Evaluating the Core Curriculum: Embedded Learning Outcomes

COMPANION MANUAL

Updated August 2023

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Summary

Purdue University has a responsibility to provide a general or generic education for all undergraduate students, which is mandated by the Indiana General Assembly and our regional accreditation body- the Higher Learning Commission (HLC). The Undergraduate Curriculum Council (UCC) is charged with the administration and oversight of this expectation, aka Purdue University's core curriculum. One part of the UCC's responsibility, when it comes to the core, is to oversee the evaluation of it; the UCC has implemented a full continuous improvement process to evaluate the core curriculum. Purdue's core curriculum is made up of Foundational Learning Outcomes (FLOs) and Embedded Learning Outcomes (ELOs). This document provides an overview of the process and evidence material collected about the ELOs.

The UCC seeks to collect evidence that documents the degree to which the key skills of an ELO are taught *and* assessed across your **academic program** or degree. Our guiding philosophy is that of **curriculum coherence**: "curriculum should ensure that all students, regardless of curricular choices, have multiple [experiences] in which they learn how the discipline [or field] defines [all of our ELOs]…" and that they receive constructive feedback, via assessments, on their progress in demonstrating the key skills of our ELOs (Suskie, 2009 p.43).

If an **academic program** is not accredited, a **curriculum map** will be the evidence material submitted to the UCC. If an **academic program** is accredited, the faculty in that program will deliberate with the UCC to determine whether the material generated or used from a recent accreditation exercise will be sufficient *or* whether a **curriculum map** needs to be created/submitted. The UCC will make every effort to make this process as efficient and meaningful as possible.

Readers can find more information about Purdue's core curriculum by visiting the UCC website or they can direct questions to the UCC by emailing corecurriculum@purdue.edu.

Context and History of Purdue's Core Curriculum

Purdue University's core curriculum requirement is mandated by both our regional accreditation body and the Indiana General Assembly. Our regional accreditation body, the Higher Learning Commission (HLC), expects Purdue University to "maintain a minimum requirement for general education" of all undergraduate students and that, "the institution demonstrates… responsibility for the quality of its educational programs, …a commitment to improvement through ongoing assessment of student learning, and …that the integration of broad learning and skills are integral to its educational programs…" (HLC Criteria for Accreditation, CRRT.B.10.010, adopted 1992, updated 2020). The Indiana Senate Act 182 (established in 2012)requires all public, higher education institutions to create a statewide transfer general education core curriculum. The state of Indiana stipulates that undergraduates of Purdue University will demonstrate competency across six broad areas: Written Communication, Speaking and Listening, Quantitative Reasoning, Scientific Ways of Knowing, Humanistic and Artistic Ways of Knowing, Social and Behavioral Ways of Knowing.

Given these expectations, in 2012 the Purdue University Senate formed and charged the Undergraduate Curriculum Council (UCC) with the administration and oversight of our core curriculum (see University Senate Document 11-7, University Senate Document 11-7 Revised 11 February 2015, and University Senate Document 11-7 Appendices). In this vein, the UCC identified two areas that make up Purdue's outcomes-based core curriculum: the Foundational Learning Outcomes (FLOs) and the Embedded Learning Outcomes (ELOs). Further, the UCC has establish evaluation processes around both the FLOs and ELOs to ensure we are meeting the HLC's expectations of demonstrating our commitments to: quality instruction, ongoing assessment of student learning, and a commitment to continuous improvement. For more documentation surrounding the core curriculum, please see University Senate Document 19-13, and University Senate Document 22-13.

This *Companion Manual* contains details regarding the evaluation of our Embedded Learning Outcomes (ELOs). For more information about the Foundational Learning Outcomes (FLOs) please visit the UCC's website.

*NOTE: Throughout this document key words are placed **in bold** and the definitions for these key terms are found in the glossary of this document.*

Embedded Learning Outcomes

Overview

There are four embedded learning outcomes (ELOs) in Purdue's core curriculum: *Communication*, *Ways of Thinking*, *Interpersonal Skills and Intercultural Knowledge*, and *Diversity, Equity and Inclusion*. Table 1 provides the definitions and key skills affiliated with each of the ELOs. The key skills of each ELO are the outcomes we seek for all Boilermakers to be competent in, upon graduation.

