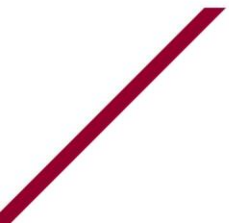# MAPPING SUSTAINABILITY CURRICULUM SURVEY REPORT

MARCH 2024

JESSICA KREJCIK, SUSTAINABILITY ANALYST
OFFICE OF SUSTAINABILITY

EXECUTIVE SUMMARY

- The survey received 197 individual responses for a response rate of 10.3%.
- 156 courses have been self-identified as sustainability-inclusive and 41 as sustainability-focused.
- Over half of the self-identified sustainability courses offerings focused on the topics of climate change or environmental justice.
- Almost half of faculty cover SDG 12: Responsible Consumption and Production in their courses and 40% of faculty cover SDG 10: Reduced Inequalities, SDG 13: Climate Action or SDG 5: Gender Equality in their courses.
- On average, SDGs were discussed to a limited extent by 46% of faculty, discussed in depth but not evaluated by 27% of faculty and discussed in depth and evaluated by 27% of faculty.
- Approximately 68% of faculty focus on developing knowledge and thinking skills necessary to better understand the SDG(s) and the challenges in achieving it.
- When it comes to providing opportunities for students to take action towards achieving the SDG(s), a little over a half of faculty (55%) do so in their courses.
- The highest percentage of faculty (71%) have students develop the systems thinking competency in their course(s). The intrapersonal competency is developed by students the least (45% of faculty).
- Most faculty with self-identified sustainability content (77%) use active learning approaches. Nearly two thirds of faculty (64%) use interdisciplinary or multidisciplinary teaching and learning approaches. Only 23% of faculty use teaching approaches outside of the western framework of social or applied sciences (e.g., Traditional Ecological Knowledge).
- The OVPITL will leverage the survey to identify interests and provide tailored resources to faculty, enhancing sustainability curricula.

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INTRODUCTION

In August 2023, as part of the efforts to continuously improve Concordia's sustainability curriculum, the Office of the Vice-Provost, Innovation in Teaching & Learning, the Office of Sustainability and the Centre for Teaching and Learning developed a survey to map the university's sustainability offerings. The survey provided valuable insights into the infusion of sustainability in Concordia's curriculum, including content on the United Nation's Sustainable Development Goals and innovative teaching approaches.

The data gathered from the survey will benefit students through the creation of a public searchable database that allows them to identify courses that include sustainability topics of interest to them. The results from the survey will be used to keep track of the number of courses with sustainability-related content to measure institutional progress towards the targets of Concordia's Action Plan for [Sustainability in the Curriculum](#). The survey was also a means for faculty to reflect on their course content and pedagogical approaches to teaching sustainability. The aggregated responses presented in this report will be used to analyze gaps in sustainability content and inform curriculum development.

METHODOLOGY

The Mapping Sustainability Curriculum at Concordia survey was disseminated on Thursday, August 31, 2023, and was open for 7 weeks, closing on Friday, October 20, 2023. The survey was disseminated by the Office of Institutional Planning and Analysis. The online survey, created using the application Qualtrics, was sent to all full and part-time faculty teaching courses in the 2023-24 academic year. The 2023-24 academic year includes the following terms: summer 2023, fall 2023 and winter 2024. Survey invitations were sent to 1,906 participants and resulted in 197 individual responses for a response rate of 10.3%. At a 95% confidence interval, the margin of error for the survey is 7% and is considered to be acceptable. The survey was created in both English and French. One reminder email was sent to survey participants and an E-blast was sent to department chairs and coordinators requesting they encourage their faculty to participate. A link to the survey was also shared in Concordia's faculty NOW bulletin and the Office of Sustainability newsletter.

