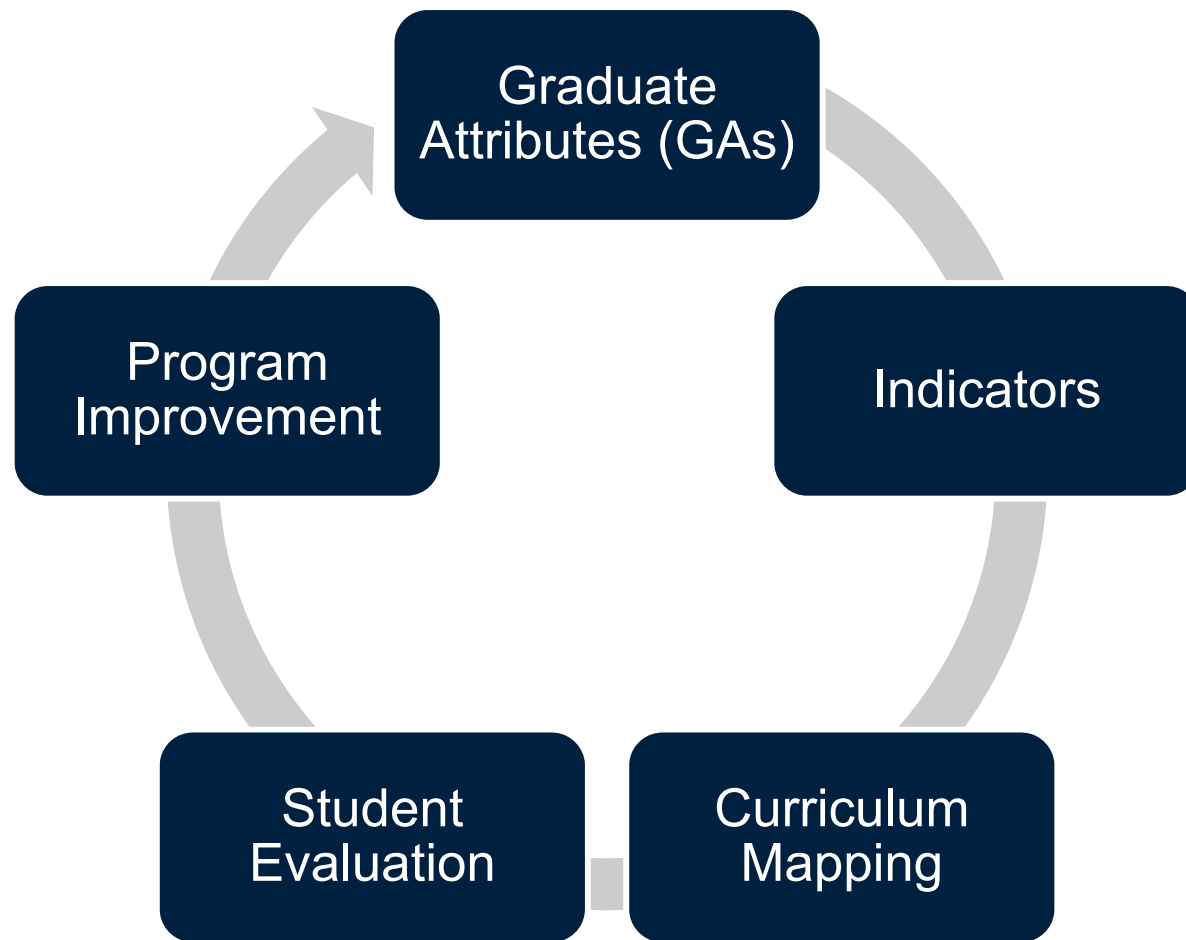




PROGRAM ENHANCEMENT: FACULTY REFLECTIONS ON THE GRADUATE ATTRIBUTE PROCESS FIVE YEARS ON

JONATHAN VERRETT, INSTRUCTOR
LOUISE CREAGH, SENIOR INSTRUCTOR
DEPARTMENT OF CHEMICAL AND BIOLOGICAL ENGINEERING (CHBE)