Each of the four ELOs are to be intentionally included (i.e., embedded) in the particular **academic programs** or **academic degrees** across Purdue University. The ELOs can be addressed (i.e., taught and assessed) within credit-bearing courses or other **educational interventions** (co-curricular, extra-curricular, etc.). The UCC understands that some courses that are approved to meet a particular Foundational Learning Outcome (FLO) may be utilized to buttress or reinforce an ELO, however, a program of study should not be too reliant on those courses. The UCC wishes to see a variety of ways our students can strengthen their learning across a diverse set of **educational interventions**.

Table 1. Embedded Learning Outcome (ELOs) definitions and key skills.		
Label	**Definition**	**Key Skills**
ELO #1. Communication	Students graduating from Purdue should be able to communicate, orally and in writing, in ways appropriate to their fields of study and future careers. Effective communication is founded on information literacy, which involves the ability to use appropriate information to learn and explore ideas, demonstrate understanding of a subject, and convey one's conclusions. At the embedded outcome level, effective communication assumes basic fluency with such things as grammar, organization and structure. It also focuses on being able to convey ideas concisely in ways appropriate for the context, audience and purpose. At this level, students should recognize that communication occurs within and across communities, such as academic, public or professional, where ideas are formulated, debated, and weighed against one another.	➢ Executes proper organization, content, presentation, format and stylistic choices through appropriate genres of written or oral communication. ➢ Evaluates, selects, analyzes and synthesizes relevant information sources for communicative purposes. ➢ Communicates using modes appropriate for specific purposes and audiences (e.g., essay, report, scientific poster, video, social media, etc.). ➢ Applies academic integrity, ethical standards and legal requirements (such as giving credit to the original ideas of others through proper attribution and citation, when using information sources to communicate).
ELO #2. Ways of thinking	Success in life requires the ability to think critically, practically, and creatively within an ethical framework. Critical thinking is the process of gathering information, analyzing it in various ways including quantitative and qualitative methods, and evaluating it for the purpose of solving a problem or making a decision. Practical thinking is the ability to adapt to changing environmental conditions and to shape the environment so as to produce the desired results. Creative thinking is the ability to generate novel ideas that can lead to change. It is essential that the ethical implications of actions that result from these thought processes are carefully considered.	➢ Gathers, analyzes and evaluates information. ➢ Connects disparate pieces of information to infer relationships. ➢ Demonstrates open-mindedness and flexibility in expression, decision making, and problem solving. ➢ Applies knowledge and skills previously learned to new circumstances. ➢ Considers multiple possible explanations and/or solutions. ➢ Works productively with others and is able to learn from diverse perspectives.

ELO #3. Interpersonal Skills and Intercultural Knowledge	Students graduating from Purdue University should be able to work effectively with others in various ways including in cross-cultural situations and in a global civil society. Interpersonal skills include the ability to work effectively with others both in professional practice and in relating to those outside of the discipline, in leadership roles, and as members of a team. Intercultural knowledge is founded on the ability to appreciate and critique multiple perspectives including one's own and to engage in civil discourse on complex societal and global issues. It requires respect for and responsiveness to the beliefs and practices and cultural and linguistic needs of diverse populations. Students can acquire and practice these skills in ways appropriate to their fields of study and future professional growth.	➢ Develops the ability to work with others in leadership and/or team roles in professional practice and in relating to the public, including in situations lacking agreement or consensus. ➢ Demonstrates empathy and consideration of diverse populations in relation to history, values, politics, communication styles, economy, or beliefs and practices. ➢ Demonstrates understanding of the rights and obligations that students have as members of communities, nations and the world. ➢ Applies interpersonal skills and intercultural knowledge in discipline-specific ways (e.g., courses, study abroad, internships, community service, fieldwork, undergraduate research, capstone projects, student teaching, performances and exhibitions, and honors theses).
ELO #4. Diversity, Equity, and Inclusion	Students graduating from Purdue will belong to diverse workplaces and communities. Purdue students should be familiar with historical and current issues of diversity, equity, and inclusion, and reflect on the identities of themselves and others. As Purdue students develop strategies to engage inclusively with people who have identities different from their own, they can become more successful members of their workplaces and communities. In this context, diversity may consider a wide range of issues related to race, ethnicity, class, gender, sexual orientation, dis/ability, culture, or religion, in local, national, and international contexts.	➢ Critically reflect on social and cultural identities and perspectives of one's self and others ➢ Develop knowledge and strategies for engaging inclusively and in solidarity with people who have social identities different from one's own ➢ Identify historical and structural factors contributing to inequity ➢ Discuss the meaning of diversity, equity, and inclusion, and the importance and challenges of living and working in diverse contexts.

