UCSB Council on Assessment
Annual Report 2022-2023

The Council on Assessment reviewed plans for 31 programs (from 20 departments) during the 2022-23 academic year. This report contains summaries of proposals, comments from the CoA, and approved plans. Prior to descriptions of each program's plans, we provide an overview of trends related to assessment design and implementation, outcomes of assessment findings, and changes that the CoA has made in the process of facilitating assessment based on departments' experiences.

WHAT ARE PROGRAMS FOCUSING ON?

Core Competencies

The core competency most emphasized in undergraduate PLO assessments completed by this group in Assessment Cycle 2 (2020-2023) was Information Literacy (see *Figure 1*). From foundational skills and knowledge such as accurate translation of texts (German) and understanding of inheritance principles (Biology), to more advanced program goals such as situating the discipline within historical and interdisciplinary contexts (Comparative Literature) or identifying career opportunities for which their program has prepared them (Linguistics), one third of departments focused on this competency.

Figure 1: Core Competencies Assessed by Group 2 Programs, Cycle 2 (2020-2023)

Most other programs in this cycle were fairly evenly divided between focusing on competencies related to Critical Thinking, Written Communication, and Oral Communication (20% of

assessments each), with the exception of Philosophy whose undergraduate assessment focused on Quantitative Reasoning. The purposes motivating each assessment were specific to the current interests and developments in each program, yet fell into some general practical categories.

Purposes

Programs focusing on Information Literacy and Quantitative Reasoning expressed an interest in learning how well they are preparing their students in their lower-division courses for success in more advanced courses. For example, the Economics department investigated how fluently undergraduates understood three key elements of how business cycle fluctuations characterize macro economy in the short-run (i.e., explaining national income and product accounts, quantifying unemployment, and explaining roles of fiscal and monetary policy for dealing with short-run fluctuations) after completing their intermediate macroeconomics course. Alternatively (but relatedly) a few programs wanted to explore how well they are setting their students up for success in research or career-finding once they graduate the program. For example, Comparative Literature looked for evidence of students' self-reflective awareness of the discipline and their ability to articulate a well-informed definition of comparative literature with interdisciplinary and historical awareness in term papers by their junior or senior year.

Those programs focusing on Written and Oral Communication tended to frame their inquiries as more general investigations of a key academic/professional ability: Classics looked for evidence of students' proficiency with the "important transferable skill" of crafting an analytical essay supporting an argument; Math charted performance in 2nd - 4th year courses to pinpoint where in the program students experienced growth in mathematical proof-writing; French collected data on speaking since it is a skill that most students are interested in which influences their lives and careers; and Mechanical Engineering examined student effectiveness at oral presentations on labs, as it is an essential skill for engineers that students do *not* always recognize as career relevant.

By contrast, those programs focusing on Critical Thinking competencies tended to be looking at the specific effectiveness of certain courses or program structures in developing higher-order critical capacities. Chicana and Chicano Studies wanted to examine whether their "problem-posing" educational approach in is helping students to build skills for "reading the world": analyzing issues, proposing solutions, and facilitating change. History desired to evaluate whether its lower-division history methods course is positively impacting mastery of essential research skills such as identifying source relationships, context, and author argument. Statistics focused on their actuarial program, where new risk management tools are being introduced, to see how well these are supporting students in applying probabilistic and statistical concepts in risk management contexts.

STUDENT ACHIEVEMENT: WHAT ARE PROGRAMS FINDING?

Types of Data Examined

During this three-year cycle, six major categories of data were collected by the programs (see *Figure 2*). Five of these were forms of direct evidence: Targeted exam tasks such as proof-writing (Mathematics), text translation (German), and symbolic logic (Philosophy) test questions were utilized most often, along with occasionally multiple-choice knowledge tests (e.g. questions pulled from the standardized TUCE exam in economics) that allowed for performances to be compared nationally with other research university students.
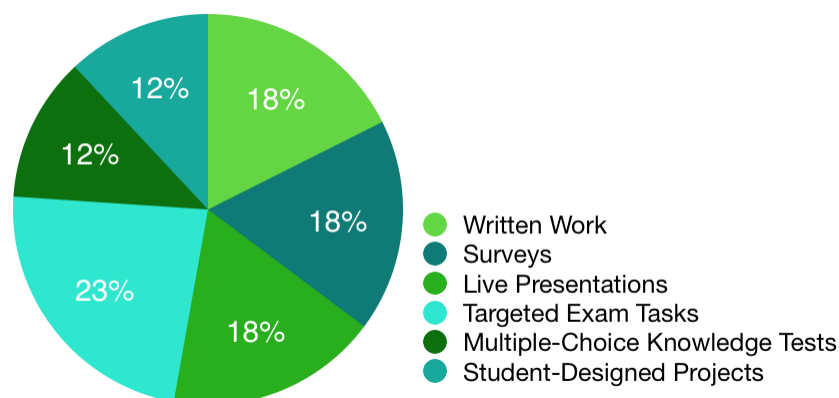

Figure 2: Types of Data Collected by Group 2 Programs, Cycle 2 (2020-2023)

Written work and live presentations such as capstone research papers (Classics, Comparative Literature) and independent project deliveries (Mechanical Engineering, French, Italian) were utilized often, especially for rubric-assessing students' summative mastery of program learning objectives. Additionally, a few programs collected survey data from students from students toward the ends of their programs, to gain perspective about, e.g. in Linguistics, which courses offered the most helpful preparation, where further support would be appreciated, and how academically well-prepared the felt in the program overall.

Patterns in Evidence of Student Learning

Overall, departments have found their data on student learning reassuring, while also informative about specific areas where further inquiry or development might benefit their programs and students.

ACHIEVING STANDARDS - for departments using standardized test questions or achievement rubrics to gauge program impacts, findings generally show UCSB students performing well or above standards of achievement set for those criteria. For example, in Economics, students scored 17% higher than US national average on TUCE (Test of Understanding in College Economics) exam questions targeting mastery of intermediate macroeconomics. In the French program, 90% of students meet, and 50% exceed, expectations for function, accuracy, grammar and vocabulary on oral presentations, according to national foreign language acquisition criteria.