ENGINEERS CANADA GRADUATE ATTRIBUTES

- 1.(KB) A knowledge base for engineering
- 2.(PA) Problem analysis
- 3.(Inv.) Investigation
- 4.(Des.) Design
- 5.(Tools) Use of engineering tools
- 6.(Team) Individual and teamwork
- 7.(Comm.) Communication skills
- 8.(Prof.) Professionalism
- 9.(Impacts) Impact of engineering on society and the environment
- 10.(Ethics) Ethics and equity
- 11.(Econ.) Economics and project management
- 12.(LL) Life-long learning:



CURRENT INDICATORS

GA	Indicators (60 total)						
1. KB							
2. PA							
3. Inv.							
4. Des.							
5. Tools							
6. Team							
7. Comm.							
8. Prof.							
9. Impacts							
10. Ethics							
11. Econ.							
12. LL							



CURRENT INDICATORS

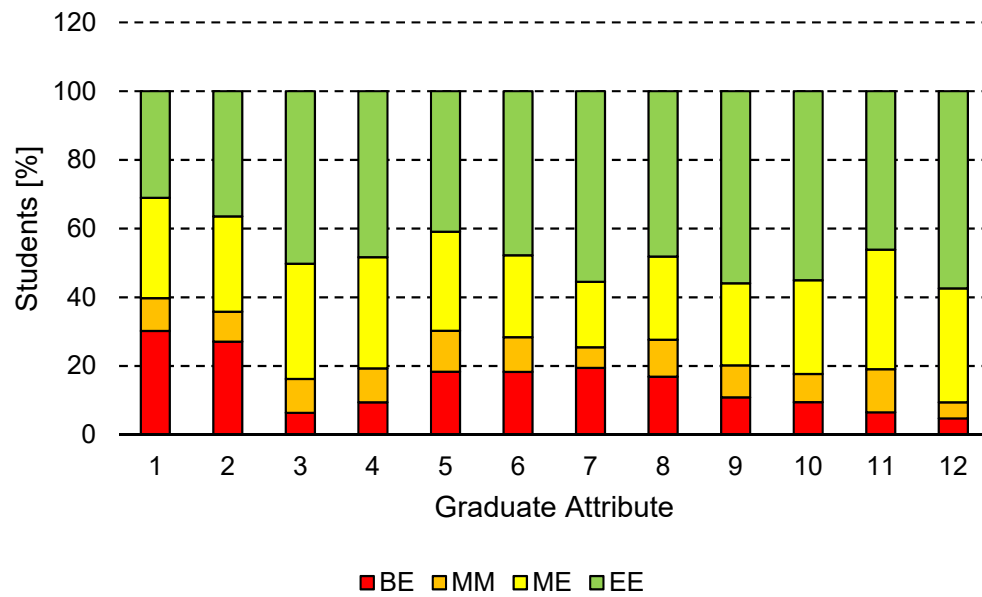
The frequency of data collection and content levels assessed; introductory (I), developmental (D) and advanced (A) has increased.

	2018W							2017W							2016W						
GA	#.1	#.2	#.3	#.4	#.5	#.6	#.7	#.1	#.2	#.3	#.4	#.5	#.6	#.7	#.1	#.2	#.3	#.4	#.5	#.6	#.7
1	IDA	ID	IDA	D	IDA	X	X	IDA	ID	IDA	IDA	X	X	X	IDA	ID	ID	IDA	X	X	X
2	IDA	IDA	DA	IDA	X	X	X	IDA	IDA	DA	IDA	X	X	X	IA	IA		IA	X	X	X
3	DA	DA	IDA	IDA	IDA	X	X	D	D	IDA	IDA	IDA	X	X	A	A	IDA	IDA	IDA	X	X
4	IDA	IA	IDA	IDA	DA	DA	DA	IDA	DA	DA	DA	DA	DA	D	ID	D	D	DA	DA	D	
5	IDA	IDA	IDA	DA	DA	X	X	IDA	IDA	I	IDA	IDA	X	X	I	ID	I	ID	IDA	X	X
6	IDA	IDA	IDA	IDA	IA	I	X	D	IDA	IA	IDA	IDA	I	X		IA	IA	IA	IA	I	X
7	IDA	IDA	IDA	IDA	A	X	X	IDA	IDA	IDA	IA	A	X	X	IA	IA	IA	IA	A	X	X
8	IDA	IDA		A	X	X	X	IDA	IDA	IDA	A	X	X	X	IDA	IDA	IDA		X	X	X
9	DA	IDA	DA	DA	X	X	X	DA	IDA	DA	DA	X	X	X	DA	IDA	D	DA	X	X	X
10	I	A	IA	A	X	X	X	I	A	IA	A	X	X	X	I	A	IA	A	X	X	X
11	A	A	A	A	A	A	X	A	A	A	A	A	A	X	A	A	A	A	A	A	X
12	IDA	IDA	IDA	IDA	DA	IDA	X	IDA	IDA	IDA	D	DA	IA	X	IDA	IDA	IDA	D	DA	IA	X

