CAL POLY CM PROGRAM ASSESSMENT PLAN

Mission Statement

The Cal Poly Construction Management program builds innovative leaders in the construction industry by integrating technical knowledge, engaging in life-long learning, and solving problems as a highly effective manager through communication and collaboration.

Degree Program Objectives

As a professional program within the university, the Department is dedicated to maintaining the comprehensive nature of the educational experience offered in the academic environment. As one of five departments within the college, it supports the interdisciplinary goals of the College of Architecture, Engineering, and Design (CAED), which are reflected in the department's objectives. The following six Degree Program Objectives (DPOs) have been established to achieve the program's mission and enhance educational experiences within both the CAED and the university overall.

1. Prepare graduates to successfully perform in the construction industry with problem-solving skills and technical knowledge.
2. Provide interdisciplinary opportunities for students to develop professionalism, leadership, communication, and teamwork skills.
3. Provide opportunities for service and lifelong learning in the built environment.
4. Provide learning opportunities that enable students to understand construction management within the broader context of art, science, business, and technology.
5. Provide equitable learning opportunities for all students to succeed while fostering a culture of inclusive excellence.
6. Collaborate with industry partners to provide CM graduates with employment opportunities in the construction industry.

The DPOs and assessment process were revised in AY 2025-26 to better align with the CM Strategic Action Plan, institutional effectiveness initiatives, and current ACCE accreditation expectations. Previously, assessment of the DPOs relied primarily on attainment of Program Learning Outcomes and indirect feedback measures. The revised process incorporates additional direct and institutional performance indicators, including graduation and retention rates, employment outcomes, participation in high-impact educational experiences, student engagement in competitions and clubs, diversity and equity metrics, and evidence of industry collaboration.

The CM department employs a balanced mix of direct and indirect assessment tools to evaluate the attainment of Degree Program Objectives (DPOs). :

Direct Assessment Measures:

- ACCE SLO assessment results
- Lab assignments and projects
- 6-year graduation rates
- Graduate Status Report prepared by Cal Poly Career Services
- Program Profile Reports
- American Institute of Constructors (AIC) Level I Exam

Indirect Assessment Measures:

- Graduating senior exit surveys
- Employer and industry surveys
- CMAC advisory input
- Student participation in competitions, clubs, and leadership activities

Institutional Effectiveness and Program Performance Measures

- Career outcome and job placement rates
- Internship participation rates
- Graduation and persistence rates
- Student demographic success metrics (gender, underrepresented minority, Pell-eligible, and first-generation students)
- Study abroad and international learning participation
- Participation in minors, concentrations, and certificate programs
- Student organization membership and engagement
- Peer tutoring utilization and academic support participation

The revised assessment methodology provides a more comprehensive evaluation of the extent to which the DPOs are being achieved. It enables the department to systematically monitor student success, measure progress toward strategic priorities, and identify opportunities for improvement beyond course-level learning outcomes. The updated process also strengthens the connection between outcome assessment, strategic planning, resource allocation, and continuous improvement efforts, ensuring that assessment results are used to inform curriculum development, student success initiatives, and programmatic decision-making.

Table 1 below shows the relationship between the DPOs, specific goals, measures, along with the assessment methods used to evaluate whether the objectives are being achieved.

Table 1: Summary of DPO Assessment

Program Objectives	**Goals and Assessment Measures**	**Data**
Prepare graduates to successfully perform in the construction industry with problem-solving skills and technical knowledge. (Aligned with Strategic Priority 1B)	1. Conduct the PLO assessment every three years to maintain a rigorous construction management curriculum that enables students to achieve all ACCE SLOs. 2. Conduct three course review sessions per assessment cycle 3. Hire faculty with at least 3 years of industry experience.	1. The rates of PLO attainment reported in the Outcome Assessment Reports. 2. Records of course review sessions hosted by the Curriculum Committee with CMAC members. 3. Years of industry experience of newly hired faculty.
Provide interdisciplinary opportunities for students to develop professionalism, leadership, communication, and teamwork skills. (Aligned with Strategic Priority 1A)	1. Support more than 24 competition teams each year. 2. 25% of CM students participate in student competitions. 3. Support interdisciplinary club and extracurricular activities promoting interdisciplinary learning experiences.	1. Number of competition teams 2. Number of students participated in student competitions each year. 3. List of interdisciplinary activities and clubs supported by the CM department.
Provide opportunities for service and lifelong learning within the industry and community. (aligned with Strategic Priority 1A and 5A)	1. 40% of students will be part of a student club affiliated with national organization/association in the construction industry. 2. 40% of students will complete hands-on, project-based senior project before graduation.	1. Number of ASCM Members. 2. Number of project-based senior projects.

