **Data Requirements**
3. **Direct & Indirect Costs**
4. **Revenues**
5. **Program Margin Analysis**
6. **Summary of Other Institutional Revenue/Costs**

Methodology and Insights

Template 2 (Program Costing) will include quantitative outputs, as well as narrative elements to document program costing methodology choices and to summarize analysis and insights.

Methodology

Document the methodological choices, data definitions, and inclusions / exclusions used.

Analysis

How did the institution ***analyze and interpret*** the program costing data? What ***trends and outliers*** were observed? What is the ***balance across the portfolio*** of programs generating positive margin vs negative margin?

Strategic Insights

Program costing frequently generates dialogue about the health and sustainability of the academic portfolio as a whole, as well as individual programs. Typical lines of inquiry include:

- Where can we generate greater surplus to ***subsidize mission-critical programs*** that operate at negative margin?
- How might we ***improve the performance*** of programs that are essential to our mission and/or support critical labour market needs?
- What ***adjustments*** could we make to improve the ***overall financial health*** of the academic enterprise?
- How can we equip deans and other academic leaders to ***think more strategically*** about managing the health and sustainability of their academic domains?

Program Costing Data Inputs

Collecting, cleaning, and validating these data can be challenging. Institutions without a data warehouse and good data governance may have difficulty generating a common data set.

Category	Data Inputs			Purpose
Faculty and Academic Staff Data	• Unique ID • HR title and Job Code • FTE	• Home Faculty/School • Home Dept/Program • Annual Salary • Fringe • Classification • Collective Agreement	• Appointment Type • Teaching / Research / Service Load Expectations • Position Funding	**Salary allocation by role, department, function, and funding source(s)**
Course Information	• Section # • Home Department	• Enrolment • Credit Hour Production	• Course Type • Cross-listing Flags • Assigned Unique IDs	**Enables linking instructional activity to cost**
General Ledger	• Detailed expense data by account category, department, and functional classification. • Program revenues (non-student) – targeted program funding and funded scholarships & bursaries			**Direct + Overhead costs (univ-wide and per academic unit)**
Student-Level Data	• Student course registrations • Student primary program of enrolment • Student-level tuition, program fees, and course fees			**Enables allocation of course cost per CHP to programs**
Academic Taxonomy	• Structured classification of faculties, schools, departments, and courses			**Allocation of indirect (overhead) costs to courses**

Program Costing Data Set Standards

The below standards and recommendations are being set for academic and financial data.

- Use the **most recent complete year – typically 2024-25**.
- Select **one full year of academic, payroll, student revenue, and institutional financial data**. Align the periods to the greatest extent feasible given your data systems and timing of academic terms.
- For example:
  - **Fiscal year** April 1, 2024 – March 31, 2025 (financial data; payroll data)
  - **Academic terms**: could be Summer 2024 to Spring 2025, or Spring 2024 to Winter 2024 (course enrolments, teaching load).

Q: Should we include **summer term**?
A: Summer term courses should be included if the courses offered are aligned with program requirements and count toward faculty instructional load. If summer course enrolments are included, be sure that summer instructional pay is also included in the payroll data.

Whatever terms and periods you select, **be consistent across *all programs*** and **document your choices.**

7-Step Overview of Program Cost Methodology

1 Academic Taxonomy

Clearly defined hierarchy of academic units and their relationships to coursework and faculty.

2 Credit Hour Production (CHP)

A quantification of productivity by academic unit and faculty to identify trends in demand and resource utilization.

3 Direct Costs

Allocation of faculty effort among instruction, research, service/other. Compensation (salary and benefits) for all instructors.

4 Indirect Costs

Departmental overhead *(incl faculty non-instruction effort)*

Faculty/School overhead

University overhead

5 Section Cost per CHP

Allocate direct costs by section

Allocate indirect cost by section

Total cost per section / CHP per section

6 Revenue

Aggregate student revenue based on program student is enrolled in.

Add targeted program-specific grants.

Program total revenue and program average revenue per CHP

7 Program Allocation

Allocate revenue and costs to programs, based on student program of enrolment and courses they enrol in.

Total program margin and margin per CHP

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1 of 7: Academic Taxonomy

Clearly defined relationships between academic units are essential for program costing. This requires establishing or validating the infrastructure for how courses roll up to departments, and how departments roll up to a given faculty.