SKILL IMPROVEMENTS - for departments tracking students' growth as they progress through curricula, longitudinal data have shown observable gains regarding programs' core objectives. In Philosophy, students showed a mean improvement of 9% between pre- and post-tests of their formal reasoning, with 82% demonstrating competency, after taking Beginning Modern Logic (a foundation course that emphasizes this skill). History likewise observed 4% pre- to post-course improvement on students' primary document analysis in lower division courses. Mathematics found that students progress between 2nd-4th year to the point of doing reliably well on proof-writing for straightforward cases such as vector subspaces, though some continue to struggle with more complex proofs such as unbounded sequences—though further data are needed to distinguish whether this is moreso a conceptual or a writing-related challenge for their students. And Biology pre- and post-tests of genetics content mastery showed that by end of lower division genetics series, 83% of students scored at least a 70% on questions explaining principles of inheritance, from molecular mechanisms to population level consequences.

RESEARCH, WRITING, & DELIVERY - for departments investigating students' capacities to apply and communicate what they've learned via research, argumentation, and presentation, rubric-scores from faculty and audience members have evidenced both students' academic understanding and communicative fluency. For example, Classics found that 82% of students in their capstone colloquium performed "quite well" on sustaining arguments in their analytical essays—demonstrating no major issues in source analysis, argument, organization, nor use of scholarly evidence. Comparative Literature likewise found that students in their senior seminar do excellently in defining a valid research project and compiling a corpus of literature and artifacts (with 73% rated "superior"), though students may need additional time developing a grasp of theoretical concepts (as only 58% scored "competent" or above). And Mechanical Engineering students demonstrated effective delivery of their capstone research project reports, with 77% of students meeting both key performance indicators (i.e., clear technical reports, effective oral presentations) as rated by department faculty, business sponsors, teaching assistants, and peers.

PEDAGOGICAL FEEDBACK - departments who collected additional data about students' demographic contexts or subjective experiences in the program were able to glean additional meaningful insights for their programs from student achievement data. For example, Italian discovered that students exposed to the language outside the classroom (e.g., spending time in Italy, interacting with Italian-speakers in America) showed higher average competency on oral presentations, compared with students exposed only in the classroom. German students who completed course reflection surveys emphasized that they appreciate translation exercises, and desire more guided practice reading philosophical and literary texts. And Biology found that, while students in both their genetics courses did well as a whole, those with 3 effectors of opportunity (Pell grant eligible, underrepresented minority, first-generation college students) are 3x more likely that students with none of these effectors (30% versus 11%) to receive a C- or lower in that core course series.

PROGRAM DEVELOPMENT: WHAT ARE DEPTS DOING WITH DATA?

Patterns of Actions

The most general action that departments took was to share assessment results within the program, whether primarily among faculty, with students, or coordinating results between both. For example, Classics used its undergraduate advisors proactively to encourage students to take two elective courses which data showed greatly helped in preparing students for key upper division courses. Mathematics created a course outline document which it distributed to both teachers and students in its "Transition to Higher Mathematics" course, clarifying and coordinating course expectations among everyone, especially emphasizing the importance of proof-writing.

Another common sense action by departments was to use current assessment findings to inform plans for further research, such as Comparative Literature's decision to pivot the focus of their data-collection away from end-point senior seminars and toward earlier gateway courses, to provide themselves with further insights about where/how students make interdisciplinary links between Comparative Literature and other disciplines in the humanities, the social sciences and sciences.

Beyond this, multiple departments used their findings to support internal reviews of program curricula, such as Economics using student scores on policy to inform discussions about developing intermediate core courses, in light of the discipline becoming more empirical and more attentive to policy impacts. Others, such as French and Philosophy, used findings to help redefine their major requirements—the latter considering making mandatory the more educationally impactful of their two logic courses. Some programs maintained their current requirements, but expanded course offerings of their most impactful courses to ensure that students will have timely access, for example, to History's methods and skills course for historical investigation.

Within pivotal courses, some departments are adjusting course assessments to emphasize topics which data have marked as educational priorities. For Mathematics, this took the form of more proof-writing on lower division exams; for Biology, the restructuring of courses to include more formative assessments and 2-stage exams to lower pressure and increase learning opportunities for all—and especially for high effector—students.

Other departments are adjusting instruction itself, to include more exercises where data show students could use additional practice. German, for example, is now aiming to include more grammatical exercises in both language instruction and content courses, and translation exercises where appropriate; Italian is moving grammar drills to be completed independently at home and reallocating that class time for (mostly oral) communication activities; and Mechanical Engineering is altering instruction in its capstone course sequence to incorporate work on visual aspects of presentation. Relatedly, some departments are improving educational support for students, such as Linguistics, who is offering career and graduate school preparation documents, workshops, and speakers in their program; and Biology, who is orchestrating inclusive science spotlights and peer mentoring to support their students.

Plans for next Cycle:

The next cycle of undergraduate assessments planned (2023-2026: see *Figure 3*) will be placing more of an emphasis on issues of Critical Thinking and application than on the Information Literacy goals that pervaded in this last assessment cycle. Written Communication remains a moderately strong focus, and Quantitative Reasoning outcomes are being examined by multiple programs as well.

Figure 3: Core Competencies to be Assessed by Group 2 Programs, Cycle 3 (2023-2026)

These plans are detailed more fully in the final section of this report, but highlights include that Classics is joining Comparative Literature in examining the interdisciplinary awareness required of their students to participate fully in these disciplines. A few departments are shifting focus to areas that directly complement data collected in the prior cycle: Economics is moving from macroeconomics to microeconomics foundations, while French and Italian are both transitioning from speaking to reading/writing outcomes.

History and Statistics are both examining student grasp of core disciplinary concepts, respectively: patterns in types of historical change across contexts, and core mathematical concepts and skills needed to make probabilistic and statistical calculations. Linguistics and Philosophy are both exploring student ability to engage with and evaluate scholarly data/arguments in their field. German and Mathematics are focusing on their disciplinary versions of critical argumentation and writing, while Mechanical Engineering is examining student preparedness to produce solutions that meet specified needs for real-world clients. And Chicana and Chicano Studies and Biology are both responding to perceived needs in their programs: the former, endeavoring to prepare students more evenly for engaging in public speaking; the latter, addressing attrition in their pre-major courses and testing outcomes of different course combinations on student success.