SURVEY DESIGN

The survey was created by the Curriculum Developer for Sustainability (VPITL/CTL) and the Office of Sustainability (VPSS). The survey was designed to track where and how content related to sustainability is taught at Concordia during the 2023-24 academic year. Depending on the number of courses a faculty member was teaching, it was estimated that the survey would take 5 to 15 minutes to complete. An emphasis was made to encourage faculty who were teaching courses not related to sustainability to participate in

the survey. It was noted that their participation would help complete the mapping exercise and might demonstrate that they were unknowingly integrating concepts related to sustainability in their course. It was also noted that the information provided would be anonymous and would only be used to produce aggregated results for publication.

The survey consisted of two sections. The first section concentrated on sustainability information per course. It included a question to identify, as defined by the Association for the Advancement of Sustainability in Higher Education, whether the course is sustainability-focused, sustainability-inclusive or not. If the course had sustainability content, the survey respondent was directed to a question about whether their course focuses on one of the student sustainability topics of interest from the [2021 Sustainability Culture and Literacy Assessment (SCLA)](.).

If the faculty member taught a course with sustainability content, they would continue to the second section of the survey that focused on sustainability curriculum more generally. The purpose of this section was to gather information on the content and pedagogical approaches of courses incorporating sustainability and sustainable development. Special attention was given to whether and what extent a Sustainable Development Goal (SDG) was covered in their courses.

If faculty did not teach courses related to sustainability, they would be directed to a general feedback section that included two optional questions. The first was to include their email address if they wanted to learn more about the Sustainability Co-Design project and the second was an open-ended question to provide feedback on the survey.

STUDY LIMITATIONS

There are several limitations to the Mapping Sustainability in Curriculum survey. To begin, participation in the survey was not mandatory therefore those who responded are a voluntary response sample made up of self-selected participants. Voluntary response samples tend to give rise to significantly biased results and therefore are not necessarily representative of the population, as those who participate are usually motivated to do so because they have a strong opinion on the topic of the survey and/or are interested enough and can devote the time and attention needed to respond.

The margin of error, also known as sampling error, reflects the difference between an estimate derived from a sample survey and the "true value" that would be obtained if the whole survey population were counted. It is important to consider sampling error when reporting survey results as it gives an indication of the accuracy of the estimate and therefore reflects the importance that can be placed on interpretations. At a 95% confidence interval, the margin of error for the survey is 7% and is considered to be acceptable.

The response rate (10.3%) for the survey was lower than desired because the survey

was disseminated at the same time as other important Concordia-wide communications and surveys. These communications and surveys included the mandatory sexual violence and awareness training, cybersecurity training, employment equity census, and university reputation survey. To avoid survey fatigue only one reminder email was sent. The response rate could also have been low because there were no survey incentives.

SUSTAINABILITY CURRICULUM BY COURSE

The purpose of this section is to expand the inventory of sustainability courses to receive points in the university's Sustainability Tracking, Assessment and Rating System (STARS) certification and reach the target threshold for percentage of sustainability courses in our Sustainability in Curriculum Action Plan. The objective was also to update the sustainability course offerings webpage and to group courses by student sustainability topics of interest based on the 2021 Sustainability Cultural and Literacy Assessment (SCLA).

Faculty were asked to list the courses they would be teaching in the 2023-24 academic year. If they were teaching the same course in multiple semesters, they were asked to only include the course once. As shown in Figure 1, most faculty were teaching between one to two unique courses in the 2023-24 academic year. A total of 419 courses were recorded through the survey. Faculty were then asked to provide course-specific information such as title, level and whether the course has multiple sections.
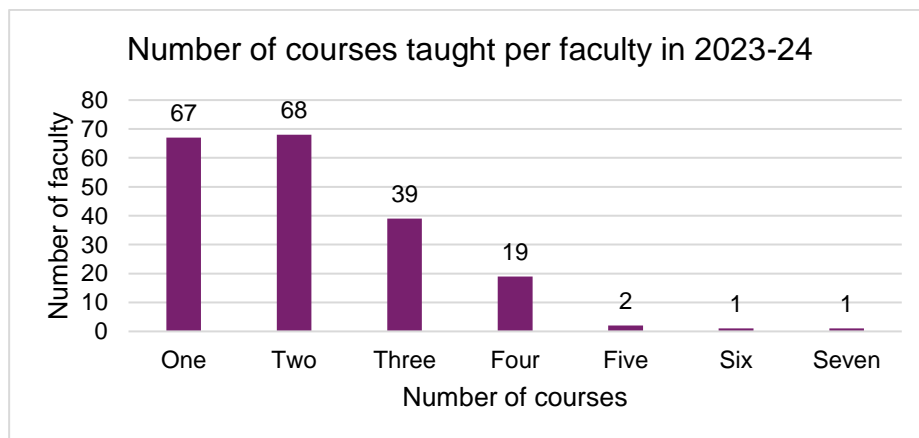