Institution Selects Best Option

Interdisciplinary units' credit hours, faculty effort, and overhead costs can 1) be **treated as quasi-departments** that "own" faculty effort and courses or 2) be **allocated among the instructors' home departments.**

*Appropriate solution may vary by institution or unit, depending on size, complexity, and whether the unit has any directly appointed faculty and/or its own operating budget.

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Academic Taxonomy – Example

Faculty	Department	Course	Course ID	Section ID
Liberal Arts & Science	Philosophy	Ethics	2100	001
Liberal Arts & Science	Philosophy	Ethics	2100	002
Liberal Arts & Science	Philosophy	Intro to Stoicism	2138	001
Liberal Arts & Science	Political Science	Global Politics	2694	001
Engineering	Mechanical Engineering	Robotics	8421	001
Engineering	Mechanical Engineering	Robotics	8421	002
Engineering	Mechanical Engineering	Thermo-dynamics	8456	001
Engineering	Chemical Engineering	Organic Chemistry	8793	001
Professional Studies	Business Mgmt	Financial Accounting	5560	001

Chart of Accts. Cost Center or Organization	Faculty	Chart of Accts. Cost Center or Organization	Department
303000	Liberal Arts & Science	3120	Philosophy
303000	Liberal Arts & Science	3120	Political Science
304000	Engineering	4200	Mechanical Engineering
304000	Engineering	4300	Chemical Engineering
307000	Professional Studies	7200	Business Mgmt

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2 of 7: Credit Hour Production

Analyzing cost at the course section and credit hour level requires assembling comprehensive information about every credit-bearing course section instructed at the institution.

Section	Course number including home department indicator; cross-listing(s); section identifier; credit hours
Enrolment	Enrolment by section, with student ID numbers
Instructor	Primary instructor(s) per section

Institution Selects Best Option

For team-taught course sections, it is recommended that each instructor's salary cost is allocated based on the proportion of each instructor's "full teaching load" the course represents.

Example: Professor A and Professor B share instruction of Course 101 and both get a full course worth of credit on their load. One section's worth of Professor A's instructional salary/course **plus** one section's worth of Professor B's instructional salary/course are applied to Course 101.

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3 of 7: Defining Direct Cost

The direct cost of instruction is the salary and fringe benefits *allocable to instruction*.

Treatment of Fringe Benefits

- Fringe benefits that "follow" salary to department budgets are considered direct costs for instructional activity. Include reported MERCs and Benefits in direct cost of instruction calculation.

Allocation of Faculty Effort

- Institutional policy defining for each category of instructor:
  - "full time" teaching load
  - percentage of FTE allocable for **teaching**, for **research**, and for **service** or administrative duties

Institution Selects Best Option

Faculty teaching load/effort may vary across institutions – however a common model that may be used is splitting FTE for tenured/tenure-track FT appointments by **40% for teaching, 40% for research, and 20% for service/administrative duties.** Institutions should **define their own instructional load expectations defined by institutional policy or existing collective agreements.**

4 of 7: Defining Indirect Costs

Inclusion of overhead expenses in a cost-to-educate analysis provides a more comprehensive view of the institutional resources required to deliver and support each program.

Overhead Level	Included Categories	Excluded Categories

Department
Faculty/School
University
	Indirect costs are defined by **General Operating** fund type and specific functional classifications.
	
	• **Functional expenses in:**
	  • Instruction and non-sponsored research
	  • Administrative and academic support
	  • Library
		Other General Operating functional classifications:
		• Non-Credit Instruction
		• Student services
		• Computing and Communications
		• Physical Plant
		• External Relations
		
		Fund Types:
		• Sponsored Research
		• Special Purpose and Trust
		• Ancillary
		• Capital
		• Endowment

Fund Types and Functional Classifications use the CAUBO/StatCan Financial Information of Universities and Colleges (FIUC) Guidelines.

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Expense Taxonomy for Indirect Costs

Overhead included for Indirect Costs leverages FIUC reporting categories for Fund Type and Functional Classification, as well as the university's Chart of Accounts structure.