GRADUATE ASSESSMENT

Findings and Actions from Previous Cycle:

Among graduate programs in the 2020-2023 cycle, most focused their assessment on some aspect of independent research and writing competencies (see *Figure 4*). Economics and MCDB (Molecular, Cellular, and Developmental Biology) both examined progressive milestones for their programs: Economics with an eye changes in publication rates following a new working group structure for students (rates did rise for 3 cohorts that began after changes were implemented), and MCDB on development of research writing between students' year 1 and year 2 research proposals (faculty scores noted that writing quality improved for about 20% of students, with common flaws reflecting a lack of practical experience in experimental design). MCDB addressed this issue by proposing to change their preliminary exam format from a pre-selected "off-topic" exam, to an exam based on a topic of student's dissertation research, to better prepare the stage for their PhD research.

More commonly, though, these scholarship-oriented assessments focused on meeting standards in specific milestones. Education, for example, rubric-scored the research methods and previous literature sections of students' independent research projects and dissertations, finding that 88% and 97% (respectively) met or exceeded expectations. Chicana and Chicano Studies focused specifically on types of methods being utilized in dissertation research, and found that while 89% of projects invoke two or more methodologies, most of these are humanities-leaning: as a result, the program is going to require an additional (third) social science-specific methodology course in department as part of doctoral curriculum. And the Materials program assessed multiple technical facets of dissertation research plans in student's qualifying exams, finding that 75% of students score "excellent" on overall quality of writing and 70% excellent on topics of synthesis and processing, structural characterization, and property measurement. Seeing slightly lower performance on computational simulations materials theory, the program plans to add additional courses in computational materials science in the next few years.
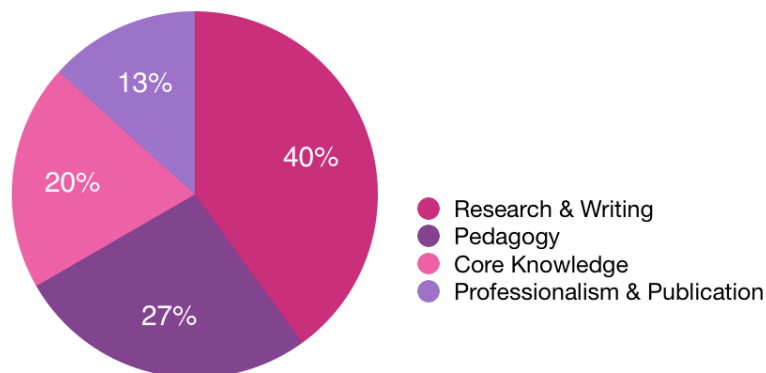

Figure 4: Assessment Focus Areas within Group 2 Graduate Programs, Cycle 2 (2020-2023)

The second most emphasized graduate competencies were those related to pedagogy. History looked at students' abilities to develop assignments, lecture, lead discussions, and grade in undergraduate and graduate courses—getting useful survey feedback from students in the process that will go toward the creation of a summary of 'best practices' and proposed changes for their History pedagogy workshop. The Teacher Education Program similarly examined ability at engaging students in learning and assessing that learning, using standardized edTPA scores (for comparison with national averages) plus supervisor/cooperating teacher evaluations for more nuanced feedback on students' teaching: candidates performed above national averages by .1-.6 points across criteria, demonstrating strength in analyzing student learning and using that data to plan subsequent instruction, but could use additional support and instruction on designing assessments. Based on these results and exit survey feedback, the program has added a 1 unit methods class for single-subject teachers during summer to help candidates engage students in content-specific methods early on. Mechanical Engineering looked specifically at students' presentation skills with an eye on their pedagogical relevance, via committee questionnaires on candidacy exams, finding overall strong oral presentation skills (85% "Excellent"), but room to improve with speaking skills (70%), handing questions (68%), and visuals (65%)—so the department is encouraging faculty to spend more time working with students on these skills, in particular before the students do their PhD Candidacy Exams.

Some programs focused more fundamentally on aspects of core knowledge in their disciplines, such as ancient Greek acquisition (in Classics), where surveys highlighted specific grammar exercises that most helped students—information that will inform a recently created Greek reading course for first-year graduate students. Philosophy assessed students' grasp of metaphysics and epistemology, value theory, and history of western philosophy via rubric scores of student breadth of knowledge in various courses—allowing the department to quantify which areas of knowledge were perhaps "overrepresented" (e.g. ancient philosophy) or underrepresented (e.g. epistemology) in their most commonly taken courses, and informing plans to include more material from these other subject areas in those courses. Mathematics similarly looked for evidence of appropriate breadth within students' chosen sub-disciplines during advancement exams, finding that most scored highly (and none below fair) on criteria of knowledge of theory, literature, recent research, and ability to make scholarly contributions to the field.

A small number of programs also focused on professionalism-related outcomes, such as successfully launching group "eco-entrepreneurship" projects (Bren school of Environmental Science and Management), or producing publishable-caliber papers (Linguistics). For the former projects, average scores were between excellent and good, with lowest scores due to differential efforts among group members—leading to the program lowering group sizes to 4-5 individuals moving forward. For the latter publishable paper assignment, candidate feedback implied that this project may be slowing students' progress toward publishing in their primary areas of expertise—leading to an all-faculty discussion of formulating a new qualifying project.

Upcoming Assessment Plans:

Graduate programs' plans for the current 2023-2026 assessment cycle are discussed in detail in the final section of this report, but some general trends include the following. Most assessments are again focusing on competencies related to empirical research and publication of that scholarship (see *Figure 5*). Explicit emphasis is being placed on discipline-specific aspects of the research: the importance of framing early plans of study in theory and prior research (Education), fluency in specialized knowledge within the field as well as awareness of appropriate venues for disseminating contributions to that knowledge (Linguistics, Mechanical Engineering), and well-controlled execution of methods and techniques within hypothesis-driven experiments (Materials, MCDB). For those programs emphasizing the communication of scholarship, both oral presentation/discussion and written proficiency are being evaluated (Chicana and Chicano Studies; Ecology, Evolution, and Marine Biology), as well as both meeting the scholastic standards of the field (Probability and Statistics) including the ability to respond appropriately to critical recommendations for revision (Philosophy) as well as making that technical/theoretical/aesthetic material comprehensible and accessible for range of audiences, from general to specialized (Media Arts & Technology).