Purpose of evaluating the core curriculum

The purpose of evaluating our core curriculum is to demonstrate Purdue's commitment to learning and improvement. Therefore, evaluating the core curriculum aids in a) understanding and enriching the learning opportunities provided for all Boilermakers, b) documenting students' achievement or competence in the identified ELO areas, and c) actively involving faculty in the co-creation, improvement, and sustainability of our core curriculum.

Consequently, the UCC, with support by IDA+A, oversees the gathering and review of evidence material, plus the documentation of actions taken to strengthen or sustain the following elements:

1. Instructional or curriculum design: the quality, cadence, and scaffolding or sequencing of **educational interventions** that introduce, reinforce, and strengthen our Boilermakers learning along the foundational and embedded outcomes of our core curriculum.
2. Assessment: the use of direct and indirect measures of learning to document our Boilermakers' achievements in demonstrating the foundational and embedded outcomes of our core curriculum.

3. Feedback: ensuring Boilermakers receive ongoing (i.e., formative) and cumulative (i.e., summative) feedback regarding their learning progress and/or level of competency achieved across the ELO's key skills.

More information about what evidence files we collect to evaluate the ELOs, as well as the overall process can be found in the next section, "Details."

The purpose of this Companion Manual is to:

➢ support you and your colleagues in submitting the necessary evidence material(s),
➢ communicate and make transparent the process by which the UCC reviews and provides feedback to you and your colleagues, and
➢ clarify what actions are expected of those that oversee and support our academic or degree programs.

Governance

The Undergraduate Curriculum Council (UCC), which reports to the Educational Policy Committee (EPC) —a standing committee of the University Senate —is made up of representatives from Purdue's Colleges and Schools, Academic Advisors, the Purdue Indianapolis campus, the Registrar, IDA+A, and leaders from the Provost's Office. The UCC is charged with administrating and reviewing or evaluating all facets of our core curriculum (e.g., evaluating transfer course credits, approving courses to be part of the core, reporting to the Higher Learning Commission).

Should you or any of your colleagues have questions about this process or anything else about Purdue's core curriculum, please reach out through your UCC representative. If you are unsure who to contact, please email your question to corecurriculum@purdue.edu and the UCC Recorder will direct your question to the most appropriate member of the UCC.

Compliance

The evaluation of the core curriculum is inseparable from the externally mandated accountability expectations of Purdue's accreditation body, the HLC, when it comes to providing a general education graduation requirement. Therefore, it is expected that every academic or degree program at Purdue University, West Lafayette and Indianapolis, authentically participates in and completes the evaluation process.

Details of Review Process – ELOs

Timeline

- **Two weeks prior to the beginning of the fall term** of each academic year: "Kickoff email" will go out, from corecurriculum@purdue.edu, to the senior leader and department head affiliated with the academic or degree program that needs to complete this process.
- **By or before the end of 4th week of the fall term**: The following will be determined:
  - The primary contact from the academic or degree program expected to complete this process.
  - What evidence material will be submitted to be reviewed by the UCC.
- **By or before the following spring term's "Grade submission deadline"**: The evidence files will be submitted to the UCC. Ongoing communication, support, and specific details or instructions will be provided throughout the fall and spring terms.
- **Each summer**: A subcommittee of the UCC will apply a checklist to the submitted evidence files. See "Step Three" below for more information.
- **Before the beginning of the next fall term**: Feedback will be provided to the primary contact of the academic or degree program.
- **Before the end of that next fall term**: The faculty submit an "action plan" based on the feedback provided by the UCC members.