Provide equitable learning opportunities for all students to succeed while fostering a culture of inclusive excellence. (Aligned with Strategic Priority 1D)	1. URM and Non-URM students' 6-year graduation rates will be within 10% of each other. 2. Men and women's 6-year graduation rates will be within 10% of each other. 3. First generation and non-first generation students' 6-year graduation rates will be within 10% of each other.	1. 6-Year Persistence Profile for URM and Non-URM students in CM. 2. 6-Year Persistence Profile for men and women students in CM 3. 6-Year Persistence Profile for first-gen and non first-gen students in CM
Provide learning opportunities that enable students to understand construction management within the broader context of art, science, business, and technology. (Aligned with Strategic Priority 1E and 4B.)	1. Maintain a curriculum that meets the University and ACCE minimum requirements in general education, math and science, business, engineering, and construction management content. 2. At least 10% of CM graduates will participate in a study abroad, student exchange, or other approved international learning opportunities. 3. At least 10% of CM students will earn a minor, concentration, or certificate program.	1. Outcome assessment report that confirms compliance with university and ACCE standards. 2. Number of CM students participated in study abroad, student exchange, or other approved international learning opportunities. 3. Number of CM students pursuing a minor program.
Collaborate with industry partners to provide CM graduates with employment opportunities in the construction industry. (aligned with Strategic Priority 1F)	1. 95% of an overall career outcome rate 2. 60% of students will be employed in at least one internship during their college career 3. CCCE hosts two annual career fairs, more than 100 company info sessions, and additional recruiting events for CM students.	1. Career Outcome Rates provided by Career Services. 2. Number of students who pursued at least one internship. 3. Number of info sessions provided by the CCCE.

Program Learning Outcomes

The Program Learning Outcomes (PLOs) listed below were adopted by the Department to ensure that they meet or exceed the ACCE Student Learning Outcomes, fulfill the Degree Program Objectives, align with the University Learning Objectives, and adhere to the Western Association of Schools and Colleges (WASC) Core Competencies (see Appendix 1.3 for Learning Objective Alignment). These outcomes were developed by an Outcomes Assessment Committee composed of Construction Management faculty, with input from both internal and external faculty, as well as from the curriculum and outcomes assessment committees of the Construction Management Advisory Committee (CMAC), student focus groups, and other stakeholders. The final list of outcomes was approved through the faculty governance process; the first 17 outcomes align with ACCE standards, while the remaining 5 were chosen by the faculty. Following the 2021 evaluation, ACCE has reduced the required Program Learning Outcomes (PLOs) from 20 to 17. Cal Poly has included 5 additional PLOs as part of its assessment program.

Program Learning Outcomes:

PLO 1:	Create written communications appropriate to the construction discipline
PLO 2:	Create oral presentations appropriate to the construction discipline
PLO 3:	Create a construction project safety plan
PLO 4:	Create construction project cost estimates
PLO 5:	Create construction project schedules
PLO 6:	Analyze professional decisions based on ethical principles.
PLO 7:	Analyze methods, materials, and equipment used to construct projects.
PLO 8:	Apply electronic-based technology to manage the construction process.
PLO 9:	Apply basic surveying techniques for construction layout and control.
PLO 10:	Understand different methods of project delivery and the roles and responsibilities of all constituencies involved in the design and construction process.
PLO 11:	Understand construction accounting and cost control.
PLO 12:	Understand construction quality assurance and control.
PLO 13:	Understand construction project control processes.
PLO 14:	Understand the legal implications of contract, common, and regulatory law to manage a construction project.
PLO 15:	Understand the basic principles of sustainable construction.
PLO 16:	Understand the basic principles of structural behavior.
PLO 17:	Understand the basic principles of mechanical, electrical and plumbing systems.

PLO 18: Understand the role construction managers play in enhancing the needs of society.

PLO 19: Understand the importance of creating and planning for continuing education and lifelong learning.

PLO 20: Understand the key leadership characteristics that are successful in building and strengthening construction management teams.

PLO 21: Understand the importance of recognizing culture differences and role culture plays on influencing project success for a construction team.

PLO 22: Understand the benefits of respecting the unique and diverse backgrounds individuals bring to a construction team.