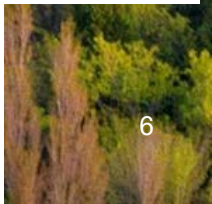
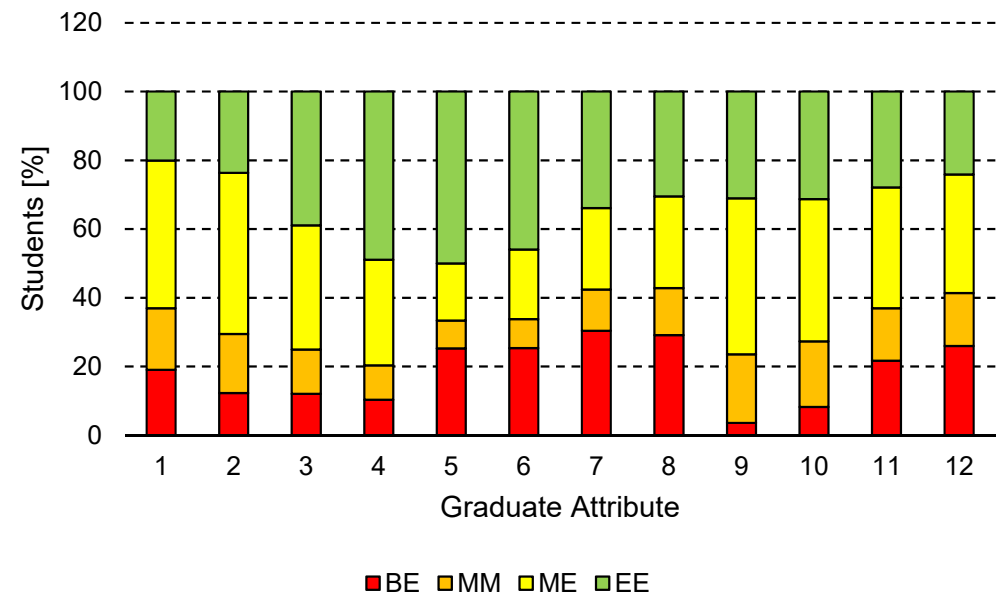


CURRENT INDICATORS

CHML Program



CHBE Program



CHBE DEPARTMENTAL GA DEVELOPMENT

2011

- GA implementation committee initiated
- 60 indicators developed along with measurement methodology

2014

- Begin GA data collection

2017

- Accreditation visit (successful, 6-year renewal)

2018

- Departmental review
- Curriculum Renewal

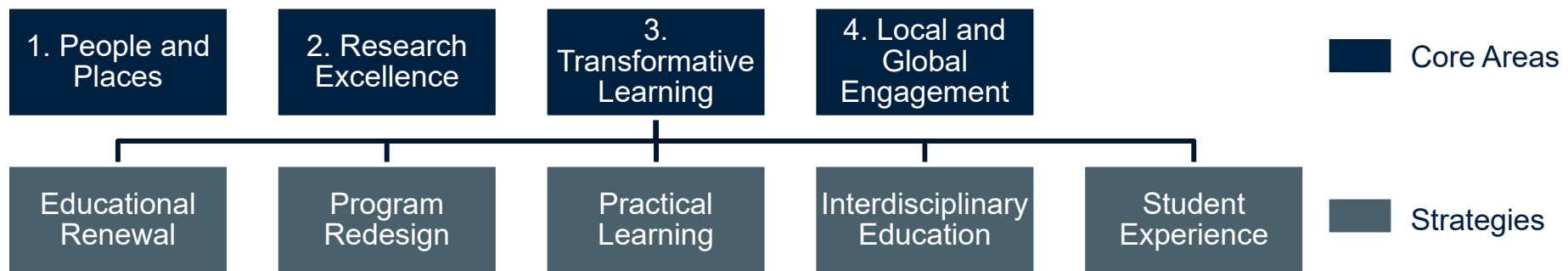
2019

- New department head



UNDERGRADUATE PROGRAM EVALUATION AND RENEWAL (UPER)