- (MAT - communicate) (PHIL - capacities to prepare manuscripts that meet the standards of research venues, , and present papers at conferences)
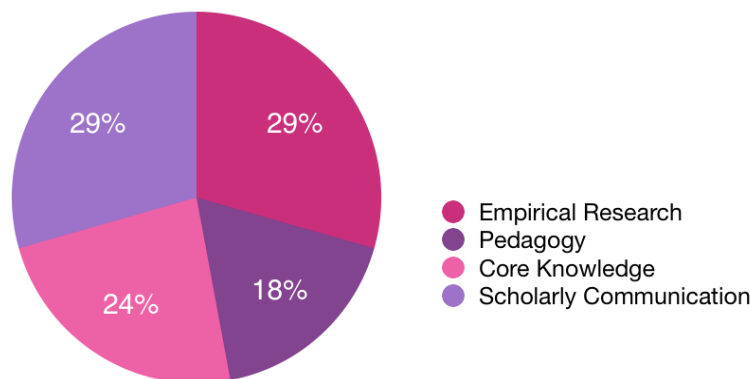

Figure 5: Assessment Focus Areas within Group 2 Graduate Programs, Cycle 3 (2023-2026)

Areas of disciplinary core knowledge being highlighted in this cycle's assessments include mathematical and statistical concepts (Bren), research-level mastery of Greek and Latin (Classics), competency across core areas in Mathematics (Algebra, Analysis, Applied, Geometry/Topology) as well as familiar breadth of knowledge in a chosen subfield, and in addition to Economics foundations (micro, macro, and econometrics) the pedagoical question of whether the preliminary exams—as currently delivered—are actually useful to students, in their eyes. Students' pedagogical learning is also being assessed, with emphasis on generating appropriate assessment tools (Comparative Literature), leading sections and creating their own undergraduate courses (History), and engaging all students in learning, with plans for instruction designed around the learning experiences for those students (TEP).

COA ASSESSMENT PROCESS: EMPHASIZING EQUITY

Ramping up efforts to more proactively facilitate equity of access and success across departments and programs on campus, the Council on Assessment decided to take its initial plan of offering an optional "Equity Track" where programs with an excellent record of self-assessment (such as MCDB's undergraduate program in this last cycle) could focus their PLO assessments on issues of patterned disparity in student progress and achievement, and instead make this the default format for all PLO assessments.

So beginning with Group 3 programs in Cycle 3 (2024-2027), all plans submitted for review by the CoA will now take the form of an "Equity-Focused Action Plan." Our template for assessment reporting and plan submission now includes explicit steps that guide departmental faculty through the process of reviewing institutional data about their programs, exploring patterns of interest or concern when those data are disaggregated by effectors of opportunity, transfer status, etc., and gathering additional data to inform their understandings as they formulate an action plan to address those areas of interest tied to student achievement of program learning outcomes.

The assessment team will be walking members of each program's assessment teams in detail through the process of accessing and interrogating their available institutional data, and connecting those findings to inquiries and interventions related to PLO achievement (see flowchart below, *Figure 6*) at our annual Assessment Kickoff, and continue to work with programs as they acclimate to this new assessment approach.
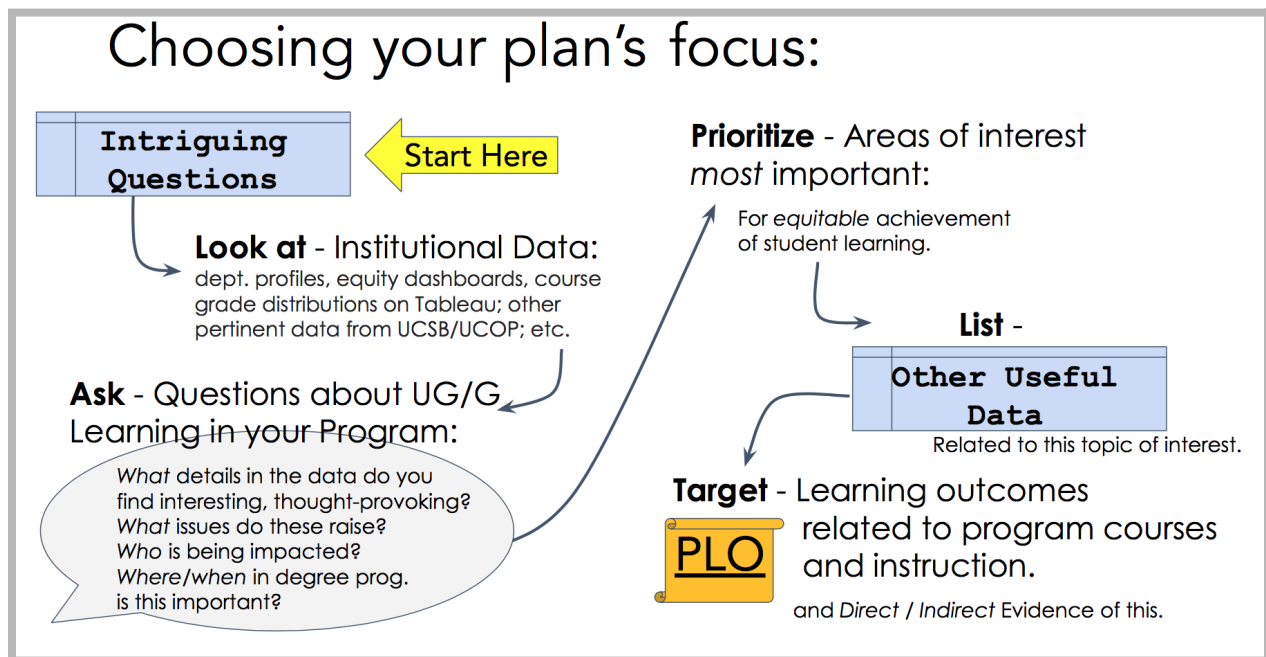

Figure 6: Flowchart for Faculty - Process of Defining an Equity-Focused PLO Assessment Plan

Beyond changes to the template for assessment, the CoA continues to refine its processes in response to exchanges with departments as they develop and revise their existing assessment plans. COVID, remote instruction, and labor strikes together impacted the trajectories of many programs' plans, hampering abilities to collect certain types of data (e.g., student project presentations) as well as the bandwidth of faculty and graduate students to analyze these data as intended, so we took progress reports as an opportunity to dialogue with faculty about how to scale their analytical processes and supplement data from various sources to maintain collective momentum in assessments across the campus.