For example, for the 2024-2025 academic year (AY25)

- **Week of August 5, 2024:** Kickoff email is sent to the associate dean and department or school head(s) connected with the College of Science's Chemistry program and the College of Agriculture's Agricultural Communication department.
- **Before Friday, September 13, 2024** (the end the 4th week of classes): The following has been determined:
  - Chemistry: Primary point of contact is Dr. Paul Wenthold; upon approval of the UCC, Chemistry will submit the following:
    - BS in Chemistry (CHEM-BS): evidence files generated for/from their last round of re-accreditation with the American Chemical Society (ACS) with minimal modifications
    - BS in Biochemistry (CHEM-BSCHM): a **curriculum map** will be co-created and submitted.
  - Ag. Comm.: Primary point of contact is Dr. Mark Tucker; a **curriculum map** regarding the BS in Agriculture Comm/Journalism (AGRIC-BS) will be co-created and submitted.
- **Throughout the fall and spring terms:** UCC representative for each college and an IDA+A staff member are in touch to see what support, resources, or guidance is needed to submit the agreed upon documentation.
- **By or before noon on Tuesday, May 13, 2025** (the day spring term grades are due): All agreed upon pieces of evidence are submitted to the UCC.
- **Throughout May, June, and July of 2025:** A subcommittee of the UCC applies a checklist to the evidence files in order to provide feedback to the faculty.
- **By or before August 2025:** The primary contact receives feedback from UCC.

> **By December 10, 2025:** The faculty from the **academic program** being evaluated will respond to the UCC and, if applicable, turn in an action plan.

Four-step process

The UCC seeks to collect evidence that documents the degree to which the key skills of an ELO are taught to *and* assessed across your **academic program** or degree. All decisions are documented in the minutes of UCC agendas or other formal records of the UCC.

STEP ONE. Determine what evidence material to submit.

This process kicks off, in the fall term, when the UCC leaders email the associate dean, department head, and UCC representative affiliated with the academic or degree programs expected to complete this process.

The first action that needs to be taken is determining who will serve as the primary contact for this process. After that, the primary contact will work with the UCC to determine what evidence material will be submitted.

If an **academic program** is not accredited, a **curriculum map** will be the evidence material submitted to the UCC. If an **academic program** is accredited, the faculty in that program will deliberate with the UCC to determine whether the material generated or used from a recent accreditation exercise will be sufficient *or* whether a **curriculum map** needs to be created/submitted. Figure 1 provides an overview of this part of Step One.

Appropriate evidence material will demonstrate how or where (credit-bearing, co-curricular, or experiential in nature) the "typical Boilermaker" develops and demonstrates the key skills of our ELOs. The evidence material(s) submitted should be help the UCC answer the following questions and others (see "Checklist"):

> Where and how does the **academic program** or degree introduce, reinforce or strengthen, and allow for mastery of the key skills?
> How and when/where are Boilermakers assessed for demonstration of learning or their achievement (e.g., mastery or competence) of the key skills of the ELOs?
> When is mastery of the ELO expected?
> How do prior learning experiences help ensure successful attainment of mastery?
> To what degree does the **academic program** or degree contribute to the collective enterprise of helping students gain and demonstrate the key skills of an ELO?

STEP TWO. Submit evidence material to UCC.

The **academic programs** or degrees have until the end of the following spring term to turn in the evidence material. All of the **academic programs** or degrees involved in this process (via their primary contact) will receive an email granting access to a unique and confidential folder for file sharing the required evidence material(s). The folders are owned and managed by the UCC. File types accepted are: Microsoft Word, Adobe PDF, and PowerPoint, and URLs saved as a link within one of the above-mentioned accepted file types.

STEP THREE. Centralized peer review process.

Shortly after the deadline has passed (see "Timeline" section) the faculty representative of the UCC will apply a checklist to the submitted evidence material(s).

Upon review of the evidence material(s), the UCC will place the **academic program** or degree along a continuum of "embeddedness" and, when applicable, provide suggestions for how to strengthen or improve the **curricular coherence** around the ELOs.

Feedback will be sent in a memo, via DocuSign, from the UCC (corecurriculum@purdue.edu) to the primary contact, with the expectation that the primary contact read and sign the document within 10 business days. In that memo, if any next steps are expected they will be outlined. Should an action plan need to be submitted, instructions will be provided to the primary contact for how to complete that part of this process.