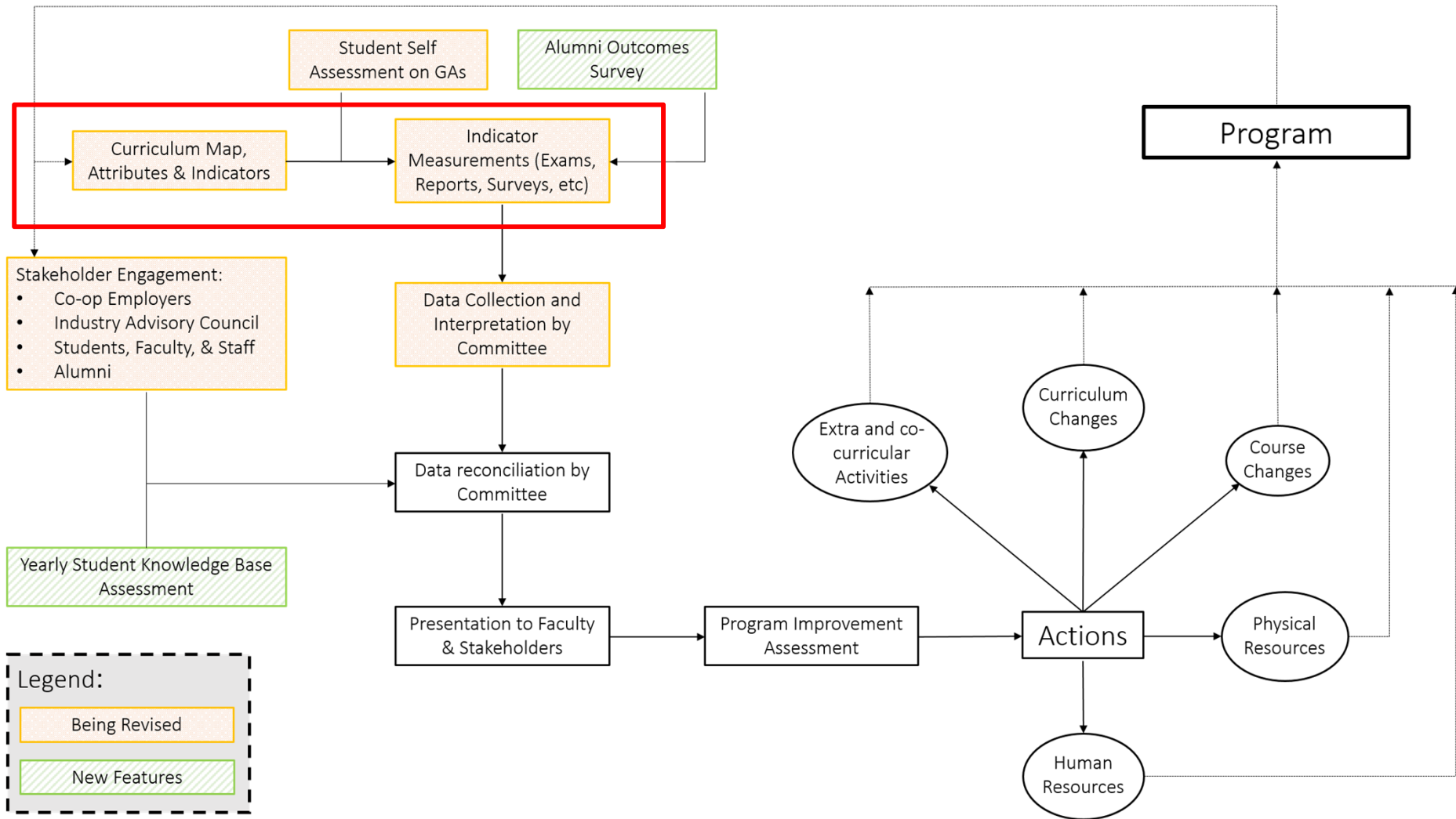
Resulted from UBC's 10-year strategic plan developed from 2016-2018