Figure 1 - Number of courses taught per faculty in 2023-24

For the identification of sustainability courses, faculty were prompted to use the definitions by the Association for the Advancement of Sustainability in Higher Education below to identify whether their course is sustainability-focused, sustainability-inclusive or

not related to sustainability. The definition of sustainability at Concordia was given to provide more context.

A ***Sustainability-focused course*** *includes any one of the following conditions:*
- *Foundational courses with a primary and explicit focus on sustainability (e.g., Introduction to Sustainability), OR*
- *Courses with a primary and explicit focus on the application of sustainability within a field (e.g., Sustainable Agriculture), OR*
- *Courses with a primary and explicit focus on understanding or solving a major sustainability challenge (e.g., Climate Change Science).*

A ***Sustainability-inclusive course*** *is primarily focused on topics* ***other*** *than sustainability, but includes any one of the following conditions:*
- *Incorporate a unit or module on sustainability or a sustainability challenge (e.g., SDG, renewable energy sources, social and corporate responsibility, environmental justice), OR*
- *Include one or more sustainability-focused activities (e.g., have a discussion on food waste, invite speakers who have experienced gender-based violence, case study on poverty and wealth in selected countries), OR*
- *Integrate sustainability issues and concepts throughout the course.*

A course that is ***not related to sustainability*** *does not currently or directly relate course content to sustainability.*

As demonstrated in table 1, 217 courses are not-related to sustainability, 156 have been self-identified as sustainability-inclusive and 41 as sustainability-focused. For a total of 197 courses with sustainability content.

Table 1 - Courses with sustainability content identified in survey

Sustainability content	Number of courses
Sustainability-focused	41
Sustainability-inclusive	156
Not related to sustainability	217
Total	**414**

As a result of a survey malfunction, six courses were not classified using the definitions above. Upon further inspection one course, "STAT 449: Advanced Probability" was identified as not related to sustainability. The other five courses cannot be inferred.

CURRICULUM ON THE SDGs

Concordia has committed to joining the Decade of Action from now to 2030 in support of sustainable development in our community and around the world. The United Nation's Sustainable Development Goals (SDGs) serve as a blueprint for actions that will lead to a more equitable and sustainable future. They are an important part of Concordia's commitment to increase the presence of sustainability-related content in its curricula. For this reason, faculty who identified themselves as teaching courses with sustainability content were asked whether and to what extent each SDG was covered in their course.