Evaluation Methodology

The evaluation sub-process is illustrated in Figure 1. The Outcomes Assessment Committee is at the center of data collection and facilitates the feedback loop and curriculum changes. Each Student Learning Outcome (SLO) is subjected to evaluation at least every three years. The SLO champion, typically a faculty member designated as the lead for the specific course in which the assessment measure is embedded, is responsible for collecting the assessment data and submitting it to the OAC.

On an annual basis, the OAC also engages with various stakeholders, including recent alumni, employers, and members of the Curriculum and Assessment Committee (CMAC), through surveys, notes from senior exit interviews, and results from AIC examinations. The OAC aggregates this comprehensive data into a detailed report and convenes with the SLO champion and other faculty members who taught the corresponding course to obtain deeper insights into the results, addressing both areas of strength and opportunities for improvement in student performance.

Following this discussion, a report is compiled summarizing the current results and previous outcomes to illustrate trends in performance. This report is presented to the faculty during a departmental meeting for further discussion and recommendations for curriculum enhancements. The outcomes of these discussions are documented and shared with the applicable course champion and the curriculum committee for implementation. Additionally, the results are communicated to the CMAC curriculum committee for suggestions on further enhancing the curriculum.

Finally, following a comprehensive evaluation of the recommended strategies, faculty identify if any curriculum revisions are required to enhance student learning outcomes. If revisions are required, faculty integrate content and, dubsequently, assessment instruments are employed to ascertain the efficacy of these curricular modifications. The resulting data is systematically gathered and analyzed in collaboration with the Outcomes Assessment Committee (OAC), thereby initiating a cyclical process of continuous improvement.

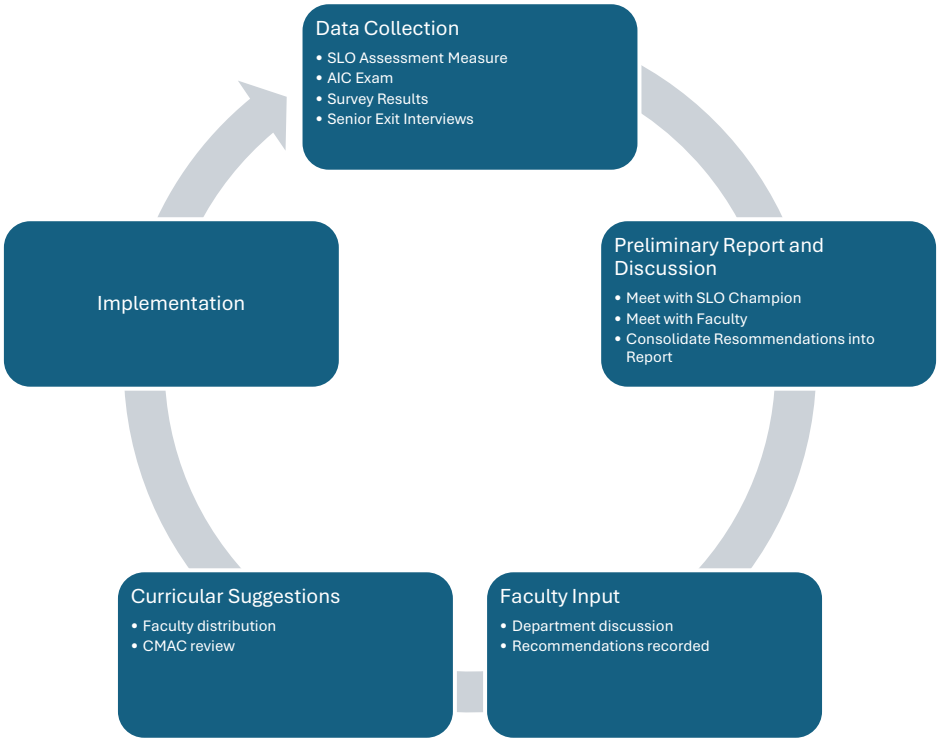

Fig. 1: Evaluation Sub-Process

Program Improvement

The objective of this improvement plan is to enhance curriculum effectiveness by addressing areas identified through assessment outcomes and stakeholder feedback. This structured approach ensures alignment with educational goals and student needs.

The process begins with a thorough assessment of the current curriculum, evaluating recent assessment data and gathering stakeholder input. Based on this analysis, a comprehensive report will outline the strengths and weaknesses of the curriculum.