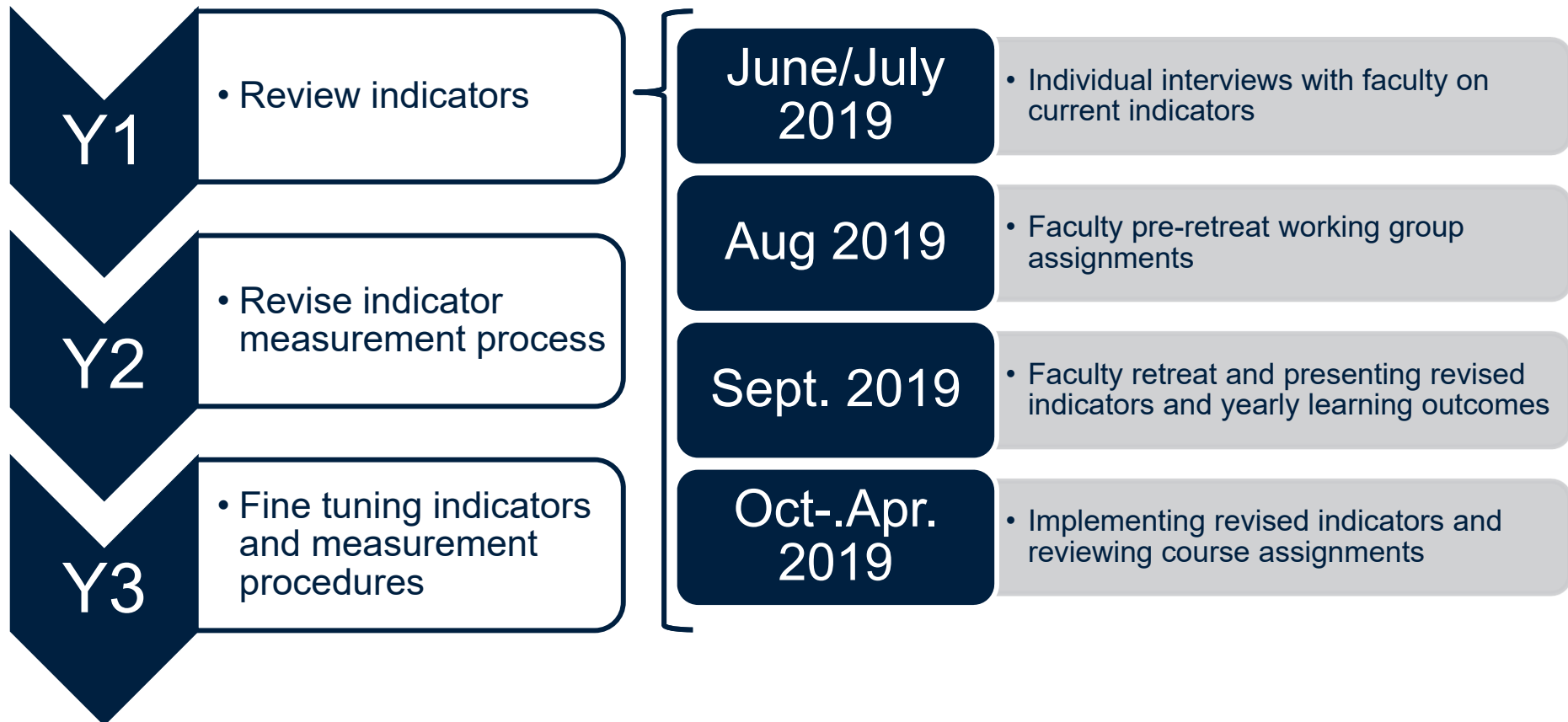
- 10 UPER projects funded in 2019 (~\$50,000/yr for 3 yrs)
- Focus on program-level learning outcomes and competencies
- Create tools, processes and frameworks that can be used across the university



PROGRAM IMPROVEMENT FRAMEWORK



INDICATOR REVIEW TIMELINE



FACULTY INTERVIEWS

- Semi-structured interviews
 - Developed methodology - initial email contact, interview questions, follow-up questions
 - Piloted with faculty project leaders present and then interviews were conducted by one staff member and co-op student
1. Are these indicators appropriate for your course?
 2. How confident are you that the data you collect in your course measures the indicator?
 3. How do students demonstrate the indicator in your course?
 4. If we find a common issue with these indicators, would you like to participate in a focus group to redesign one or more indicator?
 5. What issues do you have with the GA data collection process?