Step 4. Submit action plan.

Should an **academic program** or degree be given the status of "Acceptable" the primary contact will only need to submit sign the memo sent to them via DocuSign within 10 business days. This status will serve as evidence that the program is in good standing when it comes to teaching to and assessing our ELOs. The UCC will follow up with that **academic program** in four years to see if there has been any **substantive change** to the curriculum warranting a requirement for new evidence material.

The "Action Plan" simply documents what will be done to improve the coherence of the curriculum around the ELO(s). Should an **academic program** or degree be given the status of "Needs Modification/ Improvement" or "No evidence" then an action plan will be submitted to the UCC as follows. This plan is co-created by the faculty of the **academic program** or degree. The action plan will address:

> ➢ What actions will the faculty take, if any, to improve the **curricular coherence** and/or should any identifiable changes be made?
> ➢ a timeline for implementing these actions or changes and what will be impacted because of these changes.
> ➢ What outcomes or improvements in **curricular coherence**, student learning outcomes, or instructional design are realistic and measurable?" given the changes or actions the faculty plan to take.

The format of these action plans can take many forms- a memo from the faculty to the UCC, a project management chart or plan (e.g., Gannt chart), or formal project proposal.

As faculty implement the actions or changes, it is expected that written records of these activities are taken or kept (e.g., in meeting minute or other unit-affiliated record keeping).

UCC CHECKLIST to EVALUTATE ELOs

➢ Is the curriculum progressive, with a logical route through it for the "typical Boilermaker" to gain the key skills of the ELOs?

➢ Are the key skills introduced (I) and reinforced (R) to allow time for students to gain proficiency (P)?

➢ Is the curriculum structured so that students have to take the fundamentals they need completing a P-level experience?

➢ Is there at least one experience with a P-designation on the map for each ELO?

➢ Are there gaps (ELOs addressed by too few learning experiences)?

➢ Are there redundancies (excessive coverage)?

➢ Are the ELOs addressed only in electives? Is the program heavily reliant on another department or program to deliver the learning along the ELO?

➢ Do the majority of the students in this program have adequate opportunities to gain the key skills of the ELO?

➢ Are any single courses trying to address too many of the ELOs?

➢ Are any single learning experiences addressing an ELO on too many levels (I, R, and P)?

➢ When and how is the ELO assessed?

➢ Are the measures utilized valid for measuring student learning along the ELO?

➢ Is it assessed only at the introduction phase or is it assessed throughout? Is it assessed at the P-level?