These findings will be presented to faculty in a departmental meeting to gather insights and recommendations for enhancements. The outcomes of this discussion will be documented and shared with course champions and the curriculum committee to develop detailed implementation plans for the proposed changes.

Once approved, the curriculum revisions will be implemented with clear communication to faculty. Following implementation, assessment tools will evaluate the effectiveness of these changes on student learning outcomes.

Results will be analyzed against previous data to identify further improvement areas, fostering a cycle of continuous enhancement. Key performance indicators will include improvements in student assessment scores, increased faculty satisfaction, and positive

student feedback. This plan aims to create a more effective educational experience for all students

Process Improvements

To enhance the effectiveness of the outcomes assessment process, several key process improvements can be implemented. First, increasing stakeholder involvement by engaging students, faculty, and other participants in the development and evaluation of assessment methods can lead to more relevant and diverse perspectives. Developing clear rubrics aligned with educational objectives helps in objectively assessing student performance, and establishing a structured feedback mechanism can identify areas for improvement.

Additionally, piloting new assessment methods allows for gathering preliminary data before full implementation, ensuring validity and reliability. Encouraging interdisciplinary assessments can provide a more holistic view of student learning, and analyzing assessment data regularly helps detect patterns that inform necessary changes. Establishing continuous improvement cycles ensures that assessments evolve with the educational landscape, and regular alignment checks with learning outcomes are crucial for maintaining relevance and effectiveness in the assessment process. Together, these improvements will lead to better assessment practices and enhanced learning outcomes.

Assessment Tools

Assessments are integrated into courses to the greatest practical extent. Faculty members responsible for conducting assessments are given time to understand the purpose of the assessment to ensure its success. Host faculty are informed about their specific roles, whether they are expected to score, evaluate, or analyze the assessment instrument or if their role is simply to proctor the assessment and pass the results on to others for evaluation.

Faculty sub-teams were formed to evaluate available assessment methods to select the most appropriate instruments for each Program Learning Outcome (PLO). The assessment methods that are used for each PLO and the location the assessment is mad are detailed below:

PLO	Program Learning Outcome	Direct Assessment Method	Location (Course/Activity)	Indirect Assessment Method(s)
1	Create written communications appropriate to the construction discipline	Senior Project Abstract Rubric	CM 462 Senior Project II	AIC Exam Senior Exit Survey Industry Survey

2	Create oral presentations appropriate to the construction discipline	Toolbox Talk Presentation Rubric	CM 413 Jobsite Construction Management	AIC Exam Senior Exit Survey Industry Survey
3	Create a construction project safety plan	Safety Plan Lab Assignment Rubric	CM 413 Jobsite Construction Management	AIC Exam Senior Exit Survey Industry Survey
4	Create construction project cost estimates	Estimating Lab Assignment Rubric	CM 314 Heavy Civil Construction Management	AIC Exam Senior Exit Survey Industry Survey
5	Create construction project schedules	Scheduling Lab Assignment Rubric	CM 313 Commercial Construction Management	AIC Exam Senior Exit Survey Industry Survey
6	Analyze professional decisions based on ethical principles	Embedded Exam Question with Rubric AIC Exam	CM 334 Construction Law	Senior Exit Survey Industry Survey
7	Analyze methods, materials, and equipment used to construct projects	Embedded Exam Question with Rubric AIC Exam	CM 313 Commercial Construction Management	Senior Exit Survey Industry Survey
8	Apply electronic-based technology to manage the construction process	BIM Activity/Exam Rubric AIC Exam	CM 280 Building Information Modeling	AIC Exam Senior Exit Survey Industry Survey
9	Apply basic surveying techniques for construction layout and control	Surveying Exercise Assessment AIC Exam	CM 115 Fundamentals of Construction Management	AIC Exam Senior Exit Survey Industry Survey
10	Understand different methods of project delivery and the roles and responsibilities of project participants	Embedded Assignment and/or Exam Question AIC Exam	CM 450 Integrated Project, Design and Program Management	Senior Exit Survey Industry Survey
11	Understand construction accounting and cost control	Accounting/Cost Control Exam AIC Exam	CM 335 Construction Accounting	Senior Exit Survey Industry Survey
12	Understand construction quality assurance and control	QA/QC Exam Question AIC Exam	CM 413 Jobsite Construction Management	Senior Exit Survey Industry Survey