RETREAT WORKING GROUPS

- Synthesized data from interviews
- Preliminary recommendations around indicator revisions created, streamline indicators by consolidating those that are similar or cannot be distinctly measured
- Groups formed of 3-5 faculty for each of seven groupings

GA 1,2,12

GA 3,5,6

GA 4,9,11

GA 7,8,10

Learning
Outcomes
Y2

Learning
Outcomes
Y3

Learning
Outcomes
Y4



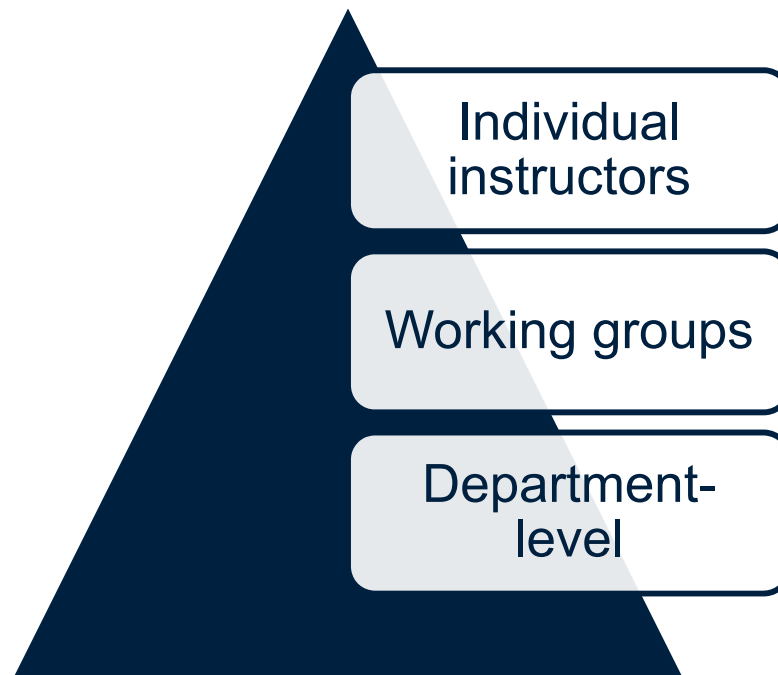
RETREAT WORKING GROUPS

Indicator	Name	Description	Courses measured
12.1	Learning Style	Describe personal learning style	CHBE 244, CHBE 356, CHBE 459
12.2	Identification of Learning Need	Identify a specific learning need or knowledge gap	CHBE 244, CHBE 356, CHBE 459
12.3	Identify Technical Literature	Identify appropriate technical literature and other information sources to meet a need	CHBE 244, CHBE 356, CHBE 456, CHBE 459, CHEB 481
12.4	Use of Technical Literature	Make accurate use of technical literature and other information sources.	CHBE 346, CHBE 356
12.5	Evaluation of Information	Critically evaluates the procured information for authority, currency, and objectivity.	CHBE 346, CHBE 459
12.6	Ability to Adapt to Circumstances	Recognizes the need to keep current regarding new developments in field (Later year).	CHBE 244, CHBE 459
12.X	Identification of a learning need and adaptation	Identify a specific learning need or knowledge gap and recognize the need to keep current regarding developments in a field	CHBE 244, CHBE 356, CHBE 459
12.X	Identification, Evaluation and Use of Technical Literature	Identify, critically evaluate and make accurate use of appropriate technical literature and other information sources to meet a need	CHBE 244, CHBE 356, CHBE 456, CHBE 459, CHEB 481



FACULTY RETREAT

- Working groups presenting recommendations on indicator changes
- Discussion following presentation
- Consensus on indicators moving forward