➢ Do any learning experiences lack an associated assessment measure that will allow the department to know students have achieved proficiency?
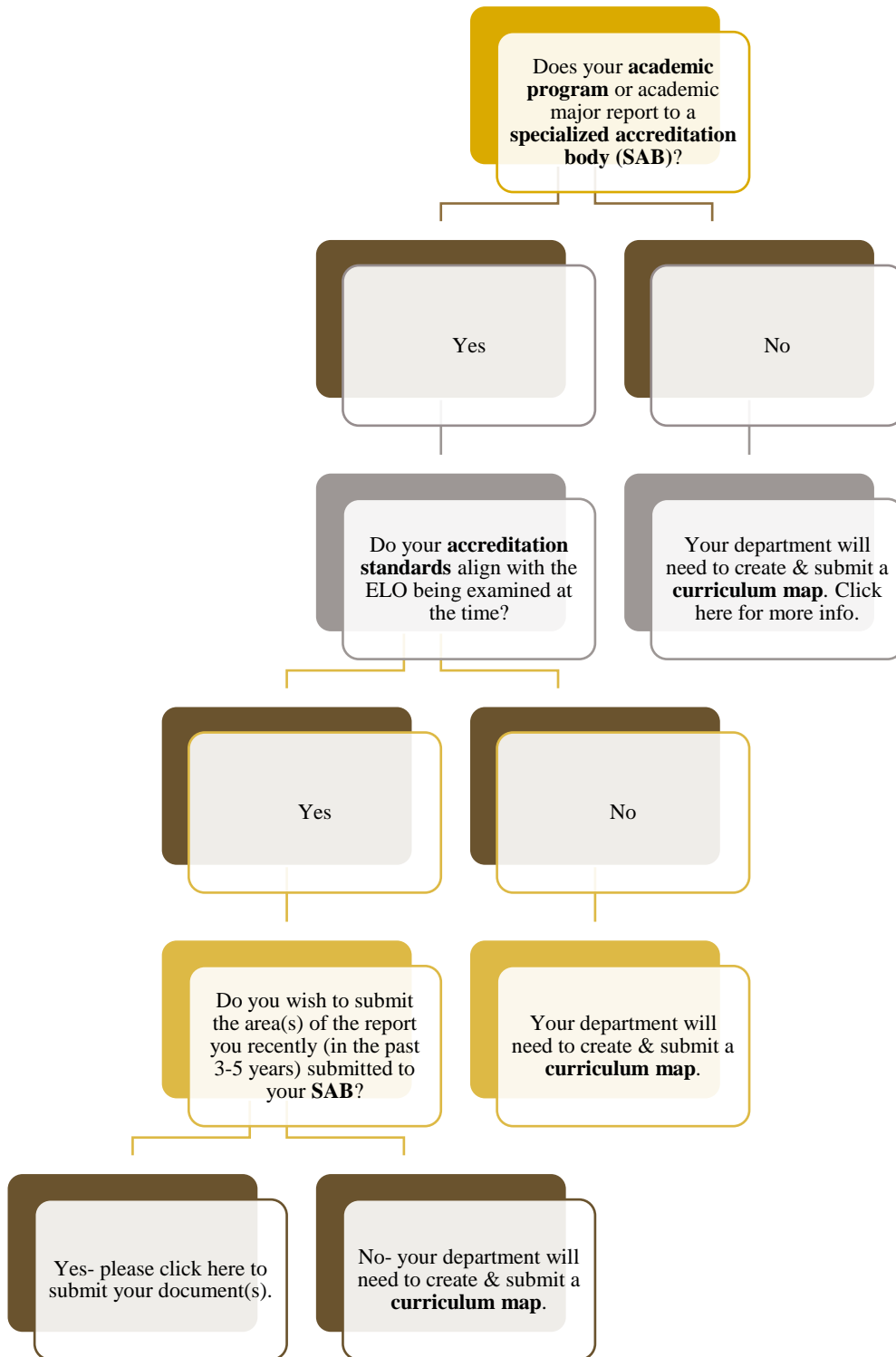
CONTINUUM of EMBEDDEDNESS

(1) No evidence: Curricular content and assessment practices do not appear to provide opportunities for students to increase ELO-relevant knowledge and skills.

(2) Needs modification/improvement: Curricular content and assessment practices provide minimal opportunities for students to increase ELO-relevant knowledge and skills.

(3) Acceptable: Curricular content and assessment practices provide ongoing and meaningful opportunities for Boilermakers to increase ELO-relevant knowledge and skills.

Figure 1. Decision tree about submitting evidence material

Does your **academic program** or academic major report to a **specialized accreditation body (SAB)**?

- Yes
  - Do your **accreditation standards** align with the ELO being examined at the time?
    - Yes
      - Do you wish to submit the area(s) of the report you recently (in the past 3-5 years) submitted to your **SAB**?
        - Yes- please click here to submit your document(s).
        - No- your department will need to create & submit a **curriculum map**.
    - No
      - Your department will need to create & submit a **curriculum map**.
- No
  - Your department will need to create & submit a **curriculum map**. Click here for more info.

Glossary

Academic program: A combination of major and degree type which your Boilermakers are pursuing. Examples include Chemistry-BS, English-BA, etc.

Academic degree: An award conferred on Boilermakers by the university based on a completion of a program of study.

Accreditation standards: the criteria set for teaching or instructional quality, the knowledge, skills, or abilities to be obtained (and the level of competency to be demonstrated, if applicable) by students within the program of study, and other expectations established by the accountability body (specialized or institutional accreditation body) of a particular academic program or academic degree.