Our aforementioned Fall Assessment Kickoff meeting, as well as other assessment-related workshops on rubric-making, challenges and uses of Large Language Models like ChatGPT, and numerous one-on-one workshopping dialogues with department faculty have kept the assessment team and the larger Council on Assessment attuned and actively collaborating with programs as they examine the efficacy of their curricula and resources for student learning.

- Research grant/funding updates: Departments can request funding for assessments easily, by submitting their approved plan along with a budget for those activities. 6 assessment grants were funded during the 2022-23 fiscal year, totaling $18,150. These were reviewed by the CoA and awarded chronologically as follows:
  - Global Studies: $4,600 (Jul 13)
  - Political Science: $3,750 (Aug 8)
  - Chicana & Chicano Studies: $3,700 (Sept 26)
  - Art: $750 (Oct 10)
  - East Asian Language & Cultural Studies: $3,500 (Oct 14)
  - Communication: $1,850 (Feb 1).

The CoA will continue to revise and refine its practices as we work with departments in Group 2, Cycle 3. We are also receiving assessment updates from group 1 departments for this cycle (whose assessments are due in January 2025), and have been providing them with feedback and guidance as they adjust their data collection and analysis in response to changes in departments and around UCSB, where that support is needed.

As always, we appreciate the support of the Office of the Executive Vice Chancellor. We believe that UCSB's faculty-engaged, faculty-driven assessment is leading to new perspectives on teaching, learning and assessment that are improving the educational outcomes for UCSB students.

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CoA Summary: Plans approved 2023

Total plans for reviewed for Cycle 3, Group 2 (2023-2025) Assessments : 31
Approved: 16 (Undergrad – 7; Grad – 9)
Revisions required: 15 (Undergrad – 7; Grad – 8)

<u>Bren School of Environmental Science & Management</u>

Graduate program (Masters in Environmental Science and Management; Masters in Environmental Data Science) (Approved)

PLO: Core Knowledge - Mathematics and statistics, programming languages, and a deep understanding of one or more areas of environmental data science e.g. storage and management, mining, modeling, and visualization.

To evaluate the effectiveness of changes that have been made by the curriculum committee to address gaps and improve course content and sequences for incoming MEDS students (the first cohort of which started in 2021), the department plans to administer a core knowledge self-assessment to incoming MEDS students and a similar core knowledge assessment (different questions) as they prepare to graduate. The assessment will cover topics in the mathematical and statistical foundations of data science, concepts in data science needed to address environmental problems, programming and database languages (Python, R, and SQL), and topics related to data storage and management, interoperability, modeling, data mining, data analysis and data visualization. The CoA recommended approval, encouraging the faculty to be mindful of pre-/post- knowledge check methodology and to consider including questions for students about where/how/whether they learned the knowledge being assessed.

<u>Chicana and Chicano Studies</u>

Undergraduate program (B.A. in Chicana and Chicano Studies) (Revised)

Core Competencies: oral communication.

PLO: Public Speaking.

To develop a more structured understanding regarding anecdotal reports that students in the honors program display varied levels of preparation for their required presentations, the department plans to collect oral and electronic formats of student presentations in honors courses and required senior seminars, scored via a rubric. The CoA recommended approval, once the program elaborated on its timeline for data collection, commending the strong foundation work they had done with related rubrics in the prior plan.

Graduate program (M.A./PhD in Chicana and Chicano Studies) (Revised)

PLO: Scholarly communication - at the level of standards for journals in the discipline, and producing sophisticated argumentations related to the field of Chicanx Studies.

To investigate the efficacy of two writing programs popular among their students (a grad seminar and a multi-week dissertation-writing program) as a model for their future in-house writing courses, the department plans to assess interdisciplinary research papers in two of their courses, scored by rubric, and to collect post-seminar surveys of students about their experiences with writing in the course. The CoA recommended approval, once the plan was adjusted to focus explicitly on work being done in courses within the program, and commended the plan as being directly useful to the program in both its direct and indirect data.

Classics

Undergraduate program (B.A. in Classics) (Revised)

Core Competencies: information literacy.

PLO: Basic knowledge of the different sources required for an interdisciplinary study of ancient culture.

To better understand how effectively students identify and use for research purposes a variety of primary sources necessary for the interdisciplinary study of the ancient Mediterranean, the department plans to collect and analyze papers and biographies from their undergraduate capstone seminar. The CoA recommended approval, once the plan-writers elaborated more explicitly what types/categories of evidence would be gathered, and indicated that the faculty are considering effectiveness of students' use of resources in their analysis.

Graduate program (M.A./PhD in Classics) (Approved)

PLO: Demonstrate sufficient knowledge of ancient Greek and Latin for research purposes.

Expanding from the last assessment cycle, which identified that English to Greek translation practice is one element that seems to contribute to student success in Greek 240, the program would now like to address the Latin exam and the potential benefits of Latin prose composition. Thus, they will be assessing results of diagnostic tests and qualifying exams in both Greek and Latin, as well as analyzing responses on end-of-year questionnaires. The CoA recommended approval, appreciating that findings from the prior cycle seem to have informed the department's practice and seeing the expansion of the investigation into Latin as a logical next step.

Comparative Literature

Undergraduate program (B.A. in Comparative Literature) (Approved)

Core Competencies: information literacy.

PLO: Interdisciplinary approaches to world literature.

To examine in what way the gateway course "Introduction to Comparative Literature" (CLIT 100) engages students to think about the discipline in connection to other disciplines, the department plans to collect syllabi, assignments, and assessment methods from CLIT 100 (which has been taught by a range of instructors over the years). One of the rubric criteria to be used in assessing student work will be "the effort at successfully bridging disciplinary discourses." The CoA recommended approval, agreeing that assessing the interdisciplinary links between Comparative Literature and other disciplines in the humanities, social sciences and sciences by shifting faculty focus from the senior seminar to earlier gateway courses seems an appropriate way to ensure future student success.

Graduate program (M.A./PhD in Comparative Literature) (Approved)

PLO: Pedagogy - generate appropriate assessment tools, including examinations and assignments.