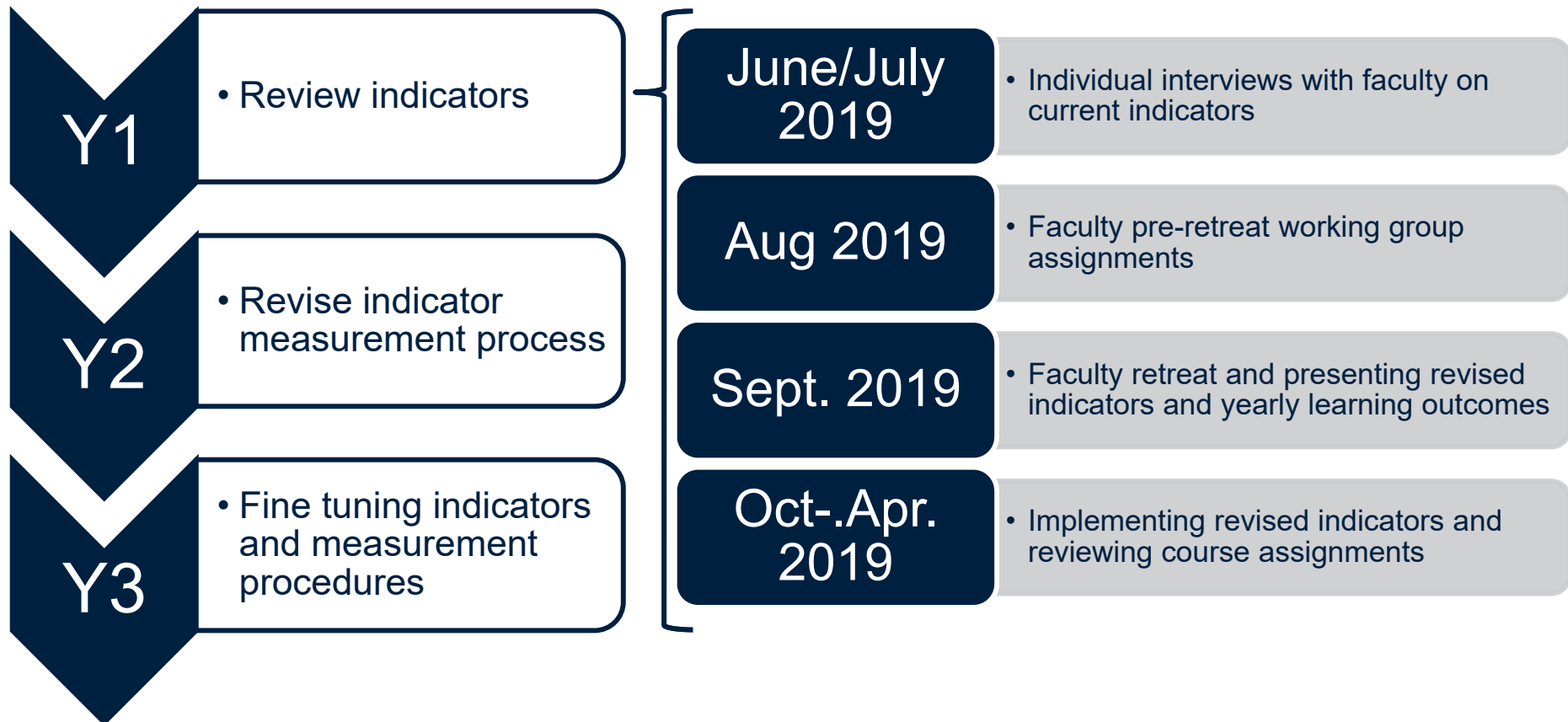


REVISED INDICATORS

GA	Indicators (39 total)						
1. KB							
2. PA							
3. Inv.							
4. Des.							
5. Tools							
6. Team							
7. Comm.							
8. Prof.							
9. Impacts							
10. Ethics							
11. Econ.							
12. LL							



INDICATOR REVIEW TIMELINE



ACKNOWLEDGEMENTS

This work was completed on the traditional, ancestral, and unceded territory of the Musqueam people.

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- Brittany Ji, Faculty Interviews and retreat organization
- CHBE Faculty & Staff
- UBC Centre for Teaching, Learning and Technology (CTLT)
- UBC APSC Centre for Instructional Support





a place of mind

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