13	Understand construction project control processes	Project Controls Exam AIC Exam	CM 413 Jobsite Construction Management	Senior Exit Survey Industry Survey
14	Understand the legal implications of contract, common, and regulatory law	Construction Law Final Exam AIC Exam	CM 334 Construction Law	Senior Exit Survey Industry Survey
15	Understand the basic principles of sustainable construction	Sustainability Exam AIC Exam	CM 317 Sustainability and the Built Environment	Senior Exit Survey Industry Survey
16	Understand the basic principles of structural behavior	Structural Systems Final Exam	CM 313 Commercial Construction Management	AIC Exam Senior Exit Survey Industry Survey
17	Understand the basic principles of mechanical, electrical, and plumbing systems	MEP Systems Quiz	CM 411 Specialty Contracting Construction Management	AIC Exam Senior Exit Survey Industry Survey
18	Understand the role construction managers play in enhancing the needs of society	None	None	Senior Exit Survey/Industry Survey
19	Understand the importance of continuing education and lifelong learning	None	None	Senior Exit Survey/Industry Survey
20	Understand key leadership characteristics for successful construction teams	None	None	Senior Exit Survey/Industry Survey
21	Understand the importance of recognizing cultural differences and their influence on project success	None	None	Senior Exit Survey/Industry Survey
22	Understand the benefits of respecting diverse backgrounds within a construction team	None	None	Senior Exit Survey/Industry Survey

These methods were selected by the faculty teams based on criteria such as content validity, reliability, opportunity cost, and cost to administer.

Frequency of Use and Procedures for Data Collection

All of the assessment data will be collected annually. The AIC Level 1 exam is administered during both the fall and spring quarters, with data collection occurring simultaneously with the exams. All other assessments are conducted every quarter in each section of every class hosting the embedded assessment, with data collected concurrently.

The frequency of assessment is as follows:

	Program Learning Outcomes	Assessment Years
1	**WRITTEN COMMUNICATION**	AY 2020/21; AY 2023/24; AY 2026/27
2	**ORAL PRESENTATIONS**	AY 2021/22; AY 2024/25; AY 2027/28
3	**SAFETY PLANS**	AY 2022/23; AY 2025/26; AY 2028/29
4	**COST ESTIMATES**	AY 2020/21; AY 2023/24; AY 2026/27
5	**SCHEDULES**	AY 2021/22; AY 2024/25; AY 2027/28
6	**ETHICS**	AY 2022/23; AY 2025/26; AY 2028/29
7	**MATERIALS, METHODS & EQUIPMENT**	AY 2021/22; AY 2024/25; AY 2027/28
8	**e-BASED MGMT TECHNOLOGY**	AY 2020/21; AY 2023/24; AY 2026/27
9	**SURVEYING**	AY 2021/22; AY 2024/25; AY 2027/28
10	**PROJECT DELIVERY METHODS**	AY 2022/23; AY 2025/26; AY 2028/29
11	**ACCOUNTING & COST CONTROL**	AY 2021/22; AY 2024/25; AY 2027/28
12	**QUALITY ASSURANCE & CONTROL**	AY 2022/23; AY 2025/26; AY 2028/29
13	**PROJECT CONTROL**	AY 2020/21; AY 2023/24; AY 2026/27
14	**LAW**	AY 2021/22; AY 2024/25; AY 2027/28
15	**SUSTAINABILITY**	AY 2022/23; AY 2025/26; AY 2028/29
16	**STRUCTURES**	AY 2020/21; AY 2023/24; AY 2026/27
17	**MEP**	AY 2021/22; AY 2024/25; AY 2027/28
18	**SOCIETY**	AY 2022/23; AY 2025/26; AY 2028/29
19	**LIFELONG LEARNING**	AY 2020/21; AY 2023/24; AY 2026/27
20	**LEADERSHIP**	AY 2021/22; AY 2024/25; AY 2027/28
21	**CULTURE**	AY 2022/23; AY 2025/26; AY 2028/29
22	**DIVERSITY**	AY 2022/23; AY 2025/26; AY 2028/29

Performance Criteria

Performance criteria that are established for each PLO are summarized below.