In the wake of the pandemic, and the impact that experience has had on teaching and assessment techniques (some of which are improvements over old ways of teaching and deserve to be studied and incorporated into the department's ongoing pedagogical practice), the department will assess student-authored syllabi that include innovative assessment methods and especially the use of online technologies. Students will be asked to describe the various assessment tools they use and explain their purpose. The CoA recommended approval, with the caveat that the faculty develop in their assessment (a) how Committee members will be assessing students' ability, (b) how are faculty are connecting this back to a pedagogical course, and (c) where students learn how to create syllabi and assessments.

Ecology, Evolution, & Marine Biology

[Undergraduate program - assesses in Group 1]

Graduate program (M.A./PhD in Ecology, Evolution, & Marine Biology) (Approved)

PLO: Oral presentations and discussions.

To examine how effectively the current graduate curriculum provides students with the opportunity and skills to give effecting and meaningful scientific presentations, the department plans to evaluate students' oral dissertation proposal defenses (for PhD students) and thesis/dissertation exit seminars (for both MA and PhD students) using a targeted rubric. They will also develop a new annual review to integrate with existing annual academic progress reporting for students that includes presentations and publications to scientific/layperson audiences, in order to track how many scientific presentations graduate students are doing. The

CoA recommended approval, agreeing that implementing the assessment as a requirement should improve faculty participation, and endorsing the department's backup plan to collect indirect evidence if more evidence is needed.

<u>Economics</u>

Undergraduate program (B.A. in Economics) (Revised)

Core Competencies: information literacy, critical thinking.

PLO: Microeconomics - conceptualizing consumers and firms as attempting to maximize some objective function, predicting how changes in factors affect economic outcomes, and use microeconomic tools and concepts to explain market outcomes and policy choices.

To assess whether some student populations (such as transfer students) are less prepared than other students and start out intermediate microeconomics—one of the department's most challenging courses—and to assess at the end of that course students' readiness for the major, the department plans to insert into Econ 10A's final exam multiple-choice questions and a set of open-ended questions on microeconomic problems that students have seen before as well as new problems. The CoA recommended approval, once the plan was revised to include open-ended questions alongside multiple-choice tasks, to provide data about how students *apply* their knowledge of microeconomics..

Graduate program (M.A./PhD in Economics) (Revised)

PLO: Core Knowledge and Independent Research.

In order to clarify which components of the first-year curriculum are performing well the task of equipping students with tools that will maximize their research productivity and quality in later years, the department plans to assess student performance first-year (3 question) preliminary exams in each of three core fields (microeconomics, macroeconomics, econometrics), faculty evaluations of students' 2nd year research papers, and survey responses from 2-6 year grads on usefulness of preliminary exams as currently structured. The CoA recommended approval, once the plan adjusted to look at exams directly to assess student knowledge, and to evaluate individual questions on the exams to track student learning.

<u>Education</u>

Graduate program (M.A./PhD in Education) (Revised)

PLO: Frame an empirical research study guided by theory and prior research.

To examine how the department's mentoring processes can be improved (specifically regarding onboarding and support of *first-year PhD students*, and students' understanding of expectations related to their research and their relationship with their advisors), the program will collect 1-page student reports on activities they undertook in their apprenticeship, including what research question(s) they investigated, what prior research and theory guided their investigations, and how they (tentatively) intend to follow up in their second-year independent research projects. The CoA recommended approval, once the program elaborated on the adequacy of their data sources in the plan, appreciating that the assessment should draw forth some strong data on student learning.

French

Undergraduate program (B.A. in French) (Approved)

Core Competencies: information literacy, written communication.

PLO: Reading ability.

Recognizing that reading ability develops faster than speaking and writing ability, the department plans to collect student responses to text analysis questions after reading a main-stream French journal article (scored by rubric based on ACTFL Guidelines for foreign language reading). These data will help to determine effectiveness of the program in terms of multiple language skills, and may inform modifications to upper-division program sequences. The CoA recommended approval, recommending that the department consider specifically how/where courses can be altered, based on the findings, if students score less than expected on the reading.

German & Slavic Studies

Undergraduate program (B.A. in Gerrman) (Revised)

Core Competencies: information literacy, critical thinking, written communication.

PLO: Critical Thinking and Writing - construct a well-developed thesis and a clear argument when analyzing texts from the German tradition.

Since the department has a theoretical research profile based on the German tradition to structurally analyze and write texts, and analysis and writing skills in this tradition are emphasized throughout upper-division German major courses, the department plans to collect and rubric-score students' essay writing in their capstone course. The CoA recommended approval, once faculty further elaborated on the definition of the German tradition, as "not only texts originally written in German, or those that deal with German 'content' but rather a way of

reading and writing that is grounded in a particular historical and theoretical framework in which UCSB's German faculty is actively engaged," and acknowledged that this assessment will support the program's goal to highlight, and more centrally integrate, the domains of expertise of the faculty in the department in the training of their students.

<u>History</u>

Undergraduate program (B.A. in History) (Approved)

Core Competencies: information literacy.

PLO: Historical Knowledge.

To determine whether students who have taken two or three lower-division regional survey courses in non-US regions of the world are equivalently prepared—compared with those who have completed the three-quarter sequence in World History—to describe historical change over broad sweep of time and to compare and contrast how historical changes (i.e., urbanization, state formation, social and cultural revolutions, nationalisms, industrialization) have been experienced in varied times and places, the department plans to collect and rubric-score major the writing assignment from the three World History courses (2A, 2B, 2C) and from the regional survey courses taught during this assessment cycle. The CoA recommended approval, requesting specification of the sample size, but commending the department for targeting the assessment in a way that will directly inform program structure.

Graduate program (M.A./PhD in History) (Revised)

PLO: Pedagogy - design effective undergraduate and graduate courses in history; develop assignments, lecture, conduct discussions, and grade papers and assignments.

Since COVID delayed the collection of physical evidence shedding light on History workshop's effectiveness in promoting student ability to design and lead undergraduate sections as well as their own independent courses, the department plans to evaluate section syllabi, lesson plans, plans for in-section exercises, and similar TA-generated material from grads in 3 History500 workshops. The CoA recommended approval, once the authors included more detailed information about how data could be used to improve training in the program.