As demonstrated in Figure 2, almost half of the faculty cover SDG 12: Responsible Consumption and Production in their courses and 40% of faculty cover SDG 10: Reduced Inequalities, SDG 13: Climate Action or SDG 5: Gender Equality in their courses. SDG 14: Life Below Water (16%) and SDG 2: Zero Hunger (11%) are covered the least by faculty. Approximately 7% of faculty do not cover any of the SDGs in their courses.
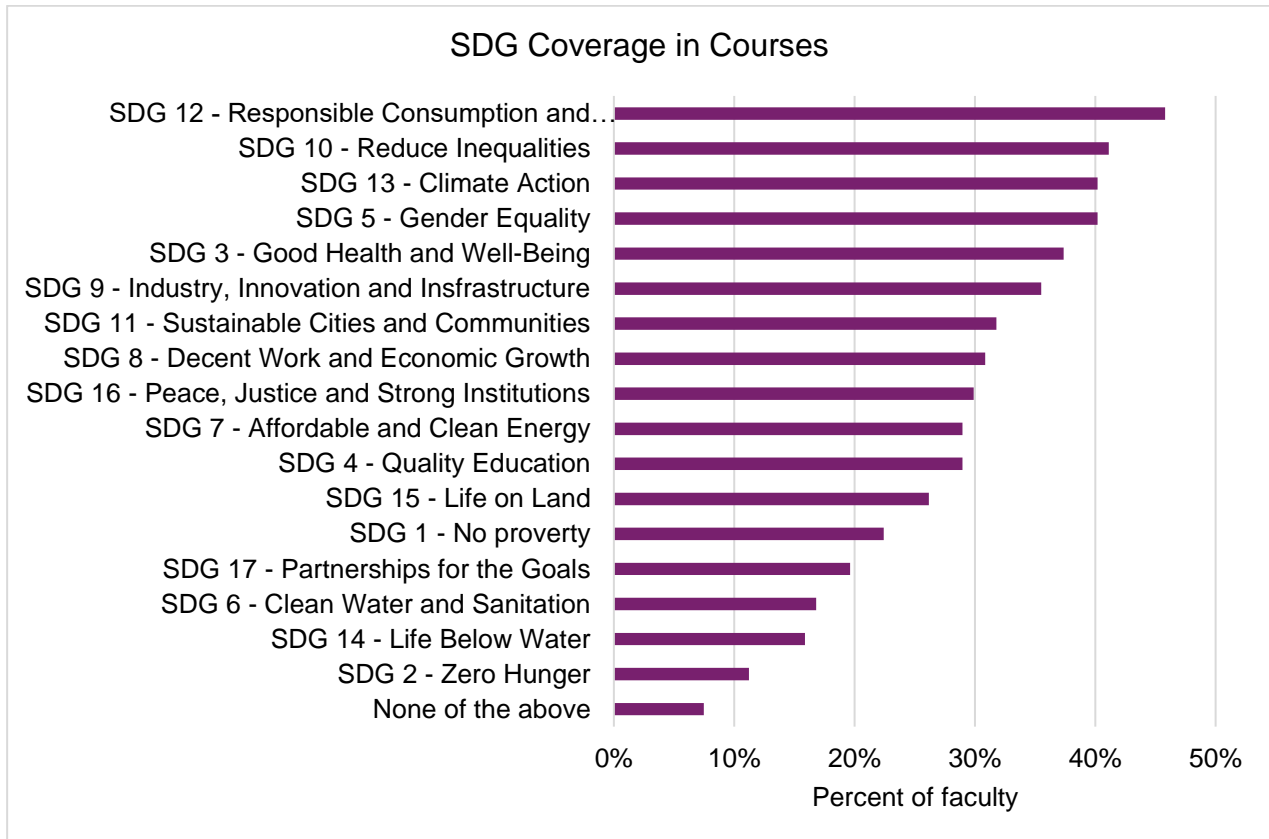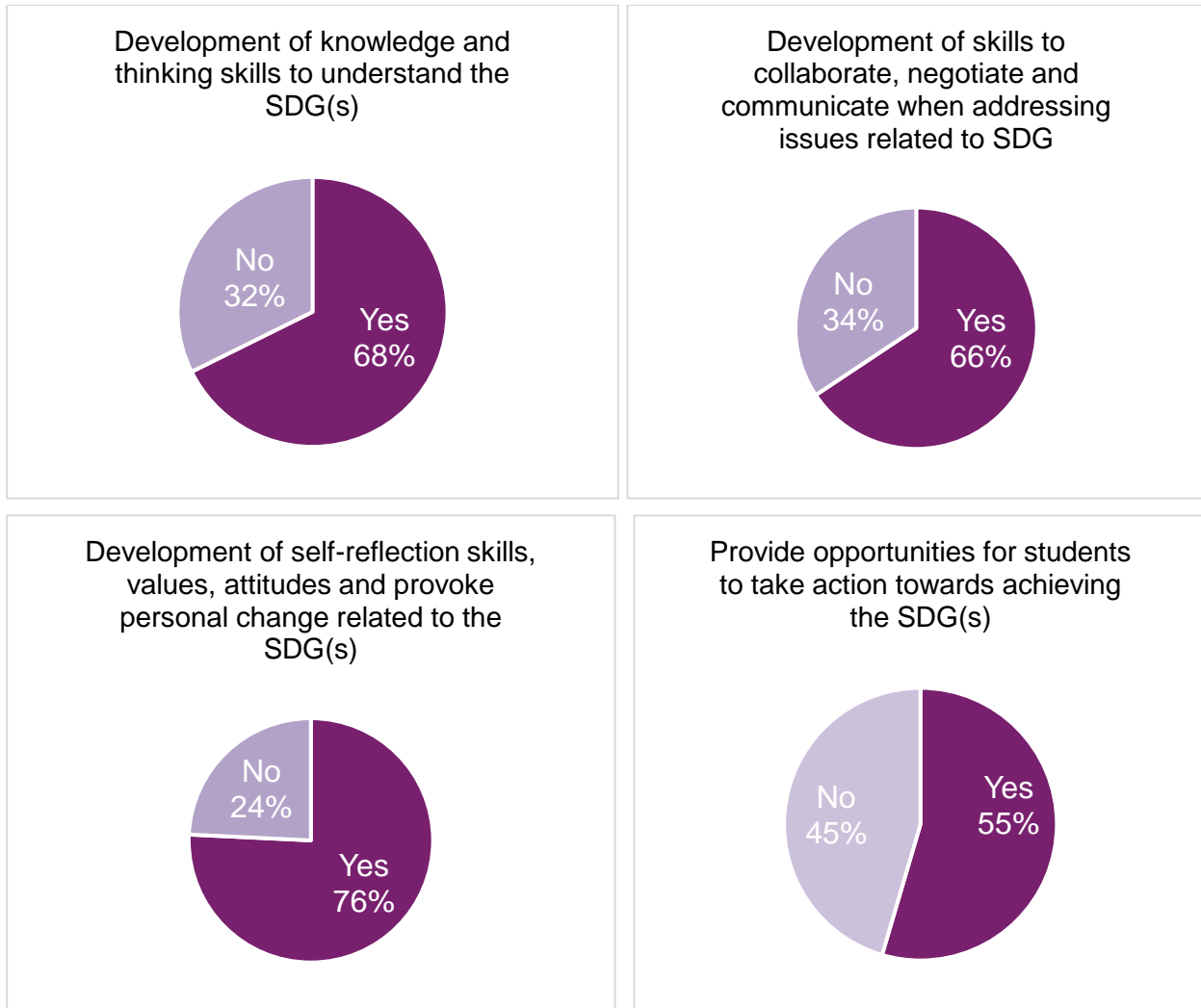