Overhead at every level	University Overhead (not in Faculty or Department Overhead)	Faculty Overhead (not in Department Overhead)	Department Overhead

Fund Type	Functional Classifications	Institution	Division	Chart of Accts. Cost Center or Organization	Faculty	Chart of Accts. Cost Center or Organization	Department
General Operating	✓ Instruction & Non-Sponsored Research (excluding direct costs) ✓ Library ✓ Administration & Academic Support	University	Academic Affairs	303000	Liberal Arts & Science	3120	Philosophy
		University	Academic Affairs	303000	Liberal Arts & Science	3120	Political Science
		University	Academic Affairs	304000	Engineering	4200	Mechanical Engineering
		University	Academic Affairs	304000	Engineering	4300	Chemical Engineering
		University	Academic Affairs	307000	Professional Studies	7200	Business Mgmt

5 of 7: Section Cost per Credit Hour

Calculated teaching cost is allocated proportionally to Instructor's sections taught.

Step 1: Direct Cost Per Section
1. Instructor's total salary & benefits * % effort allocated to teaching = **teaching cost**
2. Teaching cost / # sections taught by instructor = **direct cost per section**
Step 2: Indirect Cost per Section
1. Departmental Overhead $ / # Dept. Sections = **Dept. Indirect $/section**
2. Faculty Overhead $ / # Faculty Sections = **Faculty Indirect $/section**
3. University Overhead $ / # University Sections = **University Indirect $/section**
Step 3: Section CHP
1. Credit hour student earns per section * # of students enrolled = **section CHP**
Step 4: Section Cost per CHP
(Direct $/section + Indirect $/section) / section CHP = **Section Cost per CHP**

Overview of Cost-to-Educate Calculation

Case Study: One section of ENGL101 (100 student credit hours) cost $530 per credit hour produced
ENGL101 produced 5 sections.
The English department produced 20 sections total.
The Faculty of Arts & Sciences produced 100 sections total.
The University produced 500 sections total.

Direct Costs: Instructor Compensation

Total Compensation: $100,000

Instruction: 50% of Workload, teaches 5 sections of ENGL101

50% effort = $50,000

Remains $50,000

Across 5 sections taught = **$10,000** per section

Indirect Costs: Overhead by Hierarchy

English Department Overhead* = $500,000

*Includes the $50,000 remaining from instructor compensation

Across 20 Department sections = **$25,000** per section

Faculty Overhead = $1,000,000

Across 100 Faculty sections = **$10,000** per section

Central Academic Overhead = $4,000,000

Across 500 University sections = **$8,000** per section

Overhead includes the sum of defined functional expense transactions aligned to the corresponding org in the General Ledger

$25,000 + $10,000 + $8,000 Overhead allocations

÷ **100** Section Student Credit Hours Produced

= **$530 per CHP**

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6 of 7: Program Revenue

Program tuition revenue will be *aggregated based on student program enrolment*.

Student Revenue

- **Tuition and program/course fees, net of any scholarships, bursaries, or financial aid,** will be aggregated by program, based on the student's program of enrolment.
- ***Funded*** **scholarships, bursaries, and financial aid** should be included—but *only* if it is recognized as revenue in financial statements (e.g., provincial funding (NSUSB), endowment distribution) and can be attributed to the specific student or specific program.

Targeted Program Funding

- Program revenue **can include any provincial grant amounts clearly allocable to a specific program.**
  - Do not double-count scholarships in both targeted grants and student revenue.
  - Example: if a provincial grant is $150K, but $50K is used for scholarships, ensure that the $50K has not already been attributed to student revenue.
- If a single program cannot be identified, apportion using a rational basis method among programs using the funds. Document the methodology for the report.

Handling Students Enrolled in Multiple Programs

The **primary program of record** will be allocated 100% of both revenue and costs. Institutions have discretion to decide what program they record as "primary."

Example: Student A is enrolled in both Nursing and Psychology. Nursing is selected as primary program. All Student A revenue is allocated to the Nursing program. All cost associated with the courses the student is enrolled in is allocated to the Nursing Program.

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7 of 7: Program Margin Calculation

A student-based allocation based on the courses taken by each student in a given program is common for calculating program margin.

1. Aggregate all course sections taken by students in the program
2. Section Cost per CHP * CHP earned *by students from the program* in that section
3. Sum students-in-program cost for all sections to reach total cost *for the program*
4. Sum student tuition and program/course fee revenue, based on students' program enrolment
5. Total program revenue – total program cost / total credit hours earned by students of the program = **program margin per CHP**

Program Margin – Example

4 students are enrolled in the Psychology program, each paying $5,000 in Net Tuition and Program Fees.

Program Costs

Step 1: Aggregate all course sections taken by students in the program.

Students in the program took the following courses:

Step 2: Section Cost per CHP * CHP earned *by students from the program* in that section.