<u>Italian</u>

Undergraduate program (B.A. in Italian Studies) (Revised)

Core Competencies: written communication.

PLO: Read, write, and comprehend Italian sufficiently to understand vernacular texts and everyday communication.

To compare the linguistic competency of students completing Italian 16B (Italian for Spanish Speakers) with that of Spanish speaking students of Italian 3 regarding accuracy, use of proper vocabulary, and syntax, the department plans to collect and rubric-score the writing for students' third and last projects at the end of first-year Italian. They will further distribute post-course surveys to all students regarding the efficacy of the course. The CoA recommended approval, once details were clarified on how Spanish speakers would be identified and how findings would inform beneficial changes for students in the program, and applauded their robustly developed rubric.

Linguistics

Undergraduate program (B.A. in Linguistics) (Approved)

Core Competencies: critical thinking.

PLO: Ability to assess scientific, empirically‑based analyses of language data.

To see how well the curricula of their major degree programs ensure that students can engage in and understand empirical analysis of language data, the department plans to collect final student projects in a required BA course that comes near the end of the major (Introduction to Historical and Comparative Linguistics), which will be rubric assessed (0-1-2) on appropriateness of data, fitness of analysis of patterns, and linkage with course concepts. The CoA recommended approval, commending the plan as providing useful data about both tracks of their program, but suggesting that more detail be added to the rubric to elicit better knowledge about student knowledge of the PLO.

Graduate program (M.A./PhD in Linguistics) (Revised)

PLO: specialized knowledge - in at least one area within discourse-functional linguistic theory and research, sufficient to carry out substantive original research in that area; identify appropriate venues for said research and present scholarship effectively in oral and written formats.

To examine how effectively the PhD's new Qualifying Project's flexible structure impacts student success with these knowledge PLOs, whether students are taking advantage of that flexibility (or sticking with traditional projects), and where students need more support in their projects, the department plans to evaluate students' qualifying projects, rubric-scored by their committee. The CoA recommended approval, once the program focused the PLOs it would be evaluating and offered more detail about who will collect all this information and how the data will be organized.

<u>Materials</u>

Graduate program (M.S./PhD in Materials) (Approved)

PLO: Research - plan and execute an original research project in a field of specialization; demonstrate understanding of methods and techniques relevant to a major field of study.

To assess students' essential skills for researching science and engineering problems, the department plans to rubric-score students' qualifying exams and relevant parts of their PhD Thesis defenses. The CoA recommended approval, applauding the department for continuing to build on earlier results and for continuing to focus on how to improve students' analytical skills.

<u>Mathematics</u>

Undergraduate program (B.A. in Mathematics; B.S. in Mathematics) (Revised)

Core Competencies: quantitative reasoning.

PLO: Proof-Writing - writing well-organized, grammatically correct, and logically sound mathematical arguments.

To gather more accurate data regarding students' proof-writing competency, since time-pressured tests are not conducive to best proof-writing, the department will examine non-routine proof-based questions given to students in a lower division math course, assigned as investigatory projects rather than timed tests. The CoA recommended approval, once the program provided additional details about which classes and what sample size would be used, commending the plan as useful for both gauging the levels of their students and the efficacy of their current exam methods.

Graduate program (M.A./PhD in Mathematics) (Revised)

PLO: Core Knowledge - mastery in three of four core areas in Mathematics (Algebra, Analysis, Applied, Geometry/Topology), to a level commensurate with current standards in the field; mastery of advanced Mathematics within their chosen subfield, and breadth of knowledge in contiguous subfields".

To evaluate whether the qualifying exams are performing the task they are intended to, at this first program milestone where students often struggle, the department plans to assess copies of student's qualifying exams (2 per student) over three years. The CoA recommended approval, once the program elaborated on the competencies that the exams are meant to assess, which characteristics of the exam would be analyzed, and how the assessment will speak to the department's teaching that supports student achievement of core knowledge outcomes.

Media Arts & Technology

Graduate program (M.A./M.S./PhD in Media Arts & Technology) (Approved)

PLO: Scholarly Communication - be able to communicate technical and/or theoretical and/or aesthetic material to audiences ranging from general to specialized.

To assess graduate students' proficiency in curating an online presence for their cross-disciplinary art projects, the department plans to examine MAT student websites, specifically charting whether they 1) provide links to their individual sites, 2) provide personal research and project statements, and 3) provide likenesses or avatars of themselves or their work. The CoA recommended approval, agreeing that reviewing students' websites seems useful and practical, and urging them to attend closely to whether there are patterns among those who do and do not participate, and developing the qualitative portion of the analysis so that the data can serve as a basis for programmatic action.

Mechanical Engineering

Undergraduate program (B.S. in Mechanical Engineering) (Approved)

Core Competencies: critical thinking.

PLO: Apply engineering design to produce solutions that meet specified needs with consideration of public health, safety, and welfare, as well as global, cultural, social, environmental, and economic factors.

To further examine 3 key performance indicators that were marked as areas for improvement in a prior ABET-related assessment, the department plans to enlist faculty members not directly associated with students' capstone projects to assess these KPIs directly with students at the end of the year capstone project fair, focused on the following criteria: an understanding of public health and welfare, applying safety factors and prioritizing safety; an understanding of global, cultural, social, environmental and economic factors that could pertain to their project. The CoA recommended approval, expressing eagerness to see if the lecture content in target courses is in fact beginning to show increased focus on these areas.

Graduate program (M.S./PhD in Mechanical Engineering) (Approved)

PLO: Independent Research - produce scholarship that will be published as articles and/or books and/or conference papers that appear in leading peer reviewed venues in the field of Mechanical Engineering.

Since the department requires PhD students to submit at minimum one paper on their research prior to completing their dissertation, yet the department does not currently collect data on this to guide faculty on how to help students become more successful with publishing papers, the department plans to evaluate publication data for journal and conference proceedings papers using a student questionnaire. The CoA recommended approval, recommending the use of indirect student feedback such as a survey asking students about publishing timing, authorship, and impact factors of the students' publications.

<u>Molecular, Cellular, & Developmental Biology</u>

Undergraduate program (B.S. in Microbiology) (Approved)

Core Competencies: information literacy.

PLO: [*equity track*] Attrition in the Biology Pre-Major (first 2 years of program).