Curricular coherence: aka, *aligned curriculum*, refers to an academic program that is well-organized, purposefully designed to facilitate the learning we seek for all of our Boilermakers, is free of gaps and needless repetition, and is scaffolded across learning experiences, levels, or subject areas. Uneven or scattered curriculum can widen the achievement gaps between students from minoritized identities (e.g., low socio-economic status) and their peers.

Curriculum map: A visual way to represent or see the relationships between different aspects of the teaching and learning process. The UCC collects curriculum maps at the academic program- or academic degree-level. The curriculum map will make visible how a) educational interventions (whether credit-bearing courses or co-curricular, experiential, or extra-curricular in nature) support students' learning and b) the means by which instructors collect or measure evidence of learning outcome achievement. For examples and support in creating a curriculum map, please click here.

Educational intervention(s): an intentionally designed learning experience delivered by a practitioner or educator of a certain discipline, subject-matter, or other area of expertise. Educational interventions at Purdue University take many forms- whether a traditional credit-bearing class or course, a co-curricular opportunity that merges hands-on experience with a credit-bearing course, or other experiential or extra-curricular experiences that seek to improve, increase, alter or improve students' knowledge, skills, abilities, or dispositions.

Specialized or programmatic accreditation body (SAB): Organizations that establish standards related to a specific profession. For example: Accreditation Council for Business Schools and Programs (ACBSP), Accreditation Board for Engineering and Technology - Engineering Accreditation Commission (ABET-EAC), Accreditation Board for Engineering and Technology - Engineering Accreditation Commission (ABET-EAC), Accreditation Board for Engineering and Technology - Engineering Accreditation Commission (ABET-EAC), Council for the Accreditation of Educator Preparation (CAEP).

Substantive change: As defined by the HLC, "any change of control, change in level or types of credentials offered, or a change in the purpose of the academic program or degree that exceeds minor corrections or alterations."

FAQs - EMBEDDED OUTCOMES

What are embedded outcomes?

The embedded outcomes are met within each student's major (aka, academic program or degree), which define the learning expectations of particular degrees. Faculty within each program will determine where and at what level embedded outcomes will be met within their programs. The four embedded outcomes are communication; ways of thinking; interpersonal skills and intercultural knowledge; and DEI. For a description of each embedded outcome, please click here.

How might embedded outcomes be met within a program/major?

Embedded outcomes shall be managed at the program level. Unlike the foundational outcomes, which are satisfied by coursework and are portable across campus, the embedded outcomes are addressed throughout—or threaded through—a program's curriculum. A program's curriculum taken as a whole should contribute to achieving the embedded outcomes. Faculty in each program will determine how their students will meet embedded outcomes. Students may take designated courses, complete projects, engage in service learning, participate in a study abroad experience, or complete another approved assignment that documents their acquisition of embedded outcomes. Ultimately, it is up to program faculty to agree upon how their students will meet these outcomes.

Must programs require students to complete ALL embedded outcomes?

Yes. Embedded outcomes are a required component of Purdue's Outcomes-based Core Curriculum.

Will continuing, CODO, and Transfer students who change to a new curriculum be required to meet embedded outcomes?

Yes. Continuing students, CODO, and Transfer students who change to the new curriculum will be required to meet all degree requirements including embedded outcomes.

How will Colleges/Schools document that their programs allow students to meet all embedded outcomes?

Each program will be asked to map their program of study to the embedded outcomes. This map will then be reviewed and documented by programs and reported to the UCC.

How will embedded outcomes be assessed?

Programs of study identify where and how students will meet embedded outcomes, how student learning of these outcomes will be assessed, and what evidence will be gathered to support that assessment. For example, if a study abroad experience is used to meet the outcome of interpersonal skills and intercultural knowledge, students may be required to provide the link to their blog in which they completed a series of reflective writing assignments that demonstrates their achievement of the outcome.

To whom will information about the core be reported?

Information gleaned from the evaluation process will be reported to the Higher Learning Commission for accreditation purposes and to the Indiana Commission for Higher Education for indicating that Purdue aligns with Indiana's statewide transfer general education expectations. This information is regularly used by faculty to determine the effectiveness of their own instruction and their impact on student learning of outcomes, plus by our degree programs to meet the expectations set by their specialized accreditation or external program review bodies.