All courses in the program are worth 3 credit hours per student:

Course	Section Cost per Credit Hour	CH / Student	# of Students in Course	Total CHP by students in program	Sum students-in-program cost
PSYCH 100	$200	3	4	12	$2,400
PSYCH 200	$100	3	4	12	$1,200
ENG 100	$150	3	2	6	$900
STATS 100	$300	3	2	6	$1,800

Step 3: Sum students-in-program cost for all sections to reach total cost *for the program*.

$2,400 + $1,200 + $900 + $1,800 =

$6,300 in program costs

Program Margin

Step 4: Sum student tuition and program/course fee revenue, based on students' program enrolment.

4 x $5,000 =
$20,000 in program revenue

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$2,400 + $1,200 + $900 + $1,800 =

$6,300 in program costs

Credit Hours Earned by Students of the Program = **36 CHP**

=

Step 5: (Total program revenue – total program cost) / total credit hours earned by students of the program = **program margin per CHP**.

($20,000 - $6,300) / 36 CHP =
~$380 per CHP in program margin

Report Institution-Level Financial Data

To understand the role that operating grants play in supporting total university operations and academic programs, the report will request an "income statement" style summary of institution-level, *non-instructional* operating revenues and expenses—i.e., that were *excluded* from the program costing

Overview and Purpose

This report will:

- Summarize institution-level, non-instructional operating revenues and expenses—i.e., that were excluded from the program costing.
- Leverage existing financial reporting data and definitions (Financial Information of Universities and Colleges for CAUBO / StatCan) to minimize burden and increase comparability.
- Put the instructional revenues, costs, and margin in context of the whole university.
- Create visibility into how the academic portfolio as a whole subsidizes, or is subsidized by, other university operations and funding sources.

Non-Instructional Revenues & Expenses

General Operating fund type revenues and expenses excluded from the program costing calculations

- ***Revenue****: operating grants not attributable to a specific program, endowment distributions for General Operating purposes other than scholarships/bursaries; other operating revenue*
- ***Expenses****: functional classifications of Non-credit Instruction, Computing & Communications, Physical Plant, External Relations. Student Services is also reported here, excluding the Scholarships, Bursaries, & Prizes category as most of this is already accounted for by reporting tuition & fees on a net basis.*

Revenues and expenses in other fund types

- *Revenues and expenses in fund types: Special Purpose & Trust, Sponsored Research, Ancillary, and Capital.*

Example – Institution-Level Revenues

Institution-level report will report revenues using the FIUC fund types, netting out the amounts already counted as part of the program costing calculations.

Revenues by Fund Type

	General Operating	Special Purpose & Trust	Sponsored Research	Ancillary	Capital
Total Revenue	$100M	$2M	$12M	$1M	$8M
Less $ counted in Program Costing	*($55M) net student tuition & fees* *($2M) funded scholarships* *($3M) targeted program grants* *= ($60M) program revenue*				
Other Institutional Revenue to Report	= $100M – $60M **$40M other revenue**	**$2M**	**$12M**	**$1M**	**$8M**
All Funds Total = $40M + $2M + $12M + $1M + $8M = $63M other institutional revenue *(in addition to $60M program revenue)*					

Illustrative

Example – Institution-Level Expenses

Institution-level report will report expenses using the FIUC fund types. Within the General Operating fund type, it will report functional classifications not already counted as part of the program costing calculations.

Expenses by Fund Type

Functional Classification	General Operating	Special Purpose & Trust	Sponsored Research	Ancillary	Capital
Instruction & Non-Sponsored Research	*($50M) Direct (instructor compensation) and indirect expense in program costing*				
Library	*($4M) Indirect expense in program costing*				
Administration & Academic Support	*($10M) Indirect expense in program costing*				
Computing & Communications	$4M				
Non-credit instruction	$2M				
Student Services	$13M total, less ($3M)* in scholarships & bursaries = $10M				
Physical Plant	$14M				
External Relations	$3M				
Other Institutional Expense to Report	**$33M**	**$3M**	**$12M**	**$1M**	**$10M**

Grand Total: $33M + $3M + $12M + $1M + $10M = $59M other institutional expense
(in addition to $64M program direct + indirect expense)

Illustrative

*Treated as contra-revenue against gross tuition and fees.

Example – Institution-Level Margin

A key purpose of the institution-level reporting is to put the academic program margin in context. The report will include both quantitative outputs and narrative space for explanation and analysis.