Figure 2 - SDG coverage in courses

Faculty were then asked to specify to what extent they covered the SDG in their course. On average, SDGs were discussed to a limited extent by 46% of faculty, discussed in depth but not evaluated by 27% of faculty and discussed in depth and evaluated by 27%

of faculty. SDG 6: Clean Water and Sanitation is the SDG that is discussed to a limited extent the most (67% of faculty whose courses cover SDG 6). SDG 5: Gender Equality is the SDG that is discussed in depth but not evaluated the most (41% of faculty whose courses cover SGD 5). Lastly, SDG 8: Decent Work and Economic Growth is the SDG that is discussed in depth and evaluated the most (36% of faculty whose courses cover SDG 8).

The next series of questions were related to developmental domains and understanding which are used in teaching about SDGs. Approximately 68% of faculty focus on developing knowledge and thinking skills (e.g., critical thinking, analytical or technical skills) necessary to better understand the SDG(s) and the challenges in achieving it. For example, the student is able to discuss the current climate change as an anthropogenic phenomenon resulting from increased greenhouse gas emissions. Similarly, 66% of faculty develop the skills needed for learners to collaborate, negotiate and communicate when addressing issues related to the SDG(s). For example, the student is able to communicate on the issues and connections between combating hunger and promoting sustainable agriculture and improved nutrition.