Program Learning Outcome (PLO)	Primary Direct Assessment Performance Criterion
PLO 1. Written Communication	At least 75% of students achieve 80% or higher on the embedded writing rubric.
PLO 2. Oral Communication	At least 80% of students achieve 75% or higher on the presentation rubric.
PLO 3. Construction Safety	Class average of 70% or higher on the embedded safety assignment.
PLO 4. Cost Estimating	At least 80% of students prepare an estimate within 15% of known costs.
PLO 5. Scheduling	At least 80% of students achieve 80% or higher on the scheduling assignment.
PLO 6. Ethics	100% of students identify the primary ethical issue and 80% score 60% or higher on the rubric.
PLO 7. Construction Methods, Materials, and Equipment	At least 80% of students achieve 80% or higher on the embedded exam question.
PLO 8. Construction Technology (BIM/VDC)	At least 80% of students achieve 80% or higher on the embedded technology assessment.
PLO 9. Surveying	At least 80% of students achieve 80% or higher on the embedded surveying assessment.
PLO 10. Project Delivery	At least 80% of students achieve 80% or higher on the embedded assessment.
PLO 11. Construction Accounting & Cost Control	At least 80% of students achieve 80% or higher on the embedded assessment.
PLO 12. Quality Assurance & Control	At least 80% of students achieve 80% or higher on the embedded assessment.
PLO 13. Project Controls	At least 80% of students achieve 80% or higher on the embedded assessment.
PLO 14. Construction Law	At least 80% of students achieve 80% or higher on the embedded assessment.
PLO 15. Sustainable Construction	At least 80% of students achieve 80% or higher on the embedded assessment.
PLO 16. Structural Behavior	At least 80% of students achieve 80% or higher on the embedded assessment.
PLO 17. Mechanical, Electrical & Plumbing Systems	At least 80% of students achieve 80% or higher on the embedded assessment.
PLO 18. Role of Construction Managers in Society	At least 80% of students achieve 80% or higher on the embedded assessment.
PLO 19. Lifelong Learning	At least 80% of students achieve 80% or higher on the embedded assessment.
PLO 20. Leadership	At least 80% of students achieve 80% or higher on the embedded assessment.
PLO 21. Cultural Awareness	At least 80% of students achieve 80% or higher on the embedded assessment.
PLO 22. Respect for Diversity	At least 80% of students achieve 80% or higher on the embedded assessment.

Report formats

Each Student Learning Outcome (SLO) will undergo a third-year evaluation cycle, resulting in an individual report that summarizes and presents all relevant data. The report will feature graphs illustrating averages, targets, trends, and comparisons to national averages, providing a clear graphical representation of our current status, along with a written summary.

Assessment reports will be shared with faculty and department leadership for each SLO, and the reports will also be made available to the CMAC curriculum committee members for their review and suggestions for improvement. While faculty members are ultimately responsible for the curriculum, the data presented will highlight areas for improvement and document changes made during the assessment cycle for each course.

The report will include details such as the date the assessments were completed, the number of students who participated, and the number of students who met or exceeded the target levels set by the department. Additionally, it will present results from the AIC exam relevant to the Program Learning Outcome (PLO), along with survey results from students and industry recruiters, as well as suggestions gathered during senior exit interviews. If a rating scale was utilized, the report will describe the criteria (e.g., "satisfied" or "dissatisfied") and the number of respondents for each option. When applicable, comparisons to national averages will be included.

Furthermore, the report will identify trends over time, indicating whether performance has improved or declined. If there are significant differences are observed across various time periods, insights from faculty, students, and industry professionals will be included as anecdotal evidence to support the findings presented in the report.

Training faculty and other proctors to assess

Critical thinking value rubrics, writing rubrics, and presentation rubrics, to be effective, require training of faculty. Evaluators will be faculty, either as faculty of the course where the assessment measure is embedded or a group of faculty who are part of the assessment committee, or an ad hoc faculty group that reviews qualitative data annually. Faculty have developed learning outcomes, adopted a system for collecting and organizing materials, formulated scoring protocols, adopted common evaluation methods and determined how to whom results will be communicated. Particular attention is being paid to maintaining anonymity to personal identifiers in the data.

As the department grows, it is crucial for all faculty members to understand the location and significance of each assessment measure in order to maintain regular data collection. Each Student Learning Outcomes (SLO) champion is responsible for training the faculty

member assigned to the course where the measure is implemented. This training should emphasize how to consistently incorporate the measure into the class and include the grading rubric to ensure uniformity.

Identifying, recruiting and training evaluators

An evaluator is an individual or committee responsible for analyzing data gathered through assessment. Their role involves applying judgment to this data, transforming it into useful information that can drive change. The evaluator plays a crucial role in our outcomes assessment process and is typically the person teaching the course.

In addition to the evaluator, the Outcomes Assessment Committee (OAC) will review all data collected.