	General Operating Fund Type			Overall		
	Program Costing	Other Institutional	Total	Program Costing	Other Institutional	Total
Revenue	$60M	$40M	$100M	$60M	$63M	$123M
Expense	$64M	$33M	$97M	$64M	$59M	$123M
Margin	**($4M)**	**$7M**	**$3M**	**($4M)**	**$4M**	**Break-even**

- *In this illustrative example, the academic program as a whole runs a negative margin of ($4M).*
- *However, the institution runs a positive margin of $7M on general operations outside of program costing.*
- *The university's General Operating margin is a healthy $3M.*
- *Looking overall, including revenues and expenses across all fund types, the institution broke even.*

Program Costing Recap

Data Requirements

- Most recent complete year – typically 2024-25
- One full year of academic, payroll, student revenue, targeted program revenue, and detailed operating expense data by account category / department / functional classification

Revenues

- Net tuition and program/ course fees
- Add funded scholarships and bursaries, only if recognized as revenue in financial statements
- Add targeted program-specific grants
- Aggregate student revenue based on *primary* program student is enrolled in

Direct and Indirect Costs

- Direct - Compensation (salary and benefits) for all instructors.
- Direct – Use institutional policy to determine % instructor effort (and associated salary + benefits) allocable to instruction.
- Indirect – Include departmental/ faculty/ university overhead related to instruction, administrative support, student services, and libraries

Program Margin Analysis

- **Purpose**: Calculate program margin by comparing total program revenue to total program cost
- **Method**: Use a student-based allocation approach, assigning costs based on courses taken by students in the program
- **Outcome**: Determine program margin per credit hour to assess financial performance at the program level

Summary of Other Institutional Revenue/Costs

- **Purpose:** Provide context for costs excluded from program-level analysis
- **Operating Revenue**: Operating grants not tied to specific programs, endowment distributions, donations, other revenue
- **Operating Expenses**: non-credit instruction and core support functions (IT, facilities, external relations)

Methodology and Insights

- Report template will include a summary of program-level outputs
- Document methodology choices, definitions, inclusions/exclusions
- Summarize insights from analysis, thinking about portfolio-level health and balance as well as individual programs

Program Costing Feedback

Feedback on Initial Categorization and APR Guide Overview

APR Workstreams and Timeline

Workstream	Description	Deliverable Template(s)	Recommended Completion/ Check-In
Workstream A: Program List Approval, Initial Assessment and Program Categorization*	Validate program list and conduct initial categorization based on high-level data analysis.	• Template 1 – Initial Categorization	January 30, 2026 *Check-In with MPHEC/AE recommended*
Workstream B: Program Costing Analysis	Perform costing analysis to calculate the cost and margin of academic programs, used to inform decisions about program sustainability and efficiency.	• Template 2 – Program Costing Analysis	May 30, 2026 *Check-In with MPHEC/AE recommended*
Workstream C: Additional Analysis and Development of Narrative Content by Program Category	Perform deeper analysis for categorized programs, using templates to refine strategies and narratives for modernization, revitalization, or rationalization.	• Template 3 –Modernization • Template 4 –Revitalization • Template 5 –Rationalization • Template 6 – No Program Change • Template 7 – New Program Opportunity	May 30, 2026 *Check-In with MPHEC/AE recommended*
Workstream D: Synthesis, Strategic Prioritization and Implementation Planning	Synthesize findings into an institutional strategy, prioritize actions, and develop implementation plans with timelines and resource considerations.	• Template 8 – Strategic Prioritization and Implementation Planning	August 30, 2026 *Check-In with MPHEC/AE recommended*
Workstream E: Final Report	Compile all resources into a comprehensive Academic Program Review report for submission	• Template 9 – Final Report	**October 15, 2026 APR Report Due**

**Workstream A Deliverable Template and Guide were released December 5, 2025.*

APR Resources – Next Steps

Resource	Description	Estimated Release Date
Complete APR Guide and Templates	Complete APR Guide, Templates and Process.	January 9, 2026
Trends Analysis – Critical Data	Trends analysis with the most critical data for institutions to complete their APR.	January 9, 2026
Complete Program Costing Methodology	Complete Program Costing Methodology guide and templates.	January 16, 2025
Trends Analysis – Supplemental	Complete trends analysis with gaps and opportunities identified for NS PSIs.	January 30, 2026
Landscape Data & Trends Report	Final report including analysis of Institutional data submitted February 15th, 2026.	Early March