Over three quarters of faculty (76%) provide opportunities for and develop self-reflection skills, values, attitude and the motivations that promote life learning and provoke personal change related to SDG(s). For example, the student is able to explain their personal impact on the world's climate, from a local to a global perspective. When it comes to providing opportunities for students to take action towards achieving the SDG(s), a little over a half of faculty (55%) do so in their courses. For example, the student is able to promote climate-protecting public policies.

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Development of knowledge and thinking skills to understand the SDG(s)

No 32%

Yes 68%

Development of skills to collaborate, negotiate and communicate when addressing issues related to SDG

No 34%

Yes 66%

Development of self-reflection skills, values, attitudes and provoke personal change related to the SDG(s)

No 24%

Yes 76%

Provide opportunities for students to take action towards achieving the SDG(s)

No 45%

Yes 55%

SUSTAINABILITY IN CURRICULUM

The purpose of this section was to gather information on the content and pedagogical approaches of courses incorporating sustainability and sustainable development. Faculty were first asked which dimensions of sustainability are integrated into their course(s) and to select all that apply. Examples of topics within the realm of each dimension were given as prompts.

As illustrated in Figure 3, over half of faculty integrate the environmental (64%) and social (61%) dimension into their courses. Just under half of faculty integrate the economic dimension (49%) and approximately 7% of faculty are not integrating any of the dimensions of sustainability.
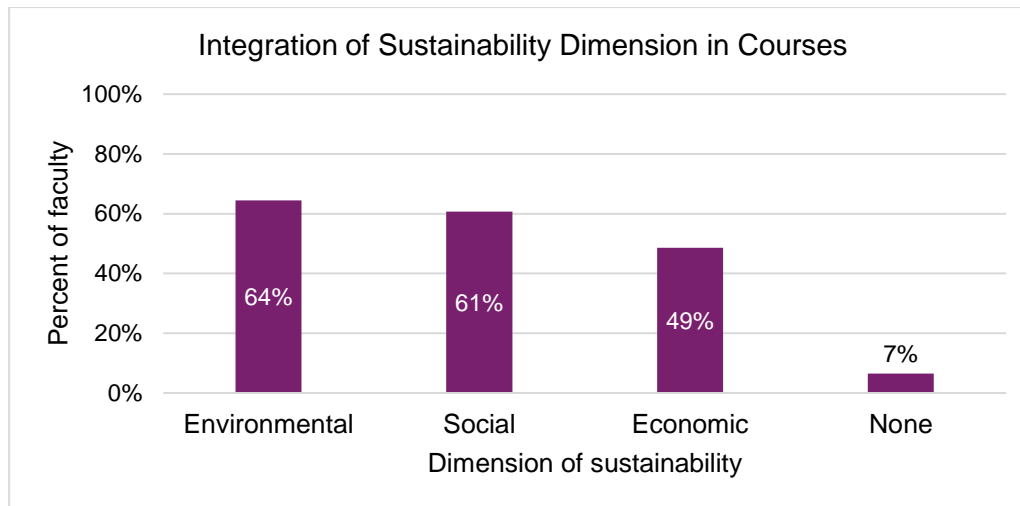
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Figure 3 - Integration of sustainability dimension in courses

Faculty were then asked which competencies students develop in their course(s) and to select all that apply. The Key Competencies in Sustainability Framework, developed by Wiek et al. (2011), is used to understand how sustainability is being addressed in courses. A competency is defined as "*a functionally linked complex of knowledge, skills, and attitudes that enable successful task performance and problem solving*".

As shown in Figure 4, the highest percentage of faculty (71%) have students develop the systems thinking competency (e.g., analyzing complex problems, understanding cause-effect chains, tipping points and feedback loops; promoting resilience) in their course(s). Two thirds of faculty have students develop the values thinking competency (e.g., reconciling and applying concepts of justice, equity, ethical responsibility; awareness of values; transcultural understanding; awareness of local context and global trends) and the interpersonal competency (e.g., communication skills, empathy, compassion, leadership, teamwork, mediation, cooperation, collaboration, participation).