To examine avenues for addressing attrition in the program (which occurs mostly during the pre-major course–where those who are academically struggling are disproportionately individuals with multiple effectors of opportunity and/or transfer students), the department will be analyzing longitudinal data on the impact of BIOME first-year course series as well as impact of the Increased Structure and Traditional versions of MCDB 1A and 1B courses, to see whether certain course combinations lead to better student outcomes (higher GPA, greater retention in major). They will also be evaluating over 400 responses to the department's 2022 Climate survey. The CoA recommended approval, expressing enthusiasm for the department's election of the equity track of this assessment process to uncover the causes of why students with more effectors of opportunity are leaving the program—-allowing faculty to develop programs that will hopefully begin to reduce this disproportionate loss of diversity among the graduating students.

Graduate program (M.A./PhD in Molecular, Cellular, & Developmental Biology) (Approved)

PLO: Research Writing - design and conduct a well-controlled, hypothesis-driven experiment; write effectively at the levels found in relevant peer-reviewed journals*.*

To test whether the change in format and timing of preliminary exam and supporting coursework will lead to improved exam performance, increased success in securing funding, and decreased degree time, the department plans to evaluate research proposal final projects in MCDB 221, as well as written preliminary exam research proposals, using a writing assessment rubric. The CoA recommended approval, eager to see if the program adjustments are making the students more successful, and encouraging the department to consider what structures are in place to get more data / increase participation rates.

<u>Philosophy</u>

Undergraduate program (B.A. in Philosophy) (Approved)

Core Competencies: critical thinking.

PLO: Appraise arguments presented in philosophical texts, identify relevant objections to an argument, and offer a reasoned evaluation of their force.

To assess whether upper division students are acquiring skills that are crucial for participation in the discipline, including (for example) the ability to recognize relevant counterexamples and to clearly identify implicit (and perhaps problematic) premises and inferences, the department plans to collect at least 50 student papers from a few upper division courses that emphasize argument-assessing skills, rubric-assessed this sample for (1) considering an objection to a philosophical argument and making its relevance clear, and (2) offering a reasoned evaluation of the force of that objection. The CoA recommended approval, recognizing the plan as a productive one, while suggesting that the department look at student data preceding written works to contextualize that data, and defining levels of achievement more explicitly for their two major criteria.

Graduate program (M.A./PhD in Philosophy) (Revised)

PLO: Scholarly Communication - prepare manuscripts that meet the standards of research venues, respond appropriately to scholarly criticism and recommendations for revision, and present papers at conferences in your field of expertise.

To assess graduate students' proficiency collectively in the writing, revision, and oral presentation aspects of their later-stage scholarship in the program, the department plans to evaluate qualifying papers, qualifying oral exams, dissertations, and dissertation oral defenses. The CoA recommended approval, once the program shifted its outcome of focus from "professionalism" to the more apropos scholarly communication outcomes, and adjusted rubric language to focus on evidence rather than student.

<u>Probability & Statistics</u>

Undergraduate program (B.A. in Statistics & Data Science; B.S. in Statistics & Data Science) (Revised)

Core Competencies: quantitative reasoning.

PLO: Demonstrate a working knowledge of the core concepts in probability and statistics. In particular, use basic mathematical skills needed for probability and statistics.

Recognizing that many students struggle with probability theory, with regular faculty feedback that students are not entering upper division courses with appropriate knowledge of this material, the department plans to assess exam questions in a representative sample of 200 students per

year in their lower-division probability course, with rubric criteria focused on understanding of random variables, in particular concepts around expectation and variance, independence and distribution functions. They will additionally a distribute survey to students at the end of this course as well as at the beginning of the subsequent course. The CoA recommended approval, after the program offered clarifying details about which PLO was their focus and what types of exam questions would be targeted, suggesting further that discuss with the assessment team how they are going to capture experiences from students who did not pass this course.

Graduate program (M.A. in Statistics; M.A./PhD in Statistics & Applied Probability) (Revised)

PLO: Scholarly Communication - produce scholarship that is comparable in scope and format to articles, books, and conference papers that appear either in leading peer reviewed venues and presses in the field.

Based on review feedback and inquiries from students that demonstrate a need for students to get involved in research and connected with research advisors) earlier, the department is investigating ways to make that process more structured for the students by analyzing PhD students' annual evaluations, Dissertation defense forms, and committee feedback on advancement exams – as well as student exit surveys and faculty feedback about students they are advising. The CoA recommended approval, once the department defined the characteristics by which they evaluate students' "success" in progressing through the program, noting that the qualitative comments both by faculty (on students' defenses) and by students (on the annual research survey) will be key to garnering relevant data about students' progress relative to the PLO and useful insights about how to alleviate challenges/roadblocks of that progress that may exist in the program.

<u>Teacher Education Program</u>

Graduate program (MEd in Education - Teacher Education Program; MST/SST/ESC Credential in Education - Teacher Education Program) (Approved)

PLO: Pedagogy - engaging all students in learning; planning instruction and designing learning experiences for students.

To monitor how the program is preparing candidates to support diverse learners in their classrooms, the department plans to collect nationally standardized, rubric-assessed edTPA for their multiple/single-subject students and—for all cohorts (MST, SST, and Educational Specialist Credential)— data from supervisor and cooperating teacher fieldwork evaluations. The CoA recommended approval, appreciating both the number of data points included and the exceptionally in-depth analysis of the data within the context(s) of the assessments, as well as the use of this analysis to inform changes to course timing and course content.

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Conclusion

The process established for program learning outcomes review at UC Santa Barbara continues to operate as a very successful faculty-driven, administratively supported effort. We look forward to receiving the assessment plans from Group 3 departments in January 2024, and updates from Group 2 departments in October 2024.

CoA Members, 2023-24

Linda Adler-Kassner (Writing Program/Undergraduate Education), **Co-Chair**

Amanda Brey (Director of Program Review & Accreditation, Associate ALO), **Co-Chair**

Tarek Azzam (Gevirtz Graduate School of Education)

Glenn Beltz (Mechanical Engineering/Associate Dean, College of Engineering)

Tengiz Bibilashvili (Physics, College of Creative Studies)

Norah Dunbar (Communication)

Brice Erickson (Classics)

Mike Gordon (Chemical Engineering)

Rebecca Greer (Library)

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Karen Lohwasser (Education)

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