Approximately 55% of faculty have students develop futures thinking competency (e.g., analyzing, evaluating and crafting desirable pictures of the future; visioning; developing scenarios; backcasting; recognizing heritage; intergenerational equity). A little over half of faculty (51%) have students develop the strategic thinking competency (e.g., addressing challenges; planning, decision making, designing and implementing interventions and transitions; organizational development; transformative governance strategies; adaptation and mitigation strategies). The intrapersonal competency (e.g., self-awareness, stress management, meaning making, connection with self, capacity for inner peace, mental wellbeing, self-reflection) is developed by students the least (45% of faculty).
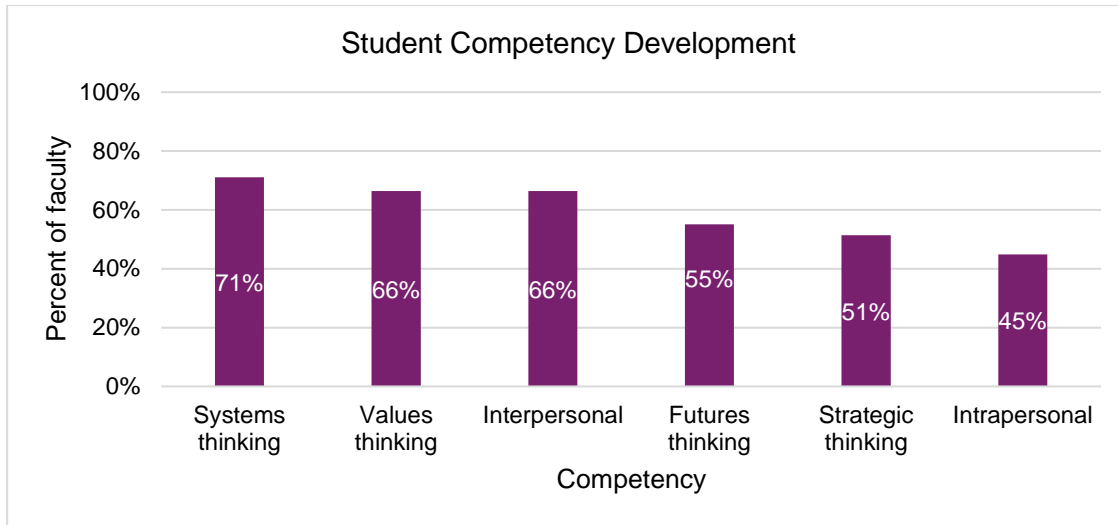
Figure 4 - Student competency development

The last question in this section was related to the different teaching approaches used by faculty. As illustrated in Figure 5, most faculty (77%) use active learning approaches (students learn by doing, via collaborative strategies leading to shared creation of knowledge such as discussions, presentations, group work or role-playing). Nearly two thirds of faculty (64%) use interdisciplinary or multidisciplinary teaching and learning approaches. Only 23% of faculty use teaching approaches outside of the western framework of social or applied sciences (e.g., Traditional Ecological Knowledge). Approximately 9% of faculty use none of the three teaching approaches.
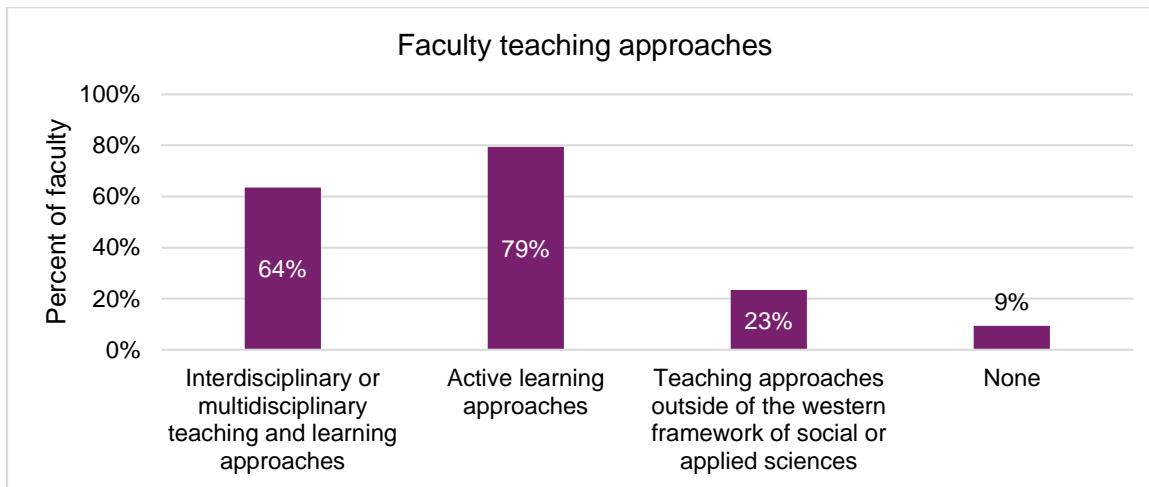

Figure 5 - Faculty teaching approaches

GENERAL FEEDBACK & CALL TO ACTION

All participants were prompted to optionally fill out the general feedback and call to action section of the survey. Contact information for Concordia's Sustainability Curriculum Developer was shared. The Sustainability Co-Design project was explained and interested faculty could provide their email address to participate in the next round of the project. Thirty-one faculty indicated their interest in participating in the project.

Fifteen faculty provided feedback on the survey. A faculty mentioned that the course content for their new course being taught in Winter 2024 wasn't developed yet and therefore they could not say how sustainability content would be included. Another comment involved the survey needing more language that allows for arts-based qualitative approaches and competencies. Similarly, a faculty noted that climate change mental health was lacking from the thematic section. A concern that was raised was related to the SDGs as a framework and how they do not deviate from the business-as-usual approach to solving global crises.

A faculty expressed their struggle to teach about sustainability without generating eco-anxiety among students. A few faculty elaborated on the different ways they are teaching sustainability in their courses. Lastly, a faculty asked a question about what faculty are doing themselves (other than teaching) about sustainability challenges.

CONCLUSIONS & NEXT STEPS

Despite the study limitations, our survey maps sustainability in the curriculum and offers insights into current trends and practices within our institution, outlining both the content and methodologies employed.

The data gathered from the survey will benefit students through the creation of a public searchable database that allows them to identify courses that include sustainability topics of interest to them. The Office of Sustainability will use the results from the survey to keep track of the number of courses with sustainability-related content to measure institutional progress towards the targets of the university's [Sustainability in the Curriculum](#) Action Plan and to expand the inventory of sustainability courses for the university's [Sustainability Tracking, Assessment and Rating System (STARS) certification.](#)

The Office of the Vice-Provost, Innovation in Teaching and Learning will leverage the survey to identify interests and provide tailored resources to faculty, enhancing sustainability curricula.

In terms of sustainability competencies, the prevalence of systems thinking in curricula is notable, suggesting an interest for further resources in this area. The

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underrepresentation of intra-personal themes underscores the importance of addressing inner capabilities, crucial for behavioral change. This aligns with faculty preferences, with 75% expressing a desire to incorporate classwork on attitudes, values, and self-reflection skills. Furthermore, we will explore strategies to deepen the treatment of preferred sustainability subjects and Sustainable Development Goals.

Other findings include a need for resources addressing climate change mental health and ecoanxiety and expanded support for teaching approaches divergent from Western frameworks, aligning with the recommendations of sustainability experts and recent literature. Additionally, we aim to support the crucial aspect of student actionability through various means.

Our goal is to offer faculty a customizable menu of resources curated and prepared by the Curriculum Developer for Sustainability (VPITL), available on the Centre for Teaching and Learning website by Fall 2024, with ongoing updates to ensure relevance and usefulness.